

## **Section C**

# **Current and Future Water Quality Initiatives**

# Chapter 1 - Current Water Quality Initiatives

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## 1.1 Workshop Summaries

In April 2000, there were three workshops held by DWQ in the Roanoke River basin at Eden, Henderson and Windsor. There were 77 people in attendance representing a variety of interests. Figure C-1 gives an estimation of groups/interests represented based on information recorded on attendance sheets.

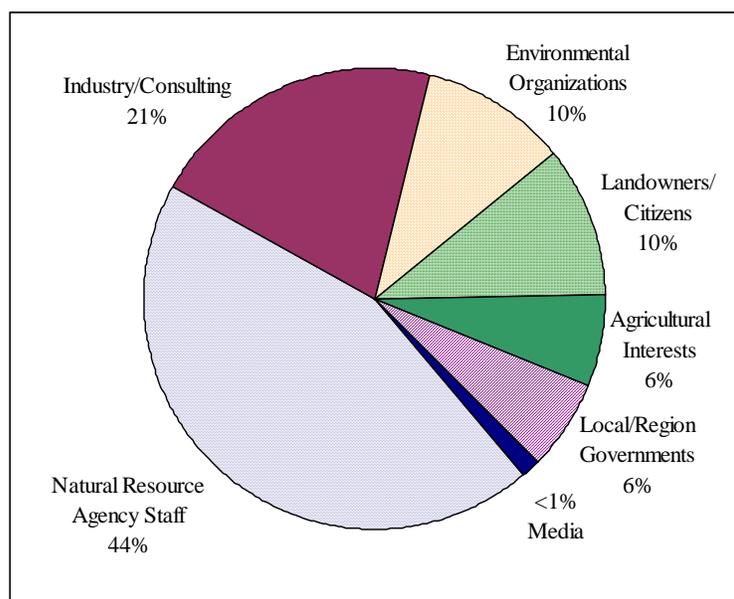


Figure C-1 Percent of Total Attendance by Various Interests at DWQ Water Quality Workshops in the Roanoke River Basin (2000)

DWQ staff gave presentations about general water quality in the Roanoke River basin, basinwide planning and the Wetlands Restoration Program. Participants at each workshop also gave brief presentations about local water quality initiatives. Workshop attendees were asked to discuss the following questions in small groups:

1. What are the main threats to water quality in the Roanoke River basin?
2. Where are the problem areas or waters?
3. What recommendations do you have for addressing these problems/waters?
4. What local agencies or organizations should be involved in addressing the problems?

A detailed outline of each small group's discussion of these questions is available upon request. Good discussion was generated at each workshop, and all of the information was considered, and in some cases incorporated, into this draft plan. The most frequently cited threats to water quality identified by workshop participants are listed below.

## **Important Issues Basinwide**

- Sedimentation
- Nonpoint source pollution (agriculture, urban runoff, silviculture)
- Lack of local planning
- Wastewater treatment (collection system failures, discharges, failing septic systems)
- Water quantity issues (water withdrawals, interbasin transfers, flow management)
- Organic contaminants (PCBs, PBDEs, pesticides)

## **1.2 Federal Initiatives**

### **1.2.1 Clean Water Act – Section 319 Program**

Section 319 of the Clean Water Act provides grant money for nonpoint source demonstration projects. Approximately \$1 million is available annually for demonstration and education projects across the state. Project proposals are reviewed and selected by the North Carolina Nonpoint Source Workgroup, made up of state and federal agencies involved in regulation or research associated with nonpoint source pollution. Information on the North Carolina 319 grant program, including application deadlines and requests for proposals, are available online at <http://h2o.enr.state.nc.us/nps/bigpic.htm>.

There are no projects in the Roanoke River basin that have been funded (federal Section 319 money must be matched with nonfederal dollars) through the Section 319 base program between 1990 and 2000.

### **1.2.2 USDA – NRCS Environmental Quality Improvement Program (EQIP)**

The Environmental Quality Incentives Program provides technical, educational and financial assistance to eligible farmers and ranchers to address soil, water and related natural resource concerns on their lands in an environmentally beneficial and cost-effective manner. The program provides assistance to farmers and ranchers in complying with federal and state environmental laws and encourages environmental enhancement. The purposes of the program are achieved through the implementation of a conservation plan which includes structural, vegetative and land management practices on eligible land. Five to ten-year contracts are made with eligible producers. Cost share payments may be made to implement one or more eligible structural or vegetative practices, such as animal waste management facilities, terraces, filter strips, tree planting and permanent wildlife habitat. Incentive payments can be made to implement one or more land management practices, such as nutrient management, pest management and grazing land management.

Fifty percent of the funding available for this program will be targeted at natural resource concerns relating to livestock production. The program is carried out primarily in priority areas that may be watersheds, regions or multistate areas, and for significant statewide natural resource concerns that are outside of geographic priority areas. Northampton, Bertie, Hertford and Gates counties make up the Roanoke/Chowan EQIP Priority Area (2000). EQIP's authorized budget of \$1.3 billion is prorated at \$200 million per year through the year 2002.

NRCS district contacts for the Roanoke River basin are included on the nonpoint source contact sheet found in Appendix VI or visit the website at <http://www.nc.nrcs.usda.gov/Programs/eqip.htm> for more information.

### **1.2.3 US Fish and Wildlife Service - Roanoke River National Wildlife Refuge**

The US Fish and Wildlife Service (FWS) is the only agency of the US Government whose primary responsibility is fish, wildlife and plant conservation. The service helps protect a healthy environment for people, fish and wildlife and helps Americans conserve and enjoy the outdoors and our living treasures. The service's major responsibilities are for migratory birds, endangered species, certain marine mammals, and freshwater and anadromous fish.

The Roanoke River National Wildlife Refuge includes forested wetlands in the lower 130 miles of the Roanoke River from the fall line at Weldon, NC downstream to the Albemarle Sound near Plymouth, NC. The 130-river miles encompass approximately 150,000 acres (235 sq. mi.) of which 33,000 acres are in the refuge acquisition boundary. Figure C-2 in Part 1.5.2 of this Section depicts these and other conservation lands in the lower Roanoke River basin.

#### **Wetland Restoration and Protection**

The refuge includes part of an extensive wetland ecosystem that contains excellent examples of several southeastern plant communities and habitat types. The refuge includes some of the more valuable wetlands for fish and wildlife, especially waterfowl, neotropical migratory birds and anadromous fish. Preliminary planning with the US Corps of Engineers regarding 5,000 acres of wetland restoration is also underway.

#### **Fish Studies**

In partnership with Dominion, NC Wildlife Resources Commission, National Marine Fisheries, NC Division of Marine Fisheries, and other divisions within the FWS, the refuge has been actively studying the use of the Roanoke River floodplain by anadromous fish species. The purpose of this study was to learn the extent to which these fish rely on the floodplain for spawning habitat and the effect that widely varying flows have on the success of spawning. The study found that hickory shad and blueback herring utilize the floodplain for spawning and nursery habitat.

#### **Wildlife Surveys**

Neotropical and resident bird species surveys were conducted during the spring and summer along established transects on the Roanoke River floodplain by the Fish and Wildlife Cooperative Extension Unit at NC State University. Refuge staff continue to monitor bird populations each spring on refuge lands at 40 established natural river levee sites. Additionally, waterfowl surveys by air are carried out each winter by FWS and state biologists to estimate numbers and species composition of wintering waterfowl at the mouth of the Roanoke River and Albemarle Sound.

## **Osprey Population Tracking**

To monitor productivity of ospreys nesting near the Albemarle Sound and to better understand where the North Carolina population winters in South America, osprey chicks have been banded for the past four years.

Activities permitted inside the refuge are fishing, boating, hiking, photography, wildlife observation and hunting. The refuge is most easily accessed by boat. Conine Island is the only tract accessible by land. Due to the intermittent ridges and swales found within the vast floodplain, incomplete acquisition and erratic river flows, access by vehicle is restricted.

## **Comprehensive Conservation Planning**

The US Fish and Wildlife Service is developing a management plan for the Roanoke River National Wildlife Refuge. This Comprehensive Conservation Plan is required by the National Wildlife Refuge System Improvement Act of 1997. The plan considers both land uses and management practices on the refuge. Public input, from those who use or are affected by the refuge, is currently being solicited and that input will be used to develop alternatives to current land uses and management practices.

The plans will focus on the management of habitat to support the wildlife species for which the refuge was established. They will also address public use, law enforcement, land protection, maintenance and staffing. The plan will project refuge activities for 15 years.

For additional information about this unit of the National Wildlife Refuge System, visit the website at <http://southeast.fws.gov/wildlife/nwrroa.html>. You may also contact refuge staff by calling (252) 794-3808 or by email [roanokeriver@fws.gov](mailto:roanokeriver@fws.gov).

## **1.3 State Initiatives**

### **1.3.1 Albemarle-Pamlico National Estuary Program**

The Albemarle-Pamlico National Estuary Program (APNEP), formerly known as the Albemarle-Pamlico Estuarine Study (APES), was among the first National Estuary Programs established by the EPA in 1987. The mission of the APNEP is to identify, restore and protect the significant resources of the Albemarle-Pamlico estuarine system. Unlike traditional regulatory approaches to environmental protection, the APNEP is a cooperative effort jointly sponsored by DENR and the EPA that targets a broad range of issues and engages local communities in the process.

The program focuses not just on improving water quality in the region's estuaries, but on maintaining the integrity of the whole system -- its chemical, physical and biological properties, as well as its economic, recreational and aesthetic values. Important components of the APNEP are the consideration of water quality, fisheries resources, land and water habitats, and the interaction of humans with the natural resources of the estuarine system. The APNEP is designed to encourage local communities to take responsibility for managing the resources in their respective jurisdictions.

## **Comprehensive Conservation and Management Plan**

Since 1987, research generated by the APNEP has been instrumental to the development of a Comprehensive Conservation and Management Plan (CCMP). This plan is composed of recommendations for management strategies that address concerns in the Albemarle-Pamlico Sounds region and to protect the system's estuarine resources.

During the development of the CCMP, the APNEP was guided by a 95-member Management Conference that represented diverse interests. Four committees were responsible for identifying problems in the estuarine system, generating research where gaps in knowledge existed, increasing public awareness of environmental issues, and finding solutions to address those issues. As a result of these efforts, more is known about the Albemarle-Pamlico estuarine system than ever before.

One of the recommendations of the CCMP was to develop regional councils in each of the five major river basins of the Albemarle-Pamlico watershed for the purpose of fostering public input into the APNEP program. In 1995, an Executive Order was issued by the Governor of North Carolina calling for the creation of these regional councils. The Roanoke River Basin Regional Council is highlighted below.

Currently, the APNEP is administered and staffed by DWQ; however, staff works closely with the EPA's Office of Water to implement the many objectives and key management actions contained in the APNEP's CCMP.

### ***CCMP Development Involved Diverse Interests Including:***

- Federal and state government
- University researchers
- Environmental groups
- Agriculture representatives
- Forestry interests
- Industry representatives
- Developers
- Fishermen
- Local elected officials

## **Roanoke River Basin Regional Council**

Each regional council is comprised of elected and appointed county and municipal officials, representatives from agriculture, silviculture, commercial and recreational fishing, conservation, environmental science, business/industry and tourism groups. Each council is charged with identifying and implementing a project that utilizes innovative or unique management strategies to address a priority watershed problem. Regional councils provide a forum for public, special interest and local government involvement in the APNEP.

The Roanoke River Basin Regional Council (RRBRC) met eight times in 1998 and 1999 and continues to meet in 2000. Recent meeting information is available from the APNEP website at [http://h2o.enr.state.nc.us/nep/roanoke\\_regional\\_council.htm](http://h2o.enr.state.nc.us/nep/roanoke_regional_council.htm). Highlights of accomplishments thus far include:

- Generated widespread local support for a resolution recommending Congressional funding for an Army Corps of Engineers Section 216 Scoping Study to evaluate flow modifications for the John H. Kerr Reservoir system and to reevaluate operation of the project.

- The development and ongoing implementation of a demonstration project to rehabilitate and permanently protect degraded riparian land along the Roanoke River through cattle exclusion, planting of hardwood seedlings, and plans for rotational grazing.
- Initiated cooperative action by DENR and the Department of Corrections to address cattle impacts (similar to those being corrected by the demonstration project) at the Caledonia Prison Farm in Halifax County and the Odom Prison in Northampton County.
- Presentations at Coordinating Council meetings, the 1998 APNEP Public Forum, and DWQ's Roanoke River basin water quality workshop in Windsor.
- The development of a two-year Program of Work, which identified several issues of concern in the basin including: 1) negative impacts of managed flows that do not match seasonal patterns of rainfall; 2) low dissolved oxygen; 3) nutrient loads and sediment impacts; 4) problems with small wastewater treatment facilities; and 5) landowner rights and responsibilities.

For more information regarding the Albemarle-Pamlico National Estuary Program, contact Guy Stefanski by calling (919) 733-5083 ext. 585, email [guy.stefanski@ncmail.net](mailto:guy.stefanski@ncmail.net) or visit the website at <http://h2o.enr.state.nc.us/nep/>.

### **1.3.2 NC Wetlands Restoration Program**

The North Carolina Wetlands Restoration Program (NCWRP) is a nonregulatory program responsible for implementing wetland and stream restoration projects throughout the state. The focus of the program is to improve water quality, flood prevention, fisheries, wildlife habitat and recreational opportunities. The NCWRP is not a grant program. Instead, the program funds wetland, stream and riparian area projects directly through the Wetlands Restoration Fund.

Restoration sites are targeted through the use and development of the Watershed Restoration Plans (formerly called Basinwide Wetland and Riparian Restoration Plans). These plans are developed, in part, using information compiled in DWQ's Basinwide Water Quality Plans. The Watershed Restoration Plans are updated every five years on the same schedule as DWQ's Basinwide Water Quality Plans.

The NCWRP is also working to develop comprehensive Local Watershed Restoration Plans within the identified Priority Subbasins. These more locally-based plans will identify wetland areas, contiguous reaches of stream, and contiguous strips of buffer vegetation that, once restored, will provide significant water quality and other environmental benefits to watersheds. The NCWRP will coordinate with local community groups, local governments and others to develop and implement these plans.

The NCWRP can perform restoration projects cooperatively with other state or federal programs or environmental groups. For example, the NCWRP's efforts can complement projects funded through the Section 319 Program. Integrating wetlands or riparian area restoration components with 319 funded or proposed projects will often improve the overall water quality benefits of the project. The NCWRP actively seeks landowners within the Roanoke River basin who have restorable wetland, riparian and stream sites.

Table C-1 lists the NCWRP’s targeted Local Watersheds in the Roanoke River basin. Further details about these watersheds are provided in the appropriate subbasin chapter in Section B.

Table C-1 Wetlands Restoration Program Targeted Local Watersheds (2000)

Subbasin	Targeted Local Watershed Name(s)	Targeted Local Watershed Number(s)*
03-02-01	Town Fork Creek Snow Creek Belews Creek	90010 & 90020 80010 80040
03-02-02	Big Beaver Island Creek	20010
03-02-04	Country Line Creek	32010 & 32030
03-02-06	Grassy Creek	61010
03-02-07	Smith Creek	31010
03-02-08	Chockoyette Creek Quankey Creek Conoconnara Swamp	70010 & 70020 70030 90010 & 90020
03-02-09	Hardison Mill Creek Deep Run Swamp	40010 50010
03-02-10	Cashie River Headwaters	60010

\* The numbers listed are the last five digits of the 14-digit Hydrologic Unit (HU) for each Local Watershed.

For more information about participating in the NCWRP, please contact Crystal Braswell at (919) 733-5208 or visit the DWQ website at <http://h2o.enr.state.nc.us/> (click on Wetlands Restoration Program).

### 1.3.3 Clean Water Management Trust Fund

The Clean Water Management Trust Fund offers approximately \$40 million annually in grants for projects within the broadly focused areas of restoring and protecting state surface waters and establishing a network of riparian buffers and greenways. In the Roanoke River basin, four projects have been funded for a total of \$2,920,000 (Table C-2).

Table C-2 Projects in the Roanoke River Basin Funded by the Clean Water Management Trust Fund (as of 7/00)

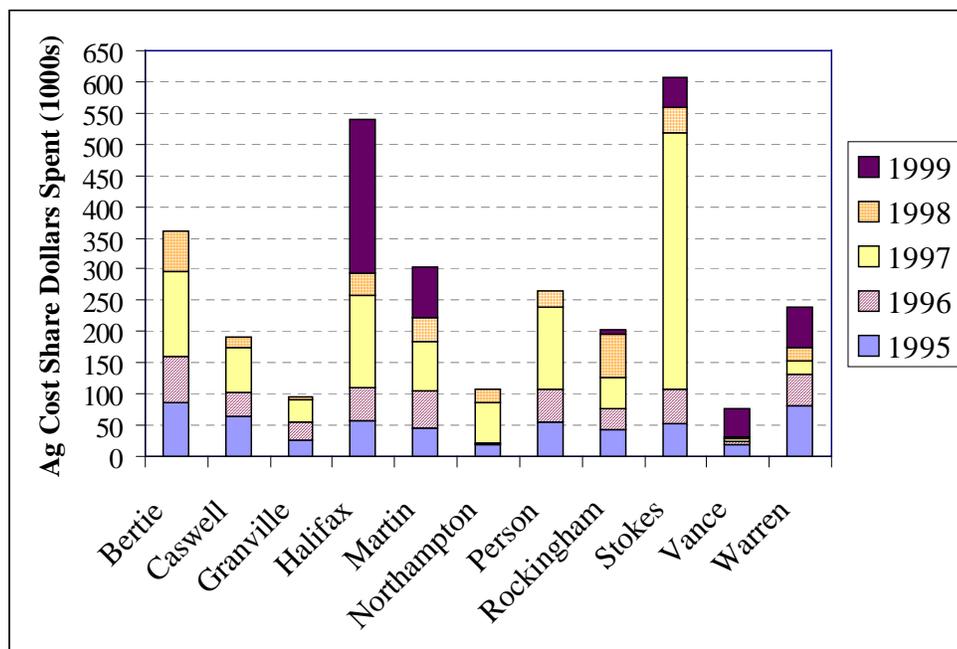
Stream or Watershed	Project	Project Lead	Amount Funded
Dan River	Land Acquisition – Buffers	Piedmont Land Conservancy	\$642,000
Conaby Creek and Roanoke River	Stormwater Improvements	Town of Plymouth	\$835,000
Mayo River	Wastewater Improvements	Town of Stoneville	\$643,000
Gills Creek	Wastewater Improvements	Town of Stovall	\$800,000

For more information on the CWMTF or these grants, call (252) 830-3222 or visit the website at [www.cwmtf.net](http://www.cwmtf.net).

### 1.3.4 NC Agriculture Cost Share Program

The North Carolina Agriculture Cost Share Program was established in 1984 to help reduce the sources of agricultural nonpoint source pollution to the state’s waters. The program helps owners and renters of established agricultural operations improve their on-farm management by using Best Management Practices (BMPs). These BMPs include vegetative, structural or management systems that can improve the efficiency of farming operations while reducing the potential for surface and ground water pollution. The Agriculture Cost Share Program is a voluntary program that reimburses farmers up to 75 percent of the cost of installing an approved BMP. The cost share funds are paid to the farmer once the planned control measures and technical specifications are completed. The annual statewide budget for BMP cost sharing is approximately 6.9 million.

Almost three million dollars were expended in the Roanoke River basin from 1995 through 1999 on a wide variety of nonpoint source pollution reduction projects. Figure C-2 presents Agriculture Cost Share Program dollars (in thousands) spent over the five-year period for each county in the North Carolina portion of the basin.



Note: 1999 data was not available for Bertie, Caswell, Granville, Northampton or Person counties.

Figure C-2 Agriculture Cost Share Program Dollars Expended (1995-1999) in Counties in the Roanoke River Basin (Source: NC Division of Soil and Water Conservation)

Soil and Water Conservation District contacts for the Roanoke River basin are included in Appendix VI or visit the website at <http://www.enr.state.nc.us/DSWC/files/acs.htm> for more information.

### **1.3.5 Coastal Habitat Protection Plans**

The North Carolina Fisheries Reform Act of 1997 requires the North Carolina Department of Environment and Natural Resources to prepare Coastal Habitat Protection Plans (CHPPs) for the "long-term enhancement of coastal fisheries associated with each coastal habitat...." The plans describe the fisheries, fishery habitats and water quality affecting coastal fisheries stocks in the eight river basins that drain to the coast of North Carolina. Although staff of the Division of Marine Fisheries (DMF) is responsible for actually writing the plans, DWQ and the Wildlife Resources Commission, as well as the Divisions of Coastal Management (DCM) and Environmental Health (DEH), are heavily involved in the program. The Environmental Management, Coastal Resources and Marine Fisheries Commissions review and approve the plans, and those commissions are responsible for any new rules necessary for implementation of the plans.

The plans are organized by geographic area, with 11 management units, including the Roanoke River basin, that generally correspond with the DWQ Basinwide Planning Program units. A general source document includes regional and summary information. The management unit plans are specific to their areas, including detailed information and specific recommendations addressing conservation, habitat protection and enhancement, water quality improvement, research and monitoring, and administrative actions. A complete plan includes both the source document and the management unit plan. The first two area plans are underway in 2001: Chowan and Coastal Ocean. All CHPPs will be finalized by July 2003, then reviewed and updated every five years.

For additional information about CHPPs, contact Mike Street by calling 1-800-682-2632 (in NC) or by e-mail at [mike.street@ncmail.net](mailto:mike.street@ncmail.net). You may also visit the DMF website at <http://www.ncfisheries.net/habitat/chpp1.htm>.

### **1.3.6 Virginia Department of Environmental Quality**

Virginia Department of Environmental Quality (DEQ) administers the federal Clean Water Act and enforces state laws to improve the quality of Virginia's streams, rivers, bays and groundwater for aquatic life, human health and other water uses. With methods similar to those used in North Carolina, permits are issued to businesses, industries, local governments and individuals that take into account physical, chemical and biological standards for water quality. Water programs address: pollution discharges, stormwater management, groundwater, petroleum tank vessels and storage tanks, surface water, land application of treated wastes, and dredged material.

For VADEQ program and contact information, call (804) 698-4000 or toll-free in Virginia (800) 592-5482 or visit the website at <http://www.deq.state.va.us/water/>.

### **1.3.7 Partnership for the Sounds**

The Partnership for the Sounds (PFS) promotes eco-tourism in the Albemarle-Pamlico region. Educational centers offer displays, exhibits, audio-visual components, hands-on activities, group programs and more, complemented by outdoor field trip opportunities in close proximity. The

new Roanoke/Cashie River Center, which promotes environmental education about the Roanoke and Cashie Rivers, is the result of the cooperative efforts of the US Fish and Wildlife Service, the Partnership for the Sounds and the Town of Windsor.

For additional information about Partnership for the Sounds or the Roanoke/Cashie River Center, call (252) 974-1044 or visit the website at <http://albemarle-nc.com/pfs/>.

## **1.4 Local Initiatives**

### **1.4.1 Town of Windsor**

#### **Cashie River Wetlands Walk**

The Cashie River winds through Bertie County for more than 20 miles, beginning and ending within the county boundaries. The river has a depth of 80 feet in places. It provides a spawning area for herring, shad and striped bass and supports game fish including redbfin, pickerel, sunfish, crappie, catfish and largemouth bass. The continuous riparian areas along the river provide productive habitat and important travel corridors for wildlife.

The wetlands environment along the Cashie River are made available to the public by the Cashie River Wetlands Walk. A pedestrian bridge provides handicap access by boardwalk to the swamp floor and allows the visitor to experience the wetlands first hand. The boardwalk winds through bald cypress and water tupelos. An observation deck allows visitors to experience the wetlands at different seasons of the year. Canoe or small boat launch piers provide access to several miles of the Cashie River and river bottom ecosystem.

For additional information about the Cashie River Wetlands Walk, visit the website at <http://www.albemarle-nc.com/windsor/attractn/wetwalk.htm>.

## **1.5 Regional Organizations**

### **1.5.1 Roanoke River Basin Association**

The Roanoke River Basin Association (RRBA) is a nonprofit, 501(c)(3) tax-exempt organization whose mission is to establish and carry out a strategy for the development, use, preservation and enhancement of the resources of the Roanoke River basin in the best interest of present and future generations of basin residents. RRBA believes that basin resource conservation can co-exist with managed economic growth.

RRBA consists of hundreds of members, mostly located within the basin of the 410-mile long Roanoke River, including local governments, nonprofit, civic and community organizations, regional government entities, businesses and individuals. The RRBA:

- Works for a comprehensive planning process for managing the flow of the Roanoke River and for allocating the basin's valuable resources.
- Educates basin residents and others about the resources of the Roanoke River basin.

- Publishes a monthly newsletter, *Basin Bulletin*, for its supporters and constituents.
- Fought for over 20 years in an effort to prevent the City of Virginia Beach from diverting water from the Roanoke River at Lake Gaston.
- Participates in the Roanoke Rapids and Gaston Hydropower Relicensing Project in order to protect the interests of basin residents and businesses.
- Monitors non-basin municipalities in North Carolina and Virginia who might seek an interbasin transfer of water out of the Roanoke River basin.
- Monitors activities that might negatively impact the quality of the water resources.
- Recently urged Charlotte and Halifax counties, Virginia to adopt reasonable restrictions on swine operations in order to prevent negative impacts to the Roanoke River.
- Monitored (and continues to monitor) and reported on the impact of the PCB contamination in the Roanoke (Staunton) River, and encouraged Virginia Department of Environmental Quality to plan for remediation of that contamination. RRBA also encouraged an interim health advisory relative to the consumption of large, non-migratory, bottom-feeding fish in areas of PCB contamination and ensured that DWQ was provided information related to this contamination.
- Promotes and helps to fund recreational and safety facilities in the basin.
- Mobilized support for North Carolina's "Year of the Rivers" Highway Sign Program which, when implemented, will mark the perimeter of the Roanoke River basin with identifying highway signs.

For additional information about the Roanoke River Basin Association, visit the website at <http://www.rrba.org>. You may also contact Executive Director, Tom Brawner by calling (804) 577-2159 or by email [info@rrba.org](mailto:info@rrba.org).

### **1.5.2 The Nature Conservancy**

The Nature Conservancy (TNC) is a nonprofit membership corporation whose mission is to preserve the plants, animals, and natural communities that represent the diversity of life on earth by protecting the lands and waters they need to survive. TNC's goal is the long-term survival of all viable native species and natural community types (terrestrial and aquatic).

TNC designated the lower Roanoke River and floodplain as one of the "Last Great Places", a program designed to protect 75 of the nation's most biologically important ecosystems and natural communities. Working with public and private partners, the TNC-North Carolina Chapter has invested over \$20 million in the conservation of the lower Roanoke River. As a result, more than 55,000 acres are in conservation ownership among TNC, US Fish and Wildlife Service, North Carolina Wildlife Resources Commission, the Georgia-Pacific/TNC Roanoke Ecosystem Partnership (refer to Part 1.6.1 for further information), and others (Figure C-2). TNC retains fee or conservation easement ownership over about 18,000 acres in the floodplain of the lower Roanoke River; however, all 55,000 acres were acquired with the TNC-North Carolina Chapter's participation. A local office to manage conservation lands on the Lower Roanoke was established in 1995. Two chapter employees are located in Windsor, NC to work with other conservation partners to ensure the long-term viability of these lands.



## **Reservoir Operations Model**

TNC, the NC Division of Water Resources (DWR), and Water Resources Management, Inc. have been working together for four years to develop a Reservoir Operations Model for the Roanoke River basin. This model uses more than 60 years of unregulated (natural) inflow data for each of the five major reservoirs in the system along with the management policies provided by their managers. The model predicts hydroelectric generation and the flow in the river below Roanoke Rapids Dam on either a weekly or daily basis. The components of the management policies that can be adjusted are: 1) the releases from the reservoirs for flood control or flow augmentation; 2) desired lake levels through the year; and 3) upper and lower limitations on power generation. The management policies in place today constitute a baseline against which other policies can be compared to answer "what if" questions concerning the operation of the reservoirs.

The model is currently being upgraded to permit the evaluation of increasingly sophisticated management policies including the ability to forecast inflows on the basis of the climate record and to use such forecasts in operational decisions, a drought index to trigger changes in operations during times of very low flows, policies based on the biological state of the system, and policies that manage high as well as low flows for environmental purposes. The plan is to provide a Windows 95 [trademark] graphical user interface and to make the model available over the internet for access by any interested party.

## **Adaptive Management Partnership**

TNC is currently advocating an Adaptive Management Partnership for the Roanoke River that would represent all of the major stakeholders along the river, including institutions with regulatory authority over natural resources, major landholders, major associations of landowners and recreation users, major industries and local governments. The goal of the partnership is to optimize management of the river for the benefit of the people, ecosystems and economies they affect.

For additional information about The Nature Conservancy's initiatives in the Roanoke River basin, contact Jeffrey Horton at the Roanoke River Project Office by calling (252) 794-1818 or by email [jhorton@tnc.org](mailto:jhorton@tnc.org).

### **1.5.3 Piedmont Land Conservancy**

The Piedmont Land Conservancy (PLC) is a nonprofit organization dedicated to preserving natural and scenic lands, farms and open spaces in the piedmont of North Carolina to enrich the quality of life for our communities and for future generations. The PLC represents nine North Carolina counties: Alamance, Caswell, Forsyth, Guilford, Randolph, Rockingham, Stokes, Surry and Yadkin. PLC strives toward the following goals:

- To acquire and manage natural areas in piedmont North Carolina.
- To protect endangered or significant native species of flora and fauna and to preserve areas with significant topographical features.
- To maintain the ecological integrity of the region, including its air and water quality and biological diversity.

- To fulfill the human need for scenic land and open space to provide opportunities for learning from and enjoying the natural world.
- To enhance and buffer our communities.

PLC is not affiliated with any other organization and is supported entirely by members and friends in the piedmont and has more than 600 members. It is the only local land trust serving the Piedmont Triad region of North Carolina. PLC builds partnerships with public agencies, private organizations, landowners and individuals to save the best of our natural heritage. Since incorporation, the PLC has protected over 490 acres of land.

### **River Corridors**

To protect the quality of drinking water supplies, provide recreational opportunities and to protect wildlife habitat, the PLC is targeting several major river corridors in the piedmont for protection, including the Dan, Mayo, Yadkin and Haw Rivers. In 1998, the Piedmont Land Conservancy received a \$642,000 Clean Water Management Trust Fund grant to purchase riparian buffer areas along the Dan River.

Additionally, PLC conducted a study of riparian land use and condition of riparian areas along the Dan River in Stokes County. The resultant plan entitled *Riparian Corridor Conservation Design for the Upper Dan River Basin* recommends protection and restoration strategies for public and private lands within 300 feet of the Dan River in Stokes County (Bridle, May 2000).

### **Bog Turtle Habitat Restoration**

The PLC is working together with more than 10 public and private partners to restore and protect 26 acres in Forsyth County of wetland habitat for the bog turtle. The bog turtle, weighing only 4 ounces, is one of the rarest turtle species in North America and is a state threatened species in North Carolina. Preferring mountain bog habitat, bog turtles are rare in the piedmont because most bogs have been drained for agricultural use. PLC is also working with Duke Power Company on bog turtle habitat restoration.

For additional information about the Piedmont Land Conservancy, call (910) 691-0088 or email [plcland@concentric.net](mailto:plcland@concentric.net). You may also visit the website at <http://www.greensboro.com/plc/>.

## **1.6 Corporate Initiatives**

### **1.6.1 Georgia-Pacific Corporation**

Georgia-Pacific and The Nature Conservancy have entered into a land management agreement covering 21,000 acres of floodplain wetlands along the lower Roanoke and Cashie Rivers in North Carolina. These seven tracts of northeastern North Carolina land included in the Roanoke agreement contain high quality examples of cypress trees and other trees that naturally occur in a brownwater ecosystem. This area is also home to extensive wildlife, such as bald eagles and more than 200 other species of birds. Representatives from the US Fish and Wildlife Service and scientists from North Carolina State University are also members of the management team.

Some tracts of the 21,000 acres will be deemed high priority because of their special ecosystems. On these lands, Georgia-Pacific has agreed to relinquish its timber harvesting rights. On other tracts, timber harvesting will take place, following methods agreed to by the joint management team. Georgia-Pacific was the first forest products company to attempt statewide protection of significant natural areas in its ownership. These lands are shown on Figure C-2 in Part 1.5.2 of this section.

## **1.7 Citizen Efforts**

### **1.7.1 Rockingham County Watershed Preservation Coalition, Inc.**

Beginning in 1996, citizens in and around Rockingham County, NC formed the Rockingham County Watershed Preservation Coalition (RCWPC) to protect their rivers, watersheds and groundwater. The Coalition's accomplishments thus far include:

- Informed citizens and petitioned against NCDOT's planned closing of the Mayo Loop Road alongside of the Mayo River at Anglin Mill. If this road right-of-way had been lost, public access to this section of the Mayo River would have been eliminated. Due to this effort, DOT completely rebuilt the road.
- Adopted the Mayo Beach Road for cleanup under NCDOT's Adopt-a-Highway Program.
- Worked with Piedmont Land Conservancy board members, landowners and the Rockingham County Planning Department to gain approval to build (and maintain) two canoe access sites on the Mayo River.
- Formed the Mayo Association, an umbrella group of organizations and individuals dedicated to creating a park at the Anglin Mill site.
- Providing an informative, up-to-date website that links citizens to RCWPC and to resources and information that is relevant to conservation work.
- Through these avenues and projects, provided a heightened sense of awareness of aquatic resources and the importance of conservation.
- Joined NC Division of Water Resources' Stream Watch program.

For more information about the Rockingham County Watershed Prevention Coalition, email [RCWPC@vnet.net](mailto:RCWPC@vnet.net) or visit the website at <http://www.geocities.com/Yosemite/Rapids/4604/>.

### **1.7.2 Roanoke River Partners**

Roanoke River Partners is a nonprofit organization, which helps communities along the lower Roanoke River to improve economic, environmental and social health. Specifically, the partners promote small businesses and facilitate community and regional projects which highlight and sustainably utilize the unique natural, historic and cultural resources found in the region.

One of Roanoke River Partners' main goals is to explore the potential of heritage tourism in the region. Heritage tourism is defined as historic, cultural or nature-based tourism which is educational and strives to honor and protect the resources which it uses. Examples might include a tour of local farms or a 3-day canoe trip for bird watchers through swamp forests.

Current projects include the creation of a 200-mile canoe camping trail on the Roanoke River and its tributaries. Such a trail will allow for the creation of local eco-tourism businesses such as canoe guiding services, canoe rentals, bed and breakfasts, etc.

For more information about the Roanoke River Partners, contact Crystal Baity by calling (252) 794-2793, email [rrp@coastalnet.com](mailto:rrp@coastalnet.com), or visit the website at [www.roanokeriver.com/partners](http://www.roanokeriver.com/partners).