Section C

Current and Future Water Quality Initiatives

Chapter 1 -
Current Water Quality Initiatives

1.1 Workshop Summaries

One workshop was held in the Hiwassee River basin in Murphy on October 17, 2000. There were 18 people in attendance representing a variety of interests. Figure C-1 gives an estimation of groups/interests represented based on information recorded by participants on attendance sheets.

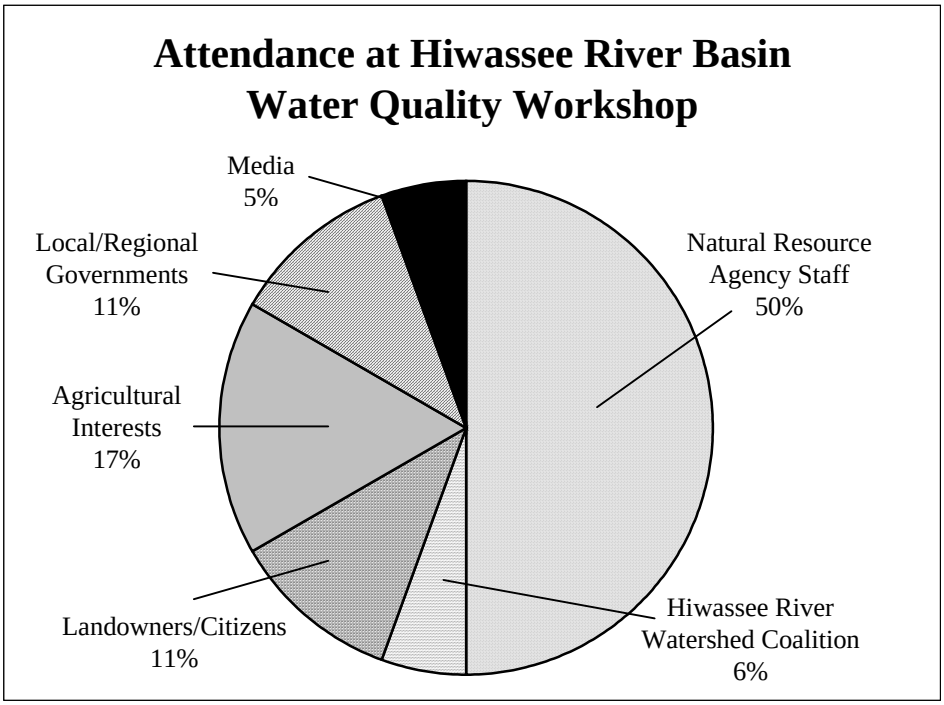

Figure C-1 Percent of Total Attendance by Various Interests at DWQ Water Quality Workshops in the Hiwassee River Basin (2000)

DWQ staff gave presentations about general water quality in the Hiwassee 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:

1. What are the main threats to water quality in the Hiwassee 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 discussion of these questions is provided in Appendix V.

Important Issues Basinwide

The most frequently cited threats to water quality identified by workshop participants were:

- Sedimentation (variety of sources)
- Nonpoint source pollution (agriculture, silviculture and urban runoff)
- Development
- Septic tanks and construction in floodplains
- Lack of public education regarding impacts to water quality and regulations

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, is available online at http://h2o.enr.state.nc.us/nps/bigpic.htm.

The Hiwassee River Watershed Coalition and the Hiwassee River Nonpoint Source Team were partially funded (federal Section 319 money must be matched with nonfederal dollars) through the Section 319 base program between 1990 and 2000. The Southwestern Resource Conservation and Development Council, Inc. (RC&D), in cooperation with multiple partners that include the Hiwassee River Watershed Coalition, the Natural Resources Conservation Service (NRCS), and the Clay and Cherokee Soil and Water Conservation Districts, was granted $100,000 for demonstration projects to reduce nonpoint source pollution in the Town Creek and Little Brasstown Creek watersheds in 1998. A primary objective of this grant request was to involve many local individuals and agencies to promote effective and permanent conservation solutions for all riparian areas in the Hiwassee River basin.

NPS Demonstration Projects – Town Creek and Little Brasstown Creek Watersheds

The overall objective of this project is to demonstrate the whole watershed approach for implementing Best Management Practices (BMPs) aimed at minimizing several types of erosion to reduce sedimentation. The following BMPs were proposed for the Town Creek watershed:

- Streambank stabilization
  - ⇒ Stabilize at least 600 feet of streambank at a Clay County park and the Neal Cabe farm
  - ⇒ Exclude livestock on three private farms
- Control of urban runoff
  - ⇒ Install drop structure and pipe at Clay County park
  - ⇒ Repair gully behind school bus garage and control runoff from parking area and driveway on Clay County schools property

⇒ Repair gullies and possible construction of infiltration basin along main road on private property
⇒ Restore wetlands for educational opportunities behind Clay County school

- Stabilization of critical eroding upland areas on a total of seven acres involving Clay County and NC Department of Transportation property

The following BMPs were proposed for the Little Brasstown Creek watershed:

- Installation of grazing land demonstration project
- Streambank stabilization
  ⇒ Identify and restore the most eroded streambanks (at least 1,000 feet watershed-wide)
  ⇒ Determine innovative approaches for stabilization including bioengineering alternatives
- Upland erosion reduction from existing land uses
- Wildlife habitat and food source enhancement
- Education for local residents about streambank protection
- Coordination with the NC Department of Transportation to stabilize eroding road grades and roadside ditches throughout the watershed.

As of December 2000, approximately 75 percent of the work outlined above had been implemented. Most of the remaining work is in the Little Brasstown Creek watershed.

1.2.2 USDA – NRCS Environmental Quality Incentives Program (EQIP)

Authorized in the 1996 farm bill, the Environmental Quality Incentives Program (EQIP) provides technical assistance, cost share payments, incentive payments and education to producers to address a broad range of soil, water, air, wildlife and related natural resource concerns. This voluntary program provides assistance to farmers in complying with federal and state environmental laws and encourages environmental enhancement. Local workgroups, convened by individual Soil and Water Conservation Districts, identify the specific resource concerns to be addressed, set priority area goals, select cost share practices, establish ranking criteria for evaluating applications, and set their own schedule for approving applications.

In 2001, North Carolina had $3,689,400 available for cost sharing on installation of best management practices and educational assistance to producers. At least half of this funding is targeted to improving livestock operations. NRCS district contacts for the Hiwassee 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.

1.2.3 Tennessee Valley Authority

The quality of the water in the Tennessee River system affects not only the people who live in the valley, but also business and industry and the entire ecosystem's plant and animal life. In managing the watershed, the Tennessee Valley Authority (TVA) uses an integrated method that balances water quality with the other demands on the system.

Reservoir Ratings

TVA rates the condition of each reservoir based on five ecological indicators: algae, dissolved oxygen, fish, benthic macroinvertebrates and sediment.

Fish Populations

TVA and state agencies issue sport fishing ratings of the region's reservoirs, indicating the availability of important sport species. TVA's annual Catch Depletion Survey monitors the size and health of bass populations in 19 reservoirs.

Clean Water

TVA works with other agencies, communities and industries to improve water quality. Through its Clean Water Initiative, which began in 1992, TVA builds partnerships with community residents, businesses and government agencies to promote watershed protection. TVA's Watershed Teams are responsible for carrying out the program. They focus on improving water and shoreline conditions so that people and aquatic life can benefit from having clean water.

Among other accomplishments, these community coalitions have:

- Instituted agricultural and urban management practices that reduce water pollution.
- Treated eroded land and stabilized streambanks.
- Planted vegetation and installed structures intended to improve aquatic habitat.
- Collected waste and litter from streambanks and shores.

TVA's Clean Water Initiative served as a model for the development of the national Clean Water Action Plan announced by the Clinton-Gore administration in 1998. TVA was actively involved in developing the plan, which is designed to protect public health and restore the nation's waterways by helping communities form partnerships to address water quality problems.

Clean Marinas and Clean Boating

TVA's Tennessee Valley Clean Marina Initiative certifies marinas that are in compliance with pollution control standards. TVA is also an active participant in the national Clean Boating Campaign, helping educate boating enthusiasts and marina operators in practices that reduce pollution and erosion on the waterways.

Aiding Aquatic Life during Hydropower Production

Two conditions arising from hydropower production are harmful to fish and other forms of aquatic life: low levels of dissolved oxygen in the area just below a dam (called tailwater), and dry streambeds that sometimes result when hydro-generation is off.

In 1991, TVA undertook a $50 million tailwater improvements program to tackle these problems. It committed to providing minimum flows through all its dams, and it devised various

aeration methods to increase oxygen in the water. Studies show that the program has improved conditions for aquatic life in more than 300 miles of river and has resulted in a dramatic increase in tailwater fishing, which aids local economies.

For further information about TVA water quality programs in the Hiwassee River basin, contact Watershed Team member Rebecca Hayden by calling (423) 751-4266 or by email rlhayden@tva.gov. You may also visit the website at http://www.tva.gov/environment/water/.

1.3 State Initiatives

1.3.1 Clean Water Management Trust Fund

The Clean Water Management Trust Fund (CWMTF) 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 Hiwassee River basin, one project has been funded for a total of $2.1 million. Refer to page 86 for details about this grant.

For more information on the CWMTF, contact Beth McGee by calling (919) 363-8257 or by email beth.mcgee@ncmail.net. You may also visit the website at http://www.cwmtf.net/.

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 major goal of the NCWRP is to restore or improve the vital functions provided by wetlands, streams and riparian buffer zones within the context of local watershed management and overall aquatic ecosystem health. These vital functions include water quality protection, erosion control, flood prevention, fisheries and wildlife habitat, and recreational opportunities. The NCWRP is not a grant program. Instead, it funds wetland, stream and riparian zone projects directly through the Wetlands Restoration Fund.

Restoration sites are targeted through the development and use of 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 and Basinwide Assessment Reports. The NCWRP Plans evaluate resource data and existing water quality initiatives within local watersheds in order to select "Targeted Local Watersheds". Targeted Local Watersheds are areas with the greatest need and opportunity for stream and wetlands restoration efforts and where NCWRP resources can be most efficiently focused for maximum restoration benefit. The NCWRP Watershed Restoration Plans are updated every five years, generally on the same timeline as DWQ's Basinwide Water Quality Plans.

Table C-1 lists the NCWRP's draft targeted Local Watersheds in the Hiwassee River basin. Other agencies, individuals and private groups are encouraged to target their search for restoration projects within these local watersheds.

Table C-1 Wetlands Restoration Program Targeted Local Watersheds (2001)

Subbasin	Targeted Local Watershed Name(s)	Targeted Local Watershed Number(s)*
04-05-01	Shooting Creek	50020
04-05-01	Brasstown Creek	90010
04-05-02	Valley River1	00010
04-05-02	Valley River2	00020
04-05-02	Valley River3	00030

* The numbers listed are the last five digits of the 14-digit Hydrologic Unit (HU) for each Local Watershed. The first nine digits for each watershed are 060200020.

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 Nonpoint Source Program. Integrating wetlands and riparian restoration components with 319 funded and/or Clean Water Management Trust Fund projects will often optimize the overall water quality benefits within a given watershed.

The NCWRP actively seeks landowners [both public and private] within the Hiwassee River basin who have potentially restorable stream, wetland or riparian buffer sites. For more information about participating in the NCWRP, please contact Crystal Braswell at (919) 733-5208 or visit the website at http://h2o.enr.state.nc.us/, then click on Wetlands Restoration Program.

1.3.3 Wildlife Resources Commission – Habitat Conservation Program

The Wildlife Resources Commission (WRC) Division of Inland Fisheries manages the state's freshwater fisheries through fisheries research, fisheries management, hatchery operation and habitat conservation.

During the past biennium (July 1994 - June 1996), habitat conservation biologists reviewed 4,000 proposed projects statewide and evaluated the potential environmental threats associated with each project. WRC recommended project design modifications to minimize adverse environmental impacts and also recommended mitigation to compensate for unavoidable impacts. Evaluations of the program's effectiveness in influencing permit conditions were completed in both 1994 and 1995. WRC was able to influence permit conditions 70 percent of the time in 1994. In 1995, the success rate increased to 80 percent.

In the mountain region, frequent and severe flooding has resulted in damage to many streams from debris blockages and erosion. WRC reviewed numerous proposals for work in streams sponsored by the Natural Resources Conservation Service (NRCS) as part of their Emergency Watershed Protection Program (EWP). EWP provides assistance to landowners to relieve imminent hazards to life and property from floods and other natural disasters. These activities have the potential to degrade aquatic habitat, especially in trout streams, besides being short-term solutions to large problems in a watershed. As a result, the NRCS has joined staff of the Wildlife Resources Commission and other state and federal agencies to examine more environmentally

sound methods of stream restoration. Interagency flood response teams are being developed to respond rapidly to landowner needs while taking into account natural tendencies of streams and protection of aquatic habitat.

During the biennium, biologists also reviewed 366 highway improvement projects and in many cases recommended design modifications or alignment shifts to minimize impacts to wildlife and fishery habitats. Linear roadway projects often have multiple stream crossings and can affect many different habitat types.

WRC works closely with the NC Department of Transportation (NCDOT) to develop mitigation strategies to offset this loss of wildlife and fisheries habitat. WRC identifies areas that should be preserved and helps restore habitat on previously disturbed areas. In the mountain region, one large highway project can result in as much as 10,000 feet of high quality streams, either trout streams or tributaries to trout streams, to be placed in culverts. As mitigation for this loss of high quality fishery habitat, the NCDOT has agreed to set up a restoration fund to be administered by WRC for restoration of approximately 25,000 linear feet of degraded streams. Ultimately, the restoration will involve bank stabilization, fencing livestock out of the stream, revegetating streambanks, installing fish habitat enhancing devices, and purchasing conservation easements to protect the areas that have been restored.

For more information, contact the Division of Inland Fisheries by calling (919) 733-3633 ext. 281 or visit the Wildlife Resources Commission website at http://www.state.nc.us/Wildlife/.

1.3.4 NC Agricultural 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 groundwater 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.

Approximately $685,400 were expended in the Hiwassee 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 spent over the five-year period for each county in the North Carolina portion of the basin.

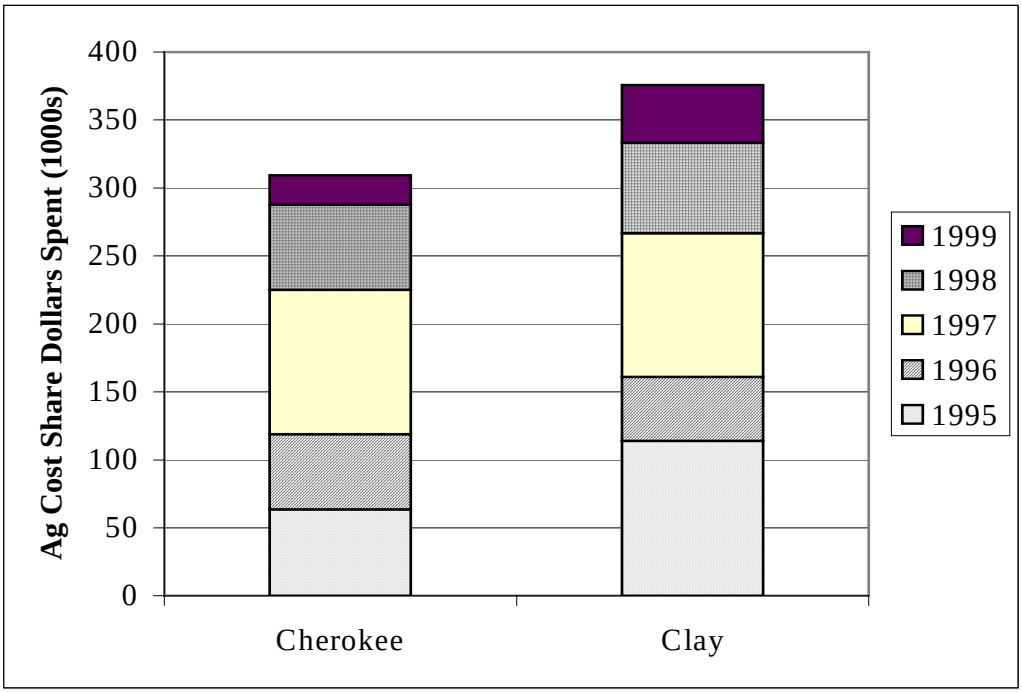

Figure C-2 Agriculture Cost Share Program Dollars Expended (1995-1999) in Counties in the Hiwassee River Basin (Source: NC Division of Soil and Water Conservation)

Soil and Water Conservation District contacts for the Hiwassee 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.

1.4 Regional Initiatives

1.4.1 Hiwassee Interagency Team

The Hiwassee Interagency Team was initiated in the late 1990s as a project of the Southeastern Natural Resources Leadership Group (SENRLG) as a way to increase communication between federal agency staff working in the Hiwassee River basin. The Hiwassee Interagency Team today is made up of federal and state natural resource agency staff from North Carolina, Tennessee and Georgia, as well as a representative from the Hiawassee River Watershed Coalition. The team meets quarterly to discuss water quality concerns and improvement projects in the entire Hiwassee River basin. Individual projects are also identified through the team with participating agencies sharing the cost of implementation. DWQ participates on this team and has found that it allows a good mechanism for coordination of monitoring and sharing of information.

1.4.2 The Nature Conservancy

The Nature Conservancy works with members, contributors and partners to acquire endangered land. Some of this land, around 71,000 acres, is owned or managed by the NC Chapter. Other sites are acquired on behalf of state and federal conservation agencies to be placed in public ownership.

The North Carolina Chapter works in conjunction with the NC Natural Heritage Program (a Division of the State Parks system) to identify and inventory unique natural areas and habitats. The chapter establishes protection priorities based on information gathered by the Heritage Program. In the Hiwassee River basin, The Nature Conservancy is working to protect several important areas.

For further information about The Nature Conservancy projects in the mountain region of North Carolina, contact Mountains District Coordinator, Beth Bockoven, by calling (828) 749-1700 or email bbockoven@tnc.org.

1.5 Local Initiatives

1.5.1 Hiawassee River Watershed Coalition

The Hiwassee River Watershed Coalition is a nonprofit, grassroots organization made up of citizens from both Georgia and North Carolina. The coalition's mission is to facilitate and coordinate water quality efforts throughout the Hiwassee River watershed, across political boundaries, while still honoring local initiatives. Recognizing that growth and development are increasing, the coalition promotes and encourages good development practices to maintain water quality for the future.

In 1999, the coalition was awarded a three-year, $2.1 million grant from the Clean Water Management Trust Fund (CWMTF) for stream restoration projects in the Brasstown Creek watershed. The coalition and its partners achieved more than 90 percent of the goals set forth in the grant proposal within the first two years of work. In 2001, the Georgia legislature awarded the coalition a two-year grant to determine causes of environmental degradation in Chatuge and Nottely Reservoirs. The coalition partnered with the Tennessee Valley Authority (page 80) to begin work on this grant in the fall of 2001. Most recently, the coalition received a second CWMTF grant for stream restoration projects in the Valley River watershed. Work is slated to begin in 2002.

The coalition also coordinates an Adopt-A-Stream Program in the basin and provides environmental education information and outreach activities in the area. Additionally, the coalition participates with both the Hiwassee River Nonpoint Source Team (page 79) and the Hiwassee Interagency Team (page 85). For more information about the Hiawassee River Watershed Coalition, contact Executive Director, Lucy Gratton, or Field Director, Robert Wallus, by calling (706) 896-8091.