Chapter 1 -
Current Water Quality Initiatives

1.1 Workshop Summaries

In March 2001, DWQ held three workshops in the Little Tennessee River basin at Sylva, Franklin and Robbinsville. There were approximately 70 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.

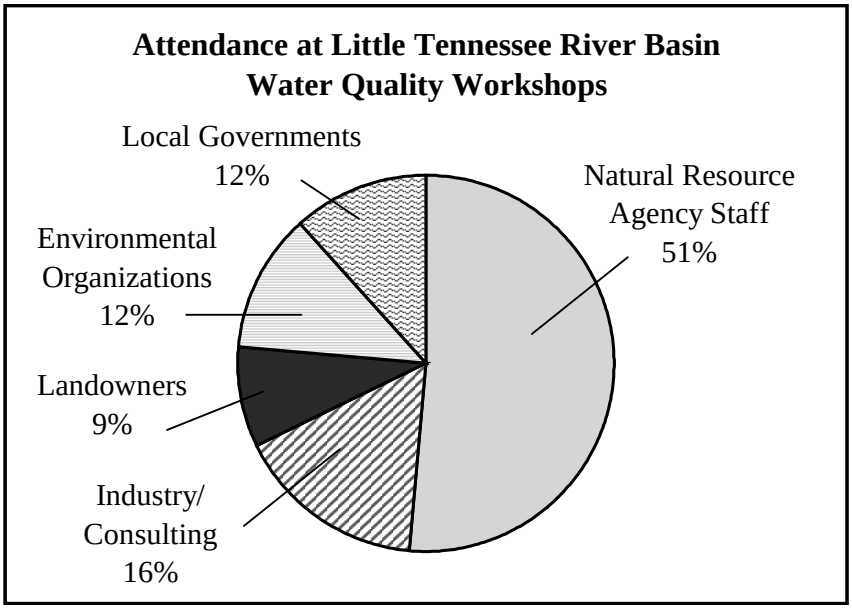

Figure C-1 Percent of Total Attendance by Various Interests at DWQ Water Quality Workshops in the Little Tennessee River Basin (2001)

DWQ staff gave presentations about general water quality in the Little Tennessee 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 Little Tennessee 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?

The discussion on these questions was very productive. Comments and responses were recorded. A general summary providing common ideas and viewpoints expressed by more than one group is presented below. DWQ considered these comments while drafting the revised *Little Tennessee River Basinwide Water Quality Plan* and will continue to use these comments to guide water

quality activities in the Little Tennessee River basin. The most frequently cited threats to water quality identified by workshop participants were:

- Sedimentation (variety of sources)
- Runoff from developed areas (stormwater)
- Development/population growth
- Lack of public education regarding impacts to water quality and regulations
- Inadequate monitoring and lack of coordination between groups collecting data

Please refer to Section A, Chapter 4 (page 59) for discussion of some of these issues. All groups commented that nonpoint source pollution, primarily from excess sediment and/or nutrients and bacteriological contamination, was a major threat to water quality in the Little Tennessee River basin. Appendix V contains a summary of major public comments received throughout the process of plan development and public review. A more detailed summary of input from public workshops is available upon request.

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.

One project in the Little Tennessee River basin has been partially funded (federal Section 319 money must be matched with nonfederal dollars) through the Section 319 base program between 1990 and 2000. Funding for the project totaled $100,000. Refer to Part 2.4.3 for details.

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 local 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 has $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. Almost the entire Little Tennessee River basin is

included within two 2001 EQIP Priority Areas: the Little Tennessee, which includes Jackson and Swain counties, and the upper Little Tennessee in Macon County.
NRCS district contacts for the Little Tennessee River basin are included on the Nonpoint Source contact sheet found in Appendix VI or visit the website: http://www.nc.nrcs.usda.gov/Programs/eqip.htm.

1.2.3 US Fish and Wildlife Service

The US Fish and Wildlife Service (FWS) has proposed designation of three segments of river (80.2 miles) in the Little Tennessee River basin as critical habitat for the Appalachian elktoe under the Endangered Species Act of 1973: 24.0 miles of the Little Tennessee River in Macon and Swain counties, 41.6 miles of the Tuckasegee River in Jackson and Swain counties, and 14.6 miles of the Cheoah River in Graham County. If the proposal is made final, federal agencies would be required to ensure that actions they fund, permit or implement are not likely to result in the destruction or adverse modification of critical habitat.

For further information, contact John Fridell by calling (828) 258-3939.

1.2.4 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, 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. Refer to page 50 for further information.

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 Little Tennessee River basin, contact Watershed Team member Gary Williams by calling (865) 988-2428 or by email ggwilliams@tva.gov or visit the website at http://www.tva.gov/environment/water/.

1.3 State Initiatives

1.3.1 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 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.

For more information about the NC Agriculture Cost Share Program, contact David Williams with the Division of Soil and Water Conservation at (919) 733-2302. County contact information is listed in Appendix VI.

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.

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.

Table C-1 lists the NCWRP's draft targeted Local Watersheds in the Little Tennessee 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 Draft Targeted Local Watersheds (2001)

Subbasin	Targeted Local Watershed Name(s)	Targeted Local Watershed Number(s)
04-04-01	Little Tennessee River Middle Creek	06010202020010
04-04-01	Upper Cullasaja River	06010202030010
04-04-01	Little Tennessee River Crawford Branch Iotla Creek	06010202040020
04-04-02	Lower Scott Creek Tuckasegee River	06010203020010
04-04-02	Savannah Creek	06010203020030
04-04-04	Sweetwater Creek	06010204010020
04-04-04	Atoah Creek Long Creek	06010204010030

The NCWRP actively seeks landowners [both public and private] within the Little Tennessee 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 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 Little Tennessee River basin, seven projects have been funded for a total of $6,329,967 (Table C-2).

Table C-2 Projects in the Little Tennessee River Basin Funded by the Clean Water Management Trust Fund (as of 8/01)

Stream or Watershed	Project	Project Lead	Amount Funded
Tuckasegee River	Wastewater Improvements	Town of Bryson City	$80,000
	Riparian Easements	Conservation Fund/ Southern Appalachian Highlands Conservancy	$294,300
Tuckasegee River	Wastewater Improvements	Jackson County	$452,000
Little Tennessee River	Restoration	Macon County	$3,885,000
	Buffer Acquisition	Southern Appalachian Highlands Conservancy	$222,000
	Restoration	Swain County Economic Development	$195,900
Tuckasegee River	Wastewater Improvements	Tuckaseigee Water & Sewer Authority	$1,200,767

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

1.3.4 Eastern Band of Cherokee Indians

The Eastern Band of Cherokee Indians (ECBI) is a sovereign governmental authority with more than 56,000 acres of mountainous terrain within the Little Tennessee River basin, including numerous streams and rivers. ECBI conducts its own extensive surface water chemistry monitoring program and, in 2001, adopted and received approval for its own water quality standards. The water quality standards state: "High quality water is a critical resource of the Eastern Band of Cherokee, providing sustenance to our people, land, wildlife and livestock."

The ECBI environmental program has conducted stream restoration activities on approximately 5,000 feet of stream using natural channel design techniques. A sediment monitoring program is in place to monitor suspended solids levels during storm flows. ECBI is also involved with the Kids in the Creek and Stream Watch educational programs and is in the process of developing an educational video focused on water quality. ECBI has also gotten funding to cover about an acre of land with pervious pavement as a demonstration project through the Section 319 program.

In 2001, ECBI hired a wetland/stream coordinator whose main job responsibility it is to develop and manage a wetland/stream protection and restoration program for the Cherokee Indian Reservation. Tasks include inventory and mapping of wetlands and streams on Cherokee land, a riparian corridor assessment, focused stream monitoring and outreach activities.

ECBI hosted various citizens, organizations and agency staff at Little Tennessee Watershed 2001; a conference to discuss water quality and restoration efforts throughout the entire river basin. Staff currently participate in the Little Tennessee River Basin Nonpoint Source Team (page 121).

For further information about the Eastern Band of Cherokee water quality programs, call (828) 497-6824 or email Cherise Maples (chermapl@hotmail.com) or Carmen McIntyre (carmmcin@nc-cherokee.com).

1.3.5 NC Department of Transportation

In 1994, the NC Department of Transportation (NCDOT) purchased a 225-acre site in the Little Tennessee River basin called Tulula Bog to develop a mitigation bank to allow for compensation of wetland impacts associated with highway projects. The site was degraded in the mid-1980s during construction of a golf course and is being restored to its original condition. The largest fen was still intact at the time of purchase, but degraded fens and streams were scattered throughout the property. Restoration strategies include recreating the original stream channel, removing spoil, filling ditches, constructing vernal pools, and revegetating portions of the site. Faculty and students from the University of North Carolina at Asheville have been involved with collecting information on baseline ecological conditions and evaluating restoration activities at the site. The Tulula Wetlands Mitigation Bank is located in Graham County in the floodplain of Tulula Creek (Moorhead et al., 2001).

1.3.6 Wildlife Resources Commission

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

Habitat Conservation Program

Habitat conservation biologists review proposed development projects and evaluate the potential environmental threats associated with each project in the Little Tennessee River basin. WRC recommends project design modifications to minimize adverse environmental impacts and also recommends mitigation to compensate for unavoidable impacts.

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. As a result, the NRCS has joined staff of the WRC 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.

Biologists also review highway improvement projects and, in many cases, recommend 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 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.

Brook Trout Distribution and Genetics Study

In order to preserve and protect brook trout populations, WRC started a project in 1990 to locate all brook trout populations. Essentially all streams located on public lands (excluding the Great Smoky Mountains National Park) and many streams on private lands were sampled. Surveys were begun at the lower end of a watershed, moving upstream until all fish recorded were brook trout or no fish at all were found. The location of the brook trout populations and waterfalls that

keep brown and rainbow trout from invading were mapped. Those populations most likely to be classified as "southern" brook trout were selected for genetic analysis.

About 343 brook trout populations were found in 22 counties by the end of 1999. Most of these populations occur in headwater streams that border the Blue Ridge Parkway, the North Carolina-Tennessee state line, and headwater streams of the Little Tennessee, Nantahala and Tuckasegee Rivers. WRC genetically tested 134 of the 343 known brook trout populations and classified 48 of them as originating from the original "southern" populations.

A recent survey of other states in the southeast indicates that about 50 percent of the all brook trout populations and about 30 percent of all "southern" populations exist in North Carolina (excluding the Great Smoky Mountains National Park). Brook trout protection will continue to be a major goal in North Carolina's trout management program. Surveys to locate brook trout on private lands will be conducted whenever opportunities arise, and additional genetic testing will be completed as funding becomes available.

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/.

1.4 Regional Initiatives

1.4.1 Southwestern NC Resource Conservation and Development (RC&D)

The Southwestern NC Resource Conservation and Development Council, Inc. is a 501 c(3) nonprofit organization supported nationally by USDA, through the Natural Resources Conservation Service and locally by the Boards of County Commissioners and the County Soil and Water Conservation Districts in Macon, Jackson, Swain, Graham, Clay, Cherokee and Haywood counties and the Eastern Band of the Cherokee Indians. Organized in 1970, Southwestern NC RC&D has been serving western North Carolina for over 30 years.

The Mission of RC&D is to build public and private partnerships, create financial leverage, and increase the capacity of communities to meet their locally identified resource conservation and development needs. This is achieved by engaging the interests of the public and private sectors to balance the conservation and development of human and natural resources; and creating efficient community and natural resource management by bringing together cooperative action for a common benefit.

RC&D provides technical assistance with project planning, design and engineering. RC&D staff provides project planing assistance; however, RC&D coordinates assistance with NRCS, Soil and Water Conservation Districts, other agencies, private organizations and professionals to provide on the ground support. RC&D provides financial assistance for project implementation, grant writing and counseling assistance with public, private and corporate grant programs. The RC&D Council can sponsor project grants and administer project grant funds if needed.

For the past ten years, the Southwestern NC RC&D Council has assisted in fostering and currently supports several active local grassroots watershed associations, including the Little Tennessee Watershed Association, the Upper Cullasaja River Watershed Association and the

Watershed Association for the Tuckasegee River. Since 1998, RC&D has provided contracting assistance to Upper Little Tennessee River Stream Bank and Riparian Restoration, Section 319 and CWMTF programs. Southwestern NC RC&D provides technical and Section 319 administrative support to the Little Tennessee River Basin Nonpoint Source Team. The RC&D Council, in 2001, sponsored a request to the CWMTF to offer to buy out the currently permitted trout farm facilities on West Buffalo Creek in Graham County.

The Southwestern NC RC&D Council office is located in Waynesville, NC. For more information, call Tim Garrett at (828) 452-2519.

1.4.2 Western North Carolina Alliance

The Western North Carolina Alliance is a grassroots organization which aims to promote a sense of stewardship and caring for the natural environment. The Alliance's primary goal is to protect and to preserve our natural land, water and air resources through education and public participation in policy decisions at all levels of business and government. The Alliance encourages its members to recognize the interrelationships among environmental issues and to take personal responsibility for achieving protection of the environment in their communities.

Water quality is only one of many aspects of the environment that the Alliance works to improve and protect. The Alliance supports the development and enforcement or standards and regulations sufficient to protect surface waters and groundwater from sediments, organic pollution and toxins; and to preserve and restore waterways as healthy ecosystems, as well as recreational and esthetic resources. Since the state of our waters depends in large measure on how land is treated, the maintenance of water quality should be a goal of all land users, regulatory agencies and land-use planning efforts.

The Alliance encourages strong county sedimentation control laws and private actions, as provided for by the North Carolina Sedimentation Control Act. The Alliance supports public education on water quality and conservation issues. The Alliance also encourages voluntary efforts by citizens to investigate and protect local water quality. The Alliance supports the reclassification of streams to the highest and most protective classification achievable.

For further information, contact the western office of the Western North Carolina Alliance Western Office in Franklin by calling (828) 524-3899 or by email franklin@wnca.org. You may also visit the website at http://www.main.nc.us/wnca/.

1.4.3 Tuckaseigee Chapter – Trout Unlimited

The members of Tuckaseigee Chapter of Trout Unlimited (TC-TU) in Western North Carolina are from Haywood, Jackson, Macon and Swain counties. The organization's goal is the preservation and conservation of coldwater fisheries throughout Western North Carolina. One of the best ways to preserve fisheries for future generations is through education and leadership. One of the most significant problems we face in Western North Carolina is sedimentation, due to the growth being experienced by our counties. TC-TU is working to find solutions to problems that are associated with development.

Jerry Deweese is the current President and can be contacted by email deweej@BlueRidgePaper.com or by visiting the website at http://www.smokyonthefly.com/tucktu/.

1.4.4 Southern Appalachian Highlands Conservancy

A nonprofit, non-governmental organization, the Conservancy has a mission that encompasses the Southern Appalachian region. The Conservancy has committed itself to protecting important lands in the region. Through its Community Land Trust Conservation Project, the Conservancy's Board of Trustees has adopted a strategy of fostering the growth of affiliates to engage in land conservation work on a local level. Local volunteer groups, called "affiliates" (or "chapters") represent the Conservancy within their own communities and help the Conservancy fulfill its mission of conserving the region's important lands.

The Conservancy's regional initiative encourages the use of conservation easements and other nonregulatory land preservation techniques by landowners throughout the mountain region, where increasing development pressure threatens the loss of scenic, historic or environmentally important lands. To date, the Conservancy has preserved approximately 1,000 acres of land in the mountain region, including lands bordering the Great Smoky Mountains National Park and the Blue Ridge Parkway.

Established in 1994 as the Nikwasi Land Trust, the Land Trust for the Little Tennessee (page 122) was the first and most successful affiliate group of the Southern Appalachian Highlands Conservancy (SAHC). The organization has become established as an independent land trust, but will continue collaborative work with SAHC.

For more information, contact the Southern Appalachian Highlands Conservancy by calling (828) 253-0095 or by email southapps@ioa.com.

1.4.5 Save Our Rivers, Inc.

Save Our Rivers, Inc. (SOR), founded in 1990, has monitored water quality in the Cullasaja River since 1994. Working with the Volunteer Water Information Network program of the University of North Carolina in Asheville, the group samples for chemicals and fecal coliform. Serving as a clearinghouse, the group has also been instrumental in assisting citizens and agencies when incidents occur that need serious attention. With its generic name, SOR has assisted many other rivers across the state and nation in providing information and support. SOR promotes public involvement in the protection of water quality and quantity and has either coordinated or participated in multiple outreach efforts within western North Carolina.

For more information about SOR, contact Peg Jones at (828) 369-7877 or by email rivers@dnet.net.

1.5 Local Initiatives

1.5.1 Little Tennessee Watershed Association (LTWA)

The Little Tennessee Watershed Association (LTWA), Inc. is organized to work with public agencies, conservation interests, community groups, and public and private landowners to develop and implement a strategy for the conservation and improvement of the water quality and habitat of the Little Tennessee River and its tributaries above the Fontana Reservoir.

The LTWA presently operates four major projects: stream restoration, stream monitoring, education and stream stewardship. Long-term data collection allows LTWA to measure the effect of restoration efforts. Through the stewardship program, LTWA rewards landowners for their own efforts to protect the watershed. The educational program builds public support for conservation efforts.

In 1999, the LTWA, with the Macon Middle School, designed and developed a research station on the Cullasaja River for the middle school students. Students actually collect and analyze information on sediment, benthic macroinvertebrates and water quality, learn about the inter-relationships between abiotic and biotic factors which determine the overall condition of the watershed, and more importantly, develop a clearer understanding of the environment through a "hands on" approach to environmental education. The LTWA also has developed several lectures and talks on water quality, the Little Tennessee River watershed, and the various programs it monitors.

As part of its ongoing efforts in education, the LTWA has initiated a Stream Stewardship Program throughout the Little Tennessee watershed. This program has been developed to acknowledge those landowners who have demonstrated good management practices on their lands adjacent to a waterway. Each successful candidate receives recognition of his accomplishments at the first general meeting in February, and each receives a sign to post on his property advertising his efforts to use the best available land use practices in protecting his portion of a waterway.

For more information about the Little Tennessee Watershed Association, contact Executive Director, Carla Norwood by calling (828) 369-6402 or by email ltwa@dnet.net. The LTWA website address is http://www.littletennesseewatershed.org/.

1.5.2 Watershed Association for the Tuckasegee River (WATR)

The Watershed Association for the Tuckasegee River (WATR) is a fairly new group of grassroots-organized citizens who wish to see their community keep its peaceful character amidst booming growth. One of the primary objectives of WATR is to increase citizen involvement and activity on behalf of the river. An excerpt from WATR's mission statement states the goals of the organization: "We recognize the necessity of clean water and the value of the river to the whole community. We will encourage ways of using the river and ways of working and living that maintain and enhance the quality of the waters moving through this watershed. We will

strive to find an appropriate balance of use, protection, and active restoration that maintains the Tuckasegee River even as the river and its waters maintain us."

WATR has established a water quality monitoring program for the Tuckasegee River. Seven sites are sampled quarterly by Eastern Band of Cherokee water quality staff (under contract) and analyzed at a NC certified laboratory for fecal coliform, total suspended solids, dissolved oxygen and temperature. A volunteer monitoring program is also being organized to collect samples from sediment samplers, conduct benthic macroinvertebrate monitoring, and do habitat assessments that focus more heavily on the tributaries. WATR members have also organized several field days on the river and written articles to newspapers emphasizing local water quality issues.

WATR is currently governed by a volunteer Board and Executive Committee. For more information, call (828) 631-1500 or email watrinfo@watrnc.org. WATR's website address is http://www.watrnc.org/.

1.5.3 Little Tennessee River Basin Nonpoint Source Team

In 1995, the Little Tennessee Nonpoint Source (NPS) Team was organized by local stakeholders, with guidance from DWQ, to address water quality problems in the Little Tennessee River basin caused by nonpoint source pollution. The NPS Team was awarded a $100,000 grant through the Section 319 program to implement nonpoint source pollution BMP demonstration and education projects. The team allocated $23,000 of the grant toward the development of a watershed management plan to improve water quality in Crawford Branch. Eight potential sites for installation of nonpoint source pollution BMPs were identified as part of the management options outlined in the *Crawford Branch Watershed Management Plan* (Land-of-Sky, January 2001). The Little Tennessee NPS Team, with cooperation from Macon County, is currently working to construct a stormwater demonstration project on one of the eight sites. Additionally, the team is developing a comprehensive website for the Little Tennessee River basin in North Carolina that will provide information about nonpoint source pollution problems throughout the basin, display water quality data that is currently being collected by a variety of agencies and organizations, and provide links to water quality education, improvement and funding programs.

The Little Tennessee NPS Team currently meets quarterly at Western Carolina University. For more information, contact Dr. Gary Smith by calling (828) 227-3506 or by email smithg@email.wcu.edu.

1.5.4 Upper Cullasaja Watershed Association (UCWA)

Formed in 1999 as a local, citizen-based watershed organization for the upper Cullasaja River watershed on the Highlands Plateau, the Upper Cullasaja Watershed Association (UCWA) has successfully initiated a wide range of water resource quantity and quality projects. UCWA worked with the NC Division of Water Resources and the US Geological Survey (USGS) to obtain joint funding and installation of a USGS flow gauging station on the Cullasaja River in July 2001, after a 30-year hiatus in long-term streamflow measurement on this river. Additional work with DWQ and USGS groundwater specialists resulted in the restoration of regular groundwater elevation measurements in two Town of Highlands' water supply wells. Plans are

also being developed for a major groundwater research project to be centered in the upper Cullasaja River watershed in the near future.

To expand its studies of the water balance on the Plateau, UCWA implemented an expanded rainfall measurement network in the second half of 2001 to more accurately define the total water input to the watershed. UCWA has active projects in progress to install sediment-trapping basins in key locations around Mirror Lake and to pursue sediment removal from the lake and other lakes in the watershed. Plans for 2002 include a water quality monitoring project in Lake Sequoyah, which is the public water supply for the Town of Highlands. Continuous, data-logging probes will be placed in the lake and each of its tributaries to monitor multiple water quality indicators.

The data collected by all UCWA projects are made available to the public as part of UCWA's programs to raise public awareness about water quality and quantity concerns in the watershed. For over 2 years, UCWA has published a public information column, "Know Your Watershed", in *The Highlander* twice a month as an integral part of UCWA's public education and awareness initiatives.

For more information about the Upper Cullasaja River Watershed Association, contact Executive Director, Bob Wright by email twodogs01@earthlink.net or call (828) 526-9938.

1.5.5 Land Trust for the Little Tennessee

The mission of the Land Trust for the Little Tennessee is to conserve the natural, scenic, rural and historic character of the upper Little Tennessee Valley for the benefit of present and future generations. To this end, the trust works with private landowners, local citizen groups and local government to help identify, preserve and manage important heritage lands in the area. Goals of the Land Trust are to:

- Achieve long-term protection of important natural, historical, agricultural and recreational properties in private ownership in the upper Little Tennessee Valley.
- Provide information to private landowners about options available for private land conservation and for the preservation of family lands, and to provide support to those landowners who seek to establish a long-term conservation plan for their properties.
- Promote sensible planning for private lands in the valley to insure that if development occurs, it is done without destroying the area's unique natural, scenic, rural and historic qualities.
- Help provide educational programs that enhance understanding of land use as well as of techniques and incentives available for private land conservation.
- Identify and secure sources of funding to support the mission of the Land Trust.

The Land Trust is currently working toward the preservation of lands in the Little Tennessee Watershed and, in November 1999, acquired 60 acres at the junction of Tessentee Creek and the Little Tennessee River near Otto in southern Macon County. The land includes nearly a mile of creek and river frontage, over 20 acres of floodplain, and one of the largest and most diverse wetlands in the upper river valley.

For more information, contact Paul Carlson, Executive Director of the Land Trust for the Little Tennessee by calling (828) 524-2711 or by email nikwasi@dnet.net.

1.5.6 Little Tennessee River Greenway and Restoration Project

The purpose of the Little Tennessee River Greenway and Restoration Project is to draw together public and private organizations, citizen groups and individuals to work on behalf the Little Tennessee River. Goals include:

- Protection of riparian areas of the river and its tributaries.
- Restoration of eroding streambanks.
- Use of conservation easements to preserve environmentally sensitive areas.
- Wetlands protection and enhancement.
- Restoration of Lake Emory, a small reservoir immediately below Franklin. The lake is choked with mud that threatens to spill into lower stretches of the river.
- Creation of a greenway through the most populated part of the valley, with recreational, educational and cultural amenities.
- Public education initiatives to increase awareness of clean water and other environmental issues.

The Steering Committee, representing local government, industry and citizen groups, oversees the Restoration and Greenway projects. Members of the Committee serve as liaisons to other agencies and citizen groups involved with different aspects of the project.

In May 1998, the Steering Committee unveiled a plan for a greenway along the Little Tennessee River, anchored by three attractions at major nodes. Proposed attractions are a cultural/conference center on the river near Dowdle Mountain, an aviary/gardens near the town bridges at the entrance to Franklin and a state-funded "Appalachian Aquarium". The aquarium/nature center would serve as both a tourist attraction and an environmental education center for the region. Various partners in the project have received funding to complete other goals established by the project (see Macon County, Little Tennessee Watershed Association and Land Trust for the Little Tennessee summaries). For further details, visit the website at http://www.littletennessee.org/project.html.

1.5.7 Macon County

In 1998, the CWMTF awarded Macon County at grant for $3.8 million. About $3 million of the grant was earmarked for restoration of the badly degraded urban portion of the Little Tennessee River. The balance was for expansion of on-going restoration efforts in the larger watershed. (See the Little Tennessee Watershed Association summary on page 120.)

Macon County also received a $250,000 grant in 1998 from the NC Parks and Recreation Trust Fund to develop Phase I of the Greenway, during a brief ceremony held on the banks of the Little Tennessee River. The grant, which requires a 50/50 match, will be used to construct two miles of hiking/bicycling paths, install two pedestrian bridges and build other amenities, including

restrooms, a fishing pier and canoe put-in. This phase of the trail will extend from the town bridges on Main Street to the US 64/23/441 bypass (http://www.littletennessee.org/trail.html).

In 1999, Macon County contracted with the Corps of Engineers to conduct a $650,000 feasibility study on restoration of Lake Emory. Costs will be split between the Corps and Macon County, with local match from in-kind services and the CWMTF (description below). After completing a two-year study, the Corps expects to undertake a $7 million restoration of the lake.

The Macon County Watershed Council was established by Macon County in 2001. The Council functions to advise Macon County about watershed and water quality issues and is made up of representatives from both the Upper Cullasaja Watershed Association and the Little Tennessee Watershed Association.

Macon County also adopted an erosion and sediment control ordinance in 2001, which builds on the current program administered by the state. An Erosion and Sediment Control Plan must be submitted if one half of an acre of land (or more) is disturbed, rather than the one acre minimum set by the state program. The Macon County ordinance also includes incentives for contractors that attend a Clear Water Contractor training course. The county has also proposed a general Land Use Ordinance.

For more information about watershed programs and ordinances within Macon County, contact County Manager Sam Greenwood by calling (828) 349-2025.

1.5.8 Town of Highlands

The Town of Highlands adopted an erosion and sediment control ordinance in 1992 and a watershed buffer plan and ordinance in 1994. The erosion and sediment control ordinance applies to any land-disturbing activities of one acre or greater and sets rules to reduce site erosion, limits the slope of land that can be disturbed, and stipulates revegetation of exposed slopes. Highlands is a locally delegated program, and therefore, has the ability to enforce the ordinance on behalf of the state. Sediment control within riparian buffers are required for any land-disturbing activity adjacent to streams and lakes and a buffer width of 25 feet is established for disturbance adjacent to classified trout waters (Tr). The ordinances also provide requirements for stormwater outlet protection, borrow and waste areas, access and haul roads, operations in lakes or natural watercourses, existing uncovered areas, and design and performance standards for activities adjacent to classified high quality waters (HQW).

The Town of Highlands Planning Department implements and enforces these ordinances and staff may be reached by calling (828) 526-5266.

1.5.9 Jackson County

In November 2000, Jackson County implemented a locally delegated erosion and sediment control program. Like the statewide program administered by the Division of Land Resources, the county requires an erosion and sediment control plan for development activities disturbing more than one acre of land. The county attempts to inspect all projects weekly. Land-disturbing activities that occur on sites less than one acre in size are inspected only when a complaint is

received. For more information about Jackson County's program, contact Erosion Control Officer, Jeff McCall, by calling (828) 586-7560.

Greenway plans…

1.5.10 Jackson Macon Conservation Alliance

The Chattooga Conservancy has been helping citizens in the Highlands and Cashiers communities establish the Jackson Macon Conservation Alliance (JMCA). The JMCA coalesced from a bitter water quality dispute that recently lead to a landmark ruling in NC, where an administrative judge gave priority to measurable units of turbidity instead of the implementation of voluntary best management practices in cases involving erosion control, mitigation and enforcement. The judge's decision has set the stage for rewriting state sedimentation laws, oversight of which is foremost on the JMCA's actions. The organization has also endorsed the designation of the Cullasaja River as a state Natural and Scenic River; such a designation could result in greater scrutiny of actions that would impact the river.