

# Executive Summary

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## North Carolina's Basinwide Approach to Water Quality Management

Basinwide water quality planning is a nonregulatory watershed-based approach to restoring and protecting the quality of North Carolina's surface waters. Basinwide water quality plans are prepared by the NC Division of Water Quality (DWQ) for each of the seventeen major river basins in the state. Each basinwide plan is revised at five-year intervals. While these plans are prepared by the DWQ, their implementation and the protection of water quality entails the coordinated efforts of many agencies, local governments and stakeholders in the state. The first basinwide plan for the Little Tennessee River basin was completed in 1997.

This draft document is the first five-year update of the *Little Tennessee River Basinwide Water Quality Plan*. The format of this plan was revised in response to comments received during the first planning cycle. DWQ replaced much of the general information in the first plan with more detailed information specific to the Little Tennessee River basin. A greater emphasis was placed on identifying causes and sources of pollution for individual streams in order to facilitate local restoration efforts.

DWQ considered comments from three public workshops and two public meetings held in the basin. Discussions with local resource agency staff and citizens during draft plan development were also essential. This input will help guide continuing DWQ activities in the basin.

## Goals of the Basinwide Approach

The goals of DWQ's basinwide program are to:

- identify water quality problems and restore full use to impaired waters;
- identify and protect high value resource waters;
- protect unimpaired waters while allowing for reasonable economic growth;
- develop appropriate management strategies to protect and restore water quality;
- assure equitable distribution of waste assimilative capacity for dischargers; and
- improve public awareness and involvement in the management of the state's surface waters.

## Little Tennessee River Basin Overview

The Little Tennessee River begins in the mountains of northeastern Georgia. In North Carolina, the river flows about 25 miles north and 25 miles northeast between seven large and unique mountain ranges before entering Tennessee where it joins the Tennessee River. Major tributaries include the Cullasaja, Nantahala, Tuckasegee and Cheoah Rivers. Major lakes include Fontana, Santeetlah, Nantahala and Glenville. Although the Little Tennessee River basin is barely considered medium-sized when compared with other NC river basins (approximately 1,800 square miles), it contains more than 2,500 miles of streams and rivers and 18,000 acres of lakes. Both the Roanoke and Tar-Pamlico River basins, which are two and three times larger, respectively, have fewer stream miles.

The Little Tennessee River is thought to contain its full assemblage of native aquatic life. Water quality in the basin is generally excellent. Trout waters are abundant, and many streams are classified High Quality or Outstanding Resource Waters.

The land comprising the Little Tennessee River basin is mountainous and primarily rural. Nearly 89 percent of the land is forested, and less than 5 percent falls into the urban/developed category. More than half of the land in the basin is publicly owned and lies within the Great Smoky Mountains National Park or the Nantahala National Forest. The basin encompasses parts of six counties and nine municipalities, and the entire reservation of the Eastern Band of Cherokee Indians also lies within its boundaries.

The estimated population of the basin in 2000 was 79,493, and the population is projected to increase 31 percent by 2020. Most of the basin's population is located in and around Franklin, Sylva and Cherokee, and the largest population increases will likely be around these urban areas. The basin also experiences significant seasonal population increases due to recreation and tourism.

### **Assessment of Water Quality in the Little Tennessee River Basin**

Surface waters are classified according to their best intended uses. Determining how well a waterbody supports its uses (*use support* status) is an important method of interpreting water quality data and assessing water quality. Surface waters are rated *fully supporting* (FS), *partially supporting* (PS) or *not supporting* (NS). The ratings refer to whether the classified uses of the water (i.e., aquatic life protection, primary recreation and water supply) are being met. For example, waters classified for fish consumption, aquatic life protection and secondary recreation (Class C for freshwater) are rated FS if data used to determine use support meet certain criteria. However, if these criteria were not met, then the waters would be rated as PS or NS, depending on the degree of degradation. Waters rated PS or NS are considered to be impaired. Waters lacking data, having inconclusive data, or for which criteria have not been developed are listed as not rated (NR).

Beginning in 2000 with the *Roanoke River Basinwide Water Quality Plan*, DWQ assesses ecosystem health and human health risk through the development of use support ratings for six categories: aquatic life and secondary recreation, fish consumption, shellfish harvesting, primary recreation, water supply and "other" uses. These categories are tied to the uses associated with the primary classifications applied to NC rivers and streams. A single water could have more than one use support rating corresponding to one or more of the six use support categories. For many waters, a use support category will not be applicable (N/A) to the use classification of that water (e.g., shellfish harvesting is only applied to Class SA waters). This method of determining use support differs from that done prior to 2000; in that, there is no longer an *overall* use support rating for a water.

### **Aquatic Life/Secondary Recreation**

The aquatic life/secondary recreation use support category is applied to all waters in North Carolina. Therefore, this category is applied to the total number of stream miles (2564.6) and lake acres (21,158.4) in the North Carolina portion of the Little Tennessee River basin.

Approximately 20 percent of stream miles (524.7) and 33 percent of lake acres (6,881) were monitored for the protection of aquatic life and secondary recreation by DWQ during this basinwide planning cycle (Table 1). Impaired waters account for 2.4 percent of monitored stream miles and 4.1 percent of monitored lake acres.

Table 1 Aquatic Life/Secondary Recreation Use Support Summary (1999)

Aquatic Life/Secondary Recreation Use Support Ratings	Monitored and Evaluated Waters*		Monitored Waters Only**	
	Miles or Acres	%	Miles or Acres	%
<b>Fully Supporting</b>	<b>2027.4 mi</b> <b>16,749.2 ac</b>	<b>79.1%</b> <b>79.2%</b>	<b>508.7 mi</b> <b>6,601 ac</b>	<b>97.0%</b> <b>96.0%</b>
<b>Impaired</b>	<b>12.9 mi</b> <b>280 ac</b>	<b>0.5%</b> <b>1.3%</b>	<b>12.9 mi</b> <b>280 ac</b>	<b>2.4%</b> <b>4.1%</b>
<i>Partially Supporting</i>	<i>12.9 mi</i> <i>280 ac</i>	<i>0.5%</i> <i>1.3%</i>	<i>12.9 mi</i> <i>280 ac</i>	<i>2.4%</i> <i>4.1%</i>
<i>Not Supporting</i>	<i>0.0 mi</i> <i>0.0 ac</i>	<i>0.0%</i>	<i>0.0 mi</i> <i>0.0 ac</i>	<i>0.0%</i>
<b>Not Rated</b>	<b>524.2 mi</b> <b>4,359.2 ac</b>	<b>20.4%</b> <b>10.6%</b>	<b>3.1 mi</b> <b>0.0 ac</b>	<b>0.6%</b> <b>0.0%</b>
<b>TOTAL</b>	<b>2564.5 mi</b> <b>21,158.4 ac</b>		<b>524.7 mi</b> <b>6,881 ac</b>	

\* = Percent based on total of all streams, both monitored and evaluated.

\*\* = Percent based on total of all monitored streams.

### **Fish Consumption**

Like the aquatic life/secondary recreation use support category, fish consumption is also applied to all waters in the state. Fish consumption use support ratings are based on fish consumption advisories issued by the NC Department of Health and Human Services (NCDHHS). Currently, there are no fish consumption advisories specific to the NC portion of the basin. Therefore, all waters are considered to be fully supporting the fish consumption category. No waters were monitored for fish consumption during this basinwide cycle because of the lack of any significant contaminant concerns in the Little Tennessee River basin.

### **Primary Recreation**

There are 237.3 stream miles and 16,879.2 lake acres currently classified for primary recreation in the Little Tennessee River basin. Primary recreation use support ratings are based on swimming advisories issued by the NC Department of Health and Human Services (DHHS). Approximately 58 percent of stream miles (136.8) and 40 percent of lake acres (6,731) were monitored for the protection of primary recreation by DWQ over the past five years (Table 2). Impaired waters account for 4.2 percent of monitored lake acres.

Table 2 Primary Recreation Use Support Summary (1999)

Primary Recreation Use Support Ratings	Monitored and Evaluated Waters*		Monitored Waters Only**	
	Miles	%	Miles	%
<b>Fully Supporting</b>	<b>136.8 mi</b> <b>16,599.2 ac</b>	<b>57.6%</b> <b>98.3%</b>	<b>136.8 mi</b> <b>6,451 ac</b>	<b>100%</b> <b>95.8%</b>
<b>Impaired</b>	0.0 mi 280 ac	<b>0.0%</b> <b>1.7%</b>	<b>0.0 mi</b> <b>280 ac</b>	<b>0.0%</b> <b>4.2%</b>
<i>Partially Supporting</i>	0.0 mi 280 ac	0.0% 1.7%	0.0 mi 280 ac	0.0% 0.0%
<i>Not Supporting</i>	0.0 mi 0.0 ac	0.0% 0.0%	0.0 mi 0.0 ac	0.0% 0.0%
<b>Not Rated</b>	<b>100.5 mi</b> <b>0.0 ac</b>	<b>42.4%</b> <b>0.0%</b>	<b>0.0 mi</b> <b>0.0 ac</b>	<b>0.0%</b> <b>0.0%</b>
<b>TOTAL</b>	<b>237.3 mi</b> <b>16,879.2 ac</b>		<b>136.8 mi</b> <b>6,731 ac</b>	

\* = Percent based on total of all streams, both monitored and evaluated.

\*\* = Percent based on total of all monitored streams.

### Water Supply

There are 530.6 stream miles and 2,426 lake acres currently classified for water supply in the Little Tennessee River basin. All were evaluated within the past five years; all are fully supporting. A basinwide summary of current water supply use support ratings is presented in Table 3.

Table 3 Water Supply Use Support Summary (1999)

Water Supply Use Support Ratings	Evaluated Waters	
	Miles	%
<b>Fully Supporting</b>	<b>530.6 mi</b> <b>2,426 ac</b>	<b>100%</b>
<b>Impaired</b>	<b>0.0 mi</b> <b>0.0 ac</b>	<b>0%</b> <b>0%</b>
<b>Not Rated</b>	<b>0.0 mi</b> <b>0.0 ac</b>	<b>0%</b> <b>0%</b>
<b>TOTAL</b>	<b>530.6 mi</b> <b>2,426 ac</b>	

### **Recommended Management Strategies for Restoring Impaired Waters**

The long-range mission of basinwide planning is to provide a means of addressing the complex problem of planning for increased development and economic growth while maintaining, protecting and enhancing water quality and intended uses of the Little Tennessee River basin's surface waters. Within this basinwide plan, DWQ presents management strategies and recommendations for those waters considered to be impaired or that exhibit some notable water quality problem.

Table 4 presents impaired waters in the Little Tennessee River basin, summaries of the recommended management strategies, and location of further information in the basinwide plan. All are partially supporting the aquatic life/secondary recreation use support category.

Subbasin	Chapter in Section B	Impaired Water	Use Support Rating	Potential Sources	Recommended Management Strategy
04-04-01	1 (pg 77)	<b>Cullasaja River+</b>	PS Aquatic Life/ Secondary Recreation	NP	DWQ Watershed Assessment and Restoration Project. DWQ will continue to work with local governments and resource agency staff to reduce NP pollution.
04-04-01	1 (pg 77)	<b>Mill Creek+</b>	PS Aquatic Life/ Secondary Recreation	NP	DWQ Watershed Assessment and Restoration Project. DWQ will continue to work with local governments and resource agency staff to reduce NP pollution.
04-04-01	1 (pg 77)	Little Tennessee River +	PS Aquatic Life/ Secondary Recreation	NP, P	DWQ will work with GA EPD to address any point source compliance issues. DWQ will continue to work with local governments, citizen groups and resource agency staff to reduce NP pollution.
04-04-02	2 (pg 88)	Beech Flats Prong	PS Aquatic Life/ Secondary Recreation	NP	No scientifically and economically defensible way to manage the extensive road cut has been found. Anakeesta rock formations should be avoided in the future.
04-04-04	4 (pg 102)	<b>Santeetlah Lake (West Buffalo Creek Arm)</b>	PS Aquatic Life/ Secondary & Primary Recreation	P	DWQ will reevaluate existing NPDES permits to trout farms with emphasis placed on total phosphorus effluent reductions. No new sources of nutrients into any arms of Santeetlah Lake will be permitted without rigorous evaluation.

Key: PS = Partially Supporting NP = Nonpoint sources  
BMP = Best Management Practice P = Point Sources

+ = Only limited progress towards developing and implementing NPS strategies for these impaired waters can be expected without additional resources.

**Bold = These waters are also on the 303(d) list, and a TMDL and/or management strategy will be developed to remove the water from the list.**

Major water quality problems leading to impairment in the basin include habitat degradation and excess nutrients. The latter is primarily from trout farming operations. Habitat degradation, including sedimentation, loss of riparian vegetation and streambank erosion, is primarily attributed to runoff from developed areas and agricultural activities. Problems from point sources from facilities outside of the state's jurisdiction are also contributing to impairment.

### Addressing Waters on the State's 303(d) List

For the next several years, addressing water quality impairment in waters that are on the state's 303(d) list will be a DWQ priority. Section 303(d) of the federal Clean Water Act requires states to develop a list of waters not meeting water quality standards or which have impaired uses. States are also required to develop Total Maximum Daily Loads (TMDLs) or management strategies for 303(d) listed waters to address impairment. EPA issued guidance in August 1997 that called for states to develop schedules for developing TMDLs for all waters on the 303(d) list within 8-13 years.

There are approximately 2,387 impaired stream miles on the state's 2000 303(d) list in NC. The rigorous and demanding task of developing TMDLs for each listed water during a 13-year time frame will require the focus of many resources. It will be a priority for North Carolina's water quality programs over the next several years to develop TMDLs for 303(d) listed waters.

### **Strategies for Addressing Notable Water Quality Impacts in Unimpaired Waters**

Often during DWQ's use support assessment, water quality concerns are documented for waters that are fully supporting designated uses. While these waters are not considered impaired, they are discussed so that attention and resources can be focused on these waters over the next basinwide planning cycle to prevent additional degradation or facilitate water quality improvement. Waters with notable water quality concerns in the Little Tennessee River basin include Crawford Branch in subbasin 04-04-01, Scotts Creek and Savannah Creek in subbasin 04-04-02, Silvermine Creek and Wine Spring Creek in subbasin 04-04-03, and Sweetwater Creek in subbasin 04-04-04.

### **Challenges Related to Achieving Water Quality Improvements**

To achieve the goal of restoring impaired waters throughout the basin, DWQ will need to work more closely with other state agencies and stakeholders to identify and control pollutants. DWQ plans to notify local agencies and others of water quality concerns for both impaired and unimpaired waters in the Little Tennessee River basin and work with them to conduct further monitoring and to locate sources of water quality protection funding for these unimpaired waters. The costs of restoration will be high, but several programs exist to provide funding for restoration efforts. These programs include the Clean Water Management Trust Fund, the NC Agricultural Cost Share Program, the Wetlands Restoration Program, and the federally funded Environmental Quality Incentives Program.

With increased development occurring, there will be significant challenges ahead in balancing economic growth with the protection of water quality in this mountainous basin. Point source impacts on surface waters can be measured and addressed through the basinwide planning process. Nonpoint sources of pollution can be identified through the basinwide plan, but actions to address these impacts must be taken at the local level. Such actions should include: development and enforcement of local erosion control ordinances; requirement of stormwater best management practices for existing and new development; development and enforcement of buffer ordinances; and land use planning that assesses impacts on natural resources. This basinwide plan presents many water quality initiatives and accomplishments that are underway within the basin. These actions provide a foundation on which future initiatives can be built.