

# 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 Hiwassee River basin was completed in 1997.

This draft document is the first five-year update of the *Hiwassee 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 Hiwassee 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 one public workshop held in the basin and subsequent discussions with local resource agency staff and citizens during draft plan development. 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.

## Hiwassee River Basin Overview

The headwaters of the Hiwassee River basin originate in the mountains of northern Georgia and flow north through North Carolina before veering west into Tennessee to join the waters of the Tennessee River. The entire Hiwassee River watershed drains 2,700 square miles of land, much of which lies in the Chattahoochee (Georgia), Nantahala (North Carolina) and Cherokee (Tennessee) National Forests. In the North Carolina portion of the basin, the Hiwassee River and its two major tributaries, the Nottely and Valley Rivers, drain more than 400,000 acres (644 square miles) of Clay and Cherokee counties in the southwestern corner of the state. Water flow is regulated by the Tennessee Valley Authority (TVA) for flood control and the production of hydroelectric power via three impoundments: Chatuge Lake on the Georgia-North Carolina state

line near Hayesville; Hiwassee Lake near Murphy; and Apalachia Lake adjacent to the Tennessee border.

Almost 70 percent of the basin is forested, and only about three percent of land falls into the urban/built-up category. Over a 15-year period between 1982 and 1997, the amount of forest and cultivated cropland in the basin decreased significantly, while the amount of developed land more than doubled (+14,700 acres). Land used for pasture also increased over the 15-year time frame (+4,000 acres). Population of the basin, based on 2000 census data, is estimated to be 31,271. Population is expected to increase approximately 28 percent to 40,063 over the next twenty years. While the resident population may be fairly low, the basin experiences significant seasonal population fluctuations from recreation and tourist travel.

The Hiwassee River basin contains 72 plant and animal species that are endangered, threatened, of special concern, or considered significantly rare by the NC Natural Heritage Program. Twenty-five of these are aquatic, including several endemic species that rely on good water quality as well as the basin's unique ecological conditions.

### **Assessment of Water Quality in the Hiwassee 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 (967.6) and lake acres (10,847.8) in the North Carolina portion of the Hiwassee River basin. Approximately 21

percent of stream miles (204.3) and 100 percent of lake acres were monitored for the protection of aquatic life and secondary recreation by DWQ during this basinwide planning cycle. In this category, there are currently no impaired waters in the North Carolina portion of the Hiwassee River basin. A basinwide summary of current aquatic life/secondary recreation use support ratings is presented in Table 1.

Table 1 Aquatic Life/Secondary Recreation Use Support Summary Information for Waters in the Hiwassee River Basin (1999)

Aquatic Life/Secondary Recreation Use Support Ratings	Monitored and Evaluated Waters*		Monitored Waters Only**	
	Miles and Acres	%	Miles and Acres	%
<b>Fully Supporting</b>	<b>714.0 mi 10,847.8 ac</b>	<b>74% 100%</b>	<b>204.3 mi 10,847.8 ac</b>	<b>100% 100%</b>
<b>Impaired</b>	<b>0.0</b>	<b>0%</b>	<b>0.0</b>	
<i>Partially Supporting</i>	<i>0.0</i>		<i>0.0</i>	
<i>Not Supporting</i>	<i>0.0</i>		<i>0.0</i>	
<b>Not Rated</b>	<b>253.6 mi 0.0 ac</b>	<b>26%</b>	<b>0.0 mi 0.0 ac</b>	
<b>TOTAL</b>	<b>967.6 mi 10,847.8 ac</b>		<b>204.3 mi 10,847.8 ac</b>	

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

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

### **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. 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 Hiwassee River basin.

### **Primary Recreation**

There are 30.3 stream miles and 10,847.8 lake acres currently classified for primary recreation (Class B) in the Hiwassee River basin. All (100 percent) were monitored by DWQ and the Tennessee Valley Authority over the past five years. Primary recreation use support ratings are based on swimming advisories issued by the NC Department of Health and Human Services (NCDHHS). Currently, there are no swimming advisories in the Hiwassee River basin and all waters classified for primary recreation are fully supporting. A basinwide summary of current use support ratings is presented in Table 2.

Table 2 Primary Recreation Use Support Summary Information for Waters in the Hiwassee River Basin (1999)

Primary Recreation Use Support Ratings	Monitored and Evaluated Waters*		Monitored Waters Only**	
	Miles	%	Miles	%
<b>Fully Supporting</b>	<b>30.3 mi</b> <b>10,847.8 ac</b>	<b>100%</b> <b>100%</b>	<b>30.3 mi</b> <b>10,847.8 ac</b>	<b>100%</b> <b>100%</b>
<b>Impaired</b>	<b>0.0 mi</b> <b>0.0 ac</b>		<b>0.0 mi</b> <b>0.0 ac</b>	
<b>Not Rated</b>	<b>0.0 mi</b> <b>0.0 ac</b>		<b>0.0 mi</b> <b>0.0 ac</b>	
<b>TOTAL</b>	<b>30.3 mi</b> <b>10,847.8 ac</b>		<b>30.3 mi</b> <b>10,847.8 ac</b>	

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

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

### Water Supply

There are 163.3 stream miles currently classified for water supply in the Hiwassee River basin. Approximately 79 percent of stream miles (128.4) were monitored within the past five years; all are fully supporting the water supply use. A basinwide summary of current water supply use support ratings is presented in Table 3.

Table 3 Water Supply Use Support Summary Information for Waters in the Hiwassee River Basin (1999)

Water Supply Use Support Ratings	Monitored and Evaluated Streams*		Monitored Streamss Only**	
	Miles	%	Miles	%
<b>Fully Supporting</b>	<b>163.3</b>	<b>100%</b>	<b>128.4</b>	<b>100%</b>
<b>Impaired</b>	<b>0.0</b>		<b>0.0</b>	
<b>Not Rated</b>	<b>0.0</b>		<b>0.0</b>	
<b>TOTAL</b>	<b>163.3</b>		<b>128.4</b>	

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

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

Currently, there are no impaired waters in the North Carolina portion of the Hiwassee River basin.

### **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, attention and resources should be focused on these waters over the next basinwide planning cycle to prevent additional degradation or to facilitate water quality improvement. Waters with notable water quality concerns in the Hiwassee River basin include Town Creek, Shooting Creek, Little Brasstown Creek, Valley River and Nottely River.

The most pressing water quality concern for these streams and throughout the Hiwassee River basin is habitat degradation. Habitat degradation includes sedimentation, bank erosion, channelization, lack of riparian vegetation, loss of pools or riffles, loss of woody habitat, and streambed scour. It is attributed to nonpoint source pollution. The primary sources of nonpoint source pollution in the Hiwassee River basin are runoff from construction sites, pasturelands, roads and developed areas. The task of quantifying nonpoint sources of pollution and developing management strategies for these waters is resource intensive. DWQ plans to notify local agencies and others of water quality concerns for these waters and work with them to conduct further monitoring and to locate sources of water quality protection funding for these unimpaired waters.

### **Water Quality Improvement Initiatives in the Hiwassee River Basin**

There are several initiatives in the Hiwassee River basin dedicated to improving and protecting water quality. The Hiwassee River Watershed Coalition is a nonprofit, grassroots organization made up of citizens from both Georgia and North Carolina, with a mission to improve water quality in the upper Hiwassee River basin. The Coalition received a grant for \$2.1 million from the Clean Water Management Trust Fund in 1998 for restoration work in the Brasstown Creek watershed. The benthic macroinvertebrate bioclassification for Brasstown Creek improved from Fair in 1994 to Good in 1999. The Coalition is now turning its focus toward the Valley River watershed.

In 1998, the Hiwassee River Basin Nonpoint Source Team (made up primarily of local natural resource agency staff) chose projects in the Town Creek and Little Brasstown Creek watersheds to implement nonpoint source pollution demonstration projects using Section 319 funds. The Clay County school system has been a particularly committed participant in the Hiwassee River Basin Nonpoint Source Team.

Additionally, there is a federally initiated interagency team of natural resource professionals in the Hiwassee River basin. The Hiwassee Interagency Team is made up primarily of federal and state agency staff from North Carolina, Tennessee and Georgia. The team meets quarterly to discuss water quality concerns and improvement projects in the entire Hiwassee River basin. DWQ participates on this team and has found that it allows a good mechanism for coordination of monitoring and sharing of information.

Because local natural resource agency staff participate with each of these groups, there is opportunity for them to guide citizens toward real water quality improvement in the Hiwassee River basin. The work that these groups do then enhances daily agency program activities (such as work accomplished through the Ag Cost Share program or the Environmental Quality Incentives Program). DWQ is just one (often small) partner working to reduce nonpoint source pollution and improve water quality in this basin.