

# SECTION 1 INTRODUCTION

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## 1.1 Overview of the Plan/Study Area

Lake Chatuge is a 7,000-acre impoundment of the Hiwassee River located in the Blue Ridge Mountains of North Georgia and Western North Carolina (Figure 1). The reservoir straddles the border of the two states and the area of land draining to it lies wholly within Towns County, GA and Clay County, NC. An area of land that drains to a specific point, in this case Chatuge Dam is called a watershed. The Lake Chatuge watershed (outlined in red on Figure 1) is the land area for which this plan is written.



The Lake Chatuge dam is the uppermost of four dams on the Hiwassee River, three of which were built and are still owned by the Tennessee Valley Authority (TVA). Nearby reservoirs include Lake Burton to the southeast in Rabun County, GA, Lake Nottely to the west in Union County, GA, Nantahala Lake to the northeast in Macon County, NC and Hiwassee and Apalachia Lakes to the northwest in Cherokee County, NC.

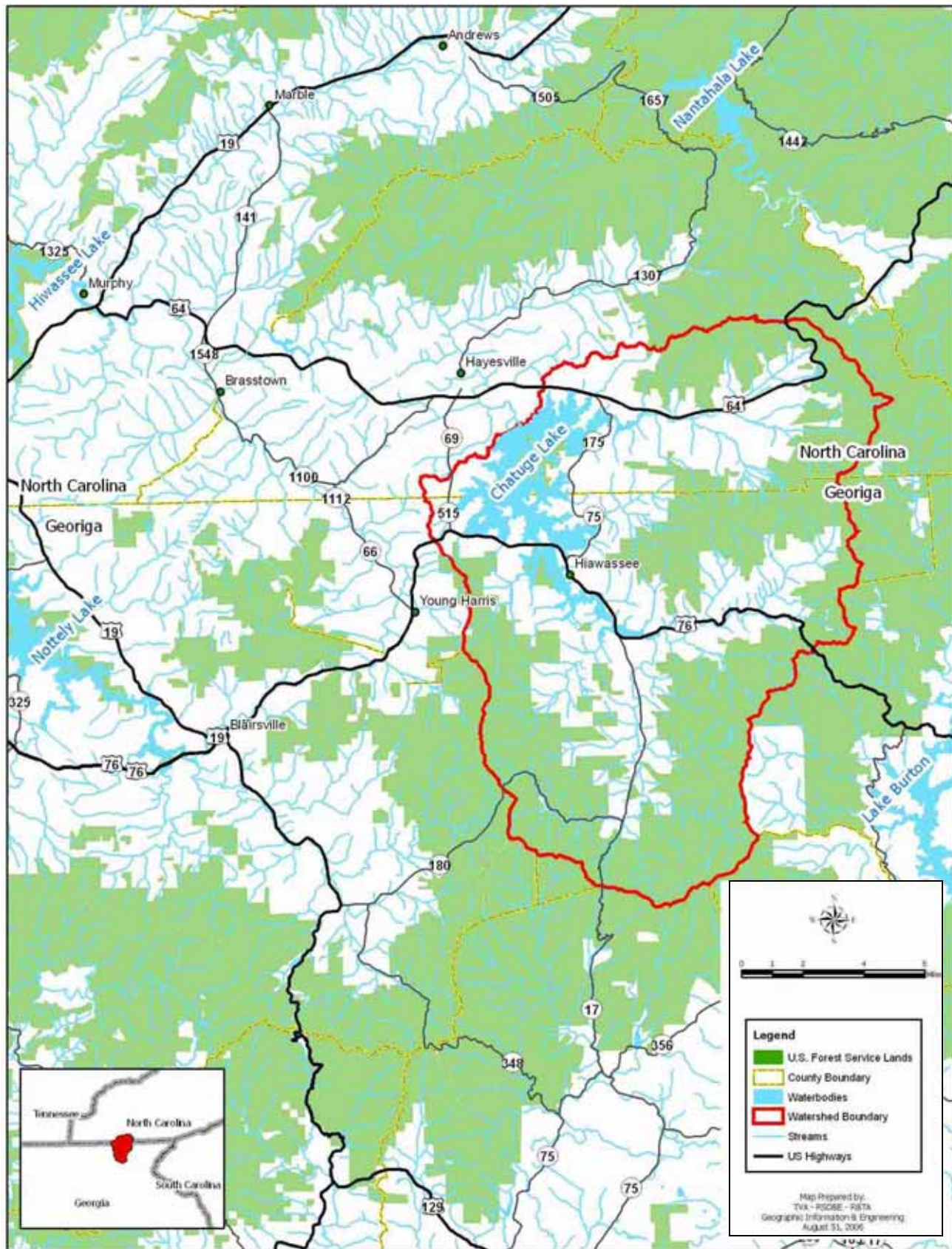
Lake Chatuge lies within three hours of drive time from four major cities in four different states: Atlanta, Georgia; Chattanooga, Tennessee; Greenville, South Carolina; and Asheville, North Carolina. Hiwassee, GA is the only municipality that lies within the watershed; however, Young Harris, GA and Hayesville, NC are located just a few miles outside the watershed boundary. A more in-depth description of Lake Chatuge and its watershed is provided in Section 2 beginning on page 6.

## 1.2 Plan Scope and Purpose

The scope of the Lake Chatuge Watershed Action Plan encompasses a wide variety of water quality concerns within the 189-square mile watershed (drainage area) of Lake Chatuge. Although the water quality concerns are described and discussed, the purpose of the Plan is to *recommend actions* that, if implemented properly, will result in an improvement in Lake Chatuge's ecological health rating as determined by TVA's Reservoir Vital Signs Monitoring Program.

The Action Plan is based on an extensive study undertaken by the Hiwassee River Watershed Coalition (HRWC), the methods and results of which are reported herein. However, this document is not intended to be a report on the study. It is intended to be an active document that all watershed stakeholders can use for facilitating water quality improvements in Lake Chatuge over the next 5-15 years.

Figure 1. Overview of the Lake Chatuge Watershed Action Plan Area



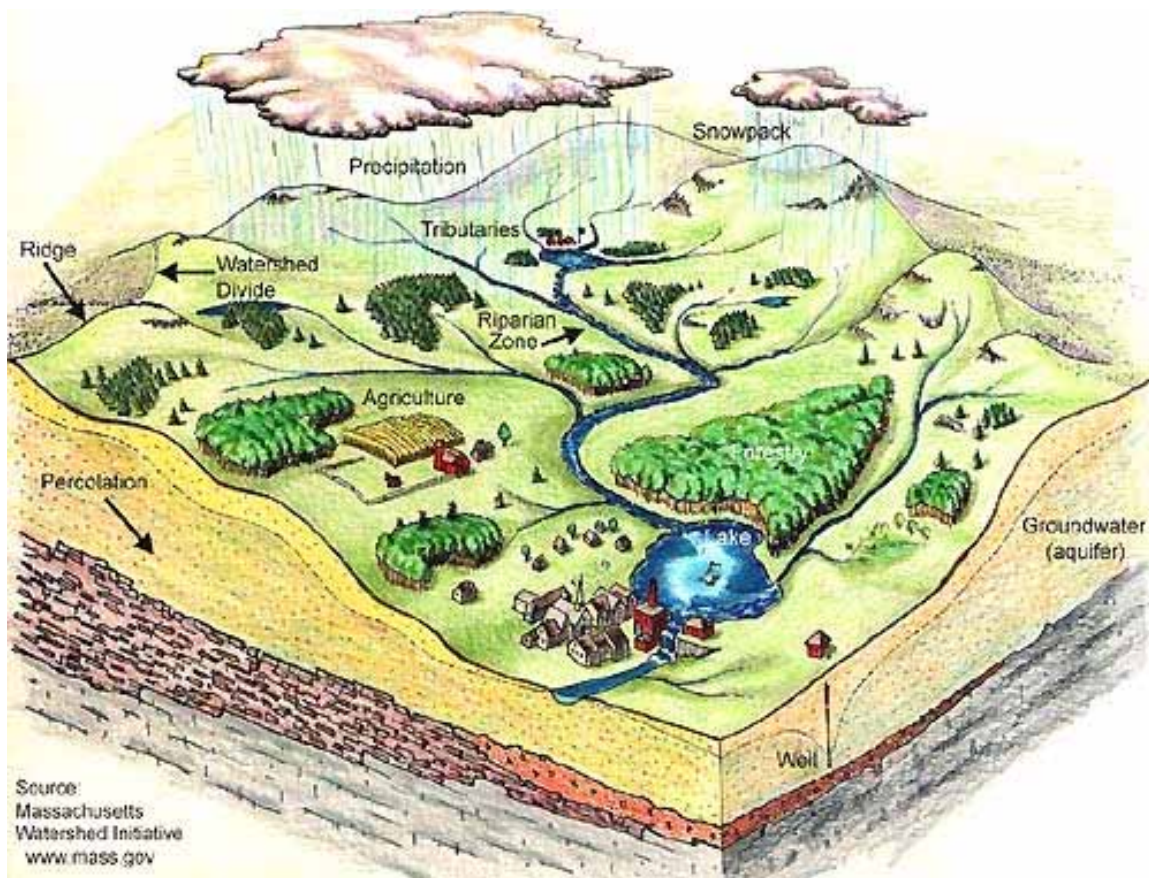
## 1.3 HRWC Approach to Water Quality Improvements

### 1.3.1 Watershed-Based Study & Plan

Depending on where each of us lives, we may cross several creeks, streams, branches, or maybe even rivers as we go about our business each day. Each stream we cross is part of a massive network of perhaps three million streams that drain to the rivers and, ultimately, to the sea. Each stream has its own watershed that encompasses all of the land that drains to the point where we cross it. Collectively, these small watersheds provide critical natural services that sustain or enrich our daily lives: they supply our drinking water, provide critical habitat for plants and animals, areas of natural beauty, and water bodies for recreation and relaxation. Our streams, rivers and lakes are important elements of our local geography, and confer a strong sense of place in our community.

Because streams, rivers, and reservoirs are interconnected (Figure 2), problems that arise must be addressed on a watershed basis. In other words, Lake Chatuge cannot be separated from the land that drains into it. All 189 square miles must be considered and cared for if Lake Chatuge is to be ecologically healthy and sustain good water quality.

Figure 2. Diagram of a Watershed



HRWC takes a “watershed approach” to investigating problems and implementing solutions. A watershed approach is a flexible framework for managing water resource quality and quantity within specified watersheds that includes stakeholder involvement and management actions supported by sound science and appropriate technology. The watershed planning process works within this framework by using a series of steps to characterize existing conditions, identify and prioritize problems, define management objectives, suggest protection or restoration strategies, and implement the necessary actions. The planning process involves understanding:

- land uses in the watershed and how they are changing;
- watershed residents and the economy;
- current water quality and stream/lake habitat conditions;
- threats to water quality and stream/lake habitat conditions; and
- actions needed to restore and protect water quality and stream/lake habitat conditions.

It took four years of study for HRWC to achieve this understanding of Lake Chatuge and its watershed but having a plan that is based on sound science is critical to the success of watershed restoration and protection!

### 1.3.2 Partnerships

Partnerships are critical to the all of work of the Hiwassee River Watershed Coalition, but particularly so when developing a watershed plan. HRWC was founded as a partnership between local residents, county governments, and the soil and water conservation districts with help from TVA and Natural Resources Conservation Service (NRCS) staff members. These commitments that date more than a decade remain viable and are largely responsible for the organization’s success.

Six years ago HRWC partnered with TVA to begin a “Lake Studies” program of work. The preliminary goal of the program was to “restore” Nottely and Chatuge Reservoirs to a “Good” ecological health rating. In 2001, HRWC received an appropriation from the Georgia legislature for the Lake Chatuge and Nottely work and over the last five years, TVA has more than matched the state “grant” with in-kind services and cash. TVA professionals collected the water quality data, conducted the computer modeling, and worked with HRWC staff to provide support for the publication of this Action Plan. This work would have likely taken much longer to accomplish without TVA’s help due to the time it takes HRWC to raise the needed funds for such a project. We are grateful.

A sound scientific study is not complete without field verification of data and peer review. In October 2002, before the professionals began collecting samples in December, HRWC began a volunteer monitoring program at the same locations included in the study, as well as several others. For 12 months, both the professionals and the volunteers collected samples monthly from the same locations. The volunteers’ samples were analyzed independently at the University of North Carolina-Asheville (UNCA). The local volunteer/UNCA data are closely comparable to the data collected by TVA. The volunteers have continued to monitor 10 sites in the Lake Chatuge watershed, insuring

that the data used to calibrate the computer models still portrays an accurate picture of what's going on in the watershed.

As for the computer modeling work, the models that were used are commonly accepted, widely-used models for reservoir watershed modeling and were independently deemed appropriate for use in this watershed. A copy of the calibration report that TVA produced was sent by HRWC to the supervisors of the modeling sections of the Water Protection Branch of the GA Environmental Protection Division and the Division of Water Quality of the NC Department of Environment & Natural Resources for independent review.

HRWC also worked closely with the City of Hiwassee, GA (and its consultants) and Towns County government associated with this project. HRWC wishes to thank the more than 50 local volunteers that have gone out on the third Saturday of every month for more than four years to collect water samples! HRWC recognizes that there are those who may read this document that have misgivings about TVA as an agency and do not know the dedicated individuals that are involved with this project. However, for decades TVA has provided significant financial and technical resources to the upper Hiwassee River watershed to further the cause of improved water quality, aquatic habitat, and biological communities, as well as environmental education. The list of partnerships associated with all of our activities, projects and programs is too long to publish in this document; however, more information is located on our website: <http://www.hrwc.net>.

### 1.3.3 Public Input

HRWC did solicit public comments and recommendations during the planning process; however, input from the general public was limited. The HRWC membership and staff of partner agencies and organizations provided invaluable information about their concerns regarding Lake Chatuge and recommendations that they have for improvements. But a well-advertised public meeting held in October 2005 at the Towns County High School auditorium only brought out 16 people. A few other presentations have since been made to various community groups including the Towns County Homeowners Association and the Young Harris College Institute for Continuing Learning. Several newspaper articles have also been published. However, HRWC estimates that only about 10% of the population of the Lake Chatuge watershed is aware of the results of the study.

Almost all of the public input received was through Community Input Surveys, which HRWC distributed at the public meeting and at other speaking engagements. The survey asked five questions:

1. What do you like about living here?
2. What do you think our communities will look like in 10 years?
3. Do you think these are positive or negatives changes? Why?
4. How would you like the future picture to be different?

The community input surveys show that Lake Chatuge, the surrounding mountains, and the streams that feed the lake are a large part of the reason people choose to live here. Every survey that was returned mentioned the beauty of the area; every respondent was

concerned about the way in which development was happening. The majority of the respondents were not native to the area and many indicated that they moved here because of the relatively unpolluted/unspoiled natural resources. All expressed concern about the health of Lake Chatuge. The survey remains available on the Coalition's website: <http://www.hrwc.net/lakechatuge.htm>.

## 1.4 Organization of the Plan

The remainder of this document is organized as follows:

- ❖ Section 2 describes the Lake Chatuge watershed providing a brief history of the area, discussing physical characteristics, land uses, and population.
- ❖ Section 3 discusses the need for this intensive study and Action Plan for improving the ecological health of Lake Chatuge.
- ❖ Section 4 describes methods for data collection and computer modeling of the watershed that were used during the 4-year study of Lake Chatuge.
- ❖ Section 5 presents the results and conclusions from the study of Lake Chatuge.
- ❖ Section 6 provides recommendations to various watershed "stakeholders" for improving the ecological health rating of Lake Chatuge.
- ❖ Section 7 outlines measurable management measures, a schedule for implementation, and milestones by which successful implementation of the Plan can be measured. It also discusses evaluation of progress.
- ❖ Section 8 discusses funding and sources of technical assistance.
- ❖ A Glossary is included beginning on page 55 after the References section.