



Algae

A Growing Problem for Lake Chatuge?

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. The reservoir was created by the Tennessee Valley Authority (TVA) in 1942 for the purpose of storing flood waters for TVA's Hiwassee and Apalachia Reservoirs downstream, as well as mainstream dams on the Tennessee River. Today Lake Chatuge is operated for many purposes, including flood control, augmentation of flows for navigation, hydropower production, protection of aquatic resources, and recreation. It is estimated to provide more than \$100 million in annual economic benefits locally and regionally.



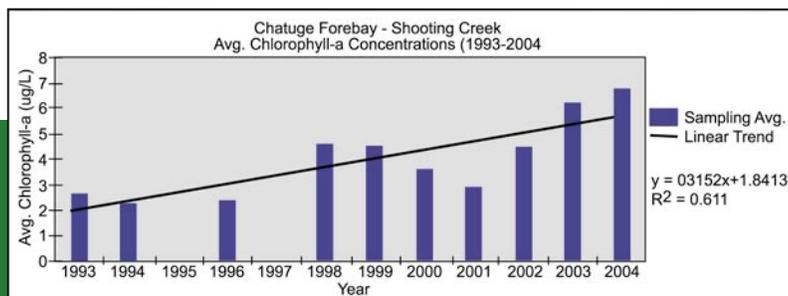
Problem

The Lake Chatuge watershed and surrounding area experienced explosive growth in the 1990s. The population continues to grow at rates higher than the states in which it lies. The ecological health rating that TVA routinely assigns to its reservoirs also dropped more than 25 points from Good to Poor during the 1990s.

Understanding the Underlying Causes of Decline

In 2001, HRWC received an appropriation from the Georgia legislature of \$216,000 to determine the causes of water quality degradation in the watersheds of Chatuge and Nottely Reservoirs and to develop an action plan for improving water quality conditions. The *Lake Chatuge Watershed Action Plan* was published in May 2007.

The *Lake Chatuge Watershed Action Plan* is the result of an intensive study of Lake Chatuge completed over a 5-year period by HRWC and TVA. The study shows that an excess of nutrients (nitrogen & phosphorus) is the leading cause of low ecological health ratings. This result was expected due to elevated concentrations of algae in the lake; however, the study provided a much larger volume of data and the ability to determine which sources were contributing most to the problem.



An increasing trend in algae concentrations (as indicated by chlorophyll-a measurements) has been observed in Lake Chatuge over the past decade.

Data indicates that the pollution is fairly equally contributed from three sources: pasturelands/livestock, runoff from residential/commercial developed areas, and treated wastewater discharges.

Problems contributing to the decline of Lake Chatuge's ecological health include:

- Soil erosion associated with steep cut or fill slopes and poor road design within developments
- Lack of woody vegetation along waterways to filter runoff
- Inappropriate application of commercial fertilizers on lawns, sports fields, and golf courses
- Waste from domesticated populations of Canada geese
- Leaking or failing septic systems and straight pipes of residential waste
- Overgrazing due to inadequate pasture management and/or poor winter feeding practices
- Direct deposit of animal waste into waterways (livestock with unlimited access to waterways)
- Lack of stormwater retention and treatment from commercially developed areas and highways

Discharges of treated wastewater, even when facilities are operating in full compliance with state and federal permits, are also significant sources of nutrient loading to Lake Chatuge. Currently, the City of Hiawassee is seeking a new permit for an expansion of its wastewater treatment plant discharge. Along with the expansion, the City is proposing a better treatment process that will reduce nutrient inputs to Lake Chatuge by a projected 56%.

Solutions

The *Lake Chatuge Watershed Action Plan* discusses positive solutions to these problems and outlines actions needed by landowners, businesses, local governments, HRWC, and others in order to achieve a 30% reduction in nutrient loading by 2012, preventing an increase in algae and putting Lake Chatuge on a path back to good ecological health!



**By working together we can restore
Lake Chatuge to good ecological health!**

The plan can be downloaded from the HRWC website: <http://www.hrwc.net>. You may also request a copy by mail for the \$3 cost of shipping by calling toll-free 877-863-7388.