

Lake Lanier Chlorophyll a TMDL Study

**2007 Field Study Plan
Module 2
Water Quality Sampling**

**Georgia Department of Natural Resources
Environmental Protection Division
Watershed Protection Branch
Watershed Planning & Monitoring Program
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Introduction

The primary objective of this module is the collection and analysis of discrete water quality samples at locations on the Upper Chattahoochee mainstem and tributaries. These data will be used to calibrate the watershed model for the Upper Chattahoochee River Basin.

Water Quality Sample Collection

The water quality data collection will extend from the southernmost reach of Lake Sidney Lanier to the Chattahoochee River in White county, approximately 3 miles southeast of Helen, as well as sections of the Chestatee River near Dahlonega. The data collection will include discrete mainstem and tributary water quality sampling.

At a minimum, these watershed sites will be sampled twice per month for the period from January 1st through December 31st 2007. Table 2-1 lists the locations of the water quality sampling sites included in this study.

Additional monthly samples will be collected by the USGS at the two main tributaries to Lake Lanier, the Chestatee River and the Chattahoochee River, and at Flat Creek. EPD personnel will collect samples at a total of 10 sites located on Lake Lanier. Five of these sites will be in the main stem of the lake and five will be located in major embayments. These sites will be sampled monthly during the growing season from April through October.

Field Measurements and Laboratory Analyses

Field measurements will be recorded at the time the water samples are collected. These measurements will include dissolved oxygen, water temperature, pH, and specific conductance. Collected water samples will be sent to the laboratory where they will be analyzed for the following parameter list: 5-day biochemical oxygen demand (BOD₅), total Kjeldahl nitrogen (TKN), ammonia nitrogen(NH₃), nitrate-nitrite nitrogen(NO₂-NO₃), total phosphorus, ortho-phosphate, dissolved; total organic carbon (TOC), and turbidity. Tape down or gage height will be measured and recorded at the time of each sample collection.

Personnel

EPD or USGS personnel will take the field measurements, collect the water samples and make any flow measurements. Samples collected during this study will be analyzed by either the Georgia EPD 14th Street Laboratory or the University of Georgia Agricultural and Environmental Sciences Laboratory.

Table 2-1. Location of Water Quality Sampling Sites

| Mainstem | Location | No. of site visits | Station ID |
|--------------------------------|--|---------------------------|-------------------|
| Chattahoochee Sub-Basin | | | |
| Chattahoochee River | Bottom Road near Helen | 24 | 1200010101 |
| Flat Creek | Glade Farm Road near Lula | 24 | 1200010301 |
| Baldrige Creek | Pilgrim Mill Road near Cumming | 24 | 1200010602 |
| Sawnee Creek | Pilgrim Mill Road near Cumming | 24 | 1200010603 |
| Four Mile Creek | Browns Bridge Road near Cumming | 24 | 1200010604 |
| Two Mile Creek | Wallace Ford Road near Cumming | 24 | 1200010605 |
| Sautee Creek | SR17/255 (Sky Lake Rd.) near Helen | 24 | 12016501 |
| Soquee River | State Road 105 near Demorest | 24 | 12028001 |
| Mossy Creek | New Bridge Road near Clermont | 24 | 12030025 |
| Mud Creek | Crane Mill Road near Alto | 24 | 12030031 |
| Little Mud Creek | Coon Creek Road near Alto | 24 | 12030041 |
| Chattahoochee River | Belton Bridge Road near Lula | 36 | 12030085 |
| West Fork Little River | Jess Helton Road near Clermont | 24 | 12030141 |
| East Fork Little River | Honeysuckle Road near Clermont | 24 | 12030151 |
| Wahoo Creek | Ben Parks Road near Murrayville | 24 | 12030171 |
| White Creek | New Bridge Road near Demorest | 24 | 12030301 |
| Yellow Creek | Yellow Creek Road (CR158) near Murrayville | 24 | 12036001 |
| Flat Creek | McEver Road near Gainesville | 36 | 12038501 |
| Balus Creek | McEver Road near Oakwood | 24 | 12038610 |
| Mud Creek | McEver Road near Flowery Branch | 24 | 12038781 |
| Big Creek | McEver Road near Buford | 24 | 12039501 |
| Sixmile Creek | Burrus Mill Road near Coal Mountain | 24 | 12039601 |
| Chestatee Sub-Basin | | | |
| Chestatee River | Roy Grindle Road (CR 49) near Dahlonega | 24 | 1200010501 |
| Shoal Creek | Ashbury Mill Road near Cleveland, | 24 | 1200010502 |
| Tesnatee Creek | Gene Nix Road near Cleveland | 24 | 1200010503 |
| Chestatee River | Copper Mines Road (CR 41) near Dahlonega | 24 | 1200010601 |
| Chestatee River | State Road 400 near Dahlonega | 36 | 12035401 |

| Lake Lanier | | | |
|---------------------|---|--|----------|
| Dam Pool | Upstream of Buford Dam | | 12040001 |
| Mid Lake | Upstream from Flowery Branch Confluence | | 12039401 |
| Browns Bridge | At Browns Bridge Road (SR369) | | 12038001 |
| Lanier Bridge | At Lanier Bridge (SR53) | | 12030201 |
| Boling Bridge | At Boling Bridge (SR53) | | 12037001 |
| Flat Creek Emb. | Flat Creek Embayment, 100' u/s M7FC | | 12038651 |
| Balus Creek Emb. | Balus Creek Embayment, 0.34 mi SE M6FC | | 12038681 |
| Mud Creek Emb. | Mud Creek Embayment, Betw Marina and Ramp | | 12038801 |
| Little River Emb. | Little River Embayment, Betw M1WC & 3LR | | 12030161 |
| Six Mile Creek Emb. | Six Mile Creek Embayment, 300' East M9SM | | 12039621 |

Quality Control

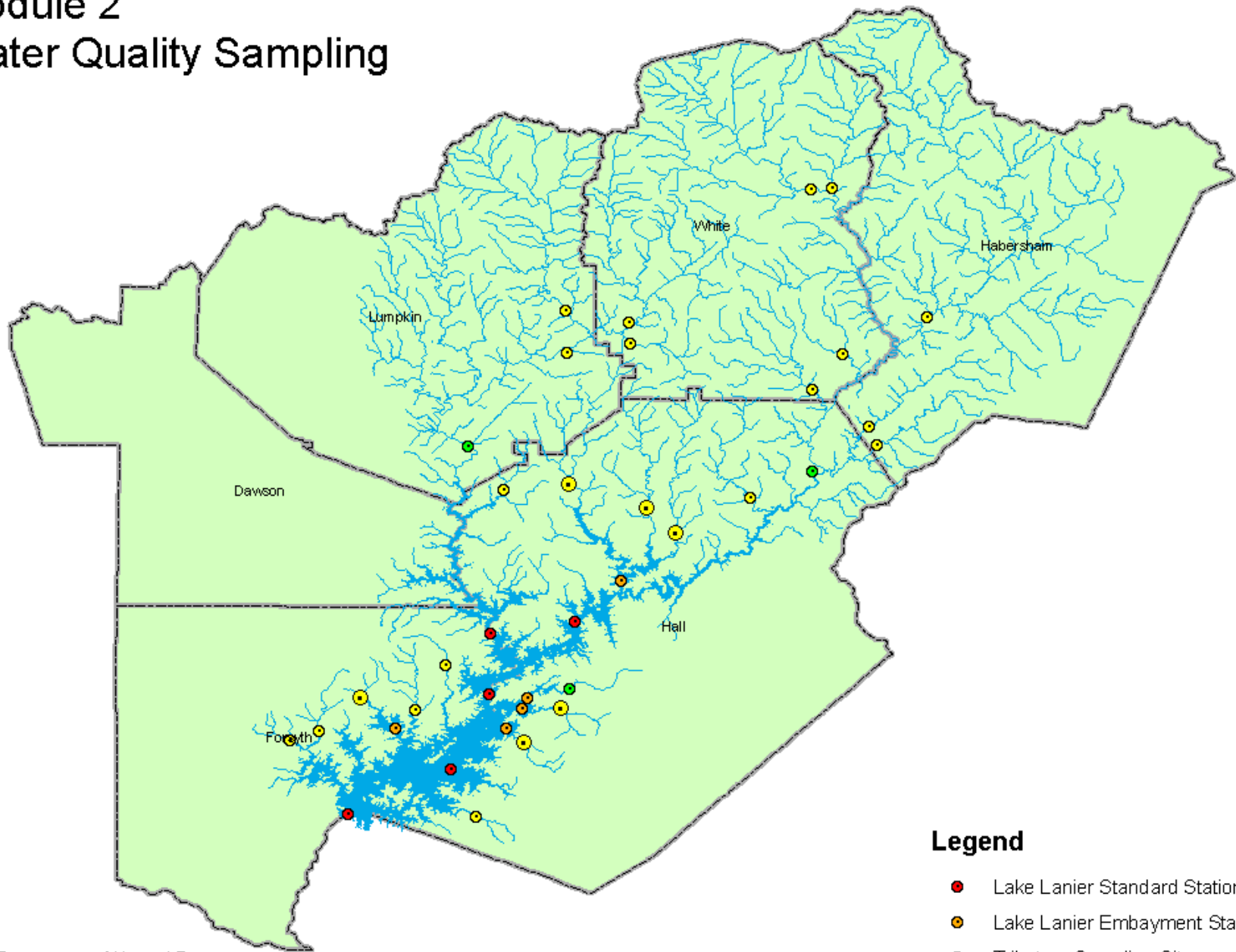
EPD will conduct all water quality sampling according to their Quality Assurance Plan. The samples will be analyzed according to the test methods outlined in:

Title 40, Code of Federal Regulations, Part 136.3, (latest revision), United States Federal Register, Office of the Federal Register, National Archives and Records Administration, Washington, D.C., 20001.

All water quality data will be entered and maintained in the Watershed Protection Branch's Water Resources Data-Base (WRDB).

Module 2

Water Quality Sampling



Legend

- Lake Lanier Standard Stations
- Lake Lanier Embayment Stations
- Tributary Sampling Sites
- USGS Standard Sites