Lake Lanier Chlorophyll *a* TMDL Study

2007 Field Study Plan
Module 4
Wastewater Treatment Facility Sampling & Data Collection

Georgia Department of Natural Resources
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Introduction

The primary objective of this module is to collect effluent composite samples from State-permitted National Pollutant Discharge Elimination System (NPDES) facilities within the study area. Major and Minor dischargers in the study area have been selected for sampling and are listed in Table 4-1 The population of dischargers includes Municipal and Industrial facilities. Sampling activities will be conducted in conjunction with Integrated Compliance Information System (ICIS) reportable inspections. Personnel of the Facilities Monitoring Unit (FMU) will perform the inspections and effluent sampling. Samples collected will be "split" with the permittees' laboratories for comparison of analytical results. The inspections and sampling (including repeat sampling of Major Dischargers) will be performed during the intensive project study period of April through mid-October 2007.

A secondary objective of this module is retrieval and compilation of effluent data from facility Discharge Monitoring Reports (DMRs) and Operations Monitoring Reports (OMRs). Individual laboratory results for effluent parameter monitoring will be assembled and tabulated where possible. This information will be obtained from the permittees via spreadsheet or other electronic format where available. In all other cases the necessary records will be reviewed and data required will be entered and maintained in the Watershed Protection Branch's Water Resources Data-Base (WRDB).

Study Area

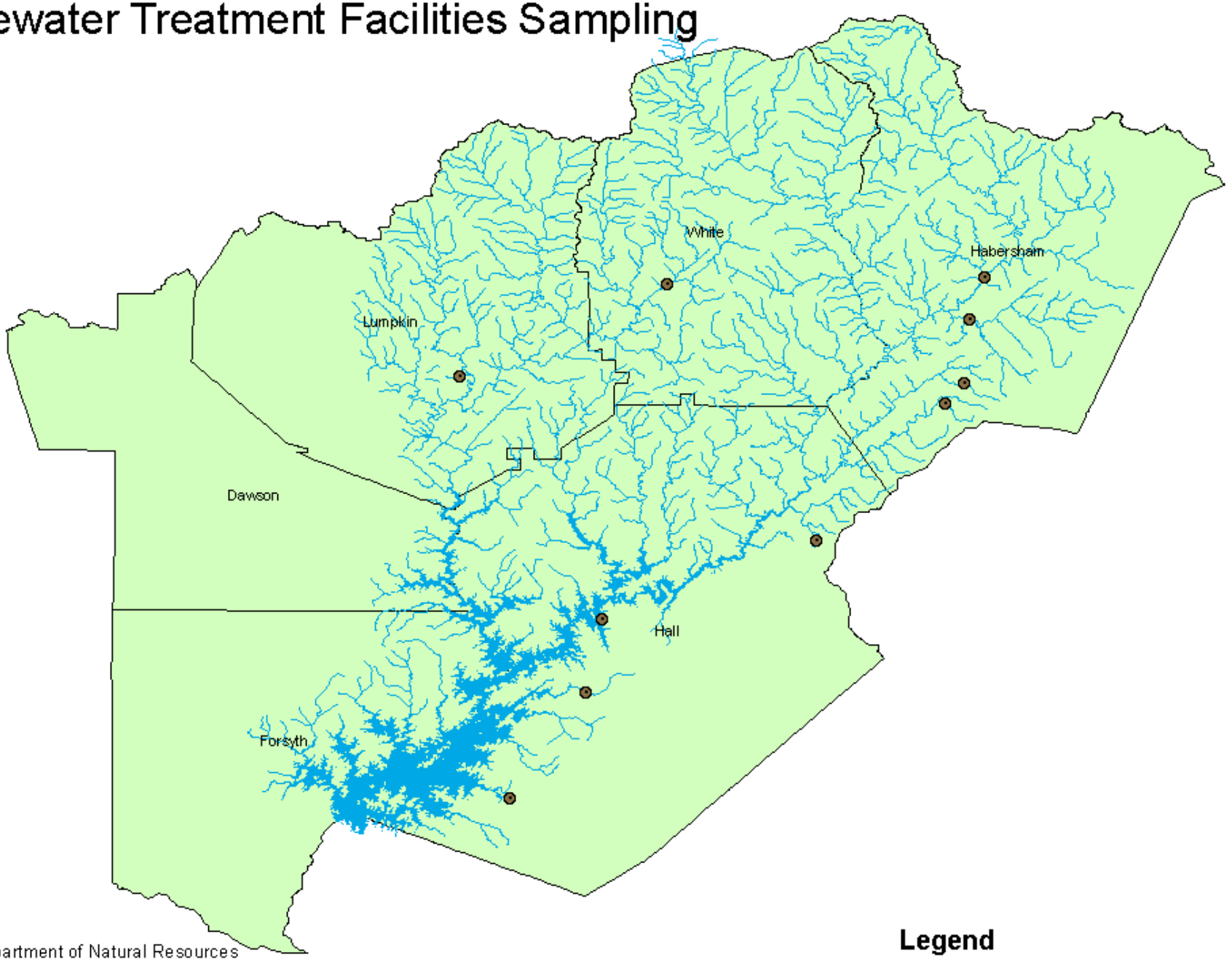
The 2007 project will be performed in the Lake Lanier watershed in north Georgia. Administratively the area of concern is within the Environmental Protection Division's Mountain and Northeast Districts.

NPDES facilities within the Lake Lanier drainage basin have been selected for sampling. Many of the dischargers were sampled during calendar year 2005 as part of the River Basin Management Plan (RBMP) sampling initiative. Table 4-1 lists the facilities that will be inspected and sampled during the intensive study period.

Table 4-1 Sampling Inspections For Lake Lanier Chlorophyll *a* TMDL Study
Intensive Sampling Period
Calendar 2007

Dischargers	Receiving Stream	NPDES Permit Number	Major	Minor
Baldwin WPCP	Little Mud Creek	GA0033243		X
Clarkesville WPCP	Soquee River	GA0032514		X
Cleveland WPCP	Tesnatee Creek	GA0036820		X
Cornelia WPCP	Little Mud Creek	GA0021504	X	
Cumming-Lanier Beach South	Lake Lanier	GA0031674		X
Dahlonega WPCP	Yahoola Creek	GA0026077	X	
Demorest WPCP	Hazel Creek	GA0032506		X
Flowery Branch WPCP	Lake Lanier	GA0031933		X
Gainesville-Flat Creek WPCP	Flat Creek	GA0021156	X	
Gainesville-Linwood Drive WPCP	Lake Lanier	GA0020168	X	
Gwinnett Co.-F. Wayne Hill/NW	Chattahoochee R.	GA0026433	X	
Habersham On Lanier WPCP	Lake Lanier	GA0030261		X
Lake Lanier Islands WPCP	Lake Lanier	GA0049115		X
Lula WPCP	Lula Branch	GA0024767		X
Scoville Manufacturing	Soquee River	GA0001112		X

Module 4
Wastewater Treatment Facilities Sampling



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Legend

- Wastewater Facilities Monitoring

Sampling Methodology

FMU personnel will collect twenty-four hour effluent composite samples that will be analyzed for the parameters listed in Table 4-2.

Table 4-2 Chemical Analysis Parameters

Parameter
BOD_5 (or $CBOD_5$ if permit-specified)
Total Suspended Solids
Total Kjeldahl Nitrogen *
Ammonia-Nitrogen *
Nitrates + Nitrites *
Total Phosphorous *
Orthophosphate *

* Nutrient parameter suite

Effluent composite samples will be collected using automatic sampling equipment (ISCO Model 3700). One or more subsample aliquots will be collected per hour for the twenty-four hour compositing period. Subsamples will be manually flow-proportioned when the effluent flow rate varies by more than fifteen percent during the compositing interval. Nutrient samples will be preserved on-site and all samples will be cooled during the compositing process, storage and transportation to the laboratory.

Field determinations will be made of the parameters listed in Table 4-3.

Table 4-3 Field Parameters

Parameter
Dissolved Oxygen
pH
Temperature
Specific Conductivity

Data on instantaneous flow rates and cumulative (totalized) flow will be retrieved or generated as a part of normal inspection procedures.

Sampling Quality Control

Sampling procedures, sampling equipment preparation and sample preservation and handling will be performed in accordance with the guidance contained in the following documents:

Water Quality-Quality Assurance Manual, June 1999, Georgia Department of Natural Resources, Environmental Protection Division, Water Protection Branch, Atlanta, Georgia, 30354.

Environmental Investigations Standard Operating Procedures and Quality Assurance Manual, March 1997, United States Environmental Protection Agency, Region 4, Athens, Georgia, 30605.

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 methods, protocols, and procedures regarding sampling locations, representative sampling and accurate effluent characterization will apply in the same manner as for routine compliance inspection sampling. Facility representatives will be consulted regarding normal transient phenomena expected during the compositing period and efforts will be made to reflect these events in the composite samples. The inspectors will note nonstandard discharges such as variations in turbidity, gross solids losses or unusual coloration as well as the time intervals corresponding to the events. Factors contributing to significant variations in effluent quality during the compositing interval will be determined where possible.

Split Sample Data Comparability

Composite samples will be split with the facilities' laboratories for comparison of analytical results. The permittees will be required to submit test results for those parameters included on their NPDES permits. Facility data will be compared with results obtained by EPD's Water Quality Laboratory as part of the usual Compliance Sampling Inspection report preparation process. Comparisons are based on the statistical tool Percent Relative Standard Deviation (%RSD). The Facilities Monitoring Unit has developed Acceptability Standards for many parameters based on hundreds of sets of split samples collected throughout the State. Acceptability Standards are specific for each parameter and are further selective within limited concentration ranges.

At the conclusion of the 2007 study, all split sampling data comparisons will be summarized in a separate report.