LAKE & RESERVOIR ASSESSMENTS
CAPE FEAR RIVER BASIN

University Lake

Intensive Survey Unit
Environmental Sciences Section
Division of Water Quality
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TABLE OF CONTENTS

Figures

Tables

GLOSSARY

Algae	Small aquatic plants that occur as single cells, colonies, or filaments. May also be referred to as phytoplankton, although phytoplankton are a subset of algae.
Algal biovolume	The volume of all living algae in a unit area at a given point in time. To determine biovolume, individual cells in a known amount of sample are counted. Cells are measured to obtain their cell volume, which is used in calculating biovolume
Algal density	The density of algae based on the number of units (single cells, filaments and/or colonies) present in a milliliter of water. The severity of an algae bloom many be determined by the algal density as follows: Mild bloom = 20,000 to 30,000 units/ml Severe bloom = 30,000 to 100,000 units/ml Extreme bloom = Greater than 100,000 units/ml
Algal Growth Potential Test (AGPT)	A test to determine the nutrient that is the most limiting to the growth of algae body of water. The sample water is split such that one sub-sample is given additional nitrogen, another is given phosphorus, a third may be given a combination of nitrogen and phosphorus, and one sub-sample is not treated and acts as the control. A specific species of algae is added to each sub-sample and is allowed to grow for a given period of time. The dry weights of algae in each sub-sample and the control are then measured to determine the rate of productivity in each treatment. The treatment (nitrogen or phosphorus) with the greatest algal productivity is said to be the limiting nutrient of the sample source. If the control sample has an algal dry weight greater than 5 mg/L, the source water is considered to be unlimited for either nitrogen or phosphorus.
Centric diatom	Diatoms are photosynthetic algae that have a siliceous skeleton (frustule) and are found in almost every aquatic environment including fresh and marine waters, soils, in fact almost anywhere moist. Centric diatoms are circular in shape and are often found in the water column.
Chlorophyll *a*	Chlorophyll *a* is an algal pigment that is used as an approximate measure of algal biomass. The concentration of chlorophyll *a* is used in the calculation of the NCTSI, and the value listed is a lake-wide average from all sampling locations.
Clinograde	In productive lakes where oxygen levels drop to zero in the lower waters near the bottom, the graphed changes in oxygen from the surface to the lake bottom produces a curve known as clinograde curve.
Coccoid	Round or spherical shaped cell
Conductivity	This is a measure of the ability of water to conduct an electrical current. This measure increases as water becomes more mineralized. The concentrations listed are the range of values observed in surface readings from the sampling locations.
Dissolved oxygen	The range of surface concentrations found at the sampling locations.
Dissolved oxygen saturation	The capacity of water to absorb oxygen gas. Often expressed as a percentage, the amount of oxygen that can dissolved into water will change depending on a number of parameters, the most important being temperature. Dissolved oxygen saturation is inversely proportion to temperature, that is, as temperature increases, water's capacity for oxygen will decrease, and vice versa.
Eutrophic	Describes a lake with high plant productivity and low water transparency.

Eutrophication	The process of physical, chemical, and biological changes associated with nutrient, organic matter, and silt enrichment and sedimentation of a lake.
Limiting nutrient	The plant nutrient present in lowest concentration relative to need limits growth such that addition of the limiting nutrient will stimulate additional growth. In north temperate lakes, phosphorus (P) is commonly the limiting nutrient for algal growth
Manganese	A naturally occurring metal commonly found in soils and organic matter. As a trace nutrient, manganese is essential to all forms of biological life. Manganese in lakes is released from bottom sediments and enters the water column when the oxygen concentration in the water near the lake bottom is extremely low or absent. Manganese in lake water may cause taste and odor problems in drinking water and require additional treatment of the raw water at water treatment facilities to alleviate this problem.
Mesotrophic	Describes a lake with moderate plant productivity and water transparency
NCTSI	North Carolina Trophic State Index was specifically developed for North Carolina lakes as part of the state's original Clean Lakes Classification Survey (NRCD 1982). It takes the nutrients present along with chlorophyll *a* and Secchi depth to calculate a lake's biological productivity.
Oligotrophic	Describes a lake with low plant productivity and high water transparency.
pH	The range of surface pH readings found at the sampling locations. This value is used to express the relative acidity or alkalinity of water
Photic zone	The portion of the water column in which there is sufficient light for algal growth. DWQ considers 2 times the Secchi depth as depicting the photic zone.
Secchi depth	This is a measure of water transparency expressed in meters. This parameter is used in the calculation of the NCTSI value for the lake. The depth listed is an average value from all sampling locations in the lake.
Temperature	The range of surface temperatures found at the sampling locations.
Total Kjeldahl nitrogen	The sum of organic nitrogen and ammonia in a water body. High measurements of TKN typically results from sewage and manure discharges in water bodies.
Total organic Nitrogen (TON)	Total Organic Nitrogen (TON) can represent a major reservoir of nitrogen in aquatic systems during summer months. Similar to phosphorus, this concentration can be related to lake productivity and is used in the calculation of the NCTSI. The concentration listed is a lake-wide average from all sampling stations and is calculated by subtracting Ammonia concentrations from TKN concentrations.
Total phosphorus (TP)	Total phosphorus (TP) includes all forms of phosphorus that occur in water. This nutrient is essential for the growth of aquatic plants and is often the nutrient that limits the growth of phytoplankton. It is used to calculate the NCTSI. The concentration listed is a lake-wide average from all sampling stations.
Trophic state	This is a relative description of the biological productivity of a lake based on the calculated NCTSI value. Trophic states may range from extremely productive (Hypereutrophic) to very low productivity (Oligotrophic)
Turbidity	A measure of the ability of light to pass through a volume of water. Turbidity may be influenced by suspended sediment and/or algae in the water.
Watershed	A drainage area in which all land and water areas drain or flow toward a central collector such as a stream, river, or lake at a lower elevation.

Overview

The Cape Fear River Basin is the largest river basin in the state, covering 9,149 square miles in 24 counties. There is an estimated 6,300 miles of streams and rivers in the basin confined to the Piedmont and Coastal Plain ecoregions. The Cape Fear River is formed by the confluence of the Deep and Haw Rivers at the Chatham/Lee County line. B. Everett Jordan Reservoir is the largest impoundment in the basin. Several large tributaries join the river as it flows towards the Atlantic Ocean near Southport: Upper and (Lower) Little Rivers, Rockfish Creek, Black River, South River and the Northeast Cape Fear River. The basin is characterized by urban and industrialized areas around the cities of Greensboro, High Point, Burlington, Chapel Hill, and Durham in the upper part of the watershed and around Fayetteville and Wilmington in the middle and lower part. Fort Bragg Military Reservation occupies a large area in the middle of the basin.

Thirty lakes were sampled in this river basin by DWQ staff in 2008. Of these lakes, Randleman Lake was the only lake to be sampled for the first time by DWQ. Most lakes were sampled monthly from May through September for a total of five sampling events to assess ambient lake conditions. Some lakes were targeted for use support assessment based on know water quality issues and were sampled twice per month for a total of 10 sampling events. These lakes included Lake Mackintosh, Graham-Mebane Reservoir, Cane Creek Reservoir, University Lake and Rocky River Reservoir. Four lakes are listed on the 2006 303(d) List. In addition to previous listing for violations of the state chlorophyll a standard, Jordan Lake was listed for elevated turbidity and pH, High Point Lake was listed for elevated chlorophyll *a* values and Oak Hollow Lake (High Point Reservoir) was listed for elevated turbidity. Bay Tree Lake (Black Lake) was placed on the 303(d) List in 1998 due to a fish consumption advisory for elevated levels of mercury. (http://h2o.enr.state.nc.us/tmdl/General_303d.htm).

Lakes in the Cape Fear River Basin located south and east of I-85 have been placed under a fish consumption advisory by the North Carolina Department of Health and Human Resources, Division of Public Health due to mercury contamination (http://www.schs.state.nc.us/epi/fish/current.html). Blackfish (bowfin), largemouth bass and chained pickerel (jack fish) in this area have been found to have high mercury levels.

Following the description of the assessment methodology used for the Cape Fear River Basin, there are individual summaries for each of the lakes and a two-paged matrix that distills the information used to make the lakes use support assessments (Appendix A). Sampling data used in the decision making process for the use support matrix are presented in Appendix B.

Assessment Methodology

For this report, data from January 1, 2004 through September 30, 2008 were reviewed. With the exception of Jordan lake, all lakes were sampled only during the summer of 2008 in May through September. Data were assessed for excursions of the state's class C water quality standards for chlorophyll *a*, pH, dissolved oxygen, water temperature, and turbidity. Other parameters discussed in this report include Secchi depth and percent dissolved oxygen saturation. Secchi depth provides a measure of water clarity and is used in calculating the trophic or nutrient enriched status of a lake. Percent dissolved oxygen saturation gives information on the amount of dissolved oxygen in the water column and may be increased by photosynthesis or depressed by oxygen-consuming decomposition.

On lakes without obvious segmentation or differences in hydrology and morphology between stations, all samples taken on a particular sampling date regardless of station are treated as replicates and the average concentration is used to determine if the standards are being met. Readings of pH are the only exception as it is inappropriate to average pH values. See the matrix at the end of this report for how the stations are grouped.

A water quality standard is exceeded (denoted by CE in matrix) if data values do not meet the state's water quality standard for more than 10% of the samples where the sample size consists of 10 or more observations for the basinwide assessment period. Ideally, ten observations are needed to provide sufficient data for a reasonable interpretation of water quality conditions within the lake or reservoir. Fewer observations increase the possibility of misinterpreting random unusual conditions as representative of ongoing water quality trends, but are still useful for identifying possible water quality issues and targeting particular lakes for more intensive study and support assessment. If the water quality standard is exceeded, either in less than 10% of the data collected during the assessment period or if the sample observation size is less than 10 for the basinwide assessment period, then the water quality standard for that parameter is designated exceeded (E in the matrix).

Additional data considered as part of the use support assessment include historic DWQ water quality data, documented algal blooms and/or fish kills, problematic aquatic macrophytes, or listing on the EPA's 303(d) List of Impaired Waters.

Lakes receive an overall rating of Supporting or Impaired when 10 or more samples per water quality criteria are collected for evaluation within the basinwide assessment period. Otherwise, the lake is considered as Not Rated. The exception is for a lake listed on the 303(d) List of Impaired Waters or where additional data indicates water quality problems not captured during sampling. These lakes are listed as Impaired along with the reason for the impairment.

For a more complete discussion of lake ecology and assessment, please go to http://www.esb.enr.state.nc.us/. The 1990 North Carolina Lake Assessment Report (downloadable from this website) contains a detailed chapter on ecological concepts that clarifies how the parameters discussed in this review relate to water quality and reservoir health.

LAKE & RESERVOIR ASSESSMENTS

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Reidsville Lake

Reidsville Lake is a water supply reservoir located on Troublesome Creek just outside of, and owned by, the City of Reidsville. The topography of the watershed is characterized by rolling hills and land use is mainly agricultural (row crop and pastures) along with residential and commercial development. Rockingham County has limited activities in the lake watershed with strict zoning laws; the reservoirs have a 100-foot buffer with a 50-foot buffer on all flowing streams. A public city park with a boat launch area is located off SR 2435.

DWQ staff sampled Reidsville Lake monthly from May through August 2008. Lakewide Secchi depths ranged from 6.8 meters in May to 1.1 meters in July, indicating that the water clarity in the lake was very good. Surface water temperatures, dissolved oxygen and pH values were within state water quality standards. Lake stratification was present in June through August. Hypoxic conditions near the dam occurring at a depth of approximately four meters from the surface (depth to bottom approximately six meters).

Total phosphorus ranged from low to moderate as did total organic nitrogen and total Kjeldahl nitrogen. Ammonia and nitrite plus nitrate were elevated in may and dropped to below DWQ laboratory detection levels in June through August. This decrease in concentration may have been due to an increase in productivity within the lake as the water temperatures and daylight increased through the summer months. Lakewide mean chlorophyll *a* values, which ranged from 12 to 18 µg/L, were similar to those observed in 1981, 1987 and 1993. In August, Hydrilla, an invasive aquatic plant, was observed near the boat ramp and along the shore.

Based on the calculated NCTSI scores, Reidsville Lake was determined to have moderate biological productivity (mesotrophic) in 2008. This lake was also mesotrophic in previous sampling years beginning in 1981 with the exception of 2003 when it was found to be very productive (eutrophic).

Lake Hunt

Lake Hunt is a recreational lake located in Reidsville, North Carolina. The City of Reidsville owns the lake, which was built in 1956. The boat launch area is privately owned and access by the public is restricted. Lake Hunt was Reidsville's primary water supply until Reidsville Lake was built in 1979. Lake Hunt is fed by an unnamed tributary to Troublesome Creek.

This lake was sampled four times from May through August 2008. Lakewide mean Secchi depths ranged from 0.9 to 1.1 meters, suggesting good water clarity. Total phosphorus concentrations ranged from low to moderate while total organic nitrogen and total Kjeldahl nitrogen ranged from moderate to elevated. Ammonia and nitrite plus nitrate were less than the DWQ laboratory's detection levels from May through August. Chlorophyll *a* values ranged from moderate to elevated. These values, however, did not exceed the state water quality standard of 40 µg/L. 2008 chlorophyll *a* values were greater than those observed by DWQ staff during previous sampling trips in 1981 through 1993, yet lower than those observed in 2003. DWQ field staff noted the presence of a green coloration of the lake water in 2008 which may suggest increased algal productivity in the lake.

Lake Hunt was determined to be very biologically productive (eutrophic) in 2008. This lake was also eutrophic in 2003 and mesotrophic or moderately productive in 1981 through 1993.

Lake Brandt

Lake Brandt is one of two primary water supplies for the City of Greensboro. Reedy Fork Creek and Horsepen Creek are the main tributaries to the lake. The shoreline is forested and the watershed consists of a mixture of residential developments, pastures, row crop fields and scattered small businesses.

Lake Brandt was sampled monthly from May though August in 2008. Secchi depths at the three lake sampling sites were less than a meter on each of the four sampling trips, indicating poor water clarity. Nutrient concentrations were moderate with the exceptions of ammonia and nitrite plus nitrate which were below the DWQ laboratory's detection levels. In August, Lake Brandt was strongly stratified. Hypoxic conditions occurred at a depth of three meters from the surface near the dam (depth to bottom = 5.3 meters). Staff field notes indicate that the lake water had a green color suggestive of elevated algal productivity. The lakewide mean chlorophyll *a* concentration in Lake Brandt ranged from 13 to 38 µg/L.

Based on the calculated NCTSI scores, Lake Brandt was determined to be very biologically productive or eutrophic. Lake Brandt had also been determined to be eutrophic on previous DWQ sampling efforts since 1981.

Lake Townsend

Lake Townsend was built in 1969 by the City of Greensboro to provide drinking water for the area. This reservoir drains a watershed which includes Lake Higgins and Lake Brandt located upstream on Reedy Fork Creek. Although mean retention time of this reservoir is not known, it takes an estimated seven to eight months for water to travel from Lake Higgins to the dam at Lake Townsend. A public park operated by the City of Greensboro Parks & Recreation Department is located within the Bryan Park Complex off Bryan Park Road. Recreational activities permitted at Lake Townsend include sailing, canoeing and fishing. The immediate shoreline of Lake Townsend consists of forested areas and a golf course. The watershed is a mix of urban development, residential development, and agriculture (pastures and row crop fields).

Lake Townsend was sampled once a month from May through August 2008. Surface dissolved oxygen, water temperature and pH values were within applicable state water quality standards. Lakewide mean Secchi depths ranged from 0.7 to 1.0 meter. The lowest Secchi depths were observed in the upper end of the lake. The highest turbidity values for the lake were also observed at this location and, in August, a turbidity value of 28 NTU was found at this site. This value is greater than the state water quality standard for class C waters of 25 NTU for lakes and reservoirs.

Total phosphorus concentrations in Lake Townsend ranged from low to elevated, with the highest concentrations found at the upstream lake sampling site. Total Kjeldahl nitrogen and total organic nitrogen concentrations were also elevated at this site. Ammonia and nitrite plus nitrate were less than the DWQ Water Quality Laboratory's detection levels in 2008. Lakewide mean chlorophyll *a* values were less than the state water quality standard of 40 µg/L. The chlorophyll *a* concentration at the sampling site in the upper end of Lake Townsend was consistently greater than values at the other two lake sampling site (mid-lake and near the dam). In August, the chlorophyll *a* concentration at this sampling site was 52 µg/L and was the first chlorophyll *a* value recorded for Lake Townsend that was greater than the state water quality standard since 1990 when the reservoir was first monitored by DWQ.

Some aquatic plants were observed in Lake Townsend but were not identified. Creeping water primrose (*Ludwigia hexapetala)* had been previously found in this lake and the City of Greensboro received assistance from the NC Division of Water Resources, Aquatic Weed Control Program to control this plant via chemical treatments.

Based on the calculated NCTSI scores for 2008, Lake Townsend was determined to be very biologically productive (eutrophic). This lake has been consistently eutrophic since it was first monitored by DWQ in 1990.

Lake Higgins

Lake Higgins is one of three lakes used by the City of Greensboro as a water supply. An impoundment of Brush Creek, this lake drains into Lake Brandt, which, in turn, discharges into Lake Townsend. A public park operated by the City of Greensboro Parks & Recreation Department is located at Lake Higgins off Hamburg Mill Road. Recreational activities include fishing, sailing and canoeing.

This lake was sampled four times by DWQ staff in 2008. Lakewide mean Secchi depths were less than one meter, indicating low water clarity in Lake Higgins. Turbidity values, however, were less than the state water quality standard of 25 NTU for lakes and reservoirs. Field staff observed that the water in the lake had a green color in August and that flecks of algae were present in the water column from May though August. Suspended algae in the water column may have contributed to the decrease in water clarity.

Total phosphorus concentrations were moderate and both total organic nitrogen and total Kjeldahl nitrogen concentrations ranged from moderate to elevated. Nitrite plus nitrate levels were moderate in May and then dropped to less than DWQ laboratory detection levels from June through August. Ammonia was below detection levels from May through August. Lakewide mean chlorophyll *a* values ranged from moderate to elevated (range = 18 to 31 µg/L) and individual values at each of the two sampling sites did not exceed the state water quality standard of 40 µg/L. Creeping water primrose (*Ludwigia hexapetala*) occurs in Lake Higgins and the City of Greensboro has received assistance from the NC Division of Water Resources, Aquatic Weed Control Program to control this invasive aquatic plant via chemical treatments. Brittle naiad (*Najas minor*), another invasive aquatic plant, grows in approximately five acres along the northern shoreline

Lake Higgins was determined to be very biologically productive (eutrophic) based on the calculated NCTSI scores for 2008. This lake has been eutrophic since 1990 when it was first monitored by DWQ, with the exception of 1993 when it was determined to be moderately productive (mesotrophic).

Lake Burlington
(Stony Creek Reservoir)

Lake Burlington (also known as Stony Creek Reservoir) was built as a water supply between 1927 and 1928 by the City of Burlington. Stony Creek and Toms Creek drain the watershed, which is characterized by rolling hills.

In 2008, Lake Burlington was monitored monthly from May through August by DWQ field staff. Secchi depths at each of the two lake sampling sites were consistently less than one meter, indicating poor water clarity. Turbidity values, however, were less than the state water quality standard of 25 NTU. Notes by field staff indicate that the lake water had a greenish coloration, which may have been due to suspended algal cells in the water column. This floating algae may have contributed to the reduction in light penetration through the water column and subsequent low Secchi depths.

Total phosphorus concentrations ranged from low to elevated. Both total Kjeldahl nitrogen and total organic nitrogen were elevated while ammonia and nitrite plus nitrate values were below the state water quality laboratory's detection levels. In response to the availability of nutrients, chlorophyll *a*, an indicator of algal productivity, ranged from moderate to extremely elevated. On July 21, the chlorophyll *a* values at the two samplings sites (66 and 48 µg/L) were greater than the state water quality standard of 40 µg/L. The increase in photosynthetic activity of the algae on this date resulted in a lakewide mean surface percent dissolved oxygen value of 125%. Algal blooms were moderate in June and extreme during July and August based on algal densities and biovolumes. Algal assemblages in May were dominated by the filamentous blue-green *Rhaphidiopsis sp.* in May and the flagellated chrysophyte *Chromulina sp.* in June. Algal assemblages in July and August were dominated by filamentous blue-green algas (*Cylindrospermopsis sp.* and *Anabaena sp.*) and the euglenoid *Trachelomonas sp.* Filamentous blue-green algas are associated with nutrient enrichment in ponds and lakes as well as with taste and odor problems in processed drinking water. Euglenoid blooms are also associated with nutrient enrichment.

Based on the calculated NCTSI scores, Lake Burlington was determined to be very biologically active or eutrophic on the days it was sampled in 2008 with the exception of July 21 when the trophic state of the lake was determined to be exceptionally productive (hypereutrophic). Based on previous NCTSI scores, Lake Burlington has been eutrophic since it was first monitored by DWQ in 1990.

Lake Cammack (Burlington Reservoir)

Lake Cammack (also called Burlington Reservoir), an auxiliary water supply located at the confluence of Stony Creek and Toms Creek in Alamance County, is owned by the City of Burlington. The lake watershed area consists primarily of forested and agricultural land.

This lake was sampled four times from May through August 2008. Lakewide mean Secchi depths ranged from 0.8 to 1.8 meters. Staff field notes indicated that the lake water appeared green in July and that suspended particles or flecks of algae were observed in the water. Algae in the water column may contribute to a decrease in light penetration and a subsequent decrease in Secchi depths. Physical parameters at the surface of the lake (dissolved oxygen. pH and water temperature) did not exceed applicable state water quality standards.

Total phosphorus concentrations were moderate in May, low in June and July, and elevated in August. Total Kjeldahl nitrogen and total organic nitrogen concentrations were elevated throughout the four-month sampling period while ammonia and nitrite plus nitrate were less than the DWQ laboratory's detection levels for the same period. Chlorophyll *a* values were moderate to elevated (lakewide mean range = 16 to 33 µg/L) but were not greater than the state water quality standard of 40 µg/L.

Lyngbya woolei, an invasive filamentous alga, has been reported in several coves, with floating mats developing during the summer and fall months over the last few years. The NC Aquatic Weed Program (AWCP) has treated these mats with a copper-based herbicide. This, along with lowering the water level at the shoreline of the reservoir has markedly reduced the occurrence of *Lyngbya*. DWQ staff made no reports of seeing mats of *Lyngbya* in the lake in 2008. Brittle naiad (*Najas minor*) exists in the cove near the public boat ramp (approximately 0.5 acres). The AWCP applied a copper-based herbicide on July 31, 2008 and diquat on September 15, 2008 to control this weed.

Algal blooms were determined to be severe during June and extreme during July and August based on algal cell densities and biovolumes. Algal diversity in May through June ranged from 31 to 34 taxa, and decreased to nine taxa in July and three taxa in August. The euglenoid, *Trachelomonas*, dominated algal assemblages in May. Filamentous blue-greens (*Rhaphidiopsis sp.*, *Aphanizomenon sp.*, and *Cylindrospermopsis sp.*) dominated algal assemblages throughout the latter summer months. Filamentous blue-green algae are associated with nutrient enrichment in ponds and lakes as well as with taste and odor problems in processed drinking water. Euglenoid blooms are also associated with nutrient enrichment.

Based on the calculated NCTSI scores for 2008, Lake Cammack was determined to be very biologically productive (eutrophic). This lake has exhibited eutrophic conditions since 1981 when it was first monitored by DWQ staff.

Graham-Mebane Reservoir

Graham-Mebane Reservoir is a water supply for the Towns of Graham and Mebane. The lake also serves as a drinking water source for the Towns of Green Level and Haw River. Construction of the dam was started in May of 1989 and full pool elevation was reached in the fall of 1992. The lake is located on Quaker and Back Creeks and encompasses the old Quaker Creek Reservoir, which had been previously monitored by DWQ. The immediate shoreline is primarily forested except for a few houses, a public school with an athletic field, and some farmland.

This reservoir was most recently monitored by DWQ in May through October 2008. Lakewide mean Secchi depths were consistently less than a meter, indicating poor water clarity. Total phosphorus concentrations ranged from low to extremely elevated. The highest total phosphorus values were observed in the upper end of the Quaker Creek arm (CPFGMROA) and in the upper Back Creek arm (CPFGMR2). Total organic nitrogen values ranged from elevated to extremely elevated in 2008 and ammonia and nitrite plus nitrate were at or below DWQ laboratory detection levels from May through early September.

In response to the availability of nutrients in the reservoir, chlorophyll *a* was greater than the state water quality standard of 40 µg/L at all of the sampling sites on May 7. The lakewide mean chlorophyll *a* value was greater than the state water quality standard on May 7, May 22, August 20, and October 15 (chlorophyll a values for July 9 were not considered because they were analyzed past the holding time by the water quality laboratory). The greatest chlorophyll *a* concentrations were usually in the two arms of the reservoir, which coincides with the locations of elevated nutrient concentrations. Algal blooms were prevalent throughout the summer and peaked in August. Early summer blooms were dominated by *Chrysochromulina sp*, a golden-brown alga, shifting to filamentous blue-green algae dominated by *Cylindrospermopsis sp.* later in the summer. Both algas are commonly associated with nutrient enriched lakes and reservoirs.

An Algal Growth Potential Test (AGPT) was performed on Graham-Mebane Reservoir in July 2008. Two sites were sampled: the lower end of the Quaker Creek arm (CPFGMR1) and the lower end of the Back Creek arm (CPFGMR3). Composite water samples within the photic zone was collected at each site and shipped to the EPA Region IV Lab in Athens, GA for analysis. The results of the test are shown below in Table 1. The lake water at both sites was determined to be nitrogen limited (i.e., algal productivity was limited by the concentration of nitrogen present in the water).

Table 1. Algal Growth Potential Test Results for Graham-Mebane Reservoir, July 9, 2008

AGPT – MSC, mg/L (Dry Weight)

Station	Control	C+N	C+P	Limiting Nutrient
CPFGMR1	0.61	1.65	0.59	N
CPFGMR3	0.86	5.91	0.69	N

MSC - Maximum Standing Crop
C+N - Control + 1.0 mg/L Nitrate-N
C+P - Control + 0.05 mg/L Phosphate-P
N – Nitrogen

Based on the calculated NCTSI score, Graham-Mebane Reservoir was determined to be very biologically productive (eutrophic) in 2008. Elevated nutrient and chlorophyll *a* concentrations in Graham-Mebane Reservoir indicate a need for further evaluation of potential sources of nutrient loading and the development of strategies to reduce the productivity in this reservoir to improve overall water quality. Violations of lakewide mean chlorophyll *a* (occurring on 40% of the ten sampling dates) suggests that productivity is elevated and that Graham-Mebane Reservoir is impaired for this water quality parameter.

Lake Mackintosh

Lake Mackintosh is a water supply reservoir for the City of Burlington. The lake is used for recreational purposes (fishing and boating). Located on Big Alamance Creek, Lake Mackintosh was filled in 1993. The surrounding land is comprised of pastures and farmland with a few houses. A public park and marina operated by Alamance County is located off SR 1149 (Huffman Mill Road) and Guilford County operates a small marina located on the Little Alamance Creek arm of Mackintosh Lake. Guilford County has established a no wake zone for the Little Alamance arm and boats entering this arm are restricted to electric motors. Lake Mackintosh was sampled 10 times in the summer of 2008 by the Division of Water Quality.

Water clarity was generally good on Lake Mackintosh in 2008 with lakewide Secchi depth readings ranging from 0.7 to 1.2 meters and turbidity values well within the state water quality standard. Nutrient samples collected during the summer of 2008 indicated low amounts of nitrite plus nitrate and ammonia. Concentrations of total phosphorus were generally low to moderate while total Kjeldahl nitrogen levels were elevated. Lakewide mean values found for total Kjeldahl nitrogen ranged from 0.50 to 0.75 mg/L.

Chlorophyll *a* values were moderate in 2008 with the exception of two samples that were greater than the state water quality standard of 40 µg/L. These chlorophyll violations occurred at CPF038G on September 3, 2008 (47 µg/L) and at CPF0038H on September 17, 2008 (41 µg/L). Lakewide mean chlorophyll a values were below the state water quality standard, however. Based on analysis of phytoplankton samples collected from Lake Mackintosh, it was determined that severe algal blooms occurred throughout the five month sampling period in 2008. Algal densities showed little variability over time and a mid-summer peak commonly seen in piedmont reservoirs did not occur. The diatom *Achnanthidium sp.* and the filamentous blue-green alga *Pseudanabaena sp.* dominated algal blooms in May. As the summer season progressed, the filamentous blue-green alga *Cylindrospermopsis sp.* became dominant. *Achnanthidium sp.* is associated with algae that grow on rocks and wood snags and its presence in phytoplankton water samples suggests scouring of these surfaces by high water flows, which are common during the spring months. Filamentous blue-green algae such as *Pseudanabaena sp.* and *Cylindrospermopsis sp.* are commonly found in nutrient enriched freshwater bodies such as lakes and ponds.

The City of Burlington has received assistance from the NC Division of Water Resources, Aquatic Weed Control Program for treatments to control creeping water primrose (*Ludwigia hexapetala*) in Lake Mackintosh. Chemical treatments have also been applied to control *Lyngbya woolei*, a nuisance filamentous alga known to produce large, fibrous black mats. Hydrilla (*Hydrilla verticillata*) occurs at the lower end of the reservoir and covers approximately 12 acres. Grass carp were stocked to control this aquatic weed.

An Algal Growth Potential Test (AGPT) was performed on Lake Mackintosh in July 2008. Four sites were sampled. Composite water samples within the photic zone was collected at each site and shipped to the EPA Region IV lab in Athens, GA for analysis. The results of the test are shown below in Table 2. The lake water at all four sites was determined to be nitrogen limited (algal productivity was limited by the concentration of nitrogen present in the water).

Table 2. Algal Growth Potential Test Results for Lake Mackintosh, July 9, 2008

AGPT – MSC, mg/L (Dry Weight)

Station	Control	C+N	C+P	Limiting Nutrient
CPF038N	0.59	1.48	0.48	N
CPF038J	0.38	1.11	0.31	N
CPF038F	0.95	6.23	0.79	N
CPF038G	0.85	4.58	0.70	N

MSC - Maximum Standing Crop
C+N - Control + 1.0 mg/L Nitrate-N
C+P - Control + 0.05 mg/L Phosphate-P
N - Nitrogen

Trophic status for Lake Mackintosh was determined to be very biologically productive (eutrophic) based on the calculated NCTSI scores for 2008. This reservoir has been consistently eutrophic since it was first monitored by DWQ in 1993.

Cane Creek Reservoir

Cane Creek Reservoir was built in 1989 by Orange Water and Sewer Authority (OWASA) as a water supply for the City of Chapel Hill. The majority of the watershed is forested with some agriculture. Two main tributaries entering the lake are Cane Creek and Turkey Hill Creek.

This reservoir was sampled ten times during the summer of 2008 by DWQ staff. Secchi depths lake wide ranged from 0.8 to 1.9 meters, indicating good water clarity. No state water quality violations were observed for dissolved oxygen, water temperature or pH in 2008.

Total phosphorus concentrations in the reservoir were elevated in May and low to moderate in June through September. Total Kjeldahl nitrogen and total organic nitrogen concentrations were elevated throughout the summer. Nitrite plus nitrate and ammonia concentrations were elevated in May and decreased to very low levels as productivity in Cane Creek reservoir increased over the summer months. An Algal Growth Potential Test (AGPT) conducted on water samples collected on June 19, 2008 form each of the three lake samplings sites indicated that Cane Creek Reservoir is nitrogen limited (algal productivity is limited by the concentration of nitrogen in the lake; Table 3).

Table 3. AGPT Results for Cane Creek Reservoir, June 19, 2008

AGPT – MSC, mg/L (Dry Weight)

Station	Control	C+N	C+P	Limiting Nutrient
CPFCCR2	1.2	3.9	1.4	N
CPFCCR4	1.4	4.8	1.7	N
CPFCCR6	1.4	3.0	1.5	N

MSC - Maximum Standing Crop
C+N - Control + 1.0 mg/L Nitrate-N
C+P - Control + 0.05 mg/L Phosphate-P
N - Nitrogen

Lakewide mean chlorophyll *a* values in 2008 were greater than the state water quality standard of 40 ug/L on May 15 (60 µg/L) and on September 29 (53 µg/L). On May 1, DWQ field staff noted the presence of an algal bloom in Cane Creek Reservoir. An examination of the algae in a water sample collected on that date revealed the presence of a bloom of the filamentous blue-green alga, *Aphanizomenon flos-aqua* (Figures 1 and 2) This alga forms green scums on the surface of lakes and may create taste and odor problems in processed drinking water. *Aphanizomenon flos-aqua* also has the unique characteristic of forming rafts of filaments that contribute to a greenish water discoloration.

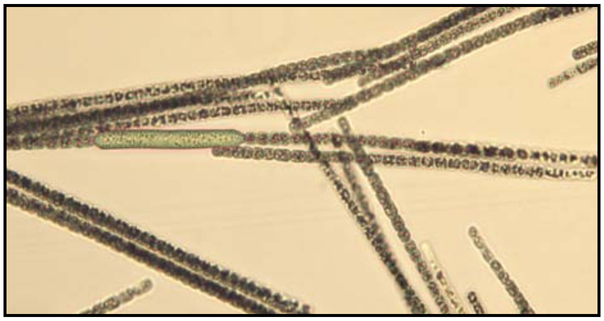

Figure 1. Microscopic view of *Aphanizomenon sp.*

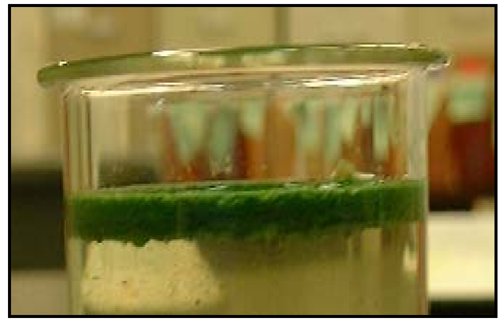

Figure 2. Surface scum of *Aphanizomenon sp.*

The invasive aquatic plant Alligatorweed (*Alternanthera philoxeroides*) occurs in a two-acre area near the headwater of the lake. Brittle naiad (*Najas minor*) is located at the boat ramp in an area less than a quarter of an acre in size. The North Carolina Aquatic Weed Program has applied herbicides to these plants in an effort to control their spread in Cane Creek Reservoir. No applications were performed in 2008, however.

Based on the calculated NCTSI scores, Cane Creek Reservoir was determined to be very biologically productive (eutrophic) in 2008. This reservoir was also determined to be eutrophic when it was last monitored by DWQ in 2003. Violations of lakewide mean chlorophyll *a* (occurring on 20% of the ten sampling dates) suggests that productivity is elevated and that the reservoir is impaired for this water quality parameter.

Jordan Lake

B. Everett Jordan Reservoir (Jordan Lake) is a multipurpose reservoir constructed in Chatham County and filled in the late 1981. Major tributaries to the lake include the Haw River, New Hope Creek, and Morgan Creek. Constructed by U.S. Army Corps of Engineers for flood control, this lake is used extensively for primary and secondary recreational activities and as a water supply for several municipalities. Ninety percent of the annual inflow to the lake comes from the Haw River. This arm of the lake has an average hydraulic retention time of 5 days. The average hydraulic retention time of the New Hope Creek arm is 418 days. Land uses in the watershed include the municipalities of Cary, Apex, Durham and Chapel Hill. Other land uses in the watershed include forest and agricultural areas. Most of the shoreline is undeveloped and forested. Numerous NPDES permitted facilities discharge into the watershed. Nutrient enrichment, algal blooms and eutrophic conditions have been present in the lake since impoundment. Extensive historical water quality sampling has been performed on Jordan Lake by the Division of Water Quality (DWQ), as well as other organizations.

The Clean Water Responsibility Act of 1997 (often referred to as House Bill 515) included legislation to address water quality problems in NSW waters like Jordan Lake. In addition to setting nutrient limits for discharges greater than 0.5 MGD, the act established that a calibrated nutrient response model may be developed by DWQ in conjunction with affected parties, and that model may provide alternative nutrient limits for those parties. The municipalities of Greensboro, Mebane, Reidsville, Graham, Pittsboro, and Burlington, and the Orange Water and Sewer Authority (OWASA) partnered with DWQ to develop a nutrient response model, which was accepted by the Environmental Management Commission (EMC) in 2002. The nutrient response model predicted a high frequency of violations of the chlorophyll *a* standard in the upper New Hope Arm (upstream of SR 1008). As a result of this model prediction, the Upper New Hope arm of Jordan Lake was placed on the 2002 303(d) list of impaired waters. In 2006, the Haw River Arm of the reservoir was placed on the 303(d) list for chlorophyll *a* and pH standard violations based on monitoring data. The Clean Water Act requires that a Total Maximum Daily Load (TMDLs) be developed for each of the waters appearing on the 303(d) list. A TMDL was developed for Jordan Lake and was approved by EPA in 2007. To establish a baseline for future assessment of the progress of TMDL implementation, a study was conducted from January 2005 through September 2008 in which Jordan Lake was sampled once per month at nine sampling locations.

Elevated nutrient and chlorophyll *a* levels were found throughout the lake during this study. Eighteen percent of the total observations in the Haw River arm were greater than the state water quality standard of 40 ug/L. The Haw River arm also exhibited impairment for high pH with 18% of the total pH values greater than the state water quality standard of 9.0 s.u. In the upper New Hope arm above SR 1008, 83% of the chlorophyll *a* values were greater than the DWQ water quality standard. In addition, this arm of the lake had high turbidity values during the Jordan Lake study period. Low Secchi depth readings were found in both of these sections of the lake indicating poor water clarity due to algal productivity and/or sedimentation. The lower New Hope Creek arm (downstream of SR 1008) was also found to be impaired for chlorophyll *a* (23% of the total observations). This is a new phenomenon, as this section of the lake had not previously exhibited impairment for chlorophyll *a.* Twenty-six percent of the total turbidity values in this section of the lake were greater than the DWQ standard of 25 NTU.

Algal productivity (confirmed by the high chlorophyll *a* values) was the likely cause of the high pH values on the Haw River arm. Water samples for Algal Growth Potential Tests (AGPT) were collected on June 13, 2006 and June 12, 2007 at several stations. The control concentrations of the control sample for station CPF055C in both years was greater than 5 mg/L dry weight, indicating that the nutrients present in the water sample were adequate to support nuisance growth of algae without any additions of nitrogen or phosphorus (Tables 4 and 5).

Table 4. Algal Growth Potential Test Results for Jordan Lake, June 13, 2006

AGPT – MSC, mg/L (Dry Weight)

Station	Control	C+N	C+P	Limiting Nutrient
CPF086F	4.4	30.8	3.8	N
CPF087D	2.2	15.0	2.0	N
CPF055C	21.5	42.4	22.3	N
CPF08801A	2.4	10.5	2.0	N

MSC - Maximum Standing Crop
C+N - Control + 1.0 mg/L Nitrate-N
C+P - Control + 0.05 mg/L Phosphate-P
N - Nitrogen

Table 5. Algal Growth Potential Test Results for Jordan Lake, June 12, 2007

AGPT – MSC, mg/L (Dry Weight)

Station	Control	C+N	C+P	Limiting Nutrient
CPF086F	2.2	34.8	2.1	N
CPF087D	1.4	9.4	1.2	N
CPF055C	25.2	43.2	27.5	N
CPF0880A	1.4	7.9	1.5	N

MSC - Maximum Standing Crop
C+N - Control + 1.0 mg/L Nitrate-N
C+P - Control + 0.05 mg/L Phosphate-P
N - Nitrogen

High total percent dissolved oxygen saturation values were in both the Haw River and New Hope Creek arms of the lake during the study period. Thirty-two percent of the total dissolved gas saturation values in the Haw River arm and 14% of the values in the New Hope Creek arm were greater than 120%. These high dissolved gas saturation values, which are indicative of algal productivity, have been found in previous monitoring performed on Jordan Lake, especially in the Haw River arm. Some near-surface low dissolved oxygen values were also observed at several stations on August 14, 2008. Two violations of the state water quality standard for dissolved oxygen of not less than 4.0 mg/L were found (3.1 mg/L at station CPF055E and 3.5 mg/L at station CPF086F). These low dissolved oxygen values were most likely caused by a breakdown of stratification due to recent cooler weather conditions, and the mixing of hypolimnetic waters low in dissolved oxygen with the rest of the water column.

A fish kill was investigated by staff of the Raleigh Regional Office on March 21, 2006. This kill occurred in the upstream New Hope Creek arm of the lake near Highway 751 where 49 dead catfish and one shad were found. Elevated dissolved oxygen and pH values were found, indicative of bloom conditions. The cause of this fish kill was determined to be due to a severe algal bloom (>30,000 units/ml) that consisted of a diverse assemblage of blue-greens, greens, diatoms and cryptomonads. The dominant taxa consisted of the filamentous blue-green *Pseudanabaena sp*. This is a common bloom forming taxa in the Piedmont of North Carolina and had been found previously in Jordan Lake. *Pseudanabaena sp*., which usually blooms in late summer and early fall, is considered an indicator of nutrient enrichment.

Analysis of metals samples collected during the study period indicated that 43% of the manganese values in the upstream New Hope Creek arm were greater than the DWQ standard (200 ug/L) for waters classified for use as a water supply. Fourteen percent of the manganese values in the downstream New

Hope Creek arm were also greater than the state water quality standard. It must be pointed out however, that less than 10 total observations for metals were collected so impairment for manganese standards violations is not applicable. High manganese values are found in local soil types so these values may be related to sedimentation and non-point source runoff upstream

Trophic scores calculated for Jordan Lake during this study rated the lake as eutrophic on most sampling events. A hypereutrophic rating was found on a few sampling events. The lake has received a eutrophic rating consistently since 1982. Violations of the chlorophyll *a* standard in each of the three management areas of Jordan Lake indicate that now the entire reservoir has elevated productivity and that the reservoir is impaired for this water quality parameter. Violations of the pH standard in the Haw River arm and of the turbidity standard in the upper New Hope arm of the lake indicate that these management areas are also impaired for these respective water quality parameters.

University Lake

University Lake was originally impounded in 1932. The lake is managed by Orange County Water and Sewer Authority (OWASA) to provide drinking water for the City of Chapel Hill. Recreational fishing and boating are allowed at this lake. Major tributaries to the lake include Morgan Creek, Phils Creek, Price Creek, and Prichard Mill Creek

University Lake was sampled ten times during the summer of 2008 by DWQ staff. Secchi depths were generally at or less than one meter, suggesting poor water clarity. The lakewide mean turbidity value (35 NTU) exceeded the state water quality standard of greater than 25 NTU on September 11, 2008. Heavy rainfall had fallen prior to the sampling of the lake on this date and a turnover event had occurred (temperature change in the surface water resulted in the movement of this water to the bottom of the lake and the bottom water displaced up toward the surface). During the summer of 2008, dissolved oxygen was stratified in the reservoir with hypoxic conditions occurring at a depth of three to four meters from the surface near the dam. Surface water temperature and pH values did not exceed the state water quality standards.

An Algal Growth Potential Test (AGPT) was performed on University Lake in June 2008. Composite water samples within the photic zone was collected at each of the two lake sampling sites and shipped to the EPA Region IV Lab in Athens, GA for analysis. The results of the test are shown below in Table 6. The lake water at both sites was determined to be nitrogen limited (algal productivity was limited by the concentration of nitrogen present in the water).

Table 6. Algal Growth Potential Test Results for University Lake, June 19, 2008

AGPT – MSC, mg/L (Dry Weight)

Station	Control	C+N	C+P	Limiting Nutrient
CPFUL4	1.2	11.7	1.9	N
CPFUL6	1.4	5.2	0.9	N

MSC - Maximum Standing Crop
C+N - Control + 1.0 mg/L Nitrate-N
C+P - Control + 0.05 mg/L Phosphate-P
N - Nitrogen

Total phosphorus concentrations in University Lake were consistently elevated (range = 0.04 to 0.12 mg/L). Total Kjeldahl nitrogen and total organic nitrogen concentrations were also elevated. The availability of nutrients in this lake contributed to elevated lakewide mean chlorophyll *a* values, which ranged from 21 to 115 µg/L. The latter value was observed on September 29, 2008 when chlorophyll *a* values were 130 µg/L at the upstream lake sampling site (CPFUL4) and 100 µg/L at the sampling site near the dam (CPFUL6). Lakewide mean chlorophyll *a* values greater than the state water quality standard of 40 ug/L occurred in five of the ten sampling trips (50%). A mild algae bloom that formed in May increased dramatically in July and reached severe levels in August and September. These blooms were comprised primarily of filamentous blue-green algae, which shifted from a diverse assemblage (no dominant species) to primarily *Cylindrospermopsis sp* then *Pseudanabaena sp*. In September, the algal assemblages shifted to the Prymnesiophyte (golden flagellates), *Chrysochromulina*. Prymnesiophytes are microscopic cells that use three whip-like tails (flagella) to propel themselves through the water. Both blue-green algae and golden flagellated algae are associated with elevated nutrient concentrations in lakes.

In August 2005, a algal bloom consisting of *Euglena rubra* or “red Euglena” occurred in University Lake. Euglenoids posses an undulating flagellum or whip-like tail that propels the cell through the water. *Euglena rubra* is unique in that is lives on the surface of the water in full sunlight. The red pigment in the alga cell protects it from damage by the sun’s light and creates a red coloration of the water when blooms occur. On cloudy days, the red pigment is replaced with green and the water may take on a green coloration. Euglena blooms are usually harmless and are found in ponds, small lakes and other slow moving bodies of water that have elevated concentrations of nutrients. The euglena bloom that occurred in University Lake in 2005 covered approximately two acres of the 150 acre lake.

Based on the calculated NCTSI scores, University Lake was determined to be very biologically productive (eutrophic) in 2008. On two sampling dates (July 10 and September 29) the NCTSI score indicated that biological productivity was extreme (hypereutrophic). This lake has been eutrophic since 1990 when it was first monitored by DWQ staff. Violations of lakewide mean chlorophyll *a* occurring on 50% of the ten sampling dates suggests that productivity is elevated and that the reservoir is impaired for this water quality parameter.

HUC 03030003

High Point Lake

High Point Lake (also known as City Lake), built in 1928 by the City of High Point, is used as a water supply and for recreation. Maximum depth of the lake is 33 feet (10 meters). Urban and residential areas as well as pasture and row crop farms dominate the watershed. The two arms of the lake are fed by the East Fork Deep River and the West Fork Deep River. Prior to 2003, this lake had been sampled 26 times by DWQ.

High Point Lake was sampled five times by DWQ staff in 2007. From June through September, dissolved oxygen was greater at the sampling site near the dam (CPF089E4) as compared with the sampling site located in the upper portion of the lake near the SR 1545 bridge (CPF089E2). The lowest surface dissolved oxygen values were observed on June 20, 2007 (5.8 mg/L) and on August 15 (5.4 mg/L). Neither dissolved oxygen value was less that the state water quality standard of 4.0 mg/L for an instantaneous reading. Total phosphorus was elevated at both lake sampling sites in June and September and total Kjeldahl nitrogen and total organic nitrogen were elevated throughout May through September 2007.

The availability of nutrients in High Point Lake may have contributed to the elevated chlorophyll *a* values observed in June in the upper portion of the lake (45 µg/L) and at both lake sampling sites in September (62 and 72 µg/L). There have been frequent public complaints in the past of taste and odor problems from processed drinking water taken from this lake related to algal blooms. To reduce this problem, the water treatment plant currently treats the raw water to reduce algae related taste and odor problems. Low dissolved oxygen levels have been recorded at the water intake and a destratification system (forced air) was placed in the mainstem of the lake to help improve the dissolved oxygen levels.

Analysis of algal samples collected at by DWQ staff determined that the dominant alga in June was the euglenoid, *Trachelomonas* sp. The dominant alga in September was the filamentous blue-green, *Cylindrospermopsis* sp. *Trachelomonas* sp. is generally associated with poor water quality and *Cylindrospermopsis* sp. is known to produce taste and odor problems in drinking water not additionally treated with activated charcoal.

The blue-green alga, *Lyngbya woolei*, was first found in High Point Lake in 1999 and continued to be found through 2007 (Figure 3). This alga is known to grow into mats at the bottom of slow moving freshwater systems. These mats can rise to the surface and accumulate at the water’s edge to maximize photosynthesis and continue growing. Extensive mats can accumulate if they do not die off over winter. It is possible for *Lyngbya* mats to accumulate for years on the sediments before a surface infestation appears. *Lyngbya wollei* is becoming especially common in the southeastern United States and is known to cause nuisance infestations in ponds, lakes, and reservoirs where it can clog water intakes, cause offensive odors, reduce the recreational value of a water body and create an unsightly appearance.

Lyngbya woolei filaments *Lyngbya* mats

Figure 3. *Lyngbya woolei* from High Point Lake

The City of High Point has been working with the NC Division of Water Resources, Aquatic Week Control Program to control this nuisance alga. Treatments have consisted of applications of copper and herbicides by a contract applicator. The nuisance aquatic plant, Alligatorweed (*Alternanthera philoxeroides*) has also been treated in High Point Lake with herbicides for control.

Based on the calculated NCTSI scores for May through August 2007, High Point Lake was determined to be eutrophic or capable of supporting elevated biological productivity. In September 2007, the NCTSI score for this lake indicated that conditions were present to support excessive or extremely elevated levels of biological productivity (hypereutrophic). High Point Lake is listed on the 2006 303(d) List of Impaired Surface Waters for chlorophyll *a* values greater than the state water quality standard of 40 µg/L.

Oak Hollow Lake (High Point Reservoir)

Oak Hollow Lake (also known as High Point Reservoir) was constructed by the City of High Point as a second water supply. Boating, fishing and swimming are common activities on the lake. The lake has a maximum depth of 36 feet (11 meters). The rolling watershed is characterized by urban and residential development. Two 18-hole golf courses adjoin the lake.

Oak Hollow Lake was sampled five by DWQ staff in 2007. Secchi depths in Oak Hollow Lake were generally less than one meter, suggesting limited water clarity. Surface dissolved oxygen was consistently lower at the sampling site near the dam (CPF 089D5) as compared with the other two lake sampling sites located in the West Fork Deep River and Hiatt Branch arms of the lake (CPF089D3 and CPF089D4, respectively). The lowest surface dissolved reading (4.8 mg/L) was observed near the dam on August 15, 2007. This value was not less than the state water quality standard of 4.0 mg/L for an instantaneous dissolved oxygen reading. A destratification system (forced air) is in place in the mainstem of the lake to help improve the dissolved oxygen levels in the lake.

Total phosphorus concentrations were moderate on each sampling date with the exception of September 18 when concentrations were elevated in the Hiatt Branch arm and near the dam. Total organic nitrogen was also elevated in Oak Hollow Lake in 2007. Chlorophyll *a* values were moderate to elevated from May through September with one value observed at the sampling site in the Hiatt Branch Arm (57 µg/L) greater than the state water quality standard of 40 µg/L in September. Based on the calculated NCTSI score, Oak Hollow Lake was determined to be eutrophic (capable of elevated biological productivity) in 2007. This lake is listed on the 2006 303(d) List of Impaired Surface Waters for turbidity values greater than the state's water quality standard of 25 NTU. Turbidity values observed in 2007 were well below this water quality standard.

Analysis of algae samples collected by staff at Oak Hollow Lake indicated that an algae bloom in September 2007 was dominated by the blue-green alga, *Cylindrospermopsis* sp. This alga is commonly associated with nutrient-rich waters and is responsible for taste and odor problems in drinking water. Another nuisance alga, *Lyngbya wollei*, has been found in this lake. The City of High Point, with cooperation from the NC Division of Water Resources, Aquatic Weed Control Program, has contracted a licensed applicator to treat the *Lyngbya sp.* with herbicides and copper. The nuisance aquatic plant, Alligatorweed (*Alternanthera philoxeroides*) is also being treated in Oak Hollow Lake with herbicides for control.

Randleman Lake

Randleman Lake is located to the south of the City of High Point on the Deep River. Construction of the dam began in 2001 and the reservoir was filled in 2007. Located in Randolph and Guilford counties, this reservoir provides drinking water for North Carolina's Piedmont Triad Region and is managed by the Piedmont Triad Regional Water Authority (PTRWA). Randleman Lake will also provide public recreation for boating and fishing. Land use within the immediate watershed consists of dairy operations, forested areas and a few residences. The High Point Eastside WWTP discharge is located downstream of the Groomtown Road bridge (CPFRD1).

Randleman Lake was sampled by DWQ staff five times during the summer of 2008 to assess the initial state of the lake. Nine sites were monitored (Figure 4). Lakewide mean Secchi depths ranged from 0.8

to 1.1 meters. The lowest Secchi depths were consistently observed in the upper end of the Deep River arm of the reservoir. Turbidity values, however, did not exceed the state water quality of 25 NTU. Surface water temperature, dissolved oxygen and pH were within state water quality standards in 2008.

Total phosphorus concentrations in Randleman Lake ranged from moderate to elevated, with the greatest concentrations occurring in the upper end of the Deep River arm. Total organic nitrogen and total Kjeldahl nitrogen concentrations were elevated throughout the reservoir. Ammonia and nitrite plus nitrate concentrations were elevated in May and dropped to levels below the DWQ laboratory's detection levels in June through September. These patterns in nitrogen concentrations suggest potential increases in nitrogen uptake by phytoplankton (algae) and aquatic plants in the lake.

Chlorophyll *a* in Randleman Lake ranged from moderate to elevated. In May and June, chlorophyll *a* vales in the upper end of the Deep River arm were greater than the state water quality standard of 40 µg/L. In May, the chlorophyll *a* concentration at CPFRD2 was 50 µg/L and in June, the concentration at CPFRD1 was 47 µg/L. In September, the chlorophyll *a* in the upper end of the Muddy Creek arm (CPFRD5) was 41 µg/L. Lakewide mean values for chlorophyll *a* in 2008 were less than the state water quality standard, however. Field notes by DWQ staff indicate that the water in the lake had a green coloration suggestive of elevated algal growth. Patches of the floating duckweed (*Lemna* spp.) were also observed by DWQ staff in Randleman Lake in 2008.

Values for surface metals were within applicable state water quality standards.

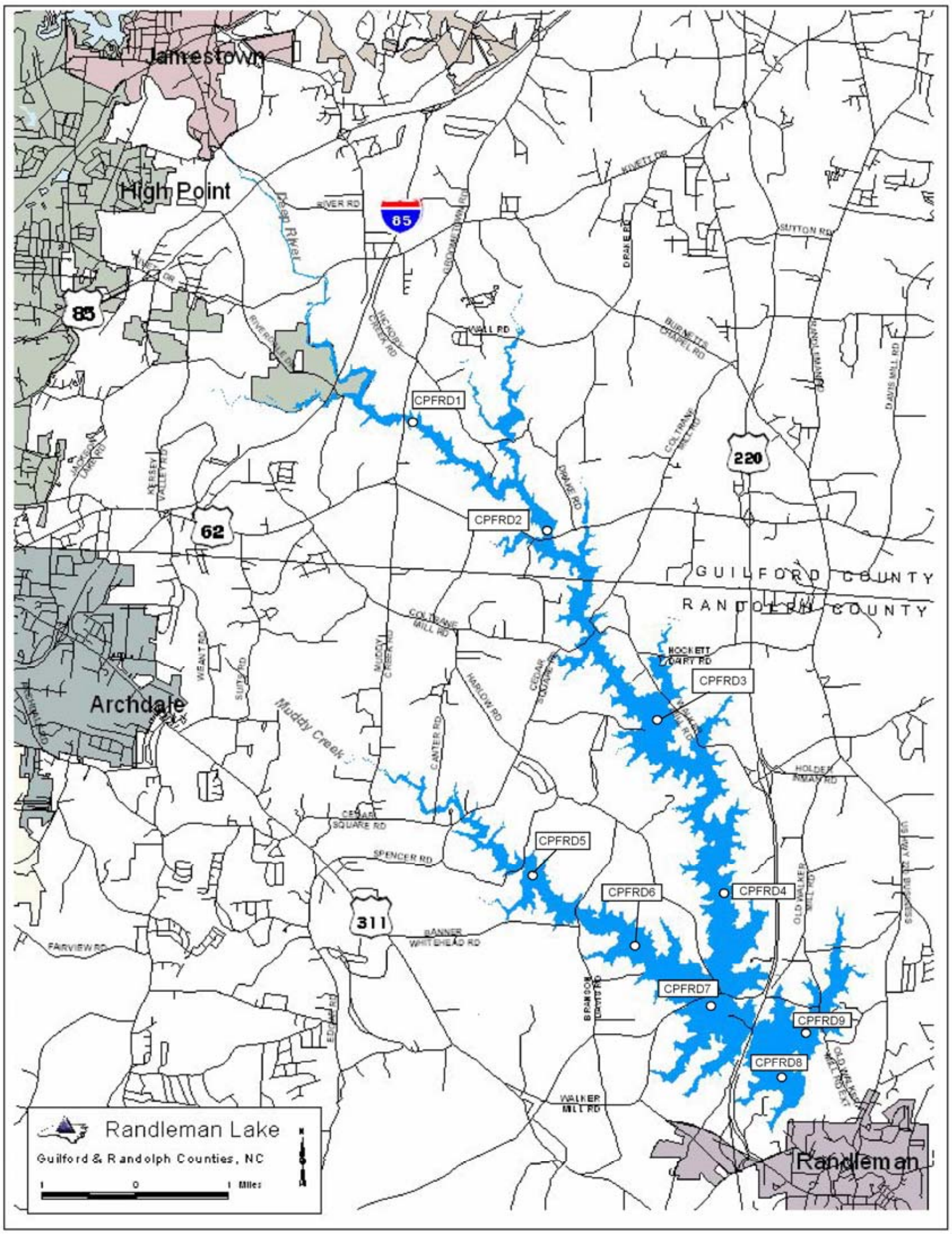

Figure 4. Locations of DWQ lake sampling sites in Randleman Lake

Based on the calculated NCTSI scores, Randleman Lake was determine to capable of supporting elevated biological productivity (eutrophic) in 2008. Because this lake was recently filled and has not yet reached stabilization, data were not assessed for use support.

Sandy Creek Reservoir

Sandy Creek Reservoir is the water supply for the Town of Ramseur. Impounded in 1978, it is fed by Big Sandy Creek and Little Sandy Creek. The watershed is moderately developed and land use is mostly characterized by forested and agricultural areas as well as urban development.

Sandy Creek Reservoir was sampled four times during the summer of 2008. Lakewide mean Secchi depths were consistently less than one meter. The lowest Secchi depths were observed on August 28 and ranged from 0.2 to 0.4 meter. These low readings may have been the result of increased turbidity from recent rains from Tropical Storm Fay. Field notes taken by DWQ staff indicate that the reservoir appeared turbid and the water level was up by approximately two feet. Turbidity values were greater than the state water quality standard of 25 NTU at each of the three lake sampling sites on this date (range = 26 to 130 NTU).

Physical water quality parameters (dissolved oxygen, water temperature, pH and conductivity) were within state water quality standards in 2008 and nutrient concentrations were elevated. Lakewide mean total phosphorus ranged from 0.07 to 0.2 mg/L. and mean total organic nitrogen ranged from 0.7 to 0.9 mg/L. In response to the availability of nutrients, chlorophyll *a* was greater than the state water quality standard of 40 µg/L at the upstream lake sampling site (63 µg/L) on June 26. On July 10, chlorophyll *a* at the mid-lake sampling site (53 µg/L) and at the sampling site near the dam (41 µg/L) was greater than the state water quality standard.

Analysis of phytoplankton samples collected in 2008 revealed the presence of severe blooms present throughout the summer. Algal densities ranged from 37,000 to 58,000 units/ml. The highest algal diversities were observed in May and June (27 to 34 taxa). In May, algal assemblages were dominated by blue-green algae. In June, the dominant alga was the Chrysophyte, *Chromulina sp.* In July and August, the number of taxa decreased to 17 to 6 and samples were dominated by filamentous blue-greens (*Cylindrospermopsis sp.* and *Aphanizomenon sp.*) as well as the euglenoid *Trachelomonas sp*. Filamentous blue-green algae blooms are associated with elevated productivity in lakes and ponds. These algas are also known to produce taste and odor problems in processed drinking water. Euglenoid blooms are associated with organic enrichment in lakes and ponds. In 2005, Sandy Creek Reservoir was treated with copper sulfate to control an algae bloom.

Based on the calculated NCTSI scores, Sandy Creek was determined to very biologically productive (eutrophic) in May, June and July 2008 and exceptionally productive (hypereutrophic) in August.

Rocky River Reservoir

The Rocky River Reservoir is an impoundment located on the Rocky River in Chatham County and serves as a water supply for the Town of Siler City. Public access to the lake is restricted. The watershed is primarily agricultural with some pasture immediately adjacent to the lake. A new larger water supply reservoir is under construction in this area, downstream of the present reservoir and is planned for completion in the summer of 2009. Rocky River Reservoir was sampled ten times in the summer of 2008 by the Division of Water Quality.

Secchi depths in 2008 were less than one meter, indicating limited water clarity. These Secchi depths were similar to those observed in 2003 when the lake was previously monitored by DWQ. On September 9, 2008, an elevated turbidity value of 27 NTU was found in the upstream region of the lake (CPF120B). This value was greater than the state water quality standard of 25 NTU.

Extremely elevated concentrations of total Kjeldahl nitrogen and total phosphorus were observed on each of the ten lake sampling trips in 2008. Concentrations of nitrite plus nitrate were also extremely elevated in September. Sources of nutrient enrichment include non-point source runoff of animal waste from the animal operations in the watershed. On several occasions in 2008, cows were observed standing in the lake (pastures extend to the water's edge).

The availability of nutrients in Rocky River Reservoir contributed to observed algal bloom conditions. Eighty percent of the total lakewide averages for chlorophyll *a* were greater than the state water quality standard of 40 µg/L. The chlorophyll *a* lake-wide average values that were above the state standard ranged from 44 to 74 µg/L. High dissolved oxygen saturation values were found on July 30, 2008 at both stations, indicating the production of dissolved oxygen by excessive algal activity. These dissolved oxygen saturation values ranged from 133.5% to 136.0%. Algal blooms occurred in Rocky River Reservoir throughout the summer. These began as mild blooms dominated by green and golden algas (primarily *Chrysochromulina sp.*) in May. In June, moderate algal blooms consisting of filamentous blue-green algae were present. Algal densities increased to extreme levels in July and August and were dominated by the filamentous blue-green alga, *Cylindrospermopsis sp*. In September, algae in Rocky River Reservoir became more diverse, but remained at elevated densities.

A low surface dissolved oxygen value (2.5 mg/L) was found on August 13, 2008 at station CPF1201A near the dam. This value was less than the state water quality standard of 4.0 mg/L for an instantaneous reading. Dissolved oxygen levels below the state water quality standard were also found at both lake sampling stations on September 24, 2008 (2.8mg/L and 2.9 mg/L). Dissolved oxygen concentrations throughout the water column at both sites were less than 4.0 mg/L. A breakdown of lake stratification and mixing of anaerobic bottom waters with the rest of the water column may have contributed to these low dissolved oxygen values.

Lake trophic state in Rocky River Reservoir was determined to be exceptionally biologically productive (hypereutrophic) in 2008 based on the calculated NCTSI scores. This reservoir was also determined to be hypereutrophic in 2003 when it was previously sampled by DWQ staff. Use support for Rocky River Reservoir in 2008 was determined to be impaired due to state water quality standards violations for chlorophyll *a*, turbidity, and dissolved oxygen.

HUC 03030004

Harris Lake

Harris Lake, constructed in 1983, provides cooling water for the Shearon Harris Nuclear Power Plant as well as public recreation. Harris Lake is located on Buckhorn Creek with other significant tributaries including White Oak Creek, Little White Oak Creek, Thomas Creek, and Tom Jack Creek. The lake is owned by Progress Energy, which conducts monitoring of the chemical, physical, and biological parameters in the lake. Harris Lake was sampled four times in the summer of 2008 by the Division of Water Quality.

Secchi depths in 2008 were generally greater than 1.0 meter (range = 0.9 to 2.0 meters) and were representative of good water clarity. These Secchi depths also agreed with low turbidity values observed throughout the reservoir. Nutrient analyses indicated low concentrations of ammonia and nitrite plus nitrate, and elevated concentrations of total Kjeldahl nitrogen (range = 0.58 to 0.68 mg/L). Total phosphorus was generally present in moderate amounts in 2008. Possible sources for the nutrients found in this lake are discharges from the wastewater treatment plant in the Town of Holly Springs upstream as well as non-point source runoff in the rapidly developing urban watershed.

Aquatic plants, including the nuisance macrophyte *Hydrilla verticillata*, were found in Harris Lake in 2008 in several locations, most notably in the White Oak Creek arm. The presence of excessive aquatic macrophyte growth in the White Oak arm has been observed on previous DWQ sampling trips. Progress Energy attempted to eradicate the Hydrilla with herbicides soon after infestation was observed but abandoned this approach since these plants did not present an operational problem. Instead, Grass carp were stocked in Harris Lake to control the Hydrilla.

In 2008, chlorophyll *a* levels in Harris Lake were generally moderate with lakewide means ranging from 18 to 25 µg/L. No violations of the state standard for chlorophyll *a* were noted. Based on the calculated NCTSI scores, the trophic state of Harris Lake was determined to be very biologically productive (eutrophic). This trophic state was also observed in 2003 when this lake was previously monitored by DWQ. Use support for Harris Lake could not be determined since fewer than ten sampling events occurred. However, the eutrophic status of the lake and large amounts of Hydrilla warrant future monitoring.

Old Town Reservoir

Located near Southern Pines in the Sandhills, Old Town Reservoir is an impoundment of Mill Creek. Built in 1925, this one-time water supply (discontinued in 1985) is now used for public recreation. Maximum lake depth is 23 feet (seven meters). The lake's watershed is relatively undeveloped with the exception of a golf course.

Physical conditions in this reservoir were similar to those observed since 1988 when Old Town Reservoir was first monitored by DWQ. Secchi depths, which ranged from 1.5 to 2.7 meters, indicated good water clarity. This was also supported by the low turbidity values observed in 2008 and low total suspended solids. Total phosphorus concentrations were low and nitrogen values were generally low to moderate.

Chlorophyll *a* values at the sampling site near the dam (CPF135D) were greater than the state water quality standard of 40 µg/L in June, July and August (range = 43 to 73 µg/L). These were the greatest chlorophyll *a* values observed for this reservoir since it was first monitored by DWQ in 1988. The lake mean chlorophyll *a* value on July 8 was 56 µg/L.

Based on the calculated NCTSI scores for 2008, Old Town Reservoir was determined to have low biological productivity in May (oligotrophic), moderate productivity in June, August and September (mesotrophic) and elevated biological productivity in July (eutrophic). The potential of increased biological productivity in Old Town Reservoir warrants continued monitoring of this lake.

Bonnie Doone Lake

Bonnie Doone Lake, constructed in the early 1900's, is the first in a series of four lakes formed as impoundments of Little Cross Creek. The four lakes (Bonnie Doone, Kornbow, Mintz Pond and Glenville Lake) serve as a backup water supply for the City of Fayetteville. All four lakes are restricted to the public. Fort Bragg Military Base is located in close proximity to Bonnie Doone Lake. Firebreaks located on the base along with the soil types of the area contribute large amounts of sediments into the lakes through stormwater runoff. The surrounding shoreline of Bonnie Doone is forested. The western side of the lake beyond the forested buffer is urbanized.

Bonnie Doone Lake was sampled four times in 2008. Physical water quality parameters were similar to those previously observed in this small reservoir. Secchi depths were greater than one meter, indicating good water clarity. Surface dissolved oxygen ranged from 6.6 to 5.8 mg/L and dropped to less than 1.0 mg/L at a depth of two meters (bottom depth was approximately three meters). Nutrient concentrations in Bonnie Doone Lake ranged from low to moderate and chlorophyll *a* values also ranged from low to moderate (range = 6 to 21 µg/L). These observations were similar to those previously documented for this lake.

Three aquatic plants collected in June from Bonnie Doone Lake were identified as Creeping Rush (*Juncus repens*), Proliferating Spikerush (*Eloeocharis baldwinii*) and Sandhills Millfoil (*Myriophyllum laxum*). All three are native to the coastal plain of North Carolina. Proliferating Spikerush and Sandhills Millfoil can form dense mats that may become problematic.

Figure 5. Creeping Rush

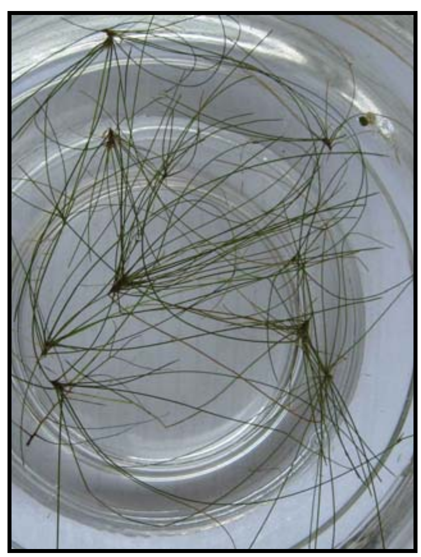

Figure 6. Proliferating Spikerush

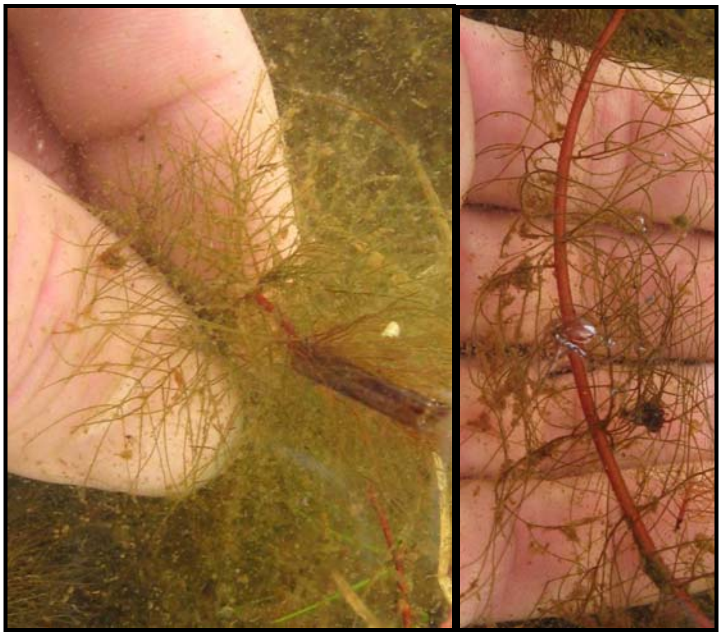

Figure 7. Sandhills Millfoil

Based on the calculated NCTSI scores, Bonnie Doone Lake was determined to have moderate biological productivity (mesotrophic) in June and elevated productivity in July (eutrophic). Bonnie Doone Lake was previously determined to be mesotrophic in 2003 and eutrophic in 1993.

Kornbow Lake

Kornbow Lake is the second and largest in the series of four impoundments located on Little Cross Creek. The immediate shoreline of the lake is forested and beyond that buffer are residential developments. There is no public access allowed to this lake.

Kornbow Lake was sampled four times during the summer of 2008. Surface dissolved oxygen ranged from 6.2 to 6.8 mg/L. Hypoxic conditions occurred at a depth of two meters (average depth to the bottom was 3.5 meters). Secchi depths were greater than one meter, indicating good water clarity. Nutrient concentrations ranged from low to moderate and chlorophyll *a* values also ranged from low to moderate (range = 8 to 15 µg/L).

Based on the calculated NCTSI scores in 2008, Kornbow Lake was determined to have moderate biological productivity (mesotrophic). Kornbow has been predominantly mesotrophic since it was first monitored by DWQ in 1993.

Mintz Pond

Mintz Pond is a small auxiliary water supply reservoir for the City of Fayetteville located in Cumberland County. The lake is the third in a series of four impoundments located on Little Cross Creek and is not open to the public. The immediate shoreline is forested and surrounded by residential and urban development. The impoundment is shallow with a depth of only five feet (two meters) at the dam. This reservoir was sampled four times in 2008 by DWQ staff.

Surface dissolved oxygen and pH values were similar to those previously observed in this lake. In July and August, dissolved oxygen at a depth of one meter from the surface was less than the state water quality standard of 4.0 mg/L. Secchi depths in 2008 ranged from 1.0 to 1.4 meters, indicating good water clarity. Mintz Pond has aquatic plants (Water Lily and Hydrilla) present in approximately a quarter to half of the lake, which may play a significant role in nutrient uptake from stormwater deposition from the urbanized, residential watershed.

Total phosphorus concentrations, which ranged from moderate to elevated, were lower than those previously observed in Mintz Pond. Nitrogen concentrations ranged from low to moderate and chlorophyll *a* values ranged from 5 µg/L to 14 µg/L. Based on the NCTSI scores for 2008, Mintz Pond was determined to have elevated biological productivity (eutrophic). Mintz Pond was also determined to be eutrophic in 1993 and 2003.

Glenville Lake

Glenville Lake is a small, backup water supply reservoir for the City of Fayetteville. The lake is the last in a series of four impoundments of Little Cross Creek. The immediate shoreline is forested with residential development located along the western side of the lake just beyond the forest buffer (approximately 50 feet). This lake is not open to the public for recreational use. DWQ staff sampled Glenville Lake five times in 2008.

Secchi depths ranged from 0.6 to 1.2 meters, suggesting moderate clarity in the lake. Surface dissolved oxygen was elevated on May 6 (9.1 mg/L). Hypoxic conditions were present at a depth of two meters in May through July, and at a depth of one meter in August, (average bottom depth was 3.5 meters). Physical water quality conditions in Glenville Lake in 2008 were similar to those observed since this lake was first monitored by DWQ in 1991.

Total phosphorus concentrations were elevated, as were concentrations of total organic nitrogen and total Kjeldahl nitrogen. Ammonia and nitrite plus nitrate concentrations were low. Chlorophyll *a* values were elevated, and greater than the state water quality standard of 40 µg/L in June (41 µg/L) and July (61 µg/L). The dominant alga in June and July was *Chrysochromulina sp*. This alga occurs at bloom levels when nutrient concentrations in the lake water are elevated. Blooms may discolor the water and are often associated with elevated chlorophyll *a* values.

In June, brownish-red matter was observed floating on the surface of this lake (as well as on Bonnie Doone Lake). Samples collected by staff for identification were composed of an assemblage of naturally occurring decayed plant material. Usually attached to the stems of aquatic plants (Figure 8), this material is easily detached and floats to the surface of the water where it collects together through wind and wave action.

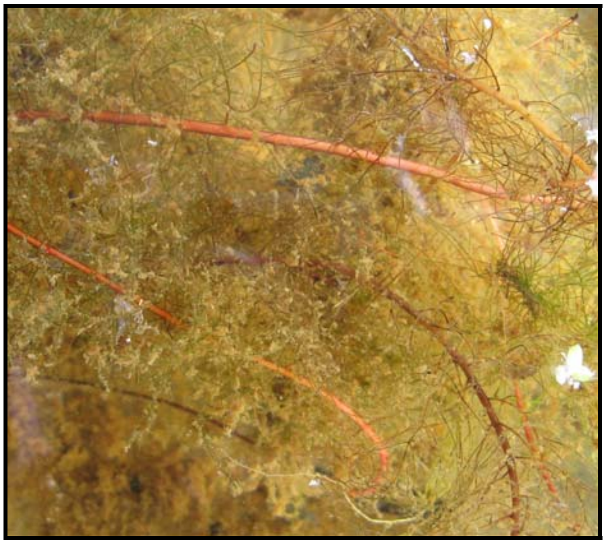

Figure 8. Brownish-red organic material covering aquatic plants

Glenville Lake was determined to have elevated biological productivity (eutrophic) in 2008. This trophic state has been consistent since the lake was first monitored by DWQ in 1991.

HUC 03030005

Salters Lake

Salters Lake is a Carolina Bay Lake located within Jones Lake State Park. This natural lake is undeveloped and public access is controlled by Jones Lake State Park. The water of the lake is naturally colored by tannins, giving the lake a characteristic tea-coloration typical in dystrophic lakes. DWQ staff sampled four times in 2008.

The water depth in 2008 was approximately two meters. Surface dissolved oxygen values were greater than the state water quality standard of 4.0 mg/L for an instantaneous reading. The water in Salters Lake is naturally acidic and mean pH values ranged from 3.7 to 4.1 s.u. Chlorophyll *a* concentrations in 2008 ranged from 5 to 26 µg/L, which is similar to previously observed chlorophyll *a* values for this lake. Nutrient concentrations ranged from low to moderate.

Values for turbidity and total suspended solids were low in 2008 and may have been due to reduced rainfall within the area throughout the early part of the summer. Salters Lake continued to support its designated use in 2008.

Jones Lake

Jones Lake is a small, shallow, natural lake situated in the flat swampy terrain of Jones Lake State Park. Like other Carolina Bay Lakes, Jones receives almost no overland inputs of water, relying instead on precipitation and groundwater for recharge. Jones Lake is classified as dystrophic due to naturally occurring acidic water, which has a dark coloration due to dissolved organic material (tannin-stained). A public park with a swimming area is located on the southeastern shoreline of this lake. DWQ staff sampled Jones Lake four times in 2008.

Secchi depths ranged from 1.3 to 2.4 meters, indicating good water clarity for this shallow lake. The lakewide mean pH values in 2008 ranged from 3.7 to 4.2 s.u., which is normal for a Carolina Bay Lake such as Jones Lake. Both turbidity and suspended solids values were low in 2008. Chlorophyll *a* concentrations ranged from 1 to 11 µg/L and nutrient concentration in Jones Lake were low to moderate.

White Lake

White Lake is an unusual Carolina Bay Lake in that the water of this lake is clear rather than tea-colored. The clarity of the lake water is attributed to numerous springs at the bottom of the lake that bring water into the lake such that water input is not dominated by groundwater inflow as is the case with other Carolina Bay Lakes. As part of the Singletary Lake State Park, White Lake is primarily used for recreational activities such as swimming and boating. The shoreline of the lake is developed for residential and some commercial uses.

DWQ staff sampled White Lake four times in 2008. Secchi depths often reached the bottom of the lake, indicating very good water clarity. Nutrient concentrations were very low and chlorophyll *a* values ranged from 1 to 2 µg/L. Algal productivity in White Lake is dominated by benthic algae (primarily *Spirogyra sp* and *Oedogonium sp.* and *Ulothix sp*.) These algas form filamentous mats on the bottom of the lake that can be disturbed and pulled free by wave turbulence from storms or boat propellers due to the shallowness of the water column. Once freed from the bottom, these mats drift to the shoreline where they decay. Although these decaying mats can produce a strong odor and stain the sand black, there are no know human health risks.

Based on the calculated NCTSI scores in 2008, White Lake was determined to have low biological productivity (oligotrophic) as has been the case since it was first monitored by DWQ in 1981. This lake continues to support its designated uses for aquatic life and recreation.

Boiling Springs Lake

Boiling Springs Lake, a coastal black water man-made lake located in eastern Brunswick County, is owned by the Town of Boiling Springs. This lake was impounded in 1961. Land use upstream of the lake is mostly forested and residential. The lake is used for fishing and boating and is fed by several springs. Boiling Springs Lake was monitored five times in 2008 by DWQ field staff.

Secchi depths in 2008 ranged from 1.3 to 3.4 meters, indicating very good water clarity. These measurements were also the greatest Secchi depths recorded by DWQ staff for this lake since it was first monitored in 1990. Surface pH values ranged from 6.8 to 7.7 s.u. and were greater than previously observed pH values. Surface dissolved oxygen measurements were greater than the state water quality standard of 4.0 mg/L for an instantaneous reading.

Total phosphorus concentrations were low and total organic nitrogen concentrations were moderate. Chlorophyll *a* values ranged from 1 to 5 µg/L, indicating that the productivity of this lake was low. Both turbidity and total suspended solids concentrations were low. This lake is dystrophic and the NCTSI scores could not be accurately calculated due to the naturally dark, tannic waters.

The invasive aquatic plant, *Alternanthera philoxeroides* (Alligatorweed) was discovered at Boiling Springs Lake in June 2008. Alligatorweed can form dense mats that may be free-floating or rooted in shallow water. Thick mats of Alligatorweed crowd out native plants and block light penetration into the water, resulting in unsuitable conditions for fish. This plant covers an area approximately one acre in size. The North Carolina Aquatic Weed Program has sprayed this site with herbicides in previous years as a control measure, but no spraying occurred in 2008.

HUC 03030006

Bay Tree Lake (Black Lake)

Bay Tree Lake (also called Black Lake) is a shallow, natural lake located near Elizabethtown, North Carolina. Typical of Carolina Bay Lakes, Bay Tree Lake receives no significant overland inflows. The surrounding land is flat and composed of wetlands, upland forests and a network of drainage canals built on its northern and eastern shores. A private gated residential community is located along the northern and northeastern shoreline of the lake and access to the lake is not open to the general public.

Bay Tree Lake was sampled four times in 2008. Secchi depths, which ranged from 1.4 to 1.8 meters, indicated good water clarity despite the dark tea coloration of the water. Total phosphorus and nitrogen concentrations were low. Chlorophyll *a* values (range = 2 to 6 µg/L) were also low. These conditions were similar to those observed in this lake since 1981 when this lake was first monitored by DWQ.

Based on data collected in 2008, Bay Tree appears to be meeting its designated uses. This lake is dystrophic and the NCTSI scores could not be accurately calculated due to the naturally dark, tannic waters.

Singletary Lake

Singletary Lake is a large Carolina Bay Lake located within Singletary Lake Camp Group State Park and is used for public swimming, boating and fishing. This lake is a naturally acidic and dark colored shallow lake common within the southeastern part of North Carolina. The surrounding terrain is flat and swampy with almost no overland water inputs. DWQ staff sampled this lake five times in 2008.

Mean lake Secchi depths in 2008 ranged from 0.6 to 1.0 meters, which was similar to mean Secchi depths observed for this lake since it was first monitored by DWQ in 1981. Dissolved oxygen measurements to a depth of two meters were greater than the state water quality standard of 4.0 ug/L for an instantaneous reading in 2008. Lake-wide mean pH values ranged from 4.0 to 4.1 s.u., which is typical for this lake.

Nutrient concentrations in Singletary Lake were low to moderate and chlorophyll *a* values were also low to moderate with the exception of those observed on June 30, which were elevated. The chlorophyll *a* value a CPF176F on June 30 (44 µg/L) was greater than the state water quality standard of 40 µg/L. This was the greatest chlorophyll *a* value observed for this lake since it was first monitored in 1981.

This lake is dystrophic and the NCTSI scores could not be accurately calculated due to the naturally dark, tannic waters.

HUC 03030007

Cabin Lake

Cabin Lake is a part of the Cabin Lake Recreational Park, which is owned by Duplin County. Located between the towns of Kenansville and Beulaville, the lake was formed from the damming of Cabin Creek in 1993. Land use within the watershed consists of farmlands forests and animal operations. Swimming and boating with electric motors is permitted at this lake.

DWQ staff most recently monitored this lake in May through September of 2008. Secchi depths were less than one meter throughout the lake on each sampling trip. Staff observations indicated that the lake water is dark in color or tannin-stained. The combination of pine trees within the watershed of Cabin Lake and the sandy soils may contribute to the leaching of tannins into the lake water. Lakewide mean pH values were less than the state water quality standard of 6.0 s.u. in May and September. However, low pH values are likely natural for this coastal plain lake and not a violation of state water quality standards.

Total phosphorus, total Kjeldahl nitrogen and total organic nitrogen concentrations were elevated in 2008. As a result of the availability of nutrients in the lake, lakewide mean chlorophyll *a* values in May 19 and June 17 were greater than the state water quality standard of 40 µg/L. The highest chlorophyll *a* values for these two sampling dates occurred at the upper end of the lake and were 88 µg/L and 51 µg/L, respectively. In July through September, chlorophyll *a* values dropped below the state water quality standard but remained moderate to elevated. Although algal densities in Cabin Lake were below bloom levels in 2008, biovolumes, which are more representative of algal biomass, did indicate the presence of algal blooms in May. The filamentous blue-green alga, *Anabaena sp*., comprised 98% of the May algae biovolume. *Anabaena sp.* is an indicator of nutrient-rich water and may contribute to a musty odor of the water when it occurs at elevated levels.

Based on the calculated NCTSI scores in 2008, Cabin Lake was determine to have extremely elevated biological productivity (hypereutrophic) in May and June, and elevated biological productivity (eutrophic) in July, August and September. These scores were similar to those observed for Cabin Lake when it was monitored in 2003. Elevated nutrients in the lake are contributing to increased algal productivity and chlorophyll *a* values greater than 40 ug/L. Further monitoring is recommended to fully assess use support for this lake.

APPENDIX A

CAPE FEAR RIVER BASIN AMBIENT LAKES USE SUPPORT MATRIX FOR 10/1/2004 - 9/31/2008

	8 -Digit HUC	3030002									
	Lakes Ambient Program Name	Reidsville Lake	Lake Hunt	Lake Brandt	Lake Townsend	Lake Higgins	Lake Burlington	Lake Cammack (Burlington Reservoir)	Graham-Mebane Reservoir	Lake Mackintosh	Cane Creek Reservoir
	Trophic Status (NC TSI)	Mesotrophic	Eutrophic	Eutrophic	Eutrophic	Eutrophic	Eutrophic	Eutrophic	Eutrophic	Eutrophic	Eutrophic
	Mean Depth (feet)	20.0	33.0	7.0	10.0	12.0	7.0	13.0	10.0	59.0	7.0
	Volume (106m3)	0.04	2.8	84.0	25.0	3.0	1.5	12.2	8.7	29.0	11.0
	Watershed Area (mi2)	53.0	5.0	40.0	105.0	11.0	110.0	28.0	66.0	129.0	32.0
	Assessment Unit Name (Gray = changes to AU description)	Troublesome Creek (Lake Reidsville)	Unnamed tributary to Troublesome Creek (Lake Hunt)	Reedy Fork (including Lake Brandt and Lake Townsend below normal operating levels)	Reedy Fork (including Lake Brandt and Lake Townsend below normal operating levels)	Brush Creek (Lake Higgins)	Stony Creek (Lake Burlington)	Stony Creek (Stony Creek Reservoir)	Back Creek (Graham-Mebane Reservoir)	Big Alamance Creek (Alamance Creek) (Lake Mackintosh)	Cane Creek (Cane Creek Reservoir)
	Classification	WS-III NSW CA	WS-III B CA	WS-III NSW CA	WS-III NSW CA	WS-III NSW CA	WS-II HQW NSW CA	WS-II HQW NSW CA	WS-II HQW NSW CA	WS-IV NSW CA	WS-II HQW NSA CA
	Assessment Unit	16-6-(0.7)	16-6-2-(1)	16-11-(3.5)	16-11-(3.5)	16-11-4-(2)	16-14-(1)	16-14-(5.5)	16-18-(1.5)	16-19-(2.5)	16-27-(2.5)
	Stations in Assessment Unit	CPF0025A, CPF002A1	CPF0022A, CPF0023A	CPF007A1A, CPF007A4, CPF007B	CPFLT4, CPFLT6, CPFLT8	CPFLH2, CPFLH4	CPFSCR2, CPFSCR4	CPF0251, CPF025A	CPFGMR01, CPFGMR2, CPFGMR3, CPFGMR1, CPFGMR4	CPF038F, CPF038G, CPF038H, CPF038J, CPF038L, CPFO38N	CPFCCR2. CPFCCR4, CPFCCR6
	Number of Sampling Trips	4	4	4	4	4	4	4	10	10	10
Water Quality Standards											
Chlorophyll *a*	>40 ug/L	NCE	NCE	NCE	NCE	NCE	E 25%	NCE	CE 40%	NCE	CE 20%
Dissolved Oxygen	<4.0 mg/L	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE
pH	<6 s.u. or > 9 s.u.	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE
Turbidity	>25 NTU	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE
Temperature	>29°C Mountains and Upper Piedmont >32°C Piedmont	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE
Metals (excluding copper, iron & zinc)	15A NCAC 2B .0211	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE
Other Data											
% Saturation DO	>120%	N	N	E 25%	N	N	E 25%	N	N	N	CE 10%
Algae	Documented blooms during 2 or more sampling events in 1 year with historic blooms	N	N	N	N	N	Y	Y	Y	Y	Y
Fish	Kills related to eutrophication	N	N	N	N	N	N	N	N	N	N
Chemically/Biologically Treated	For algal or macrophyte control - either chemicals or biologically by fish, etc.	N	N	N	N	N	N	N	N	Y	N
Aesthetics complaints	Documented sheens, discoloration, etc. - written complaint and follow-up by a state	N	N	N	N	N	N	N	N	N	N
TSI	Increase of 2 trophic levels fror one 5-yr period to the next	N	N	N	N	N	N	N	N	N	N
Historic DWQ Data	Conclusions from other reports										
303(d)	Listed on 303(d) [year listed]	N	N	N	N	N	N	N	N	N	N
AGPT	Algal Growth Potential Test 5-9 mg/L = concern 10 mg/L or more = problematic	ND	ND	ND	ND	ND	ND	ND	N 2008	N 2008	N 2008
Macrophytes	Limiting access to public ramps, docks, swimming areas; reducing access by fish and other aquatic life to habitat	N	N	N	N	N	N	N	N	N	N
Taste and Odor	Public complaints or taste and odor causing algal species are dominant	N	N	N	N	N	N	N	N	N	N
Sediments	Clogging intakes – dredging program necessary; Frequent public/agency complaints - visual observation	N	N	N	N	N	N	N	N	N	N
	Rating:	**NR**	**NR**	**NR**	**NR**	**NR**	**NR**	**NR**	**I Chlorophyll *a***	**S**	**I Chlorophyll *a***

RATING KEY:

S = Supporting
I = Impaired
NR = Not Rated

Not Rated is used where there are <10 samples and other data indicate potential problems

KEY:

E = Criteria is exceeded in less than 10% of the measurements **or** criteria exceeded but n<10
CE = Criteria Exceeded - parameter is problematic, highly productive or exceeds the standard in >10% of samples
NCE = No Criteria Exceeded
- = Standard not applicable based on Classification
ND = No Data - sample not taken for this parameter
Y = In Other Data portion, indicates that the parameter has exceeded target or has occurred
N = In Other Data portion, indicates that the parameter is within target or has not occurred per available information

APPENDIX A

CAPE FEAR RIVER BASIN AMBIENT LAKES USE SUPPORT MATRIX FOR 10/1/2004 - 9/31/2008

8 -Digit HUC		03030002				03030003				
Lakes Ambient Program Name		**Jordan Lake**			**University Lake**	**High Point Lake**	**Oak Hollow Lake**	**Lake Randleman**	**Sandy Creek Reservoir**	**Rocky River Reservoir**
Trophic Status (NC TSI)		Eutrophic			Eutrophic	Eutrophic	Eutrophic	Eutrophic	Eutrophic	Hypereutrophic
Mean Depth (feet)		16.0			5.0	16.0	21.0		21.0	18.0
Volume (106m3)		929.6			2.6	4.8	11.0		1.5	1.6
Watershed Area (mi2)		1689.0			29.0	60.0	55.0	174.0	55.0	23.0
Assessment Unit Name (Gray = changes to AU description)		Haw River (B. Everett Jordan Lake below normal pool elevation)	New Hope River Arm of B. Everett Joardan Lake	New Hope River Arm of B. Everett Joardan Lake	Moragan Creek (University Lake)	Deep River (including High Point Lake at normal pool elevation)	West Fork Deep River (Oak Hollow Reservoir)	Deep Rivr (Randleman Lake)	Sandy Creek	Rocky River
Classification		WS-IV, B, NSW, CA	WS-IV, B, NSW, CA	WS-IV, B, NSW, CA	WS-II HQW NSA CA	WS-IV CA	WS-IV CA	WS-IV CA	WS-III CA	WS-III CA
Assessment Unit		16-(37.5)	16-41-(3.5)a	16-41-(0.5)	16-41-2-(1.5)	17-(1)	17-3-(0.7)a	17-4	17-16-(3.5)	17-43-(5.5)
Stations in Assessment Unit		CPF055C, CPF055E	CPF87B3, CPF87D, CPF08801A, CPF0880A	CPF086C, CPF081A1C, CPF086F	CPFUL4, CPFUL6	CPF089E2, CPF089E4	CPF089D3, CPF089D4, CPF089D5	CPFRD1, CPFRD2 CPFRD3, CPFRD4, CPFRD5, CPFRD6, CPFRD7, CPFRD8 CPFRD9	CPFSC3. CPFSC2, CPFSC1	CPF1201B, CPF1201A
Number of Sampling Trips		44	44	44	10	5	5	5	4	10
Water Quality Standards										
Chlorophyll a	>40 ug/L	CE 18%	CE 23%	CE 83%	CE 50%	E (20%)	NCE	NCE	E 25%	CE 80%
Dissolved Oxygen	<4.0 mg/L	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	CE 10%
pH	<6 s.u. or > 9 s.u.	CE 14%	E 2%	E 2%	NCE	NCE	NCE	NCE	NCE	NCE
Turbidity	>25 NTU	E 7%	E 2%	CE 26%	CE 10%	NCE	NCE	NCE	E 25%	CE 10%
Temperature	>29°C Mountains and Upper Piedmont >32°C Piedmont	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE
Metals (excluding copper, iron & zinc)	15A NCAC 2B .0211	NCE	E Mn=14%	E Mn=43%	NCE	NCE	NCE	NCE	NCE	NCE
Other Data										
% Saturation DO	>120%	CE 32%	E 7%	CE 14%	N	N	N	N	N	CE 20%
Algae	Documented blooms during 2 or more sampling events in 1 year with historic blooms	Y	Y	Y	Y	Y	Y	N	Y	Y
Fish	Kills related to eutrophication	N	N	N	N	N	N	N	N	N
Chemically/Biologically Treated	For algal or macrophyte control - either chemicals or biologically by fish, etc.	N	N	N	N	Y	Y	N	N	N
Aesthetics complaints	Documented sheens, discoloration, etc. - written complaint and follow-up by a state	N	N	N	N	N	N	N	N	N
TSI	Increase of 2 trophic levels fror one 5-yr period to the next	N	N	N	N	N	N	N	N	N
Historic DWQ Data	Conclusions from other reports									
303(d)	Listed on 303(d) [year listed]	Y 2006 Chla and pH Violations, Fish Advisory for Hg	Y 2006 Chla Violation	Y 2006 Chla Violation	N	Y 2006 Chla Violation	Y 2006 Turbidity Violation	N	N	N
AGPT	Algal Growth Potential Test 5-9 mg/L = concern 10 mg/L or more = problematic	Y 2006	N	N	N 2008	ND	ND	ND	ND	ND
Macrophytes	Limiting access to public ramps, docks, swimming areas; reducing access by fish and other aquatic life to habitat	N	N	N	N	N	N	N	N	N
Taste and Odor	Public complaints or taste and odor causing algal species are dominant	N	N	N	N	N	N	NR	N	N
Sediments	Clogging intakes – dredging program necessary; Frequent public/agency complaints - visual observation	N	N	N	N	N	N		N	N
Rating:		**I Chlorophyll *a*, pH and Fish Advisory**	**I Chlorophyll *a***	**I Chlorophyll *a*, Turbidity**	**I Chlorophyll a, Turbidity**	**NR**	**NR**	**NR**	**NR**	**I Chlorophyll *a*, Turbidity, Dissolved Oxygen**

RATING KEY:
S = Supporting
I = Impaired
NR = Not Rated

Not Rated is used where there are <10 samples and other data indicate potential problems

KEY:
E = Criteria is exceeded in less than 10% of the measurements **or** criteria exceeded but n<10
CE = Criteria Exceeded - parameter is problematic, highly productive or exceeds the standard in >10% of samples
NCE = No Criteria Exceeded
- = Standard not applicable based on Classification
ND = No Data - sample not taken for this parameter
Y = In Other Data portion, indicates that the parameter has exceeded target or has occurred
N = In Other Data portion, indicates that the parameter is within target or has not occurred per available information

APPENDIX A

C		03030004						03030005				03030006		03030007
Lakes Ambient Program Name		Harris Lake	Old Town Reservoir	Bonnie Doone Lake	Kornbow Lake	Mintz Pond	Glenville Lake	Salters Lake	Jones Lake	White Lake	Boiling Springs Lake	Bay Tree Lake	Singletary Lake	Cabin Lake
Trophic Status (NC TSI)		Eutrophic	Mesotrophic	Mesotrophic	Mesotrophic	Eutrophic	Eutrophic	Dystrophic	Dystrophic	Oligotrophic	Dystrophic	Dystrophic	Dystrophic	
Mean Depth (feet)		20.0	13.0	3.0	7.0	5.0	8.0	7.0	3.0	10.0	7.0	3.0	5.0	4.0
Volume ($10^6 m^3$)		10.1	0.2	0.1	0.3	0.3	0.2	0.3	0.1	9.5	3.8	6.0	0.4	
Watershed Area (mi^2)		70.0	0.4	3.0	5.0	6.0	10.0	3.0	2.0		10.0	4.0	2.0	2.0
Assessment Unit Name (Gray = changes to AU description)		Buckhorn Creek (Harris Lake)	Mill Creek	Little Cross Creek (Bonnie Doone Lake, Kornbow Lake, Mintz Pond)				Salters Lake	Jones Lake	White Lake	Allen Creek (Boiling Springs Lake)	Black Lake (Bay Tree Lake)	Singletary Lake	Cabin Creek
Classification		WS-V	WS-III HQW	WS-IV	WS-IV	WS-IV	WS- IV CA	C	B	B	B Sw	B Sw	B Sw	B Sw
Assessment Unit		18-7-(3)	18-23-11-(1)	18-27-4-(1)			18-27-4-(1.5)	18-44-4	18-46-7-1	18-46-8-1	18-85-1-(1)	18-68-17-1-1	18-68-17-5-1	18-74-23-2
Stations in Assessment Unit		CPF126A4, CPF126A2, CPFA26A6	CPF135B, CPF135D	CPF138A4	CPF138A6	CPF138A8	CPF138B	CPF153C, CPF153D	CPF1552A, CPF1553A	CPF155A CPF155B, CPF155C	CPFBSL2, CPFBSL4, CPFBSL6	CPF155G CPF155I	CPF176D, CPF176E, CPF176F	CPFCL1, CPFCL2, CPFCL3, CPFCL4
Number of Sampling Trips		4	5	4	4	4	5	4	5	5	5	4	5	5
Water Quality Standards														
Chlorophyll *a*	>40 ug/L	NCE	E 20%	NCE	NCE	NCE	E 40%	NCE	NCE	NCE	NCE	NCE	NCE	E 40%
Dissolved Oxygen	<4.0 mg/L	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE
pH	<6 s.u. or > 9 s.u.	NCE	NCE	E 25%	NCE	E 50%	NCE	NCE	NCE	NCE	NCE	NCE	NCE	E 40%
Turbidity	>25 NTU	NCE	NCE	NCE	NCE	E 25%	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE
Temperature	>29°C Mountains and Upper Piedmont >32°C Piedmont	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE
Metals (excluding copper, iron & zinc)	15A NCAC 2B .0211	ND	NCE	NCE	NCE	NCE	NCE	–	–	–	–	–	–	–
Other Data														
% Saturation DO	>120%	N	NCE	N	N	N	N	N	N	N	N	N	N	N
Algae	Documented blooms during 2 or more sampling events in 1 year with historic blooms	N	N	N	N	N	N	N	N	N	N	N	N	N
Fish	Kills related to eutrophication	N	N	N	N	N	N	N	N	N	N	N	N	N
Chemically/Biologically Treated	For algal or macrophyte control - either chemicals or biologically by fish, etc.	N	N	N	N	N	N	N	N	N	N	N	N	N
Aesthetics complaints	Documented sheens, discoloration, etc. - written complaint and follow-up by a state	N	N	N	N	N	N	N	N	N	N	N	N	N
TSI	Increase of 2 trophic levels fror one 5-yr period to the next	N	N	N	N	N	N	N	N	N	N	N	N	N
Historic DWQ Data	Conclusions from other reports													
303(d)	Listed on 303(d) [year listed]	N	N	N	N	N	N	N	N	N	N	N	N	N
AGPT	Algal Growth Potential Test 5-9 mg/L = concern 10 mg/L or more = problematic	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Macrophytes	Limiting access to public ramps, docks, swimming areas; reducing access by fish and other aquatic life to habitat	Y	N	N	N	N	N	N	N	N	N	N	N	N
Taste and Odor	Public complaints or taste and odor causing algal species are dominant	N	N	N	N	N	N	N	N	N	N	N	N	N
Sediments	Clogging intakes – dredging program necessary; Frequent public/agency complaints - visual observation	N	N	N	N	N	N	N	N	N	N	N	N	N
Rating:		**NR**	**NR**	**NR**	**NR**	**NR**	**NR**	**NR**	**NR**	**NR**	**NR**	**NR**	**NR**	**NR**

RATING KEY:
- S = Supporting
- I = Impaired
- NR = Not Rated

Not Rated is used where there are <10 samples and other data indicate potential problems

KEY:
- E = Criteria is exceeded in less than 10% of the measurements **or** criteria exceeded but n<10
- CE = Criteria Exceeded - parameter is problematic, highly productive or exceeds the standard in >10% of samples
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- - = Standard not applicable based on Classification
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APPENDIX B

CAPE FEAR RIVER BASIN LAKES 2008 USE SUPPORT DATA

PIEDMONT/COASTAL PLAIN	DO mg/L	Water Temp C	pH s.u.	Percent SAT	Chla µg/L	TSS mg/L	Turbidity NTU	Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardness mg/L
C & B Criteria	**<4.0**	**32**	**<6 or >9**	**120%**	**40**	**-**	**25**	**0.012**	**50**	**25**	**88**	**7**	**50**	**2**	**50**	**-**	**1000**	**-**	**-**
WS II - WS V Criteria if different than C&B						**500**					**25**					**200**		**250**	**100**

Region	Lake	AU	Date m/d/yr	Sampling Station	SURFACE PHYSICAL DATA DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	SURFACE METALS Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardness Calculated mg/L
PIEDMONT	REIDSVILLE LAKE	16-6-(0.7)	May 13, 2008	CPF0025A	5.8	19.3	7.0	62.9%	13	6.2	9.4												
PIEDMONT	REIDSVILLE LAKE	16-6-(0.7)	May 13, 2008	CPF002A1	7.8	19.6	7.1	85.1%	22	3.1	4.4											4.7	22.5
					6.8	**19.5**	**7.1**	**74.0%**	**17.5**	**4.7**	**6.9**											**4.7**	**22.5**
PIEDMONT	REIDSVILLE LAKE	16-6-(0.7)	June 4, 2008	CPF0025A	7.8	26.5	7.2	97.0%	15	63.0	6.7												
PIEDMONT	REIDSVILLE LAKE	16-6-(0.7)	June 4, 2008	CPF002A1	8.5	25.5	7.5	103.8%	15	64.0	4.5											4.7	23.6
					8.2	**26.0**	**7.4**	**100.4%**	**15.0**	**63.5**	**5.6**											**4.7**	**23.6**
PIEDMONT	REIDSVILLE LAKE	16-6-(0.7)	July 8, 2008	CPF0025A	7.5	28.1	7.9	96.0%		3.1	5.7												
PIEDMONT	REIDSVILLE LAKE	16-6-(0.7)	July 8, 2008	CPF002A1	7.1	28.0	7.7	90.7%		7.0	5.0											4.6	25.9
					7.3	**28.1**	**7.8**	**93.4%**	**No Data**	**3.4**	**5.4**											**4.6**	**25.9**
PIEDMONT	REIDSVILLE LAKE	16-6-(0.7)	August 5, 2008	CPF0025A	7.3	30.1	8.1	96.8%	16	3.1	6.3												
PIEDMONT	REIDSVILLE LAKE	16-6-(0.7)	August 5, 2008	CPF002A1	7.1	30.6	8.0	94.9%	8	3.1	3.5											3.5	25.4
					7.2	**30.4**	**8.1**	**95.9%**	**12.0**	**3.4**	**4.9**											**3.5**	**25.4**
				N=	4	4	4	4	3	4	4											4	4
				% EXCEED =	NCE	NCE	NCE	NCE	NCE	NCE	NCE											*NCE*	*NCE*

Region	Lake	AU	Date m/d/yr	Sampling Station	SURFACE PHYSICAL DATA DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	SURFACE METALS Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardness Calculated mg/L
PIEDMONT	LAKE HUNT	16-6-2-(1)	May 13, 2008	CPF0021A	7.2	20.0	6.7	79.2%	20	9.5	13.0												
PIEDMONT	LAKE HUNT	16-6-2-(1)	May 13, 2008	CPF0022A	7.7	20.8	6.7	86.1%	18	3.1	6.5												
PIEDMONT	LAKE HUNT	16-6-2-(1)	May 13, 2008	CPF0023A	8.2	20.4	7.3	90.9%	25	3.1	6.4											5.0	18.4
					7.7	**20.4**	**6.9**	**85.4%**	**21.0**	**5.2**	**8.6**											**5.0**	**18.4**
PIEDMONT	LAKE HUNT	16-6-2-(1)	June 4, 2008	CPF0021A	7.9	26.2	7.6	97.8%	12	7.3	10.0												
PIEDMONT	LAKE HUNT	16-6-2-(1)	June 4, 2008	CPF0022A	7.7	25.8	7.3	94.6%	13	3.1	7.9												
PIEDMONT	LAKE HUNT	16-6-2-(1)	June 4, 2008	CPF0023A	7.8	25.9	7.0	96.0%	12	3.1	7.4											5.0	18.9
					7.8	**26.0**	**7.3**	**96.1%**	**12.3**	**4.5**	**8.4**											**5.0**	**18.9**
PIEDMONT	LAKE HUNT	16-6-2-(1)	July 8, 2008	CPF0021A	7.0	28.3	7.8	89.9%	16	6.0	6.7												
PIEDMONT	LAKE HUNT	16-6-2-(1)	July 8, 2008	CPF0022A	7.0	27.8	7.2	89.1%	14	3.1	6.1												
PIEDMONT	LAKE HUNT	16-6-2-(1)	July 8, 2008	CPF0023A	6.8	27.6	7.0	86.3%	14	3.1	5.5											4.6	19.1
					6.9	**27.9**	**7.3**	**88.4%**	**14.7**	**4.1**	**6.1**											**4.6**	**19.1**
PIEDMONT	LAKE HUNT	16-6-2-(1)	August 5, 2008	CPF0021A	8.0	29.4	8.5	104.8%	21	3.1	5.1												
PIEDMONT	LAKE HUNT	16-6-2-(1)	August 5, 2008	CPF0022A	8.1	29.6	8.5	106.5%	20	3.1	4.7												
PIEDMONT	LAKE HUNT	16-6-2-(1)	August 5, 2008	CPF0023A	7.8	29.5	8.0	102.3%	18	3.1	4.6												
					8.0	**29.5**	**8.3**	**104.5%**	**19.7**	**3.4**	**4.8**												
				N=	4	4	4	4	4	4	4											4	4
				% EXCEED =	NCE	NCE	NCE	NCE	NCE	NCE	NCE											*NCE*	*NCE*

Region	Lake	AU	Date m/d/yr	Sampling Station	SURFACE PHYSICAL DATA DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	SURFACE METALS Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardness Calculated mg/L
PIEDMONT	LAKE BRANDT	16-11-(3.5)	May 21, 2008	CPF007A1A	7.7	21.4	7.5	87.1%	24	6.0	8.6												
PIEDMONT	LAKE BRANDT	16-11-(3.5)	May 21, 2008	CPF007A4	8.2	21.6	7.5	93.1%	26	9.5	12.0												
PIEDMONT	LAKE BRANDT	16-11-(3.5)	May 21, 2008	CPF007B	7.3	21.5	7.3	82.7%	26	6.2	7.3											6.0	32.6
					7.7	**21.5**	**7.4**	**87.6%**	**25.3**	**7.2**	**9.3**											**6.0**	**32.6**
PIEDMONT	LAKE BRANDT	16-11-(3.5)	June 12, 2008	CPF007A1A	6.6	30.2	7.2	87.6%	14		4.5												
PIEDMONT	LAKE BRANDT	16-11-(3.5)	June 12, 2008	CPF007A4	6.4	30.2	7.6	85.0%	14		6.7												
PIEDMONT	LAKE BRANDT	16-11-(3.5)	June 12, 2008	CPF007B	6.7	30.1	7.4	88.8%	12		4.4											6.2	35.7
					6.6	**30.2**	**7.4**	**87.1%**	**13.3**	**No Data**	**5.2**											**6.2**	**35.7**
PIEDMONT	LAKE BRANDT	16-11-(3.5)	July 24, 2008	CPF007A1A	7.0	28.1	7.8	89.6%	38	6.0	9.6												
PIEDMONT	LAKE BRANDT	16-11-(3.5)	July 24, 2008	CPF007A4	6.7	28.6	7.6	86.5%	40	12.0	8.8												
PIEDMONT	LAKE BRANDT	16-11-(3.5)	July 24, 2008	CPF007B	6.5	28.7	7.3	84.1%	36	6.0	8.4											5.4	38.4
					6.7	**28.5**	**7.6**	**86.7%**	**38.0**	**8.0**	**8.9**											**5.4**	**38.4**
PIEDMONT	LAKE BRANDT	16-11-(3.5)	September 3, 2008	CPF007A1A	9.2	27.9	8.6	117.4%	24	6.0	6.0												
PIEDMONT	LAKE BRANDT	16-11-(3.5)	September 3, 2008	CPF007A4	9.3	28.4	8.1	119.7%	24	9.0	8.1												
PIEDMONT	LAKE BRANDT	16-11-(3.5)	September 3. 2008	CPF007B	9.8	27.7	8.7	124.6%	23	6.2	6.1											5.2	33.6
					9.4	**28.0**	**8.5**	**120.6%**	**23.7**	**7.1**	**6.7**											**5.2**	**33.6**
				N=	4	4	4	4	4	3	4											4	4
				% EXCEED =	NCE	NCE	NCE	E 25%	NCE	NCE	NCE											*NCE*	*NCE*

APPENDIX B

CAPE FEAR RIVER BASIN LAKES 2008 USE SUPPORT DATA

					SURFACE PHYSICAL DATA							SURFACE METALS											
Region	Lake	AU	Date m/d/yr	Sampling Station	DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardness Calculated mg/L
PIEDMONT	LAKE TOWNSEND	16-11-(3.5)	May 19, 2008	CPFLT4	7.0	21.9	7.4	79.9%	26	12.0	12.0												
PIEDMONT	LAKE TOWNSEND	16-11-(3.5)	May 19, 2008	CPFLT6	7.5	21.1	7.4	84.3%	19	6.5	7.9												
PIEDMONT	LAKE TOWNSEND	16-11-(3.5)	May 19, 2008	CPFLT8	8.0	20.4	7.4	88.7%	17	3.1	4.6											7.0	29.1
					7.5	**21.1**	**7.4**	**84.3%**	**20.7**	**7.2**	**8.2**											**7.0**	**29.1**
PIEDMONT	LAKE TOWNSEND	16-11-(3.5)	June 24, 2008	CPFLT4	6.9	27.9	7.6	88.0%	35	12.0	14.0												
PIEDMONT	LAKE TOWNSEND	16-11-(3.5)	June 24, 2008	CPFLT6	6.8	27.8	7.5	86.6%	15	3.1	5.5												
PIEDMONT	LAKE TOWNSEND	16-11-(3.5)	June 24, 2008	CPFLT8	7.6	27.9	8.0	97.0%	11	3.1	3.1											6.5	30.5
					7.1	**27.9**	**7.7**	**90.5%**	**20.3**	**6.1**	**7.5**											**6.5**	**30.5**
PIEDMONT	LAKE TOWNSEND	16-11-(3.5)	July 24, 2008	CPFLT4	6.9	29.6	7.6	90.7%	39	21.0	22.0												
PIEDMONT	LAKE TOWNSEND	16-11-(3.5)	July 24, 2008	CPFLT6	6.5	29.2	7.5	84.8%	22	6.0	5.8												
PIEDMONT	LAKE TOWNSEND	16-11-(3.5)	July 24, 2008	CPFLT8	7.3	29.5	7.7	95.8%	14	6.0	3.5											5.6	32.1
					6.9	**29.4**	**7.6**	**90.4%**	**25.0**	**11.0**	**10.4**											**5.6**	**32.1**
PIEDMONT	LAKE TOWNSEND	16-11-(3.5)	August 11, 2008	CPFLT4	7.2	27.7	7.7	91.5%	52	20.0	28.0												
PIEDMONT	LAKE TOWNSEND	16-11-(3.5)	August 11, 2008	CPFLT6	5.5	28.2	7.5	70.5%	31	7.2	8.9												
PIEDMONT	LAKE TOWNSEND	16-11-(3.5)	August 11, 2008	CPFLT8	6.8	28.4	7.7	87.5%	16	3.1	3.6											5.6	31.1
					6.5	**28.1**	**7.6**	**83.2%**	**33.0**	**10.1**	**13.5**											**5.6**	**31.1**
				N=	4	4	4	4	4	4	4											4	4
				% EXCEED =	NCE	NCE	NCE	NCE	NCE	NCE	NCE											*NCE*	*NCE*

					SURFACE PHYSICAL DATA							SURFACE METALS											
Region	Lake	AU	Date m/d/yr	Sampling Station	DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardness Calculated mg/L
PIEDMONT	LAKE HIGGINS	16-11-4-(2)	May 21, 2008	CPFLH2	8.1	21.2	7.6	91.2%	31	8.2	11.0												
PIEDMONT	LAKE HIGGINS	16-11-4-(2)	May 21, 2008	CPFLH4	8.3	21.2	7.5	93.5%	24	3.1	6.0											6.4	38.2
					8.2	**21.2**	**7.6**	**92.4%**	**27.5**	**5.7**	**8.5**											**6.4**	**38.2**
PIEDMONT	LAKE HIGGINS	16-11-4-(2)	June 12, 2008	CPFLH2	7.0	29.7	7.5	92.2%	18		7.3												
PIEDMONT	LAKE HIGGINS	16-11-4-(2)	June 12, 2008	CPFLH4	7.5	29.3	7.7	98.1%			4.2											6.3	30.8
					7.3	**29.5**	**7.6**	**95.2%**	**18.0**	**No Data**	**5.8**											**6.3**	**30.8**
PIEDMONT	LAKE HIGGINS	16-11-4-(2)	July 24, 2008	CPFLH2	6.3	28.7	7.2	81.5%	32	6.0	9.5												
PIEDMONT	LAKE HIGGINS	16-11-4-(2)	July 24, 2008	CPFLH4	6.9	28.7	7.3	89.3%	29	6.0	5.7											5.5	31.1
					6.6	**28.7**	**7.3**	**85.4%**	**30.5**	**6.0**	**7.6**											**5.5**	**31.1**
PIEDMONT	LAKE HIGGINS	16-11-4-(2)	September 3, 2008	CPFLH2	8.5	27.4	7.8	107.5%	28	8.5	13.0												
PIEDMONT	LAKE HIGGINS	16-11-4-(2)	September 3, 2008	CPFLH4	9.4	27.0	8.1	118.0%	25	7.0	6.7											5.0	30.8
					9.0	**27.2**	**8.0**	**112.8%**	**26.5**	**7.8**	**9.9**											**5.0**	**30.8**
				N=	4	4	4	4	4	3	4											4	4
				% EXCEED =	NCE	NCE	NCE	NCE	NCE	NCE	NCE											*NCE*	*NCE*

					SURFACE PHYSICAL DATA							SURFACE METALS											
Region	Lake	AU	Date m/d/yr	Sampling Station	DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardness Calculated mg/L
PIEDMONT	LAKE BURLINGTON	16-14-(1)	May 14, 2008	CPFSCR2	6.7	19.3	7.2	72.7%	22	9.3	12.0												
PIEDMONT	LAKE BURLINGTON	16-14-(1)	May 14, 2008	CPFSCR4	7.4	19.7	7.1	80.9%	23	6.0	12.0											4.5	35.9
					7.1	**19.5**	**7.2**	**76.8%**	**22.5**	**7.7**	**12.0**											**4.5**	**35.9**
PIEDMONT	LAKE BURLINGTON	16-14-(1)	June 10, 2008	CPFSCR2	7.6	31.1	7.4	102.5%	23	7.8	10.0												
PIEDMONT	LAKE BURLINGTON	16-14-(1)	June 10, 2008	CPFSCR4	7.3	31.1	7.6	98.4%	14	3.1	4.5											5.0	42.3
					7.5	**31.1**	**7.5**	**100.5%**	**18.5**	**5.5**	**7.3**											**5.0**	**42.3**
PIEDMONT	LAKE BURLINGTON	16-14-(1)	July 21, 2008	CPFSCR2	8.9	29.3	8.5	116.4%	66	16.0	18.0												
PIEDMONT	LAKE BURLINGTON	16-14-(1)	July 21, 2008	CPFSCR4	10.2	29.4	8.8	133.6%	48	8.0	8.7											4.3	37.3
					9.6	**29.4**	**8.7**	**125.0%**	**57.0**	**12.0**	**13.4**											**4.3**	**37.3**
PIEDMONT	LAKE BURLINGTON	16-14-(1)	August 19, 2008	CPFSCR2	7.4	26.6	6.9	92.2%	24	6.0	4.2												
PIEDMONT	LAKE BURLINGTON	16-14-(1)	August 19, 2008	CPFSCR4	6.3	26.3	7.2	78.1%	22	3.1	4.6											4.0	37.9
					6.9	**26.5**	**7.1**	**85.2%**	**23.0**	**4.6**	**4.4**											**4.0**	**37.9**
				N=	4	4	4	4	4	4	4											*4*	*4*
				% EXCEED =	NCE	NCE	NCE	E 25%	E 25%	NCE	NCE											*NCE*	*NCE*

					SURFACE PHYSICAL DATA							SURFACE METALS											
Region	Lake	AU	Date m/d/yr	Sampling Station	DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardness Calculated mg/L
PIEDMONT	LAKE CAMMACK	16-14-(5.5)	May 14, 2008	CPF0251	7.3	20.3	7.2	80.8%	15	3.1	6.4												
PIEDMONT	LAKE CAMMACK	16-14-(5.5)	May 14, 2008	CPF025A	7.9	20.4	7.2	87.6%	32	3.1	7.7											4.6	35.1
					7.6	**20.4**	**7.2**	**84.2%**	**23.5**	**3.1**	**7.1**											**4.6**	**35.1**
PIEDMONT	LAKE CAMMACK	16-14-(5.5)	June 10, 2008	CPF0251	7.4	31.5	7.8	100.5%	15	3.1	4.4												
PIEDMONT	LAKE CAMMACK	16-14-(5.5)	June 10, 2008	CPF025A	7.0	31.9	7.7	95.7%	16	3.1	4.0											4.2	36.7
					7.2	**31.7**	**7.8**	**98.1%**	**15.5**	**3.1**	**4.2**											**4.2**	**36.7**
PIEDMONT	LAKE CAMMACK	16-14-(5.5)	July 21, 2008	CPF0251	8.7	30.2	8.7	115.5%	22	3.1	5.8												

APPENDIX B

CAPE FEAR RIVER BASIN LAKES 2008 USE SUPPORT DATA

PIEDMONT	LAKE CAMMACK	16-14-(5.5)	July 21, 2008	CPF025A	8.1	29.9	8.6	107.0%	22	3.1	5.8											3.9	41.1
					8.4	**30.1**	**8.7**	**111.3%**	**22.0**	**3.1**	**5.8**											**3.9**	**41.1**
PIEDMONT	LAKE CAMMACK	16-14-(5.5)	August 19, 2008	CPF0251	7.5	28.3	7.5	96.4%	35	3.1	16.0												
PIEDMONT	LAKE CAMMACK	16-14-(5.5)	August 19, 2008	CPF025A	6.7	27.6	7.6	85.0%	31	7.2	7.6											4.2	38.3
					7.1	**28.0**	**7.6**	**90.7%**	**33.0**	**5.2**	**11.8**											**4.2**	**38.3**
				N=	4	4	4	4	4	4	4											4	4
				% EXCEED =	NCE	NCE	NCE	NCE	NCE	NCE	NCE												

					SURFACE PHYSICAL DATA							SURFACE METALS											
Region	Lake	AU	Date m/d/yr	Sampling Station	DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardnes Calculated mg/L
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	May 7, 2008	CPFGMR1	10.1	22.5	8.1	116.7%	44	7.0	9.9												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	May 7, 2008	CPFGMR2	9.6	21.6	7.2	109.0%	50	13.0	20.0												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	May 7, 2008	CPFGMR3	10.0	21.8	8.0	114.0%	63	9.3	13.0												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	May 7, 2008	CPFGMR4	10.0	22.1	8.2	114.6%	48	6.8	8.8											4.9	26.8
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	May 7, 2008	CPFGMROA	9.9	21.7	7.4	112.6%	70	20.0	21.0												
					9.9	**21.9**	**7.8**	**113.4%**	**55.0**	**11.2**	**14.5**											**4.9**	**26.8**
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	May 22, 2008	CPFGMR1	8.4	20.7	7.3	93.7%	28	6.2	6.4												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	May 22, 2008	CPFGMR2	9.7	22.5	7.4	112.0%	100	14.0	15.0												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	May 22, 2008	CPFGMR3	9.1	21.9	7.4	103.9%	62	6.0	10.0												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	May 22, 2008	CPFGMR4	8.4	21.1	7.2	94.4%	29	6.5	7.8											4.6	27.8
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	May 22, 2008	CPFGMROA	9.3	21.2	7.2	104.8%	70	22.0	22.0												
					9.0	**21.5**	**7.3**	**107.0%**	**57.8**	**10.9**	**12.2**											**4.6**	**27.8**
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	June 4, 2008	CPFGMR1	7.9	25.4	6.9	96.3%	16	3.1	5.9												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	June 4, 2008	CPFGMR2	6.6	26.2	7.0	81.7%	26	10.0	13.0												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	June 4, 2008	CPFGMR3	7.6	25.6	7.2	93.0%	30	7.3	7.2												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	June 4, 2008	CPFGMR4	7.7	25.2	7.1	94.6%	17	3.1	5.6											4.4	29.3
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	June 4, 2008	CPFGMROA	7.3	26.1	7.0	90.2%	25	17.0	20.0												
					7.4	**25.7**	**7.0**	**91.2%**	**22.8**	**8.1**	**10.3**											**4.4**	**29.3**
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	June 18, 2008	CPFGMR1	6.3	27.6	6.6	79.9%	20	6.5	9.4												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	June 18, 2008	CPFGMR2	5.9	28.3	7.0	75.8%	36	15.0	18.0												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	June 18, 2008	CPFGMR3	5.9	28.2	6.9	75.7%	23	8.0	12.0												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	June 18, 2008	CPFGMR4	6.7	27.7	7.0	85.2%	14	3.1	10.0											4.4	30.5
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	June 18, 2008	CPFGMROA	5.8	27.3	6.8	73.2%	32	30.0	30.0												
					6.1	**27.8**	**6.9**	**78.0%**	**25.0**	**12.5**	**15.9**											**4.4**	**30.5**
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	July 9, 2008	CPFGMR1	7.0	27.4	6.7	88.5%		3.1	5.2												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	July 9, 2008	CPFGMR2	7.2	27.9	7.2	91.8%		16.0	19.0												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	July 9, 2008	CPFGMR3	6.9	27.7	7.1	87.7%		7.0	10.0												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	July 9, 2008	CPFGMR4	6.4	27.3	7.0	80.8%		3.1	5.5											4.5	30.2
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	July 9, 2008	CPFGMROA	7.2	27.8	7.1	91.7%		46.0	33.0												
					6.9	**27.6**	**7.0**	**88.1%**	**No Data**	**15.0**	**14.5**											**4.5**	**30.2**
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	July 24, 2008	CPFGMR1	7.3	30.1	8.0	96.8%	20		6.2												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	July 24, 2008	CPFGMR2	7.5	31.2	8.3	101.3%	40		16.0												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	July 24, 2008	CPFGMR3	7.5	30.4	8.4	99.9%	26	6.8	8.8												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	July 24, 2008	CPFGMR4	7.1	30.0	7.8	94.0%	20	3.1	5.8											4.0	30.8
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	July 24, 2008	CPFGMROA	7.4	31.2	7.9	100.0%	30		33.0												
					7.4	**30.6**	**8.1**	**98.4%**	**27.2**	**5.0**	**14.0**											**4.0**	**30.8**
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	August 6, 2008	CPFGMR1	8.2	30.2	8.2	108.9%	26	3.1	7.1												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	August 6, 2008	CPFGMR2	9.7	31.1	8.9	130.8%	45	10.0	13.0												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	August 6, 2008	CPFGMR3	8.0	30.7	8.2	107.2%	22	6.0	9.3												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	August 6, 2008	CPFGMR4	8.1	30.1	8.2	107.4%	17	3.1	6.8											4.2	29.2
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	August 6, 2008	CPFGMROA	8.9	31.7	7.8	121.3%	41	63.0	38.0												
					8.6	**30.8**	**8.3**	**115.1%**	**30.2**	**17.0**	**14.8**											**4.2**	**29.2**
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	August 20, 2008	CPFGMR1	8.5	28.9	8.6	110.4%	24	7.2	8.8												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	August 20, 2008	CPFGMR2	9.4	28.4	8.8	121.0%	66	20.0	22.0												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	August 20, 2008	CPFGMR3	9.5	28.8	9.0	123.1%	39	10.0	12.0												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	August 20, 2008	CPFGMR4	7.8	27.9	8.3	99.5%	22	6.2	8.2											4.1	31.8
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	August 20, 2008	CPFGMROA	7.3	28.0	7.1	93.3%	54	21.0	24.0												
					8.5	**28.4**	**8.4**	**109.5%**	**41.0**	**12.9**	**15.0**											**4.1**	**31.8**
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	September 3, 2008	CPFGMR1	8.4	28.7	8.3	108.7%	22	6.5	6.2												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	September 3, 2008	CPFGMR2	8.8	27.3	8.6	111.1%	43	20.0	28.0												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	September 3, 2008	CPFGMR3	8.3	28.3	8.3	106.6%	34	6.0	11.0												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	September 3, 2008	CPFGMR4	8.2	28.6	8.4	105.9%	22	3.1	5.9											4.3	32.8
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	September 3, 2008	CPFGMROA	8.5	27.8	7.7	108.2%	33	27.0	19.0												
					8.4	**28.1**	**8.3**	**108.1%**	**30.8**	**12.5**	**14.0**											**4.3**	**32.8**
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	September 17, 2008	CPFGMR1	5.1	24.2	6.9	60.8%	24	6.8	9.8												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	September 17, 2008	CPFGMR2	5.2	24.1	7.0	61.9%	40	19.0	23.0												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	September 17, 2008	CPFGMR3	5.7	24.2	6.9	68.0%	33	8.2	13.0												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	September 17, 2008	CPFGMR4	5.7	24.2	6.9	68.0%	29	6.2	11.0											3.0	26.2
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	September 17, 2008	CPFGMROA	5.1	23.1	6.8	59.6%	54	18.0	23.0												
					5.4	**24.0**	**6.9**	**63.7%**	**36.0**	**11.6**	**16.0**											**3.0**	**26.2**
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	October 15, 2008	CPFGMR1	6.9	20.1	6.5	76.1%	33	6.2	6.4												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	October 15, 2008	CPFGMR2	9.1	20.1	7.4	100.3%	75	13.0	12.0												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	October 15, 2008	CPFGMR3	7.6	20.5	7.1	84.4%	58	8.0	9.0												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	October 15, 2008	CPFGMR4	7.1	20.0	6.9	78.1%	32	3.1	6.7												
PIEDMONT	GRAHAM-MEBANE RESERVOIR	16-18-(1.5)	October 15, 2008	CPFGMROA	7.6	20.6	7.3	84.6%	38	40.0	21.0											2.9	26.7
					7.7	**20.3**	**7.0**	**84.7%**	**47.2**	**14.1**	**11.0**											**2.9**	**26.7**
				N=	11	11	11	11	10	11	11											10	10

APPENDIX B

CAPE FEAR RIVER BASIN LAKES 2008 USE SUPPORT DATA

Region	Lake	AU	Date m/d/yr	Sampling Station	SURFACE PHYSICAL DATA DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	SURFACE METALS Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardnes Calculated mg/L
				% EXCEED =	NCE	NCE	NCE	NCE	CE 40%	NCE	NCE											*NCE*	*NCE*
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	May 7, 2008	CPF038F	10.0	23.2	8.3	117.1%	25	7.3	5.4												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	May 7, 2008	CPF038G	9.9	23.5	8.2	116.5%	21	7.3	5.5												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	May 7, 2008	CPF038H	10.1	22.5	8.4	116.7%	26	6.8	5.2												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	May 7, 2008	CPF038J	10.0	22.4	8.5	115.3%	16	3.1	4.0												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	May 7, 2008	CPF038L	10.1	22.9	8.6	117.6%	24	7.8	6.3												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	May 7, 2008	CPF038N	10.1	22.3	8.4	116.2%	18	6.0	3.8											9.8	41.5
					10.0	**22.8**	**8.4**	**116.6%**	**21.7**	**6.4**	**5.0**											**9.8**	**41.5**
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	May 22, 2008	CPF038F	9.9	22.6	7.9	114.6%	25	7.5	5.4												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	May 22, 2008	CPF038G	9.4	22.7	7.8	109.0%	18	6.2	5.2												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	May 22, 2008	CPF038H	9.8	22.6	8.1	113.4%	19	3.1	5.1												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	May 22, 2008	CPF038J	9.5	22.0	8.0	108.7%	21	6.2	5.1												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	May 22, 2008	CPF038L	9.5	23.8	7.9	112.5%	19	7.8	6.0												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	May 22, 2008	CPF038N	9.5	22.5	8.1	109.7%	20	8.0	5.5											9.1	42.0
					9.6	**22.7**	**8.0**	**111.3%**	**20.3**	**6.5**	**5.4**											**9.1**	**42.0**
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	June 4, 2008	CPF038F	9.0	28.5	8.1	116.0%	15	3.1	4.7												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	June 4, 2008	CPF038G	8.7	28.4	7.9	112.0%	15	3.1	4.8												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	June 4, 2008	CPF038H	8.9	27.1	8.2	111.9%	12	3.1	4.1												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	June 4, 2008	CPF038J	8.7	27.1	7.4	109.4%	10	3.1	4.1												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	June 4, 2008	CPF038L	8.5	26.7	7.1	106.1%	12	3.1	5.9												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	June 4, 2008	CPF038N	8.5	26.4	7.2	105.6%	11	6.0	4.1											8.8	42.7
					8.7	**27.4**	**7.7**	**110.2%**	**12.5**	**3.6**	**4.6**											**8.8**	**42.7**
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	June 18, 2008	CPF038F	6.6	28.2	7.3	84.6%	15	6.0	6.1												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	June 18, 2008	CPF038G	7.3	28.4	7.5	93.9%	11	3.1	5.7												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	June 18, 2008	CPF038H	7.1	28.3	7.5	91.2%	8	3.1	5.2												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	June 18, 2008	CPF038J	7.3	28.0	7.6	93.3%	6	3.1	4.0												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	June 18, 2008	CPF038L	7.2	29.1	7.7	93.8%	6	3.1	4.3												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	June 18, 2008	CPF038N	7.1	28.8	7.7	92.0%	5	6.0	3.8											8.2	46.0
					7.1	**28.5**	**7.6**	**0.9**	**8.5**	**4.1**	**4.9**											**8.2**	**46.0**
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	July 9, 2008	CPF038F	9.1	29.2	8.6	118.8%	26	6.0	5.3												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	July 9, 2008	CPF038G	9.1	28.2	8.5	116.7%	26	3.1	6.0												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	July 9, 2008	CPF038H	8.1	27.9	8.1	103.3%	18	3.1	5.2												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	July 9, 2008	CPF038J	8.0	28.2	7.6	102.6%	13	6.0	3.6												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	July 9, 2008	CPF038L	8.1	28.1	8.3	103.7%	17	3.1	4.4												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	July 9, 2008	CPF038N	8.1	28.3	8.4	104.1%	13	3.1	3.5											8.7	46.0
					8.4	**28.3**	**8.3**	**108.2%**	**18.8**	**4.1**	**4.7**											**8.7**	**46.0**
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	July 24, 2008	CPF038F	6.2	29.3	7.5	81.1%	19	6.0	5.5												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	July 24, 2008	CPF038G	7.4	29.0	8.2	96.2%	25	6.0	5.6												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	July 24, 2008	CPF038H	7.3	29.1	8.4	95.1%	16	6.0	4.5												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	July 24, 2008	CPF038J	7.2	28.9	8.4	93.5%	12	6.0	3.1												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	July 24, 2008	CPF038L	7.2	29.3	8.6	94.1%	14	6.0	3.4												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	July 24, 2008	CPF038N	7.2	29.3	8.5	94.1%	12	6.0	3.2											8.4	46.0
					7.1	**29.2**	**8.3**	**92.4%**	**16.3**	**6.0**	**4.2**											**8.4**	**46.0**
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	August 6, 2008	CPF038F	7.9	29.9	8.4	104.4%	17	6.0	4.4												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	August 6, 2008	CPF038G	8.3	30.0	8.6	109.8%	18	3.1	5.0												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	August 6, 2008	CPF038H	8.1	30.1	8.5	107.4%	13	3.1	4.4												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	August 6, 2008	CPF038J	7.8	30.1	8.4	103.4%	10	3.1	3.3												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	August 6, 2008	CPF038L	8.1	30.5	8.7	108.1%	15	3.1	4.4												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	August 6, 2008	CPF038N	7.9	30.6	8.5	105.6%	11	3.1	3.2											7.8	45.6
					8.0	**30.2**	**8.5**	**106.5%**	**14.0**	**3.6**	**4.1**											**7.8**	**45.6**
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	August 20, 2008	CPF038F	7.8	27.5	8.2	98.8%	20	3.1	5.4												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	August 20, 2008	CPF038G	8.4	28.0	8.5	107.3%	24	3.1	5.3												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	August 20, 2008	CPF038H	8.3	27.7	8.6	105.5%	18	3.1	4.4												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	August 20, 2008	CPF038J	8.4	27.7	8.7	106.8%	14	3.1	3.5												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	August 20, 2008	CPF038L	8.1	27.7	8.7	103.0%	14	3.1	3.4												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	August 20, 2008	CPF038N	8.4	27.7	8.7	106.8%	13	6.0	3.7											8.0	45.6
					8.2	**27.7**	**8.6**	**104.7%**	**17.2**	**3.6**	**4.3**											**8.0**	**45.6**
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	September 3, 2008	CPF038F	8.6	25.8	7.4	105.6%	35	8.8	11.0												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	September 3, 2008	CPF038G	9.2	26.6	7.7	114.7%	47	8.5	9.8												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	September 3, 2008	CPF038H	9.5	26.9	8.5	119.0%	37	8.0	10.0												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	September 3, 2008	CPF038J	9.8	26.0	8.7	120.8%	34	9.2	8.8												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	September 3, 2008	CPF038L	9.0	27.1	8.4	113.2%	32	8.8	8.3												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	September 3, 2008	CPF038N	9.7	26.0	8.6	119.6%	38	8.2	7.9											5.5	34.0
					9.3	**26.4**	**8.2**	**115.5%**	**37.2**	**8.6**	**9.3**											**5.5**	**34.0**
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	September 17, 2008	CPF038F	6.1	24.1	6.9	72.6%	30	6.2	8.0												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	September 17, 2008	CPF038G	6.7	24.3	7.1	80.1%	28	7.8	7.6												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	September 17, 2008	CPF038H	6.3	24.1	6.9	75.0%	41	3.1	6.3												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	September 17, 2008	CPF038J	6.6	24.2	7.2	78.7%	32	3.1	4.1												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	September 17, 2008	CPF038L	7.4	24.6	7.6	88.9%	36	6.0	5.1												
PIEDMONT	LAKE MACKINTOSH	16-19-(2.5)	September 17, 2008	CPF038N	6.7	24.3	7.3	80.1%	28	3.1	4.1											4.2	29.4
					6.6	**24.3**	**7.2**	**79.2%**	**32.5**	**4.9**	**5.9**											**4.2**	**29.4**
				N=	10	10	10	10	10	10	10											10	10
				% EXCEED =	NCE	NCE	NCE	NCE	NCE	NCE	NCE											*NCE*	*NCE*

APPENDIX B

CAPE FEAR RIVER BASIN LAKES 2008 USE SUPPORT DATA

					SURFACE PHYSICAL DATA							SURFACE METALS											
Region	Lake	AU	Date	Sampling	DO	Water Temp	pH	Percent DO	Chla	TSS	Turbidity	Hg	Zn	Pb	Ni	Cu	Cr	Cd	As	Mn	Fe	Chloride	Total Hardness Calculated
			m/d/yr	Station	mg/L	C	s.u.	SAT	µg/L	mg/L	NTU	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L
PIEDMONT	JORDAN LAKE	16-(37.5)	January 5, 2005	CPF055C	12.7	9.4	7.4	111.0%	34	7.0	12.0												
PIEDMONT	JORDAN LAKE	16-(37.5)	January 5, 2005	CPF055E	11.3	7.5	6.8	94.3%	12	8.0	12.0												
					12.0	**8.5**	**7.1**	**102.7%**	**23.0**	**7.5**	**12.0**												
PIEDMONT	JORDAN LAKE	16-(37.5)	February 8, 2005	CPF055C	12.2	7.5	7.0	101.8%	7	16.0	35.0												
PIEDMONT	JORDAN LAKE	16-(37.5)	February 8, 2005	CPF055E	12.5	6.4	7.0	101.5%	16	9.0	13.0												
					12.4	**7.0**	**7.0**	**101.7%**	**11.5**	**12.5**	**24.0**												
PIEDMONT	JORDAN LAKE	16-(37.5)	March 22, 2005	CPF055C	11.3	10.6	7.1	101.6%	19	11.0	25.0		<10	<10	<10	2.0	<5.0	<2.0		85	800	11.0	36.5
PIEDMONT	JORDAN LAKE	16-(37.5)	March 22, 2005	CPF055E	11.6	10.5	7.3	104.0%	28	12.0	13.0		<10	<10	<10	<2.0	<5.0	<2.0		89	390	12.0	35.0
					11.5	**10.6**	**7.2**	**102.8%**	**23.5**	**11.5**	**19.0**		**<10**	**<10**	**<10**	**2.0**	**<5.0**	**<2.0**		**87.0**	**595.0**	**11.5**	**35.8**
PIEDMONT	JORDAN LAKE	16-(37.5)	April 20, 2005	CPF055C	12.7	21.8	8.6	144.7%	52	9.0	10.0												
PIEDMONT	JORDAN LAKE	16-(37.5)	April 20, 2005	CPF055E	13.2	18.5	8.4	140.9%	72	9.0	13.0												
					13.0	**20.2**	**8.5**	**142.8%**	**62.0**	**9.0**	**11.5**												
PIEDMONT	JORDAN LAKE	16-(37.5)	May 23, 2005	CPF055C	11.8	23.4	8.9	138.6%		8.8	7.7												
PIEDMONT	JORDAN LAKE	16-(37.5)	May 23, 2005	CPF055E	11.9	22.9	9.1	138.5%		8.2	4.1												
					11.9	**23.2**	**9.0**	**138.6%**	**No Data**	**8.5**	**5.9**												
PIEDMONT	JORDAN LAKE	16-(37.5)	June 27, 2005	CPF055C	9.2	31.3	9.2	124.5%		6.0	6.4		<10	<10	<10	2.0	<5.0	<2.0		36	120	14.0	37.0
PIEDMONT	JORDAN LAKE	16-(37.5)	June 27, 2005	CPF055E	8.4	30.6	9.1	112.3%		6.5	6.1		<10	<10	<10	<2.0	<5.0	<2.0		48	90	14.0	36.5
					8.8	**31.0**	**9.2**	**118.4%**	**No Data**	**6.3**	**6.3**		**<10**	**<10**	**<10**	**2.0**	**<5.0**	**<2.0**		**42.0**	**105.0**	**14.0**	**36.8**
PIEDMONT	JORDAN LAKE	16-(37.5)	July 12, 2005	CPF055C	11.7	30.0	9.3	154.8%		7.0	6.3												
PIEDMONT	JORDAN LAKE	16-(37.5)	July 12, 2005	CPF055E	9.1	29.5	8.9	119.4%		6.2	4.4												
					10.4	**29.8**	**9.1**	**137.1%**	**No Data**	**6.6**	**5.4**												
PIEDMONT	JORDAN LAKE	16-(37.5)	August 23, 2005	CPF055C	11.2	30.7	9.5	150.0%		9.8	6.5												
PIEDMONT	JORDAN LAKE	16-(37.5)	August 23, 2005	CPF055E	8.5	31.2	9.1	114.8%		6.2	4.7												
					9.9	**31.0**	**9.3**	**132.4%**	**No Data**	**8.0**	**5.6**												
PIEDMONT	JORDAN LAKE	16-(37.5)	October 10, 2005	CPF055C	6.2	23.5	7.5	73.0%	22	25.0	8.8		11	<10	<10	2.1	<5.0	<2.0		100	410	36.0	45.6
PIEDMONT	JORDAN LAKE	16-(37.5)	October 10, 2005	CPF055E	5.7	24.1	7.4	67.9%	28	165.0	6.2		5	<10	<10	1.0	<5.0	<2.0		110	170	24.0	41.9
					6.0	**23.8**	**7.5**	**70.5%**	**25.0**	**95.0**	**7.5**		**8.0**	**<10**	**<10**	**1.6**	**<5.0**	**<2.0**		**105.0**	**290.0**	**30.0**	**43.8**
PIEDMONT	JORDAN LAKE	16-(37.5)	November 7, 2005	CPF055C	10.5	18.0	8.6	110.9%	57	10.0	8.5												
PIEDMONT	JORDAN LAKE	16-(37.5)	November 7, 2005	CPF055E	7.2	17.7	7.4	75.6%	27	6.5	7.2												
					8.9	**17.9**	**8.0**	**93.3%**	**42.0**	**8.3**	**7.9**												
PIEDMONT	JORDAN LAKE	16-(37.5)	December 12, 2005	CPF055C	11.8	6.2	7.1	95.3%	2	12.0			<10	<10	<10	3.8	<5.0	<2.0		100	1600	12.0	36.2
PIEDMONT	JORDAN LAKE	16-(37.5)	December 12, 2005	CPF055E	10.0	8.4	6.9	85.3%	5	18.0			<10	<10	<10	4.4	<5.0	<2.0		150	1700	15.0	36.5
					10.9	**7.3**	**7.0**	**90.3%**	**3.5**	**15.0**	**No Data**		**<10**	**<10**	**<10**	**4.1**	**<5.0**	**<2.0**		**125.0**	**1650.0**	**13.5**	**36.4**
PIEDMONT	JORDAN LAKE	16-(37.5)	January 12, 2006	CPF055C	12.4	9.4	7.5	108.3%	23	9.0	15.0												
PIEDMONT	JORDAN LAKE	16-(37.5)	January 12, 2006	CPF055E	11.7	9.1	7.2	101.5%	26	7.8	8.5												
					12.1	**9.3**	**7.4**	**104.9%**	**24.5**	**8.4**	**11.8**												
PIEDMONT	JORDAN LAKE	16-(37.5)	February 21, 2006	CPF055C	12.5	9.0	7.8	108.2%	17	10.0	6.0												
PIEDMONT	JORDAN LAKE	16-(37.5)	February 21, 2006	CPF055E	12.6	9.0	7.8	109.0%	31	6.0	4.4												
					12.6	**9.0**	**7.8**	**108.6%**	**24.0**	**8.0**	**5.2**												
PIEDMONT	JORDAN LAKE	16-(37.5)	March 23, 2006	CPF055C	10.3	12.2	7.7	96.0%	26	8.0	8.5		<10	<10	<10	2.0	<5.0	<2.0		110	480	23.0	42.3
PIEDMONT	JORDAN LAKE	16-(37.5)	March 23, 2006	CPF055E	10.5	12.7	7.6	99.0%	30	6.8	7.1		<10	<10	<10	<2.0	<5.0	<2.0		66	250	21.0	40.9
					10.4	**12.5**	**7.7**	**97.5%**	**28.0**	**7.4**	**7.8**		**<10**	**<10**	**<10**	**2.0**	**<5.0**	**<2.0**		**88.0**	**365.0**	**22.0**	**41.6**
PIEDMONT	JORDAN LAKE	16-(37.5)	April 11, 2006	CPF055C	11.3	18.6	8.7	120.9%	27	5.8	6.4												
PIEDMONT	JORDAN LAKE	16-(37.5)	April 11, 2006	CPF055E	13.2	18.4	9.1	140.6%	46	4.0	4.9												
					12.3	**18.5**	**8.9**	**130.8%**	**36.5**	**4.9**	**5.7**												
PIEDMONT	JORDAN LAKE	16-(37.5)	May 16, 2006	CPF055C	10.6	21.6	8.5	120.3%	57	7.0	7.0												
PIEDMONT	JORDAN LAKE	16-(37.5)	May 16, 2006	CPF055E	10.5	21.0	8.4	117.8%	33	5.5	5.9												
					10.6	**21.3**	**8.5**	**119.1%**	**45.0**	**6.3**	**6.5**												
PIEDMONT	JORDAN LAKE	16-(37.5)	June 13, 2006	CPF055C	10.2	31.4	8.3	138.3%	35	11.0	10.0		<10	<10	<10	2.4	<5.0	<2.0		95	470	26.0	41.5
PIEDMONT	JORDAN LAKE	16-(37.5)	June 13, 2006	CPF055E	10.0	30.3	8.8	133.0%	28	6.8	4.4		<10	<10	<10	1.0	<5.0	<2.0		41	100	21.0	38.8
					10.1	**30.9**	**8.6**	**135.7%**	**31.5**	**8.9**	**7.2**		**<10**	**<10**	**<10**	**1.7**	**<5.0**	**<2.0**		**68.0**	**285.0**	**23.5**	**40.2**
PIEDMONT	JORDAN LAKE	16-(37.5)	July 5, 2006	CPF055C	10.2	31.4	9.4	138.3%	26	7.8	7.2												
PIEDMONT	JORDAN LAKE	16-(37.5)	July 5, 2006	CPF055E	10.0	30.3	9.2	133.0%	33	8.0	6.0												
					10.1	**30.9**	**9.3**	**135.7%**	**29.5**	**7.9**	**6.6**												
PIEDMONT	JORDAN LAKE	16-(37.5)	August 14, 2006	CPF055C	7.4	29.2	8.2	96.6%	40	6.5	6.1												
PIEDMONT	JORDAN LAKE	16-(37.5)	August 14, 2006	CPF055E	6.7	29.1	8.0	87.3%	28	4.5	4.9												
					7.1	**29.2**	**8.1**	**92.0%**	**34.0**	**5.5**	**5.5**												
PIEDMONT	JORDAN LAKE	16-(37.5)	September 21, 2006	CPF055C	8.2	24.4	8.0	98.2%	40	9.8	9.5												
PIEDMONT	JORDAN LAKE	16-(37.5)	September 21, 2006	CPF055E	7.5	24.7	7.7	90.3%	43	6.0	6.5												
					7.9	**24.6**	**7.9**	**94.3%**	**41.5**	**7.9**	**8.0**												
PIEDMONT	JORDAN LAKE	16-(37.5)	October 4, 2006	CPF055C	11.4	23.7	9.1	134.7%	72	7.5	5.6												
PIEDMONT	JORDAN LAKE	16-(37.5)	October 4, 2006	CPF055E	9.7	23.6	8.7	114.4%	50	6.8	4.6												
					10.6	**23.7**	**8.9**	**124.6%**	**61.0**	**7.2**	**5.1**												
PIEDMONT	JORDAN LAKE	16-(37.5)	November 2, 2006	CPF055C	9.8	16.8	8.0	101.0%	44	6.5	5.2												
PIEDMONT	JORDAN LAKE	16-(37.5)	November 2, 2006	CPF055E	8.6	16.8	7.5	88.6%	25	5.2	4.5												
					9.2	**16.8**	**7.8**	**94.8%**	**34.5**	**5.9**	**4.9**												
PIEDMONT	JORDAN LAKE	16-(37.5)	December 6, 2006	CPF055C	9.2	10.7	6.9	82.9%	10	10.0	16.0		<10	<10	<10	2.5	<5.0	<2.0		170	1100	7.4	36.8
PIEDMONT	JORDAN LAKE	16-(37.5)	December 6, 2006	CPF055E	8.7	11.1	6.9	79.1%	20	9.5	13.0		<10	<10	<10	1.0	<5.0	<2.0		88	600	11.0	31.3
					9.0	**10.9**	**6.9**	**81.0%**	**15.0**	**9.8**	**14.5**		**<10**	**<10**	**<10**	**1.8**	**<5.0**	**<2.0**		**129.0**	**850.0**	**9.2**	**34.1**
PIEDMONT	JORDAN LAKE	16-(37.5)	January 16, 2007	CPF055C	10.0	11.1	7.0	90.9%	18	9.8	21.0												
PIEDMONT	JORDAN LAKE	16-(37.5)	January 16, 2007	CPF055E	9.5	10.8	6.9	85.8%	18	7.8	12.0												
					9.8	**11.0**	**7.0**	**88.4%**	**18.0**	**8.8**	**16.5**												
PIEDMONT	JORDAN LAKE	16-(37.5)	February 22, 2007	CPF055C	12.7	7.6	7.1	106.2%	12	12.0	29.0												
PIEDMONT	JORDAN LAKE	16-(37.5)	February 22, 2007	CPF055E	13.3	7.6	7.4	111.2%	32	8.5	8.1												
					13.0	**7.6**	**7.3**	**108.7%**	**22.0**	**10.3**	**18.6**												

APPENDIX B

CAPE FEAR RIVER BASIN LAKES 2008 USE SUPPORT DATA

PIEDMONT	JORDAN LAKE	16-(37.5)	March 7, 2007	CPF055C	10.4	10.4	6.9	93.0%	15	16.0	45.0												
PIEDMONT	JORDAN LAKE	16-(37.5)	March 7, 2007	CPF055E	10.0	10.6	6.7	89.9%	16	15.0	34.0												
					10.2	**10.5**	**6.8**	**91.5%**	**15.5**	**15.5**	**39.5**												
PIEDMONT	JORDAN LAKE	16-(37.5)	April 17, 2007	CPF055C	10.4	13.1	6.9	99.0%	10	42.0	80.0												
PIEDMONT	JORDAN LAKE	16-(37.5)	April 17, 2007	CPF055E	9.6	13.8	6.8	92.8%	9	18.0	75.0												
					10.0	**13.5**	**6.9**	**95.9%**	**9.5**	**30.0**	**77.5**												
PIEDMONT	JORDAN LAKE	16-(37.5)	May 15, 2007	CPF055C	11.4	23.0	9.0	132.9%	33	7.2	6.1												
PIEDMONT	JORDAN LAKE	16-(37.5)	May 15, 2007	CPF055E	9.6	22.0	8.2	109.8%	25	6.0	5.4												
					10.5	**22.5**	**8.6**	**121.4%**	**29.0**	**6.6**	**5.8**												
PIEDMONT	JORDAN LAKE	16-(37.5)	June 12, 2007	CPF055C	11.8	29.7	9.1	155.4%	44	7.0	6.7											30.0	
PIEDMONT	JORDAN LAKE	16-(37.5)	June 12, 2007	CPF055E	9.4	28.4	8.9	121.0%	27	3.1	5.5											22.0	
					10.6	**29.1**	**9.0**	**138.2%**	**35.5**	**5.1**	**6.1**											**26.0**	
PIEDMONT	JORDAN LAKE	16-(37.5)	July 17, 2007	CPF055C	11.3	30.5	9.1	150.8%	40	8.2	7.0												
PIEDMONT	JORDAN LAKE	16-(37.5)	July 17, 2007	CPF055E	9.3	29.2	8.6	121.4%	31	8.0	5.4												
					10.3	**29.9**	**8.9**	**136.1%**	**35.5**	**8.1**	**6.2**												
PIEDMONT	JORDAN LAKE	16-(37.5)	August 1, 2007	CPF055C	11.3	30.0	9.1	149.5%	46	8.3	6.0												
PIEDMONT	JORDAN LAKE	16-(37.5)	August 1, 2007	CPF055E	9.2	30.1	8.8	122.0%	27	3.1	4.3												
					10.3	**30.1**	**9.0**	**135.8%**	**36.5**	**5.7**	**5.2**												
PIEDMONT	JORDAN LAKE	16-(37.5)	September 17, 2007	CPF055C	5.5	25.1	7.2	66.7%	42	17.0	13.0												
PIEDMONT	JORDAN LAKE	16-(37.5)	September 17, 2007	CPF055E	5.3	25.4	7.1	64.6%	31	3.1	6.6												
					5.4	**25.3**	**7.2**	**65.7%**	**36.5**	**10.1**	**9.8**												
PIEDMONT	JORDAN LAKE	16-(37.5)	October 10, 2007	CPF055C	11.1	25.7	8.8	136.1%	52	7.8	7.0												
PIEDMONT	JORDAN LAKE	16-(37.5)	October 10, 2007	CPF055E	12.9	26.2	9.3	159.6%	43	8.0	5.4												
					12.0	**26.0**	**9.1**	**147.9%**	**47.5**	**7.9**	**6.2**												
PIEDMONT	JORDAN LAKE	16-(37.5)	November 28, 2007	CPF055C	8.6	12.0	7.1	79.8%	24	7.5	8.1												
PIEDMONT	JORDAN LAKE	16-(37.5)	November 28, 2007	CPF055E	8.0	12.3	7.0	74.8%	17	6.5	6.0												
					8.3	**12.2**	**7.1**	**77.3%**	**20.5**	**7.0**	**7.1**												
PIEDMONT	JORDAN LAKE	16-(37.5)	December 11, 2007	CPF055C	11.4	13.7	7.8	109.9%	32	3.1	5.8												
PIEDMONT	JORDAN LAKE	16-(37.5)	December 11, 2007	CPF055E	9.0	12.2	7.2	83.9%	16	3.1	5.7												
					10.2	**13.0**	**7.5**	**96.9%**	**24.0**	**3.1**	**5.8**												
PIEDMONT	JORDAN LAKE	16-(37.5)	January 8, 2008	CPF055C	11.6	9.0	7.4	100.4%	35	8.2	13.0												
PIEDMONT	JORDAN LAKE	16-(37.5)	January 8, 2008	CPF055E	11.2	8.6	7.4	96.0%	24	3.1	8.5												
					11.4	**8.8**	**7.4**	**98.2%**	**29.5**	**5.7**	**10.8**												
PIEDMONT	JORDAN LAKE	16-(37.5)	February 12, 2008	CPF055C	11.8	9.7	7.5	103.8%	19	8.0	11.0												
PIEDMONT	JORDAN LAKE	16-(37.5)	February 12, 2008	CPF055E	12.6	8.7	7.6	108.2%	33	7.5	8.4												
					12.2	**9.2**	**7.6**	**106.0%**	**26.0**	**7.8**	**9.7**												
PIEDMONT	JORDAN LAKE	16-(37.5)	March 13, 2008	CPF055C	10.0	13.5	7.5	96.0%	16	10.0	28.0												
PIEDMONT	JORDAN LAKE	16-(37.5)	March 13, 2008	CPF055E	10.8	15.1	7.8	107.4%	28	10.0	18.0												
					10.4	**14.3**	**7.7**	**101.7%**	**22.0**	**10.0**	**23.0**												
PIEDMONT	JORDAN LAKE	16-(37.5)	April 10, 2008	CPF055C	9.4	20.6	7.4	104.6%	26	15.0	28.0												
PIEDMONT	JORDAN LAKE	16-(37.5)	April 10, 2008	CPF055E	10.7	19.5	8.0	116.6%	52	16.0	27.0												
					10.1	**20.1**	**7.7**	**110.6%**	**39.0**	**15.5**	**27.5**												
PIEDMONT	JORDAN LAKE	16-(37.5)	May 19, 2008	CPF055C	9.5	22.4	8.1	109.5%	35	8.2	8.9												
PIEDMONT	JORDAN LAKE	16-(37.5)	May 19, 2008	CPF055E	9.8	22.2	8.0	112.6%	33	7.5	8.3												
					9.7	**22.3**	**8.1**	**111.1%**	**34.0**	**7.9**	**8.6**												
PIEDMONT	JORDAN LAKE	16-(37.5)	June 17, 2008	CPF055C	12.6	30.9	9.5	169.4%	49	7.2	5.5												
PIEDMONT	JORDAN LAKE	16-(37.5)	June 17, 2008	CPF055E	11.3	30.4	9.3	150.6%	32	6.8	5.8												
					12.0	**30.7**	**9.4**	**160.0%**	**40.5**	**7.0**	**5.7**												
PIEDMONT	JORDAN LAKE	16-(37.5)	July 17, 2008	CPF055C	10.1	29.2	9.0	131.8%	47	6.0	6.4												
PIEDMONT	JORDAN LAKE	16-(37.5)	July 17, 2008	CPF055E	7.8	28.9	8.3	101.3%	21	3.1	3.5												
					9.0	**29.1**	**8.7**	**116.6%**	**34.0**	**4.6**	**5.0**												
PIEDMONT	JORDAN LAKE	16-(37.5)	August 14, 2008	CPF055C	5.8	27.6	7.5	73.6%	37	11.0	7.6												
PIEDMONT	JORDAN LAKE	16-(37.5)	August 14, 2008	CPF055E	3.1	27.6	7.1	39.3%	14	3.1	4.2												
					4.5	**27.6**	**7.3**	**56.5%**	**25.5**	**7.1**	**5.9**												
PIEDMONT	JORDAN LAKE	16-(37.5)	September 23, 2008	CPF055C	7.1	23.6	7.3	83.7%	32	12.0	12.0												
PIEDMONT	JORDAN LAKE	16-(37.5)	September 23, 2008	CPF055E	6.7	23.9	7.2	79.5%	31	7.5	8.7												
					6.9	**23.8**	**7.3**	**81.6%**	**31.5**	**9.8**	**10.4**												
				N=	44	44	44	44	40		43		7	7	7	7	7	7		7	7	8	7
				% EXCEED =	NCE	NCE	CE 14%	CE 32%	CE 18%	NCE	E 7%		NCE	NCE	NCE	NCE	NCE	NCE		NCE	E 14%	NCE	NCE

Region	Lake	AU	Date m/d/yr	Sampling Station	SURFACE PHYSICAL DATA DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	SURFACE METALS Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardness Calculated mg/L
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	January 5, 2005	CPF087B3	11.5	8.0	6.9	97.1%	29	10.0	13.0												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	January 5, 2005	CPF087D	12.9	9.7	7.8	113.5%	43	7.0	7.9												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	January 5, 2005	CPF08801A	13.2	9.4	7.7	115.3%	46	7.0	6.5												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	January 5, 2005	CPF0880A	10.4	7.9	6.9	87.6%	13	8.0	12.0												
					12.0	**8.8**	**7.3**	**103.4%**	**32.8**	**8.0**	**9.9**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	February 8, 2005	CPF087B3	14.3	6.9	7.3	117.6%	34	8.0	10.0												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	February 8, 2005	CPF087D	12.4	5.7	6.9	98.9%	28	9.0	9.1												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	February 8, 2005	CPF08801A	12.6	6.6	6.8	102.8%	26	7.0	7.6												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	February 8, 2005	CPF0880A	13.1	7.7	7.3	109.8%	27	8.0	6.4												
					13.1	**6.7**	**7.1**	**107.3%**	**28.8**	**8.0**	**8.3**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	March 22, 2005	CPF087B3	11.7	9.9	7.5	103.4%	52	15.0	11.0		<10	<10	<10	<2.0	<5.0	<2.0		110	310	16.0	35.2
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	March 22, 2005	CPF087D	12.5	10.6	8.0	112.4%	44	14.0	11.0		<10	<10	<10	<2.0	<5.0	<2.0		100	250	16.0	34.9
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	March 22, 2005	CPF08801A	13.2	10.6	7.9	118.6%	51	16.0	11.0		<10	<10	<10	<2.0	<5.0	<2.0		110	260	15.0	34.7
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	March 22, 2005	CPF0880A	12.2	10.2	7.6	108.6%	36	10.0	8.3		<10	<10	<10	<2.0	<5.0	<2.0		71	300	14.0	33.9

APPENDIX B

CAPE FEAR RIVER BASIN LAKES 2008 USE SUPPORT DATA

					12.4	**10.3**	**7.8**	**110.8%**	**45.8**	**13.8**	**10.3**		**<10**	**<10**	**<10**	**<2.0**	**<5.0**	**<2.0**		**97.8**	**280.0**	**15.3**	**34.7**
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	April 20, 2005	CPF087B3	12.6	17.7	8.3	132.3%	53	12.0	10.0												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	April 20, 2005	CPF087D	13.1	18.7	8.7	140.4%	42	10.0	8.6												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	April 20, 2005	CPF08801A	13.4	19.1	8.6	144.8%	63	9.0	8.8												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	April 20, 2005	CPF0880A	12.4	19.9	8.5	136.2%	41	9.0	12.0												
					12.9	**18.9**	**8.5**	**138.4%**	**49.8**	**10.0**	**9.9**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	May 23, 2005	CPF087B3	7.9	22.2	7.4	90.7%		6.8	7.5												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	May 23, 2005	CPF087D	7.3	21.8	7.3	83.2%		7.2	6.9												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	May 23, 2005	CPF08801A	7.7	21.9	7.6	87.9%		5.8	5.6												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	May 23, 2005	CPF0880A	9.7	22.4	8.5	111.8%		7.5	6.4												
					8.2	**22.1**	**7.7**	**93.4%**	**No Data**	**6.8**	**6.6**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	June 27, 2005	CPF087B3	8.0	28.3	8.8	102.8%		1.3	6.3		<10	<10	<10	<2.0	<5.0	<2.0		86	120	15.0	39.3
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	June 27, 2005	CPF087D	7.9	28.0	8.8	101.0%		7.5	5.7		<10	<10	<10	<2.0	<5.0	<2.0		81	110	15.0	38.4
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	June 27, 2005	CPF08801A	7.6	27.8	8.7	96.8%		6.5	5.2		<10	<10	<10	<2.0	<5.0	<2.0		72	100	15.0	37.5
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	June 27, 2005	CPF0880A	7.8	29.1	8.8	101.6%		6.5	5.3		<10	<10	<10	<2.0	<5.0	<2.0		45	84	13.0	35.7
					7.8	**28.3**	**8.8**	**100.6%**	**No Data**	**5.4**	**5.6**		**<10**	**<10**	**<10**	**<2.0**	**<5.0**	**<2.0**		**71.0**	**103.5**	**14.5**	**37.7**
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	July 12, 2005	CPF087B3	7.7	29.1	8.4	100.3%		5.8	4.7												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	July 12, 2005	CPF087D	6.8	29.0	8.1	88.4%		5.0	4.0												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	July 12, 2005	CPF08801A	8.2	29.5	8.6	107.6%		4.0	3.5												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	July 12, 2005	CPF0880A	7.0	29.1	8.1	91.2%		6.5	4.7												
					7.4	**29.2**	**8.3**	**96.9%**	**No Data**	**5.3**	**4.2**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	August 23, 2005	CPF087B3	7.6	30.3	8.5	101.1%		5.8	3.9												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	August 23, 2005	CPF087D	6.9	30.4	8.0	92.0%		6.2	4.4												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	August 23, 2005	CPF08801A	7.2	30.3	8.0	95.8%		4.5	3.4												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	August 23, 2005	CPF0880A	7.4	30.6	8.4	99.0%		4.2	3.3												
					7.3	**30.4**	**8.2**	**97.0%**	**No Data**	**5.2**	**3.8**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	October 10, 2005	CPF087B3	6.2	23.6	7.4	73.1%	39	10.0	8.5		<10	<10	<10	<2.0	<5.0	<2.0		220	180	16.0	40.2
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	October 10, 2005	CPF087D	6.0	23.6	7.3	70.8%	31	9.0	7.3		<10	<10	<10	<2.0	<5.0	<2.0		250	190	16.0	40.2
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	October 10, 2005	CPF08801A	6.5	23.6	7.3	76.7%	31	9.2	6.5		<10	<10	<10	<2.0	<5.0	<2.0		280	240	14.0	43.1
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	October 10, 2005	CPF0880A	6.9	23.6	7.4	81.4%	28	6.5	6.3		<10	<10	<10	<2.0	<5.0	<2.0		180	270	14.0	40.6
					6.4	**23.6**	**7.4**	**75.5%**	**32.3**	**8.7**	**7.2**		**<10**	**<10**	**<10**	**<2.0**	**<5.0**	**<2.0**		**232.5**	**220.0**	**15.0**	**41.0**
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	November 7, 2005	CPF087B3	8.7	16.9	7.7	89.9%	43	9.8	8.0												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	November 7, 2005	CPF087D	8.1	17.2	7.5	84.2%	34	8.5	7.7												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	November 7, 2005	CPF08801A	8.7	17.1	7.7	90.2%	29	7.5	6.7												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	November 7, 2005	CPF0880A	7.8	17.4	7.4	81.4%	21	7.5	6.4												
					8.3	**17.2**	**7.6**	**86.4%**	**31.8**	**8.3**	**7.2**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	December 12, 2005	CPF087B3	10.1	9.4	7.2	88.2%	25	10.0			<10	<10	<10	<2.0	<5.0	<2.0		150	300	20.0	40.6
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	December 12, 2005	CPF087D	9.7	9.6	7.2	85.2%	20	9.5			<10	<10	<10	<2.0	<5.0	<2.0		140	300	22.0	40.6
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	December 12, 2005	CPF08801A	9.7	9.5	7.1	85.0%	22	7.8			<10	<10	<10	<2.0	<5.0	<2.0		130	320	23.0	41.0
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	December 12, 2005	CPF0880A	9.5	9.6	7.0	83.4%	20	9.5			<10	<10	<10	<2.0	<5.0	<2.0		110	470	23.0	41.0
					9.8	**9.5**	**7.1**	**85.5%**	**21.8**	**9.2**	**No Data**		**<10**	**<10**	**<10**	**<2.0**	**<5.0**	**<2.0**		**132.5**	**347.5**	**22.0**	**40.8**
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	January 12, 2006	CPF087B3	12.7	9.1	7.2	110.2%	40	8.8	6.3												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	January 12, 2006	CPF087D	11.4	8.7	7.0	97.9%	26	6.2	5.4												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	January 12, 2006	CPF08801A	12.0	8.9	6.9	103.6%	31	7.8	5.7												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	January 12, 2006	CPF0880A	12.5	10.0	7.5	110.8%	28	7.5	5.0												
					12.2	**9.2**	**7.2**	**105.6%**	**31.3**	**7.6**	**5.6**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	February 21, 2006	CPF087B3	12.5	8.7	7.5	107.4%	44	11.0	8.4												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	February 21, 2006	CPF087D	12.3	8.8	7.6	105.9%	42	9.2	7.9												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	February 21, 2006	CPF08801A	12.5	8.8	7.6	107.6%	41	6.5	7.4												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	February 21, 2006	CPF0880A	13.0	9.1	7.9	112.8%	38	10.0	7.2												
					12.6	**8.9**	**7.7**	**108.4%**	**41.3**	**9.2**	**7.7**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	March 23, 2006	CPF087B3	10.8	12.9	7.7	102.3%	48	13.0	12.0		5	<10	<10	<2.0	<5.0	<2.0		110	230	21.0	35.6
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	March 23, 2006	CPF087D	10.1	11.7	7.1	93.1%	43	12.0	9.8		26	<10	<10	<2.0	<5.0	<2.0		98	220	20.0	35.3
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	March 23, 2006	CPF08801A	10.8	11.9	7.5	100.0%	43	12.0	10.0		5	<10	<10	<2.0	<5.0	<2.0		99	220	21.0	35.3
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	March 23, 2006	CPF0880A	11.2	12.2	7.8	104.4%	45	12.0	9.5		5	<10	<10	<2.0	<5.0	<2.0		94	250	20.0	35.7
					10.7	**12.2**	**7.5**	**100.0%**	**44.8**	**12.3**	**10.3**		**10.3**	**<10**	**<10**	**<2.0**	**<5.0**	**<2.0**		**100.3**	**230.0**	**20.5**	**35.5**
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	April 11, 2006	CPF087B3	11.6	17.3	8.7	120.8%	36	8.0	7.9												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	April 11, 2006	CPF087D	11.5	16.7	8.8	118.3%	37	7.8	7.3												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	April 11, 2006	CPF08801A	11.4	16.6	8.5	117.0%	38	9.0	8.0												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	April 11, 2006	CPF0880A	11.8	18.0	8.9	124.7%	40	7.0	7.1												
					11.6	**17.2**	**8.7**	**120.2%**	**37.8**	**8.0**	**7.6**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	May 16, 2006	CPF087B3	8.4	20.3	7.4	93.0%	26.0	5.8	6.4												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	May 16, 2006	CPF087D	7.8	19.8	7.4	85.5%	16.0	6.0	6.5												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	May 16, 2006	CPF08801A	8.9	20.2	7.5	98.3%	33.0	6.0	5.4												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	May 16, 2006	CPF0880A	9.7	20.5	8.0	107.8%	21.0	5.2	4.7												
					8.7	**20.2**	**7.6**	**96.2%**	**24.0**	**5.8**	**5.8**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	June 13, 2006	CPF087B3	7.2	30.2	8.6	95.6%	30	6.2	4.2		<10	<10	<10	<2.0	<5.0	<2.0		95	92	20.0	43.1
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	June 13, 2006	CPF087D	6.5	29.5	8.3	85.3%	25	7.0	4.6		<10	<10	<10	<2.0	<5.0	<2.0		93	94	20.0	43.1
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	June 13, 2006	CPF08801A	7.4	25.5	7.8	90.4%	26	6.5	4.0		<10	<10	<10	<2.0	<5.0	<2.0		95	92	20.0	43.5
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	June 13, 2006	CPF0880A	7.6	25.7	8.2	93.2%	26	6.2	4.2		<10	<10	<10	<2.0	<5.0	<2.0		68	100	19.0	39.5
					7.2	**27.7**	**8.2**	**91.1%**	**26.8**	**6.5**	**4.3**		**<10**	**<10**	**<10**	**<2.0**	**<5.0**	**<2.0**		**87.8**	**94.5**	**19.8**	**42.3**
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	July 5, 2006	CPF087B3	7.2	30.2	8.6	95.6%	42	9.2	7.4												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	July 5, 2006	CPF087D	6.5	29.5	8.3	85.3%	30	7.2	5.1												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	July 5, 2006	CPF08801A	7.8	30.3	8.9	103.8%	20	2.8	6.1												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	July 5, 2006	CPF0880A	8.0	29.8	8.6	105.5%	25	6.2	5.2												
					7.4	**30.0**	**8.6**	**97.6%**	**29.3**	**6.4**	**6.0**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	August 14, 2006	CPF087B3	6.2	28.5	7.6	79.9%	42	5.2	6.4												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	August 14, 2006	CPF087D	5.8	28.4	7.6	74.6%	34	4.5	4.7												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	August 14, 2006	CPF08801A	5.8	28.3	7.6	74.5%	28	3.8	4.4												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	August 14, 2006	CPF0880A	6.8	28.8	7.8	88.1%	34	3.8	4.4												
					6.2	**28.5**	**7.7**	**79.3%**	**34.5**	**4.3**	**5.0**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	September 21, 2006	CPF087B3	6.9	23.8	7.5	81.7%	50	9.5	10.0												

APPENDIX B

CAPE FEAR RIVER BASIN LAKES 2008 USE SUPPORT DATA

PIEDMONT	JORDAN LAKE	16-41-(3.5)A	September 21, 2006	CPF087D	6.4	24.2	7.4	76.3%	48	8.0	7.8												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	September 21, 2006	CPF08801A	6.2	24.4	7.3	74.2%	40	6.8	7.9												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	September 21, 2006	CPF0880A	6.7	24.6	7.5	80.5%	45	7.0	7.4												
					6.6	**24.3**	**7.4**	**78.2%**	**45.8**	**7.8**	**8.3**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	October 4, 2006	CPF087B3	8.4	23.1	8.1	98.1%	44	4.8	5.7												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	October 4, 2006	CPF087D	9.1	23.7	8.5	107.5%	31	7.0	7.3												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	October 4, 2006	CPF08801A	9.9	23.8	8.8	117.2%	37	9.2	4.7												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	October 4, 2006	CPF0880A	7.1	23.3	7.6	83.3%	36	6.2	6.2												
					8.6	**23.5**	**8.3**	**101.5%**	**37.0**	**6.8**	**6.0**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	November 2, 2006	CPF087B3	9.0	10.5	6.7	80.7%	21	7.0	6.4												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	November 2, 2006	CPF087D	9.0	10.9	6.8	81.5%	32	8.0	5.8												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	November 2, 2006	CPF08801A	9.3	10.8	6.7	84.0%	38	5.5	4.1												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	November 2, 2006	CPF0880A	9.0	11.1	6.9	81.8%	30	8.0	6.6												
					9.1	**10.8**	**6.8**	**82.0%**	**30.3**	**7.1**	**5.7**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	December 6, 2006	CPF087B3	9.0	10.5	6.7	80.7%	19	15.0	21.0		<10	<10	<10	2.4	<5.0	<2.0		110	780	10.0	29.6
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	December 6, 2006	CPF087D	9.0	10.9	6.8	81.5%	21	11.0	14.0		<10	<10	<10	1.0	<5.0	<2.0		110	520	13.0	31.2
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	December 6, 2006	CPF08801A	9.3	10.8	6.7	84.0%	18	11.0	13.0		<10	<10	<10	4.0	<5.0	<2.0		110	470	13.0	31.4
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	December 6, 2006	CPF0880A	9.0	11.1	6.9	81.8%	26	9.5	11.0		<10	<10	<10	1.0	<5.0	<2.0		100	470	13.0	30.7
					9.1	**10.8**	**6.8**	**82.0%**	**21.0**	**11.6**	**14.8**		**<10**	**<10**	**<10**	**2.1**	**<5.0**	**<2.0**		**107.5**	**560.0**	**12.3**	**30.7**
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	January 16, 2007	CPF087B3	9.7	11.3	6.9	88.6%	29	7.8	17.0												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	January 16, 2007	CPF087D	9.5	11.1	6.9	86.4%	25	6.0	10.0												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	January 16, 2007	CPF08801A	10.5	11.7	7.2	96.8%	30	5.8	8.4												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	January 16, 2007	CPF0880A	9.6	11.0	6.9	87.1%	27	6.0	10.0												
					9.8	**11.3**	**7.0**	**89.7%**	**27.8**	**6.4**	**11.4**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	February 22, 2007	CPF087B3	13.6	8.2	7.5	115.4%	52	11.0	11.0												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	February 22, 2007	CPF087D	13.2	6.6	7.0	107.7%	36	9.5	9.5												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	February 22, 2007	CPF08801A	13.0	7.9	7.2	109.5%	32	8.8	8.9												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	February 22, 2007	CPF0880A	12.9	8.3	7.4	109.8%	34	7.5	7.2												
					13.2	**7.8**	**7.3**	**110.6%**	**38.5**	**9.2**	**9.2**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	March 7, 2007	CPF087B3	11.8	10.0	7.6	104.6%	44	20.0	13.0												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	March 7, 2007	CPF087D	11.9	10.0	7.5	105.5%	40	8.8	13.0												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	March 7, 2007	CPF08801A	11.8	9.7	7.1	103.8%	44	11.0	12.0												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	March 7, 2007	CPF0880A	11.6	9.7	7.2	102.1%	35	10.0	13.0												
					11.8	**9.9**	**7.4**	**104.0%**	**40.8**	**12.5**	**12.8**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	April 17, 2007	CPF087B3	8.8	15.4	7.1	88.0%	13	7.0	15.0												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	April 17, 2007	CPF087D	8.7	15.4	7.1	87.0%	13	8.5	15.0												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	April 17, 2007	CPF08801A	9.1	14.8	6.8	89.9%	10	11.0	16.0												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	April 17, 2007	CPF0880A	8.9	14.4	6.9	87.2%	9	21.0	60.0												
					8.9	**15.0**	**7.0**	**88.0%**	**11.3**	**11.9**	**26.5**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	May 15, 2007	CPF087B3	8.7	20.8	7.6	97.2%	26	7.0	11.0												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	May 15, 2007	CPF087D	9.9	21.7	8.3	112.6%	22	6.5	7.1												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	May 15, 2007	CPF08801A	10.5	21.8	8.5	119.7%	20	5.5	5.1												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	May 15, 2007	CPF0880A	9.6	21.8	8.1	109.4%	26	6.8	7.0												
					9.7	**21.5**	**8.1**	**109.7%**	**23.5**	**6.5**	**7.6**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	June 12, 2007	CPF087B3	8.3	27.6	8.3	105.3%	22	3.1	4.4											14.0	
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	June 12, 2007	CPF087D	8.1	27.7	8.1	103.0%	20	3.1	3.4											14.0	
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	June 12, 2007	CPF08801A	7.6	27.0	7.7	95.4%	18	3.1	3.5											14.0	
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	June 12, 2007	CPF0880A	8.5	28.5	8.3	109.6%	18	3.1	4.5											14.0	
					8.1	**27.7**	**8.1**	**103.3%**	**19.5**	**3.1**	**4.0**											**14.0**	
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	July 17, 2007	CPF087B3	8.7	29.2	8.4	113.6%	47	6.8	6.3												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	July 17, 2007	CPF087D	7.6	28.5	7.9	98.0%	29	3.1	4.6												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	July 17, 2007	CPF08801A	8.9	29.1	8.7	116.0%	29	3.1	4.2												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	July 17, 2007	CPF0880A	8.9	29.5	8.5	116.8%	24	3.1	4.1												
					8.5	**29.1**	**8.4**	**111.1%**	**32.3**	**4.0**	**4.8**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	August 1, 2007	CPF087B3	8.2	29.3	8.3	107.2%	42	7.8	7.8												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	August 1, 2007	CPF087D	8.2	29.2	8.3	107.0%	39	3.1	5.4												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	August 1, 2007	CPF08801A	7.8	28.8	7.7	101.1%	28	3.1	4.6												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	August 1, 2007	CPF0880A	8.7	29.5	8.6	114.1%	27	3.1	4.2												
					8.2	**29.2**	**8.2**	**107.4%**	**34.0**	**4.3**	**5.5**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	September 17, 2007	CPF087B3	7.0	25.0	7.4	84.7%	56	9.8	10.0												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	September 17, 2007	CPF087D	7.7	25.0	7.5	93.2%	64	9.8	9.1												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	September 17, 2007	CPF08801A	4.0	24.8	7.0	48.2%	30	3.1	7.0												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	September 17, 2007	CPF0880A	5.4	25.0	7.1	65.4%	35	3.1	5.6												
					6.0	**25.0**	**7.3**	**72.9%**	**46.3**	**6.5**	**7.9**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	October 10, 2007	CPF087B3	12.3	25.7	9.3	150.8%	54	9.2	5.9												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	October 10, 2007	CPF087D	10.0	24.6	8.8	120.2%	49	8.8	5.8												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	October 10, 2007	CPF08801A	10.8	25.0	9.0	130.7%	48	8.0	5.0												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	October 10, 2007	CPF0880A	11.3	25.0	9.1	136.8%	54	9.2	4.6												
					11.1	**25.1**	**9.1**	**134.6%**	**51.3**	**8.8**	**5.3**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	November 28, 2007	CPF087B3	9.3	11.9	7.2	86.1%	29	11.0	9.2												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	November 28, 2007	CPF087D	8.6	12.1	7.1	80.0%	24	9.0	9.1												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	November 28, 2007	CPF08801A	8.3	12.2	7.1	77.4%	23	9.0	11.0												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	November 28, 2007	CPF0880A	8.1	12.3	7.1	75.7%	20	10.0	9.8												
					8.6	**12.1**	**7.1**	**79.8%**	**24.0**	**9.8**	**9.8**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	December 11, 2007	CPF087B3	10.7	11.1	7.3	97.3%	24	3.1	5.7												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	December 11, 2007	CPF087D	11.2	11.8	7.5	103.5%	21	7.0	7.5												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	December 11, 2007	CPF08801A	11.2	12.2	7.5	104.4%	26	3.1	5.2												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	December 11, 2007	CPF0880A	10.2	12.5	7.4	95.8%	15	3.1	6.1												
					10.8	**11.9**	**7.4**	**100.3%**	**21.5**	**4.1**	**6.1**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	January 8, 2008	CPF087B3	12.5	8.1	7.5	105.8%	34	6.2	5.8												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	January 8, 2008	CPF087D	12.5	8.7	7.7	107.4%	30	6.0	5.7												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	January 8, 2008	CPF08801A	12.6	8.8	7.7	108.5%	36	6.5	5.6												

APPENDIX B

CAPE FEAR RIVER BASIN LAKES 2008 USE SUPPORT DATA

PIEDMONT	JORDAN LAKE	16-41-(3.5)A	January 8, 2008	CPF0880A	12.2	9.3	7.6	106.3%	28	6.5	5.3												
					12.5	**8.7**	**7.6**	**107.0%**	**32.0**	**6.3**	**5.6**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	February 12, 2008	CPF087B3	12.2	8.8	7.4	105.1%	37	9.8	10.0												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	February 12, 2008	CPF087D	12.4	8.7	7.4	106.5%	36	8.8	8.7												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	February 12, 2008	CPF08801A	12.2	8.7	7.0	104.8%	31	8.8	8.0												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	February 12, 2008	CPF0880A	12.2	8.6	7.6	104.6%	34	7.2	5.6												
					12.3	**8.7**	**7.4**	**105.3%**	**34.5**	**8.7**	**8.1**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	March 13, 2008	CPF087B3	12.1	12.0	8.3	112.3%	37	10.0	7.4												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	March 13, 2008	CPF087D	12.3	11.9	8.0	113.9%	38	9.5	7.7												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	March 13, 2008	CPF08801A	11.5	11.8	8.0	106.3%	38	10.0	7.5												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	March 13, 2008	CPF0880A	11.5	14.0	8.2	111.6%	39	7.3	6.6												
					11.9	**12.4**	**8.1**	**111.0%**	**38.0**	**9.2**	**7.3**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	April 10, 2008	CPF087B3	10.8	16.1	8.9	109.7%	47	9.5	8.7												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	April 10, 2008	CPF087D	11.7	16.5	9.0	119.8%	56	12.0	9.1												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	April 10, 2008	CPF08801A	11.1	15.8	8.9	112.0%	42	10.0	10.0												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	April 10, 2008	CPF0880A	11.0	18.1	8.4	116.5%	44	9.5	9.5												
					11.2	**16.6**	**8.8**	**114.5%**	**47.3**	**10.3**	**9.3**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	May 19, 2008	CPF087B3	8.7	21.6	7.5	98.8%	35	13	13.0												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	May 19, 2008	CPF087D	6.8	20.9	7.2	76.2%		7.8	9.2												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	May 19, 2008	CPF08801A	7.9	21.5	7.4	89.5%		7	7.6												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	May 19, 2008	CPF0880A	8.8	21.4	7.6	99.5%	21	3.1	6.5												
					8.1	**21.4**	**7.4**	**91.0%**	**28.0**	**7.7**	**9.1**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	June 17, 2008	CPF087B3	8.0	29.6	8.1	105.1%	22	3.1	4.7												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	June 17, 2008	CPF087D	7.5	29.0	8.0	97.6%	23	3.1	4.6												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	June 17, 2008	CPF08801A	8.2	29.9	8.6	108.3%	13	3.1	3.1												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	June 17, 2008	CPF0880A	8.8	29.8	8.7	116.1%	18	3.1	3.4												
					8.1	**29.6**	**8.4**	**106.8%**	**19.0**	**3.1**	**4.0**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	July 17, 2008	CPF087B3	6.6	28.4	7.4	84.9%	27	3.1	6.3												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	July 17, 2008	CPF087D	7.4	28.6	7.8	95.6%	31	3.1	5.7												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	July 17, 2008	CPF08801A	6.7	28.4	7.5	86.2%	23	3.1	4.4												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	July 17, 2008	CPF0880A	7.3	28.6	7.7	94.3%	22	3.1	3.2												
					7.0	**28.5**	**7.6**	**90.3%**	**25.8**	**3.1**	**4.9**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	August 14, 2008	CPF087B3	4.6	27.1	7.3	57.8%	28	8.2	9.3												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	August 14, 2008	CPF087D	3.6	27.1	7.2	45.3%	20	3.1	4.8												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	August 14, 2008	CPF08801A	4.5	27.2	7.2	56.7%	20	3.1	4.4												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	August 14, 2008	CPF0880A	4.5	27.4	7.3	56.9%	17	3.1	3.9												
					4.3	**27.2**	**7.3**	**54.2%**	**21.3**	**4.4**	**5.6**												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	September 23, 2008	CPF087B3	6.4	23.4	7.2	75.2%	31	7.0	7.4												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	September 23, 2008	CPF087D	7.6	23.7	7.5	89.8%	46	10.0	9.4												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	September 23, 2008	CPF08801A	6.1	23.5	7.2	71.8%	31	8.5	7.9												
PIEDMONT	JORDAN LAKE	16-41-(3.5)A	September 23, 2008	CPF0880A	6.5	23.8	7.3	77.0%	36	6.0	9.2												
					6.7	**23.6**	**7.3**	**78.5%**	**36.0**	**7.9**	**8.5**												
				N=	44	44	44	44	40	44	43		7	7	7	7	7	7		7	7	8.0	7.0
				% EXCEED =	NCE	NCE	E 2%	E 7%	CE 23%	NCE	E 2%		NCE	NCE	NCE	NCE	NCE	NCE		E 14%	NCE	NCE	NCE

					SURFACE PHYSICAL DATA											SURFACE METALS							
Region	Lake	AU	Date m/d/yr	Sampling Station	DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardnes Calculated mg/L
PIEDMONT	JORDAN LAKE	16-41-(0.5)	January 5, 2005	CPF086C	13.4	8.9	7.4	115.7%	37	14.0	14.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	January 5, 2005	CPF081A1C	13.1	8.2	7.3	111.2%	37	16.0	17.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	January 5, 2005	CPF086F	12.7	7.7	7.1	106.5%	33	11.0	11.0												
					13.1	**8.3**	**7.3**	**111.1%**	**35.7**	**13.7**	**14.0**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	February 8, 2005	CPF086C	14.8	8.1	8.0	125.3%	38	14.0	21.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	February 8, 2005	CPF081A1C	15.1	8.1	8.2	127.9%	45	26.0	29.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	February 8, 2005	CPF086F	15.1	7.7	8.1	126.6%	51	12.0	19.0												
					15.0	**8.0**	**8.1**	**126.6%**	**44.7**	**17.3**	**23.0**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	March 22, 2005	CPF086C	11.3	10.2	7.2	100.6%	28	28.0	31.0		<10	<10	<10	<2.0	<5.0	<2.0		160	1000	17.0	39.8
PIEDMONT	JORDAN LAKE	16-41-(0.5)	March 22, 2005	CPF081A1C	11.8	10.6	7.3	106.1%	41	33.0	45.0		<10	<10	<10	<2.0	<5.0	<2.0		140	1300	16.0	39.8
PIEDMONT	JORDAN LAKE	16-41-(0.5)	March 22, 2005	CPF086F	11.4	10.0	7.3	101.0%	47	25.0	26.0		<10	<10	<10	<2.0	<5.0	<2.0		160	860	18.0	39.8
					11.5	**10.3**	**7.3**	**102.6%**	**38.7**	**28.7**	**34.0**		**<10**	**<10**	**<10**	**<2.0**	**<5.0**	**<2.0**		**153.3**	**1053.3**	**17.0**	**39.8**
PIEDMONT	JORDAN LAKE	16-41-(0.5)	April 20, 2005	CPF086C	14.4	19.9	8.7	158.1%	38	15.0	20.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	April 20, 2005	CPF081A1C	14.9	19.8	9.1	163.3%	61	23.0	22.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	April 20, 2005	CPF086F	12.8	18.7	8.5	137.2%	25	14.0	20.0												
					14.0	**19.5**	**8.8**	**152.9%**	**41.3**	**17.3**	**20.7**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	May 23, 2005	CPF086C	9.2	23.2	8.1	107.7%		20.0	20.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	May 23, 2005	CPF081A1C	9.3	23.7	8.2	109.9%		19.0	26.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	May 23, 2005	CPF086F	8.7	22.8	7.9	101.1%		17.0	17.0												
					9.1	**23.2**	**8.1**	**106.2%**	**No Data**	**18.7**	**21.0**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	June 27, 2005	CPF086C	9.4	29.0	9.1	122.3%		24.0	20.0		<10	<10	<10	<2.0	<5.0	<2.0		310	440	17.0	43.1
PIEDMONT	JORDAN LAKE	16-41-(0.5)	June 27, 2005	CPF081A1C	8.1	28.7	8.8	104.8%		16.0	14.0		<10	<10	<10	<2.0	<5.0	<2.0		270	370	18.0	43.1
PIEDMONT	JORDAN LAKE	16-41-(0.5)	June 27, 2005	CPF086F	8.7	28.3	8.9	111.8%		20.0	13.0		<10	<10	<10	<2.0	<5.0	<2.0		190	330	17.0	43.1
					8.7	**28.7**	**8.9**	**113.0%**	**No Data**	**20.0**	**15.7**		**<10**	**<10**	**<10**	**<2.0**	**<5.0**	**<2.0**		**256.7**	**380.0**	**17.3**	**43.1**
PIEDMONT	JORDAN LAKE	16-41-(0.5)	July 12, 2005	CPF086C	7.7	29.2	8.6	100.5%		20.0	16.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	July 12, 2005	CPF081A1C	6.7	29.2	7.8	87.4%		18.0	21.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	July 12, 2005	CPF086F	5.8	28.9	7.5	75.3%		11.0	10.0												
					6.7	**29.1**	**8.0**	**87.7%**	**No Data**	**16.3**	**15.7**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	August 23, 2005	CPF086C	6.3	30.1	8.3	83.5%		18.0	16.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	August 23, 2005	CPF081A1C	5.4	30.1	7.5	71.6%		19.0	22.0												

APPENDIX B

CAPE FEAR RIVER BASIN LAKES 2008 USE SUPPORT DATA

PIEDMONT	JORDAN LAKE	16-41-(0.5)	August 23, 2005	CPF086F	6.1	30.2	7.9	81.0%		11.0	9.3												
					5.9	**30.1**	**7.9**	**78.7%**	**No Data**	**16.0**	**15.8**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	October 10, 2005	CPF086C	6.8	22.5	7.4	78.6%	37	42.0	30.0		<10	<10	<10	2.0	<5.0	<2.0		300	1300	22.0	43.1
PIEDMONT	JORDAN LAKE	16-41-(0.5)	October 10, 2005	CPF081A1C	6.5	22.6	7.4	75.2%	52	28.0	27.0		<10	<10	<10	2.1	<5.0	<2.0		300	1100	22.0	43.1
PIEDMONT	JORDAN LAKE	16-41-(0.5)	October 10, 2005	CPF086F	6.1	23.0	7.4	71.1%	31	28.0	22.0		<10	<10	<10	1.0	<5.0	<2.0		310	880	20.0	42.7
					6.5	**22.7**	**7.4**	**75.0%**	**40.0**	**32.7**	**26.3**		**<10**	**<10**	**<10**	**1.7**	**<5.0**	**<2.0**		**303.3**	**1093.3**	**21.3**	**43.0**
PIEDMONT	JORDAN LAKE	16-41-(0.5)	November 7, 2005	CPF086C	10.2	17.7	9.1	107.1%	69	18.0	21.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	November 7, 2005	CPF081A1C	10.1	17.2	8.8	105.0%	41	18.0	24.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	November 7, 2005	CPF086F	9.6	16.8	8.6	99.0%	49	13.0	12.0												
					10.0	**17.2**	**8.8**	**103.7%**	**53.0**	**16.3**	**19.0**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	December 12, 2005	CPF086C	12.2	7.7	7.8	102.3%	46	14.0			<10	<10	<10	1.0	<5.0	<2.0		150	410	25.0	43.5
PIEDMONT	JORDAN LAKE	16-41-(0.5)	December 12, 2005	CPF081A1C	12.1	7.4	7.4	100.7%	46	26.0			<10	<10	<10	3.2	<5.0	<2.0		150	1200	25.0	43.9
PIEDMONT	JORDAN LAKE	16-41-(0.5)	December 12, 2005	CPF086F	11.5	8.2	7.6	97.6%	46	14.0			<10	<10	<10	1.0	<5.0	<2.0		150	360	22.0	43.5
					11.9	**7.8**	**7.6**	**100.2%**	**46.0**	**18.0**	**No Data**		**<10**	**<10**	**<10**	**1.7**	**<5.0**	**<2.0**		**150.0**	**656.7**	**24.0**	**43.6**
PIEDMONT	JORDAN LAKE	16-41-(0.5)	January 12, 2006	CPF086C	13.9	10.4	8.4	124.4%	61	17.0	17.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	January 12, 2006	CPF081A1C	12.8	10.7	7.8	115.3%	48	18.0	23.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	January 12, 2006	CPF086F	13.2	9.9	7.9	116.7%	49	14.0	13.0												
					13.3	**10.3**	**8.0**	**118.8%**	**52.7**	**16.3**	**17.7**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	February 21, 2006	CPF086C	13.6	8.4	8.0	116.0%	66	22.0	15.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	February 21, 2006	CPF081A1C	13.5	9.2	8.2	117.4%	82	20.0	17.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	February 21, 2006	CPF086F	13.3	9.4	7.7	116.2%	66	16.0	12.0												
					13.5	**9.0**	**8.0**	**116.5%**	**71.3**	**19.3**	**14.7**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	March 23, 2006	CPF086C	11.3	14.3	8.5	110.4%	75	20.0	19.0		24	<10	<10	<2.0	<5.0	<2.0		160	490	23.0	39.8
PIEDMONT	JORDAN LAKE	16-41-(0.5)	March 23, 2006	CPF081A1C	11.1	14.3	8.4	108.4%	52	27.0	24.0		5	<10	<10	<2.0	<5.0	<2.0		160	580	23.0	39.8
PIEDMONT	JORDAN LAKE	16-41-(0.5)	March 23, 2006	CPF086F	11.2	13.6	8.5	107.8%	71	18.0	15.0		5	<10	<10	<2.0	<5.0	<2.0		140	380	22.0	39.8
					11.2	**14.1**	**8.5**	**108.9%**	**66.0**	**21.7**	**19.3**		**11.3**	**<10**	**<10**	**<2.0**	**<5.0**	**<2.0**		**153.3**	**483.3**	**22.7**	**39.8**
PIEDMONT	JORDAN LAKE	16-41-(0.5)	April 11, 2006	CPF086C	12.3	18.4	9.1	131.0%	64	11.0	14.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	April 11, 2006	CPF081A1C	12.2	18.3	9.0	129.7%	56	13.0	15.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	April 11, 2006	CPF086F	11.7	17.0	8.8	121.1%	64	13.0	13.0												
					12.1	**17.9**	**9.0**	**127.3%**	**61.3**	**12.3**	**14.0**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	May 16, 2006	CPF086C	8.7	20.9	7.7	97.4%	48	20.0	17.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	May 16, 2006	CPF081A1C	9.6	21.5	8.1	108.8%	51	15.0	17.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	May 16, 2006	CPF086F	9.5	20.7	7.9	106.0%	29	14.0	12.0												
					9.3	**21.0**	**7.9**	**104.1%**	**42.7**	**16.3**	**15.3**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	June 13, 2006	CPF086C	6.3	25.7	7.6	77.2%	59	20.0	14.0		<10	<10	<10	<2.0	<5.0	<2.0		310	460	22.0	46.4
PIEDMONT	JORDAN LAKE	16-41-(0.5)	June 13, 2006	CPF081A1C	5.6	25.5	7.4	68.4%	50	14.0	16.0		<10	<10	<10	<2.0	<5.0	<2.0		310	680	23.0	46.8
PIEDMONT	JORDAN LAKE	16-41-(0.5)	June 13, 2006	CPF086F	6.1	25.5	7.4	74.5%	47	9.5	10.0		<10	<10	<10	<2.0	<5.0	<2.0		250	300	23.0	43.5
					6.0	**25.6**	**7.5**	**73.4%**	**52.0**	**14.5**	**13.3**		**<10**	**<10**	**<10**	**<2.0**	**<5.0**	**<2.0**		**290.0**	**480.0**	**22.7**	**45.6**
PIEDMONT	JORDAN LAKE	16-41-(0.5)	July 5, 2006	CPF086C	6.6	30.4	8.3	88.0%	57	16.0	17.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	July 5, 2006	CPF081A1C	5.8	30.9	7.5	78.0%	48	22.0	24.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	July 5, 2006	CPF086F	6.4	30.0	8.1	84.7%	44	11.0	9.6												
					6.3	**30.4**	**8.0**	**83.6%**	**49.7**	**16.3**	**16.9**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	August 14, 2006	CPF086C	8.0	28.0	8.3	102.2%	79	20.0	20.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	August 14, 2006	CPF081A1C	7.5	28.0	8.1	95.8%	79	20.0	20.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	August 14, 2006	CPF086F	5.1	28.2	7.4	65.4%	61	14.0	16.0												
					6.9	**28.1**	**7.9**	**87.8%**	**73.0**	**18.0**	**18.7**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	September 21, 2006	CPF086C	7.6	23.4	7.6	89.3%	56	13.0	29.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	September 21, 2006	CPF081A1C	6.9	23.4	7.4	81.1%	65	20.0	27.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	September 21, 2006	CPF086F	7.8	23.6	7.7	92.0%	74	9.0	20.0												
					7.4	**23.5**	**7.6**	**87.5%**	**65.0**	**14.0**	**25.3**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	October 4, 2006	CPF086C	10.4	22.9	9.1	121.0%	66	9.2	13.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	October 4, 2006	CPF081A1C	10.0	22.9	9.0	116.4%	46	9.5	14.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	October 4, 2006	CPF086F	9.5	23.3	8.8	111.4%	58	8.2	14.0												
					10.0	**23.0**	**9.0**	**116.3%**	**56.7**	**9.0**	**13.7**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	November 2, 2006	CPF086C	11.0	16.0	8.5	111.5%	29	15.0	12.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	November 2, 2006	CPF081A1C	11.0	16.1	8.6	111.7%	49	19.0	16.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	November 2, 2006	CPF086F	9.9	15.1	7.8	98.4%	48	12.0	11.0												
					10.6	**15.7**	**8.3**	**107.2%**	**42.0**	**15.3**	**13.0**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	December 6, 2006	CPF086C	9.4	10.3	6.8	83.9%	35	15.0	22.0		<10	<10	<10	2.8	<5.0	<2.0		92	850	12.0	31.0
PIEDMONT	JORDAN LAKE	16-41-(0.5)	December 6, 2006	CPF081A1C	8.0	10.0	6.5	70.9%	16	32.0	45.0		<10	<10	<10	4.6	<5.0	<2.0		120	2000	6.4	27.9
PIEDMONT	JORDAN LAKE	16-41-(0.5)	December 6, 2006	CPF086F	9.0	10.6	6.8	80.9%	25	18.0	29.0		<10	<10	<10	2.9	<5.0	<2.0		99	1000	8.4	28.7
					8.8	**10.3**	**6.7**	**78.6%**	**25.3**	**21.7**	**32.0**		**<10**	**<10**	**<10**	**3.4**	**<5.0**	**<2.0**		**103.7**	**1283.3**	**8.9**	**29.2**
PIEDMONT	JORDAN LAKE	16-41-(0.5)	January 16, 2007	CPF086C	10.1	11.7	7.0	93.1%	47	14.0	27.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	January 16, 2007	CPF081A1C	9.6	11.8	6.9	88.7%	36	16.0	40.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	January 16, 2007	CPF086F	9.5	11.3	6.9	86.8%	27	14.0	30.0												
					9.7	**11.6**	**6.9**	**89.5%**	**36.7**	**14.7**	**32.3**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	February 22, 2007	CPF086C	14.3	8.6	8.1	122.6%	51	11.0	15.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	February 22, 2007	CPF081A1C	14.0	8.1	7.9	118.5%	48	16.0	22.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	February 22, 2007	CPF086F	13.8	7.5	7.9	115.1%	49	12.0	16.0												
					14.0	**8.1**	**8.0**	**118.7%**	**49.3**	**13.0**	**17.7**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	March 7, 2007	CPF086C	11.7	11.2	7.9	106.6%	72	14.0	38.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	March 7, 2007	CPF081A1C	11.7	11.4	7.8	107.1%	74	18.0	55.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	March 7, 2007	CPF086F	12.3	11.3	8.3	112.4%	85	12.0	28.0												
					11.9	**11.3**	**8.0**	**108.7%**	**77.0**	**14.7**	**40.3**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	April 17, 2007	CPF086C	9.8	15.1	7.4	97.4%	33	8.0	17.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	April 17, 2007	CPF081A1C	10.0	15.4	7.6	100.1%	38	8.0	21.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	April 17, 2007	CPF086F	9.4	15.3	7.4	93.8%	31	7.2	16.0												
					9.7	**15.3**	**7.5**	**97.1%**	**34.0**	**7.7**	**18.0**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	May 15, 2007	CPF086C	10.0	21.8	8.8	114.0%	50	24.0	19.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	May 15, 2007	CPF081A1C	8.3	21.7	7.6	94.4%	48	15.0	28.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	May 15, 2007	CPF086F	8.1	21.5	7.4	91.8%	34	12.0	15.0												
					8.8	**21.7**	**7.9**	**100.1%**	**44.0**	**17.0**	**20.7**												

APPENDIX B

CAPE FEAR RIVER BASIN LAKES 2008 USE SUPPORT DATA

PIEDMONT	JORDAN LAKE	16-41-(0.5)	June 12, 2007	CPF086C	9.6	28.5	8.9	123.8%	66	19.0	16.0											18.0	
PIEDMONT	JORDAN LAKE	16-41-(0.5)	June 12, 2007	CPF081A1C	8.7	29.4	8.7	113.9%	67	18.0	17.0											18.0	
PIEDMONT	JORDAN LAKE	16-41-(0.5)	June 12, 2007	CPF086F	8.5	28.4	8.7	109.4%	51	12.0	10.0											17.0	
					8.9	**28.8**	**8.8**	**115.7%**	**61.3**	**16.3**	**14.3**											**17.7**	
PIEDMONT	JORDAN LAKE	16-41-(0.5)	July 17, 2007	CPF086C	10.4	29.5	9.1	136.4%	99	12.0	25.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	July 17, 2007	CPF081A1C	9.8	29.4	8.9	128.4%	78	13.0	22.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	July 17, 2007	CPF086F	8.4	29.2	8.3	109.6%	53	11.0	12.0												
					9.5	**29.4**	**8.8**	**124.8%**	**76.7**	**12.0**	**19.7**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	August 1, 2007	CPF086C	8.5	29.3	8.6	111.1%	73	23.0	25.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	August 1, 2007	CPF081A1C	9.5	29.9	8.8	125.5%	110	26.0	23.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	August 1, 2007	CPF086F	9.4	29.6	8.7	123.5%	72	16.0	14.0												
					9.1	**29.6**	**8.7**	**120.0%**	**85.0**	**21.7**	**20.7**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	September 17, 2007	CPF086C	8.9	23.4	8.2	104.6%	120	21.0	50.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	September 17, 2007	CPF081A1C	7.9	23.6	7.6	93.2%	120	26.0	70.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	September 17, 2007	CPF086F	8.7	24.1	7.9	103.6%	110	15.0	24.0												
					8.5	**23.7**	**7.9**	**100.5%**	**116.7**	**20.7**	**48.0**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	October 10, 2007	CPF086C	9.0	25.8	8.9	110.6%	105	36.0	35.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	October 10, 2007	CPF081A1C	10.6	26.4	9.2	131.6%	96	42.0	40.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	October 10, 2007	CPF086F	10.5	25.8	9.1	129.0%	68	16.0	12.0												
					10.0	**26.0**	**9.1**	**123.7%**	**89.7**	**31.3**	**29.0**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	November 28, 2007	CPF086C	11.8	11.1	8.8	107.3%	74	30.0	26.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	November 28, 2007	CPF081A1C	11.7	11.2	8.7	106.6%	80	30.0	30.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	November 28, 2007	CPF086F	10.4	11.4	8.1	95.2%	66	20.0	18.0												
					11.3	**11.2**	**8.5**	**103.0%**	**73.3**	**26.7**	**24.7**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	December 11, 2007	CPF086C	13.9	12.6	9.0	130.8%	56	17.0	16.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	December 11, 2007	CPF081A1C	13.4	13.1	8.9	127.5%	52	26.0	20.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	December 11, 2007	CPF086F	11.0	11.7	7.7	101.4%	37	10.0	9.5												
					12.8	**12.5**	**8.5**	**119.9%**	**48.3**	**17.7**	**15.2**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	January 8, 2008	CPF086C	12.9	8.0	7.5	109.0%	24	10.0	15.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	January 8, 2008	CPF081A1C	11.6	8.3	7.2	98.7%	23	18.0	29.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	January 8, 2008	CPF086F	11.6	7.7	7.4	97.3%	25	9.8	12.0												
					12.0	**8.0**	**7.4**	**101.7%**	**24.0**	**12.6**	**18.7**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	February 12, 2008	CPF086C	13.0	9.9	8.6	114.9%	99	17.0	23.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	February 12, 2008	CPF081A1C	12.5	9.2	8.2	108.7%	72	14.0	22.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	February 12, 2008	CPF086F	12.2	9.1	7.7	105.8%	62	15.0	17.0												
					12.6	**9.4**	**8.2**	**109.8%**	**77.7**	**15.3**	**20.7**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	March 13, 2008	CPF086C	11.8	14.7	9.1	116.3%	77	21.0	22.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	March 13, 2008	CPF081A1C	11.1	15.3	8.1	110.8%	74	36.0	55.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	March 13, 2008	CPF086F	11.5	12.8	8.1	108.7%	66	19.0	19.0												
					11.5	**14.3**	**8.4**	**111.9%**	**72.3**	**25.3**	**32.0**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	April 10, 2008	CPF086C	12.8	18.1	9.2	135.5%	85	19.0	21.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	April 10, 2008	CPF081A1C	11.2	18.9	8.1	120.5%	75	24.0	33.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	April 10, 2008	CPF086F	12.7	18.6	9.3	135.8%	180	22.0	25.0												
					12.2	**18.5**	**8.9**	**130.6%**	**113.3**	**21.7**	**26.3**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	May 19, 2008	CPF086C	10.0	21.9	8.0	114.2%	70	26	23.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	May 19, 2008	CPF081A1C	9.9	22.4	7.7	114.1%	77	24	33.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	May 19, 2008	CPF086F	8.7	21.3	7.6	98.2%	68	22	22.0												
					9.5	**21.9**	**7.8**	**108.8%**	**71.7**	**24.0**	**26.0**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	June 17, 2008	CPF086C	8.1	30.2	8.3	107.6%	54	16	15.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	June 17, 2008	CPF081A1C	8.0	30.2	8.2	106.2%	56	18	16.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	June 17, 2008	CPF086F	7.1	29.4	8.0	93.0%	38	8.2	8.1												
					7.7	**29.9**	**8.2**	**102.3%**	**49.3**	**14.1**	**13.0**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	July 17, 2008	CPF086C	5.7	28.4	7.2	73.4%	53	18.0	19.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	July 17, 2008	CPF081A1C	7.0	28.7	7.2	90.6%	66	20.0	22.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	July 17, 2008	CPF086F	7.0	28.6	7.4	90.4%	54	12.0	13.0												
					6.6	**28.6**	**7.3**	**84.8%**	**57.7**	**16.7**	**18.0**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	August 14, 2008	CPF086C	5.9	25.9	7.4	72.6%	64	24.0	25.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	August 14, 2008	CPF081A1C	5.4	26.5	7.4	67.2%	64	23.0	23.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	August 14, 2008	CPF086F	3.5	26.7	7.1	43.7%	40	15.0	16.0												
					4.9	**26.4**	**7.3**	**61.2%**	**56.0**	**20.7**	**21.3**												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	September 23, 2008	CPF086C	7.4	22.5	7.2	85.5%	48	20.0	23.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	September 23, 2008	CPF081A1C	7.3	22.7	7.2	84.6%	51	20.0	21.0												
PIEDMONT	JORDAN LAKE	16-41-(0.5)	September 23, 2008	CPF086F	7.3	22.7	7.2	84.6%	56	21.0	26.0												
					7.3	**22.6**	**7.2**	**84.9%**	**51.7**	**20.3**	**23.3**												
				N=	44	44	44	44	40	44	43		7	7	7	7	7	7		7	7	7.0	7.0
				% EXCEED =	NCE	NCE	E 2%	CE 14%	CE 83%	NCE	CE 26%		NCE	NCE	NCE	NCE	NCE	NCE		E 43%	E 43%	NCE	NCE

					SURFACE PHYSICAL DATA							SURFACE METALS											
Region	Lake	AU	Date m/d/yr	Sampling Station	DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardnes Calculated mg/L
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	May 1, 2008	CPFCCR2	10.7	20.3	8.0	118.4%	38	7.8	10.0												
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	May 1, 2008	CPFCCR4	10.5	20.0	8.2	115.5%	48	8.0	9.8												
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	May 1, 2008	CPFCCR6	9.6	18.9	6.6	103.3%	24	3.1	8.7											6.9	26.4
					10.3	**19.7**	**7.6**	**112.4%**	**36.7**	**6.3**	**9.5**											**6.9**	**26.4**
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	May 15. 2008	CPFCCR2	10.4	21.4	8.7	117.6%	61	9.3	14.0												
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	May 15. 2008	CPFCCR4	10.4	20.9	8.9	116.5%	62	8.8	15.0												
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	May 15, 2008	CPFCCR6	10.9	20.5	8.9	121.1%	56	8.3	13.0											7.1	26.4

APPENDIX B

CAPE FEAR RIVER BASIN LAKES 2008 USE SUPPORT DATA

					10.6	**20.9**	**8.8**	**118.4%**	**59.7**	**8.8**	**14.0**											**7.1**	**26.4**
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	June 5, 2008	CPFCCR2	9.9	28.7	8.6	128.1%	32	3.1	9.2												
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	June 5, 2008	CPFCCR4	9.3	28.3	8.3	119.5%	21	3.1	6.7												
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	June 5, 2008	CPFCCR6	9.1	27.8	8.6	115.9%	23	3.1	7.8											6.8	26.4
					9.4	**28.3**	**8.5**	**121.2%**	**25.3**	**3.1**	**7.9**											**6.8**	**26.4**
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	June 19, 2008	CPFCCR2	7.8	28.5	7.2	100.6%	16	3.1	4.7												
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	June 19, 2008	CPFCCR4	8.7	28.6	7.8	112.4%	18	3.1	5.2												
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	June 19, 2008	CPFCCR6	8.2	28.6	8.0	105.9%	32	7.3	7.2											6.6	27.1
					8.2	**28.6**	**7.7**	**106.3%**	**22.0**	**4.5**	**5.7**											**6.6**	**27.1**
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	July 10, 208	CPFCCR2	6.7	28.7	6.9	86.7%	17	3.1	5.0												
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	July 10, 2008	CPFCCR4	7.2	29.1	7.5	93.8%	12	3.1	4.3												
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	July 10, 2008	CPFCCR6	7.0	28.2	7.7	89.8%	9	3.1	3.9											6.8	26.8
					7.0	**28.7**	**7.4**	**90.1%**	**12.7**	**1.3**	**4.4**											**6.8**	**26.8**
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	July 24, 2008	CPFCCR2	7.6	30.1	7.5	100.8%	23	6.0	5.1												
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	July 24, 2008	CPFCCR4	7.6	29.6	7.4	99.9%	15	6.0	3.7												
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	July 24, 2008	CPFCCR6	7.1	29.3	7.2	92.8%	13	6.0	3.5											6.0	26.8
					7.4	**29.7**	**7.4**	**97.8%**	**17.0**	**6.0**	**4.1**											**6.0**	**26.8**
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	August 7, 2008	CPFCCR2	7.3	30.4	7.5	97.3%	35	3.1	6.0												
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	August 7, 2008	CPFCCR4	7.4	30.5	7.9	98.8%	18	3.1	5.0												
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	August 7, 2008	CPFCCR6	7.3	29.9	7.7	96.4%	19	3.1	4.5											6.4	27.1
					7.3	**30.3**	**7.7**	**97.5%**	**24.0**	**3.1**	**5.2**											**6.4**	**27.1**
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	August 21, 2008	CPFCCR2	7.6	27.2	7.3	95.7%	24	3.1	4.1												
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	August 21, 2008	CPFCCR4	7.9	27.5	7.1	100.1%	14	3.1	4.0												
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	August 21, 2008	CPFCCR6	8.0	27.9	7.5	102.1%	12	3.1	3.8											5.9	27.1
					7.8	**27.5**	**7.3**	**99.3%**	**16.7**	**3.1**	**4.0**											**5.9**	**27.1**
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	September 11, 2008	CPFCCR2	6.2	25.2	6.8	75.3%	21	3.1	6.5												
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	September 11, 2008	CPFCCR4	7.1	25.3	6.6	86.4%	28	3.1	6.1												
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	September 11, 2008	CPFCCR6	7.1	25.5	7.3	86.7%	26	3.1	6.6											5.3	26.1
					6.8	**25.3**	**6.9**	**82.8%**	**25.0**	**3.1**	**6.4**											**5.3**	**26.1**
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	September 29, 2008	CPFCCR2	8.7	24.1	7.4	103.6%	46	6.0	11.0												
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	September 29, 2008	CPFCCR4	9.5	23.3	8.1	111.4%	58	3.1	13.0												
PIEDMONT	CANE CREEK RESERVOIR	16-27-(2.5)	September 29, 2008	CPFCCR6	10.1	22.8	8.3	117.3%	56	3.1	12.0											5.7	26.2
					9.4	**23.4**	**7.9**	**110.8%**	**53.3**	**4.1**	**12.0**											**5.7**	**26.2**
				N=	10	10	10	10	10	10	10											10	10
				% EXCEED =	NCE	NCE	NCE	CE 10%	CE 20%	NCE	NCE											*NCE*	*NCE*

					SURFACE PHYSICAL DATA							SURFACE METALS											
Region	Lake	AU	Date m/d/yr	Sampling Station	DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardnes Calculated mg/L
PIEDMONT	UNIVERSITY LAKE	16-41-2-(1.5)	May 1, 2008	CPFUL4	8.9	19.4	6.9	96.8%	38	6.0	10.0												
PIEDMONT	UNIVERSITY LAKE	16-41-2-(1.5)	May 1, 2008	CPFUL6	9.1	19.7	6.7	99.5%	20	3.1	7.1											8.0	31.3
					9.0	**19.6**	**6.8**	**98.2%**	**29.0**	**4.6**	**8.6**											**8.0**	**31.3**
PIEDMONT	UNIVERSITY LAKE	16-41-2-(1.5)	May 22, 2008	CPFUL4	7.0	21.3	7.0	79.0%	24	7.5	7.8												
PIEDMONT	UNIVERSITY LAKE	16-41-2-(1.5)	May 22, 2008	CPFUL6	7.4	21.4	7.5	83.7%	18	3.1	5.1											7.6	34.6
					7.2	**21.4**	**7.3**	**81.4%**	**21.0**	**5.3**	**6.5**											**7.6**	**34.6**
PIEDMONT	UNIVERSITY LAKE	16-41-2-(1.5)	June 5, 2008	CPFUL4	7.1	28.1	7.0	90.9%	22	3.1	6.1												
PIEDMONT	UNIVERSITY LAKE	16-41-2-(1.5)	June 5, 2008	CPFUL6	7.0	27.9	7.4	89.3%	27	3.1	4.9											8.2	36.5
					7.1	**28.0**	**7.2**	**90.1%**	**24.5**	**3.1**	**5.5**											**8.2**	**36.5**
PIEDMONT	UNIVERSITY LAKE	16-41-2-(1.5)	June 19, 2008	CPFUL4	5.7	27.4	7.0	72.1%	32	10.0	11.0												
PIEDMONT	UNIVERSITY LAKE	16-41-2-(1.5)	June 19, 2008	CPFUL6	5.9	27.6	7.6	74.9%	25	7.5	8.2											8.4	38.6
					5.8	**27.5**	**7.3**	**73.5%**	**28.5**	**8.8**	**9.6**											**8.4**	**38.6**
PIEDMONT	UNIVERSITY LAKE	16-41-2-(1.5)	July 10, 2008	CPFUL4	7.3	27.0	7.1	91.6%	72	11.0	12.0												
PIEDMONT	UNIVERSITY LAKE	16-41-2-(1.5)	July 10, 2008	CPFUL6	6.9	27.2	7.8	86.9%	53	8.3	11.0											7.3	33.9
					7.1	**27.1**	**7.5**	**89.3%**	**62.5**	**9.7**	**11.5**											**7.3**	**33.9**
PIEDMONT	UNIVERSITY LAKE	16-41-2-(1.5)	July 24, 2008	CPFUL4	6.3	29.0	7.1	81.9%	59	6.0	11.0												
PIEDMONT	UNIVERSITY LAKE	16-41-2-(1.5)	July 24, 2008	CPFUL6	6.8	28.7	7.4	88.0%	50	6.0	8.7											6.3	35.5
					6.6	**28.9**	**7.3**	**85.0%**	**54.5**	**6.0**	**9.9**											**6.3**	**35.5**
PIEDMONT	UNIVERSITY LAKE	16-41-2-(1.5)	August 7, 2008	CPFUL4	6.0	29.8	7.5	79.1%	68	6.0	14												
PIEDMONT	UNIVERSITY LAKE	16-41-2-(1.5)	August 7, 2008	CPFUL6	6.1	30.1	7.4	80.9%	33	7.8	10											6.6	33.3
					6.1	**30.0**	**7.5**	**80.0%**	**50.5**	**6.9**	**12.0**											**6.6**	**33.3**
PIEDMONT	UNIVERSITY LAKE	16-41-2-(1.5)	August 21, 2008	CPFUL4	6.4	27.7	7.3	81.4%	46	20.0	18.0												
PIEDMONT	UNIVERSITY LAKE	16-41-2-(1.5)	August 21, 2008	CPFUL6	6.6	27.3	7.1	83.3%	43	9.2	8.7											6.4	35.0
					6.5	**27.5**	**7.2**	**82.4%**	**44.5**	**14.6**	**13.4**											**6.4**	**35.0**
PIEDMONT	UNIVERSITY LAKE	16-41-2-(1.5)	September 11, 2008	CPFUL4	5.6	22.8	6.5	65.1%	27	22.0	37.0												
PIEDMONT	UNIVERSITY LAKE	16-41-2-(1.5)	September 11, 2008	CPFUL6	4.4	23.5	7.0	51.8%	14	15.0	32.0											3.3	23.1
					5.0	**23.2**	**6.8**	**58.5%**	**20.5**	**18.5**	**34.5**											**3.3**	**23.1**
PIEDMONT	UNIVERSITY LAKE	16-41-2-(1.5)	September 29, 2008	CPFUL4	10.1	21.8	7.5	115.1%	130	9.5	8.2												
PIEDMONT	UNIVERSITY LAKE	16-41-2-(1.5)	September 29, 2008	CPFUL6	10.5	22.6	7.1	121.5%	100	6.5	5.8											4.6	30.5
					10.3	**22.2**	**7.3**	**118.3%**	**115.0**	**8.0**	**7.0**											**4.6**	**30.5**
				N=	10	10	10	10	10	10	10											10	10
				% EXCEED =	NCE	NCE	NCE	NCE	E 50%	NCE	E 10%											NCE	NCE

					SURFACE PHYSICAL DATA							SURFACE METALS											
Region	Lake	AU	Date	Sampling	DO	Water Temp	pH	Percent DO	Chla	TSS	Turbidity	Hg	Zn	Pb	Ni	Cu	Cr	Cd	As	Mn	Fe	Chloride	Total Hardnes Calculated

APPENDIX B

CAPE FEAR RIVER BASIN LAKES 2008 USE SUPPORT DATA

			m/d/yr	Station	mg/L	C	s.u.	SAT	µg/L	mg/L	NTU	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L
PIEDMONT	HIGH POINT LAKE	17-(1)	May 14, 2007	CPF089E2	9.8	21.9	7.2	111.9%	25	7.5	8.9												
PIEDMONT	HIGH POINT LAKE	17-(1)	May 14, 2007	CPF089E4	8.9	21.7	8.1	101.2%	26	8.0	11.0											6.7	40.2
					9.4	**21.8**	**7.7**	**106.6%**	**25.5**	**7.8**	**10.0**											**6.7**	**40.2**
PIEDMONT	HIGH POINT LAKE	17-(1)	June 20, 2007	CPF089E2	8.9	27.1	8.4	111.9%	45	7.5	7.1												
PIEDMONT	HIGH POINT LAKE	17-(1)	June 20, 2007	CPF089E4	5.8	25.8	7.7	71.2%	27	8.8	10.0											7.1	40.2
					7.4	**26.5**	**8.1**	**91.6%**	**36.0**	**8.2**	**8.6**											**7.1**	**40.2**
PIEDMONT	HIGH POINT LAKE	17-(1)	July 17, 2007	CPF089E2	8.7	29.3	8.2	111.3%	28	7.2	6.7												
PIEDMONT	HIGH POINT LAKE	17-(1)	July 17, 2007	CPF089E4	6.7	28.6	7.9	86.5%	26	8.5	9.2											7.3	40.2
					7.7	**29.0**	**8.1**	**98.9%**	**27.0**	**3.4**	**8.0**											**7.3**	**40.2**
PIEDMONT	HIGH POINT LAKE	17-(1)	August 15, 2007	CPF089E2	6.8	30.3	7.9	90.5%	37	9.2	9.0												
PIEDMONT	HIGH POINT LAKE	17-(1)	August 15, 2007	CPF089E4	5.4	29.9	8.0	71.3%	40	10.0	11.0											6.5	39.5
					6.1	**30.1**	**8.0**	**80.9%**	**38.5**	**3.4**	**10.0**											**6.5**	**39.5**
PIEDMONT	HIGH POINT LAKE	17-(1)	September 18, 2007	CPF089E2	7.2	24.6	7.8	86.5%	62	28.0	13.0												
PIEDMONT	HIGH POINT LAKE	17-(1)	September 18, 2007	CPF089E4	6.5	24.8	7.9	78.4%	72	16.0	19.0											6.4	40.2
					6.9	**24.7**	**7.9**	**82.5%**	**67.0**	**3.4**	**16.0**											**6.4**	**40.2**
				N=	5	5	5	5	5	5	5											5	5
				% EXCEED =	NCE	NCE	NCE	NCE	E (20%)	NCE	NCE											NCE	NCE

SURFACE PHYSICAL DATA — SURFACE METALS

Region	Lake	AU	Date	Sampling Station	DO	Water Temp	pH	Percent DO	Chla	TSS	Turbidity	Hg	Zn	Pb	Ni	Cu	Cr	Cd	As	Mn	Fe	Chloride	Total Hardnes Calculated
			m/d/yr	Station	mg/L	C	s.u.	SAT	µg/L	mg/L	NTU	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L
PIEDMONT	OAK HOLLOW LAKE	17-3-(0.7)	May 14, 2007	CPF089D3	8.9	21.3	7.2	100.5%	24	7.2	6.6												
PIEDMONT	OAK HOLLOW LAKE	17-3-(0.7)	May 14, 2007	CPF089D4	9.2	21.7	7.3	104.6%	26	9.2	6.1												
PIEDMONT	OAK HOLLOW LAKE	17-3-(0.7)	May 14, 2007	CPF089D5	8.4	21.0	7.6	94.3%	23	7.0	6.7											7.2	32.7
					8.8	**21.3**	**7.4**	**99.8%**	**24.3**	**7.8**	**6.5**											**7.2**	**32.7**
PIEDMONT	OAK HOLLOW LAKE	17-3-(0.7)	June 20, 2007	CPF089D3	8.7	27.8	8.3	110.8%	36	7.2	6.3												
PIEDMONT	OAK HOLLOW LAKE	17-3-(0.7)	June 20, 2007	CPF089D4	8.0	26.4	8.0	99.4%	37	6.2	5.8												
PIEDMONT	OAK HOLLOW LAKE	17-3-(0.7)	June 20, 2007	CPF089D5	7.1	26.2	7.9	87.9%	28	6.5	8.1											7.1	33.0
					7.9	**26.8**	**8.1**	**99.4%**	**33.7**	**6.6**	**6.7**											**7.1**	**33.0**
PIEDMONT	OAK HOLLOW LAKE	17-3-(0.7)	July 17, 2007	CPF089D3	8.1	28.6	8.3	104.6%	25	3.1	5.3												
PIEDMONT	OAK HOLLOW LAKE	17-3-(0.7)	July 17, 2007	CPF089D4	7.6	27.9	7.9	97.0%	24	3.1	5.5												
PIEDMONT	OAK HOLLOW LAKE	17-3-(0.7)	July 17, 2007	CPF089D5	5.8	27.7	7.5	73.7%	21	8.5	9.5											7.0	34.7
					7.2	**28.1**	**7.9**	**91.8%**	**23.3**	**4.9**	**6.8**											**7.0**	**34.7**
PIEDMONT	OAK HOLLOW LAKE	17-3-(0.7)	August 15, 2007	CPF089D3	6.7	29.3	7.9	87.6%	30	6.5	6.5												
PIEDMONT	OAK HOLLOW LAKE	17-3-(0.7)	August 15, 2007	CPF089D4	6.9	29.6	7.8	90.7%	31	3.1	5.9												
PIEDMONT	OAK HOLLOW LAKE	17-3-(0.7)	August 15, 2007	CPF089D5	4.8	29.4	7.8	62.9%	28	6.2	7.6											6.1	34.9
					6.1	**29.4**	**7.8**	**80.4%**	**29.7**	**5.3**	**6.7**											**6.1**	**34.9**
PIEDMONT	OAK HOLLOW LAKE	17-3-(0.7)	September 18, 2007	CPF089D3	6.4	24.1	7.6	76.2%	34	8.2	8.8												
PIEDMONT	OAK HOLLOW LAKE	17-3-(0.7)	September 18, 2007	CPF089D4	6.6	24.8	7.5	79.6%	57	18.0	11.0												
PIEDMONT	OAK HOLLOW LAKE	17-3-(0.7)	September 18, 2007	CPF089D5	5.4	24.6	7.5	64.9%	29	14.0	12.0											6.3	34.9
					6.1	**24.5**	**7.5**	**73.6%**	**40.0**	**13.4**	**10.6**											**6.3**	**34.9**
				N=	5	5	5	5	5	5	5											5	5
				% EXCEED =	NCE	NCE	NCE	NCE	NCE	NCE	NCE											NCE	NCE

SURFACE PHYSICAL DATA — SURFACE METALS

Region	Lake	AU	Date	Sampling Station	DO	Water Temp	pH	Percent DO	Chla	TSS	Turbidity	Hg	Zn	Pb	Ni	Cu	Cr	Cd	As	Mn	Fe	Chloride	Total Hardnes Calculated
			m/d/yr	Station	mg/L	C	s.u.	SAT	µg/L	mg/L	NTU	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L
PIEDMONT	LAKE RANDLEMAN	17-4	May 13, 2008	CPFRD1	6.7	20.5	7.2	74.4%	28	9.8	8.8	<0.2	<10	<10	<10	2.4	<10	<1.0	<5.0	350	700	23.0	54.7
PIEDMONT	LAKE RANDLEMAN	17-4	May 13, 2008	CPFRD2	7.4	20.2	7.3	81.7%	50	8.8	8.4												
PIEDMONT	LAKE RANDLEMAN	17-4	May 13, 2008	CPFRD3	6.6	19.5	7.3	71.9%	25	3.1	5.6												
PIEDMONT	LAKE RANDLEMAN	17-4	May 13, 2008	CPFRD4	6.5	19.3	7.4	70.5%	20	3.1	5.5	<0.2	<10	<10	<10	<2.0	<10	<1.0	<5.0	120	160	20.0	52.2
PIEDMONT	LAKE RANDLEMAN	17-4	May 13, 2008	CPFRD5	6.7	19.5	7.1	73.0%	23	6.5	8.2												
PIEDMONT	LAKE RANDLEMAN	17-4	May 13, 2008	CPFRD6	6.7	18.8	7.3	72.0%	20	3.1	5.5												
PIEDMONT	LAKE RANDLEMAN	17-4	May 13, 2008	CPFRD7	6.5	19.1	7.0	70.2%	21	3.1	5.8												
PIEDMONT	LAKE RANDLEMAN	17-4	May 13, 2008	CPFRD8	7.0	19.1	7.3	75.6%	21	3.1	5.5	<0.2	<10	<10	<10	<2.0	<10	<1.0	<5.0	79	170	21.0	52.6
PIEDMONT	LAKE RANDLEMAN	17-4	May 13, 2008	CPFRD9	7.6	19.4	7.4	82.6%	22	3.1	6.8												
					6.9	**19.5**	**7.3**	**74.7%**	**25.6**	**4.9**	**6.7**	**<0.2**	**<10**	**<10**	**<10**	**<2.0**	**<10**	**<1.0**	**<5.0**	**183.0**	**343.3**	**21.3**	**53.2**
PIEDMONT	LAKE RANDLEMAN	17-4	June 10, 2008	CPFRD1	8.3	31.8	8.5	111.3%	47	6.0	8.9	<0.2	<10	<10	<10	<2.0	<10	<1.0	<5.0	81	240	20.0	55.1
PIEDMONT	LAKE RANDLEMAN	17-4	June 10, 2008	CPFRD2	6.8	32.1	7.8	93.3%	40	7.0	6.0												
PIEDMONT	LAKE RANDLEMAN	17-4	June 10, 2008	CPFRD3	6.9	32.1	8.0	94.6%	29	3.1	6.8												
PIEDMONT	LAKE RANDLEMAN	17-4	June 10, 2008	CPFRD4	6.8	31.3	8.0	92.0%	19	3.1	7.2	<0.2	<10	<10	<10	<2.0	<10	<1.0	<5.0	94	170	20.0	56.4
PIEDMONT	LAKE RANDLEMAN	17-4	June 10, 2008	CPFRD5	6.7	31.9	7.8	91.6%	24	6.2	7.3												
PIEDMONT	LAKE RANDLEMAN	17-4	June 10, 2008	CPFRD6	6.8	31.5	8.0	92.3%	15	3.1	6.5												
PIEDMONT	LAKE RANDLEMAN	17-4	June 10, 2008	CPFRD7	7.4	30.4	8.1	98.6%	14	3.1	5.1												
PIEDMONT	LAKE RANDLEMAN	17-4	June 10, 2008	CPFRD8	7.0	30.7	8.1	93.8%	17	3.1	5.6	<0.2	<10	<10	<10	<2.0	<10	<1.0	<5.0	74	140	20.0	56.0
PIEDMONT	LAKE RANDLEMAN	17-4	June 10, 2008	CPFRD9	7.1	30.8	8.1	95.3%	16	6.2	6.2												
					7.1	**31.4**	**8.0**	**95.9%**	**24.6**	**4.5**	**6.6**	**<0.2**	**<10**	**<10**	**<10**	**<2.0**	**<10**	**<1.0**	**<5.0**	**83.0**	**183.3**	**20.0**	**55.8**
PIEDMONT	LAKE RANDLEMAN	17-4	July 15, 2008	CPFRD1	8.3	29.9	7.9	109.7%	37	8.0	6.6	<0.2	<10	<10	<10	<2.0	<10	<1.0	<5.0	66	200	29.0	58.5
PIEDMONT	LAKE RANDLEMAN	17-4	July 15, 2008	CPFRD2	8.5	29.7	8.2	111.9%	31	6.2	5.8												
PIEDMONT	LAKE RANDLEMAN	17-4	July 15, 2008	CPFRD3	8.6	29.1	8.4	112.0%	30	6.5	6.7												
PIEDMONT	LAKE RANDLEMAN	17-4	July 15, 2008	CPFRD4	8.5	28.9	8.1	110.4%	25	3.1	6.8	<0.2	<10	<10	<10	<2.0	<10	<1.0	<5.0	65	150	23.0	56.4
PIEDMONT	LAKE RANDLEMAN	17-4	July 15, 2008	CPFRD5	8.1	29.6	8.4	106.5%	28	3.1	6.5												

APPENDIX B

CAPE FEAR RIVER BASIN LAKES 2008 USE SUPPORT DATA

PIEDMONT	LAKE RANDLEMAN	17-4	July 15, 2008	CPFRD6	8.4	28.8	8.4	108.9%	28	3.1	5.0												
PIEDMONT	LAKE RANDLEMAN	17-4	July 15, 2008	CPFRD7	8.1	28.3	8.2	104.1%	26	3.1	7.3												
PIEDMONT	LAKE RANDLEMAN	17-4	July 15, 2008	CPFRD8	8.1	28.1	7.4	103.7%	23	3.1	4.8	<0.2	<10	<10	<10	<2.0	<10	<1.0	<5.0	49	100	22.0	56.0
PIEDMONT	LAKE RANDLEMAN	17-4	July 15, 2008	CPFRD9	8.1	28.1	7.7	103.7%	22	3.1	5.3												
					8.3	**28.9**	**8.1**	**107.9%**	**27.8**	**4.4**	**6.1**	**<0.2**	**<10**	**<10**	**<10**	**<2.0**	**<10**	**<1.0**	**<5.0**	**60.0**	**150.0**	**24.7**	**57.0**
PIEDMONT	LAKE RANDLEMAN	17-4	August 11, 2008	CPFRD1	7.6	28.4	7.5	97.8%	34	9.2	8.0	<0.2	<10	<10	<10	<2.0	<10	<1.0	<5.0	81	290	36.0	61.4
PIEDMONT	LAKE RANDLEMAN	17-4	August 11, 2008	CPFRD2	6.9	28.8	7.7	89.4%	37	6.2	5.7												
PIEDMONT	LAKE RANDLEMAN	17-4	August 11, 2008	CPFRD3	6.9	28.8	7.8	89.4%	24	6.0	5.5												
PIEDMONT	LAKE RANDLEMAN	17-4	August 11, 2008	CPFRD4	6.9	28.7	7.9	89.3%	22	6.2	6.3	<0.2	<10	<10	<10	<2.0	<10	<1.0	<5.0	70	200	19.0	53.9
PIEDMONT	LAKE RANDLEMAN	17-4	August 11, 2008	CPFRD5	6.7	28.6	7.6	86.5%	35	8.0	6.6												
PIEDMONT	LAKE RANDLEMAN	17-4	August 11, 2008	CPFRD6	7.1	28.5	8.1	91.5%	24	3.1	5.3												
PIEDMONT	LAKE RANDLEMAN	17-4	August 11, 2008	CPFRD7	7.2	28.4	7.8	92.7%	20	3.1	4.8												
PIEDMONT	LAKE RANDLEMAN	17-4	August 11, 2008	CPFRD8	7.4	28.6	8.4	95.6%	18	3.1	5.1	<0.2	<10	<10	<10	<2.0	<10	<1.0	<5.0	47	140	20.0	53.9
PIEDMONT	LAKE RANDLEMAN	17-4	August 11, 2008	CPFRD9	7.8	29.0	8.5	101.4%	17	3.1	5.3												
					7.2	**28.6**	**7.9**	**92.6%**	**25.7**	**5.3**	**5.8**	**<0.2**	**<10**	**<10**	**<10**	**<2.0**	**<10**	**<1.0**	**<5.0**	**66.0**	**210.0**	**25.0**	**56.4**
PIEDMONT	LAKE RANDLEMAN	17-4	September 15, 2008	CPFRD1	10.1	27.5	8.6	127.9%	39	6.8	7.2	<0.2	<10	<10	<10	<2.0	<10	<1.0	<5.0	3.6	240	23.0	42.3
PIEDMONT	LAKE RANDLEMAN	17-4	September 15, 2008	CPFRD2	8.6	27.1	8.0	108.2%	37	3.1	7.4												
PIEDMONT	LAKE RANDLEMAN	17-4	September 15, 2008	CPFRD3	8.9	27.1	8.4	111.9%	36	3.1	6.0												
PIEDMONT	LAKE RANDLEMAN	17-4	September 15, 2008	CPFRD4	7.5	26.1	7.6	92.6%	30	3.1	4.2	<0.2	<10	<10	<10	<2.0	<10	<1.0	<5.0	43	99	17.0	48.5
PIEDMONT	LAKE RANDLEMAN	17-4	September 15, 2008	CPFRD5	7.9	26.8	7.9	98.8%	41	6.8	5.1												
PIEDMONT	LAKE RANDLEMAN	17-4	September 15, 2008	CPFRD6	8.0	26.5	7.9	99.5%	30	9.8	4.1												
PIEDMONT	LAKE RANDLEMAN	17-4	September 15, 2008	CPFRD7	7.4	25.9	7.5	91.1%	30	3.1	4.6												
PIEDMONT	LAKE RANDLEMAN	17-4	September 15, 2008	CPFRD8	6.4	25.7	7.4	78.5%	18	3.1	3.7	<0.2	<10	<10	<10	<2.0	<10	<1.0	<5.0	44	84	17.0	48.9
PIEDMONT	LAKE RANDLEMAN	17-4	September 15, 2008	CPFRD9	7.9	26.6	7.8	98.5%	32	8.5	4.5												
					7.2	**26.1**	**7.6**	**89.4%**	**26.7**	**4.9**	**4.3**	**<0.2**	**<10**	**<10**	**<10**	**<2.0**	**<10**	**<1.0**	**<5.0**	**30.2**	**141.0**	**19.0**	**46.6**
				N=	5	5	5	5	5	5	5												
				% EXCEED =	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE	NCE

					SURFACE PHYSICAL DATA							SURFACE METALS											
Region	Lake	AU	Date m/d/yr	Sampling Station	DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardnes Calculated mg/L
PIEDMONT	SANDY CREEK RESERVOIR	17-16-(3.5)	May 22, 2008	CPFSC1	9.7	21.6	8.1	110.1%	23	3.1	3.6												
PIEDMONT	SANDY CREEK RESERVOIR	17-16-(3.5)	May 22, 2008	CPFSC2	10.3	21.0	8.2	115.6%	33	6.0	9.4												
PIEDMONT	SANDY CREEK RESERVOIR	17-16-(3.5)	May 22, 2008	CPFSC3	7.7	16.1	8.2	78.2%	6	20.0	55.0											7.0	36.8
					9.2	**19.6**	**8.2**	**101.3%**	**20.7**	**9.7**	**22.7**											**7.0**	**36.8**
PIEDMONT	SANDY CREEK RESERVOIR	17-16-(3.5)	June 26, 2008	CPFSC1	8.3	27.6	7.6	105.3%	14	6.0	3.5											7.0	41.9
PIEDMONT	SANDY CREEK RESERVOIR	17-16-(3.5)	June 26, 2008	CPFSC2	7.8	28.2	7.7	100.0%	22	3.1	3.8												
PIEDMONT	SANDY CREEK RESERVOIR	17-16-(3.5)	June 26, 2008	CPFSC3	7.4	27.3	8.1	93.4%	63	16.0	15.0												
					7.8	**27.7**	**7.8**	**99.6%**	**33.0**	**8.4**	**7.4**											**7.0**	**14.9**
PIEDMONT	SANDY CREEK RESERVOIR	17-16-(3.5)	July 10, 2008	CPFSC1	8.3	27.5	7.8	105.1%	41	3.1	4.7											5.5	
PIEDMONT	SANDY CREEK RESERVOIR	17-16-(3.5)	July 10, 2008	CPFSC2	8.6	28.4	8.5	110.7%	53	6.8	5.9												
PIEDMONT	SANDY CREEK RESERVOIR	17-16-(3.5)	July 10, 2008	CPFSC3	8.3	27.2	7.8	104.6%	38	3.1	7.2												
					8.4	**27.7**	**8.0**	**106.8%**	**44.0**	**4.3**	**5.9**											**5.5**	
PIEDMONT	SANDY CREEK RESERVOIR	17-16-(3.5)	August 28, 2008	CPFSC1	6.0	25.0	6.8	72.6%	39		26.0											5.6	38.2
PIEDMONT	SANDY CREEK RESERVOIR	17-16-(3.5)	August 28, 2008	CPFSC2	5.8	23.0	7.0	67.6%	23		110.0												
PIEDMONT	SANDY CREEK RESERVOIR	17-16-(3.5)	August 28, 2008	CPFSC3	7.6	22.2	7.1	87.3%	3.7		130.0												
					6.5	**23.4**	**7.0**	**75.8%**	**21.9**	**No Data**	**88.7**											**5.6**	**38.2**
				N=	4	4	4	4	4	3	4											4	3
				% EXCEED =	NCE	NCE	NCE	NCE	E 25%	NCE	E 25%											NCE	NCE

					SURFACE PHYSICAL DATA							SURFACE METALS											
Region	Lake	AU	Date m/d/yr	Sampling Station	DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardnes Calculated mg/L
PIEDMONT	ROCKY RIVER RESERVOIR	17-43-(5.5)	May 14, 2008	CPF1201A	7.0	19.2	6.7	75.8%	61	7.0	7.4											5.5	28.5
PIEDMONT	ROCKY RIVER RESERVOIR	17-43-(5.5)	May 14, 2008	CPF1201B	7.5	19.1	6.8	81.0%	49	8.0	9.2												
					7.3	**19.2**	**6.8**	**78.4%**	**55.0**	**7.5**	**8.3**											**5.5**	**28.5**
PIEDMONT	ROCKY RIVER RESERVOIR	17-43-(5.5)	June 11, 2008	CPF1201A	8.0	29.7	6.9	105.3%	60	6.0	12.0												
PIEDMONT	ROCKY RIVER RESERVOIR	17-43-(5.5)	June 11, 2008	CPF1201B	8.2	30.0	7.2	108.5%	66	10.0	12.0												
					8.1	**29.9**	**7.1**	**106.9%**	**63.0**	**8.0**	**12.0**												
PIEDMONT	ROCKY RIVER RESERVOIR	17-43-(5.5)	June 16, 2008	CPF1201A	10.3	29.8	8.7	135.8%	74	13.0	17.0											6.7	33.6
PIEDMONT	ROCKY RIVER RESERVOIR	17-43-(5.5)	June 16, 2008	CPF1201B	9.9	29.8	8.9	130.6%	75	13.0	18.0												
					10.1	**29.8**	**8.8**	**133.2%**	**74.5**	**13.0**	**17.5**											**6.7**	**33.6**
PIEDMONT	ROCKY RIVER RESERVOIR	17-43-(5.5)	June 25, 2008	CPF1201A	8.5	27.9	7.9	108.4%	45	6.0	10.0											6.9	34.7
PIEDMONT	ROCKY RIVER RESERVOIR	17-43-(5.5)	June 25, 2008	CPF1201B	8.7	28.1	8.0	111.4%	44	9.5	10.0												
					8.6	**28.0**	**8.0**	**109.9%**	**44.5**	**7.8**	**10.0**											**6.9**	**34.7**
PIEDMONT	ROCKY RIVER RESERVOIR	17-43-(5.5)	July 16, 2008	CPF1201A	7.7	28.4	7.3	99.1%	44	6.0	8.3											6.6	34.7
PIEDMONT	ROCKY RIVER RESERVOIR	17-43-(5.5)	July 16, 2008	CPF1201B	7.6	28.3	7.4	97.6%	46	7.5	9.1												
					7.7	**28.4**	**7.4**	**98.4%**	**45.0**	**6.8**	**8.7**											**6.6**	**34.7**
PIEDMONT	ROCKY RIVER RESERVOIR	17-43-(5.5)	July 30, 2008	CPF1201A	10.4	29.4	9.2	136.2%	65	9.5	10.0												
PIEDMONT	ROCKY RIVER RESERVOIR	17-43-(5.5)	July 30, 2008	CPF1201B	10.0	30.5	9.1	133.5%	71	6.0	11.0												
					10.2	**30.0**	**9.2**	**134.9%**	**68.0**	**7.8**	**10.5**												
PIEDMONT	ROCKY RIVER RESERVOIR	17-43-(5.5)	August 13, 2008	CPF1201A	2.5	26.7	6.5	31.2%	57	9.0	9.7											5.0	35.6
PIEDMONT	ROCKY RIVER RESERVOIR	17-43-(5.5)	August 13, 2008	CPF1201B	6.2	27.1	7.0	78.0%	58	9.0	9.8												
					4.4	**26.9**	**6.8**	**54.6%**	**57.5**	**9.0**	**9.8**											**5.0**	**35.6**

APPENDIX B

CAPE FEAR RIVER BASIN LAKES 2008 USE SUPPORT DATA

PIEDMONT	ROCKY RIVER RESERVOIR	17-43-(5.5)	September 2, 2008	CPF1201A	8.4	25.8	7.1	103.2%	71	10.0	9.1											3.3	19.1
PIEDMONT	ROCKY RIVER RESERVOIR	17-43-(5.5)	September 2, 2008	CPF1201B	8.6	26.5	7.1	107.0%	73	12.0	11.0												
					8.5	**26.2**	**7.1**	**105.1%**	**72.0**	**11.0**	**10.1**											**3.3**	**19.1**
PIEDMONT	ROCKY RIVER RESERVOIR	17-43-(5.5)	September 9, 2008	CPF1201A	5.5	25.9	6.4	67.7%	15	11.0	24.0											2.2	17.7
PIEDMONT	ROCKY RIVER RESERVOIR	17-43-(5.5)	September 9, 2008	CPF1201B	6.8	25.9	7.5	83.7%	43		27.0												
					6.2	**25.9**	**7.0**	**75.7%**	**29.0**	**11.0**	**25.5**											**2.2**	**17.7**
PIEDMONT	ROCKY RIVER RESERVOIR	17-43-(5.5)	September 24, 2008	CPF1201A	2.8	21.2	6.2	31.5%	32	6.0	8.1											3.5	4.2
PIEDMONT	ROCKY RIVER RESERVOIR	17-43-(5.5)	September 24, 2008	CPF1201B	2.9	21.1	6.4	32.6%	21	7.0	6.7												
					2.9	**21.2**	**6.3**	**32.1%**	**26.5**	**6.5**	**7.4**											**3.5**	**4.2**
				N=	10	10	10	10	10	10	10											8	8
				% EXCEED =	E 10%	NCE	NCE	E 20%	E 80%	NCE	E 10%											NCE	NCE

Region	Lake	AU	Date m/d/yr	Sampling Station	SURFACE PHYSICAL DATA DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	SURFACE METALS Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardnes Calculated mg/L
PIEDMONT	HARRIS LAKE	18-7-(3)	June 26, 2008	CPF126A2	8.3	28.7	8.7	107.4%	22	3.1	2.9												
PIEDMONT	HARRIS LAKE	18-7-(3)	June 26, 2008	CPF126A4	8.5	28.8	8.9	110.2%	20	3.1	3.6												
PIEDMONT	HARRIS LAKE	18-7-(3)	June 26, 2008	CPF126A6	8.1	27.9	8.4	103.3%	33	3.1	3.4												
					8.3	**28.5**	**8.7**	**107.0%**	**25.0**	**3.1**	**3.3**												
PIEDMONT	HARRIS LAKE	18-7-(3)	July 31, 2008	CPF126A2	7.8	30.0	8.2	103.2%	23	3.1	3.6												
PIEDMONT	HARRIS LAKE	18-7-(3)	July 31, 2008	CPF126A4	7.7	29.6	8.1	101.2%	20	3.1	2.9												
PIEDMONT	HARRIS LAKE	18-7-(3)	July 31, 2008	CPF126A6	6.6	28.7	7.5	85.4%	32	3.1	2.9												
					7.4	**29.4**	**7.9**	**96.6%**	**25.0**	**3.1**	**3.1**												
PIEDMONT	HARRIS LAKE	18-7-(3)	August 26, 2008	CPF126A2	7.5	27.6	7.6	95.2%	19	3.1	3.0												
PIEDMONT	HARRIS LAKE	18-7-(3)	August 26, 2008	CPF126A4	7.6	27.5	7.8	96.3%	16	3.1	2.2												
PIEDMONT	HARRIS LAKE	18-7-(3)	August 26, 2008	CPF126A6	6.2	27.1	7.4	78.0%	19	6.0	1.8												
					7.1	**27.4**	**7.6**	**89.8%**	**18.0**	**4.1**	**2.3**												
PIEDMONT	HARRIS LAKE	18-7-(3)	September 18, 2008	CPF126A2	4.8	25.7	6.9	58.9%	23	3.1	3.5												
PIEDMONT	HARRIS LAKE	18-7-(3)	September 18, 2008	CPF126A4	4.6	25.5	7.0	56.2%	13	3.1	3.1												
PIEDMONT	HARRIS LAKE	18-7-(3)	September 18, 2008	CPF126A6	5.7	25.9	7.0	70.1%	23	3.1	2.8												
					5.0	**25.7**	**7.0**	**61.7%**	**19.7**	**1.3**	**3.1**												
				N=	4	4	4	4	4	4	4												
				% EXCEED =	NCE	NCE	NCE	NCE	NCE	NCE	NCE												

Region	Lake	AU	Date m/d/yr	Sampling Station	SURFACE PHYSICAL DATA DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	SURFACE METALS Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardness mg/L
PIEDMONT	OLD TOWN RESERVOIR	18-23-11-(1)	May 6, 2008	CPF135B	8.8	23.5	6.6	103.6%	6	20.0	3.1												
PIEDMONT	OLD TOWN RESERVOIR	18-23-11-(1)	May 6, 2008	CPF135D	8.8	23.3	6.7	103.2%	7	20.0	3.1											5.4	7.8
					8.8	**23.4**	**6.7**	**103.4%**	**6.5**	**20.0**	**3.1**											**5.4**	**7.8**
PIEDMONT	OLD TOWN RESERVOIR	18-23-11-(1)	June 3, 2008	CPF135B	7.8	27.8	6.6	99.3%	8	6.0	1.7												
PIEDMONT	OLD TOWN RESERVOIR	18-23-11-(1)	June 3, 2008	CPF135D	8.1	27.6	6.2	102.8%	46	3.1	2.9											5.8	8.4
					8.0	**27.7**	**6.4**	**101.1%**	**27.0**	**4.6**	**2.3**											**5.8**	**8.4**
PIEDMONT	OLD TOWN RESERVOIR	18-23-11-(1)	July 8, 2008	CPF135B	7.7	28.1	6.3	98.6%	40	3.1	3.0												
PIEDMONT	OLD TOWN RESERVOIR	18-23-11-(1)	July 8, 2008	CPF135D	7.3	28.1	6.7	93.5%	73	3.1	2.8											5.6	8.4
					7.5	**28.1**	**6.5**	**96.1%**	**56.5**	**3.1**	**2.9**											**5.6**	**8.4**
PIEDMONT	OLD TOWN RESERVOIR	18-23-11-(1)	August 5, 2008	CPF135B	6.9	30.1	6.4	91.5%	9	3.1	1.6												
PIEDMONT	OLD TOWN RESERVOIR	18-23-11-(1)	August 5, 2008	CPF135D	7.0	30.2	6.4	93.0%	43	6.8	5.4											4.6	8.4
					7.0	**30.2**	**6.4**	**92.3%**	**26.2**	**5.0**	**3.5**											**4.6**	**8.4**
PIEDMONT	OLD TOWN RESERVOIR	18-23-11-(1)	September 9, 2008	CPF135B	7.3	27.6	6.4	92.6%	14														
PIEDMONT	OLD TOWN RESERVOIR	18-23-11-(1)	September 9, 2008	CPF135D	7.6	27.4	6.4	96.1%	15													4.1	7.8
					7.5	**27.5**	**6.4**	**94.4%**	**14.5**	**No Data**	**No Data**											**4.1**	**7.8**
				N=	5	5	5	5	5	4	4											5	5
				% EXCEED =	NCE	NCE	NCE	NCE	E 20%	NCE	NCE											NCE	NCE

Region	Lake	AU	Date m/d/yr	Sampling Station	SURFACE PHYSICAL DATA DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	SURFACE METALS Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardnes Calculated mg/L
PIEDMONT	GLENVILLE LAKE	18-27-4-(1.5)	May 6, 2008	CPF138B	9.1	22.7	6.8	105.5%	32	3.1	3.4											6.3	11.3
					9.1	**22.7**	**6.8**	**105.5%**	**32.0**	**3.1**	**3.4**											**6.3**	**11.3**
PIEDMONT	GLENVILLE LAKE	18-27-4-(1.5)	June 3, 2008	CPF138B	8.2	26.4	6.6	101.8%	41	6.0	5.7											6.4	11.2
					8.2	**26.4**	**6.6**	**101.8%**	**41.0**	**6.0**	**5.7**											**6.4**	**11.2**
PIEDMONT	GLENVILLE LAKE	18-27-4-(1.5)	July 7, 2008	CPF138B	6.5	27.5	6.3	82.3%	65	6.2	7.1											6.0	11.5
					6.5	**27.5**	**6.3**	**82.3%**	**65.0**	**6.2**	**7.1**											**6.0**	**11.5**
PIEDMONT	GLENVILLE LAKE	18-27-4-(1.5)	August 19, 2008	CPF138B	8.2	26.1	6.4	101.3%	31	6.8	4.8											4.0	10.7
					8.2	**26.1**	**6.4**	**101.3%**	**31.0**	**6.8**	**4.8**											**4.0**	**10.7**
PIEDMONT	GLENVILLE LAKE	18-27-4-(1.5)	September 30, 2008	CPF138B	9.1	22.9	6.6	101.3%	29	6.0	4.1											4.5	10.3
					9.1	**22.9**	**6.6**	**101.3%**	**29.0**	**6.0**	**4.1**											**4.5**	**10.3**
				N=	5	5	5	5	5	5	5											5	5

APPENDIX B

CAPE FEAR RIVER BASIN LAKES 2008 USE SUPPORT DATA

	DO	Water Temp	pH	Percent DO	Chla	TSS	Turbidity	Hg	Zn	Pb	Ni	Cu	Cr	Cd	As	Mn	Fe	Chloride	Total Hardness
% EXCEED =	NCE	NCE	NCE	NCE	E 40%	NCE	NCE											NCE	NCE

Region	Lake	AU	Date m/d/yr	Sampling Station	SURFACE PHYSICAL DATA DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	SURFACE METALS Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardnes Calculated mg/L
PIEDMONT	BONNIE DOONE LAKE	18-27-4-(1.5)	June 19, 2008	CPF138A4	6.6	27.7	6.3	83.9%	6	3.1	6.1											<1.0	6.3
					6.6	**27.7**	**6.3**	**83.9%**	**6.0**	**3.1**	**6.1**											**<1.0**	**6.3**
PIEDMONT	BONNIE DOONE LAKE	18-27-4-(1.5)	July 7, 2008	CPF138A4	5.8	27.4	5.6	73.3%	16	6.2	6.2											3.1	5.8
					5.8	**27.4**	**5.6**	**73.3%**	**16.0**	**6.2**	**6.2**											**3.1**	**5.8**
PIEDMONT	BONNIE DOONE LAKE	18-27-4-(1.5)	August 19, 2008	CPF138A4	5.8	28.9	6.2	75.3%	21	8.2	8.2											2.9	5.7
					5.8	**28.9**	**6.2**	**75.3%**	**21.0**	**8.2**	**8.2**											**2.9**	**5.7**
PIEDMONT	BONNIE DOONE LAKE	18-27-4-(1.5)	September 30, 2008	CPF138A4	7.4	23.2	6.3	86.6%	4.7	3.1	4.4											3.2	5.1
					7.4	**23.2**	**6.3**	**86.6%**	**4.7**	**3.1**	**4.4**											**3.2**	**5.1**
				N=	4	4	4	4	4	4	4											4	4
				% EXCEED =	NCE	NCE	E 25%	NCE	NCE	NCE	NCE											NCE	NCE

Region	Lake	AU	Date m/d/yr	Sampling Station	SURFACE PHYSICAL DATA DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	SURFACE METALS Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardnes Calculated mg/L
PIEDMONT	KORNBOW LAKE	18-27-4-(1.5)	June 19, 2008	CPF138A6	6.2	28.5	6.0	79.9%	8	3.1	3.3											<1.0	6.5
					6.2	**28.5**	**6.0**	**79.9%**	**8.0**	**3.1**	**3.3**											**<1.0**	**6.5**
PIEDMONT	KORNBOW LAKE	18-27-4-(1.5)	July 7, 2008	CPF138A6	6.8	28.4	6.2	87.5%	15	3.1	3.1											5.2	6.8
					6.8	**28.4**	**6.2**	**87.5%**	**15.0**	**3.1**	**3.1**											**5.2**	**6.8**
PIEDMONT	KORNBOW LAKE	18-27-4-(1.5)	August 19, 2008	CPF138A6	6.7	28.7	6.5	86.7%	12	8.0	2.9											4.3	6.3
					6.7	**28.7**	**6.5**	**86.7%**	**12.0**	**8.0**	**2.9**											**4.3**	**6.3**
PIEDMONT	KORNBOW LAKE	18-27-4-(1.5)	September 30, 2008	CPF138A6	7.5	23.3	6.6	88.0%	6.2	3.1	3.3											3.9	5.8
					7.5	**23.3**	**6.6**	**88.0%**	**6.2**	**3.1**	**3.3**											**3.9**	**5.8**
				N=	4	4	4	4	4	4	4											4	4
				% EXCEED =	NCE	NCE	NCE	NCE	NCE	NCE	NCE											NCE	NCE

Region	Lake	AU	Date m/d/yr	Sampling Station	SURFACE PHYSICAL DATA DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	SURFACE METALS Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardnes Calculated mg/L
PIEDMONT	MINTZ POND	18-27-4-(1.5)	June 19, 2008	CPF138A8	5.8	26.4	5.9	72.0%	14	3.1	4.3											5.0	no result
					5.8	**26.4**	**5.9**	**72.0%**	**14.0**	**3.1**	**4.3**											**5.0**	**no result**
PIEDMONT	MINTZ POND	18-27-4-(1.5)	July 7, 2008	CPF138A8	5.0	26.4	5.8	62.1%	8	12.0	34.0											5.0	7.9
					5.0	**26.4**	**5.8**	**62.1%**	**8.4**	**12.0**	**34.0**											**5.0**	**7.9**
PIEDMONT	MINTZ POND	18-27-4-(1.5)	August 19, 2008	CPF138A8	6.2	26.9	6.2	77.7%	5	3.1	2.7											4.4	6.5
					6.2	**26.9**	**6.2**	**77.7%**	**5.0**	**3.4**	**2.7**											**4.4**	**6.5**
PIEDMONT	MINTZ POND	18-27-4-(1.5)	September 30, 2008	CPF138A8	5.9	22.6	6.2	68.3%	4.9	17.0	9.8											4.7	7.1
					5.9	**22.6**	**6.2**	**68.3%**	**4.9**	**3.4**	**9.8**											**4.7**	**7.1**
				N=	4	4	4	4	4	4	4											4	4
				% EXCEED =	NCE	NCE	E 50%	NCE	NCE	NCE	E 25%											NCE	NCE

Region	Lake	AU	Date m/d/yr	Sampling Station	SURFACE PHYSICAL DATA DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	SURFACE METALS Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardnes Calculated mg/L
COASTAL PLAIN	WHITE LAKE	18-46-8-1	May 27, 2008	CPF155A	7.9	24.4	4.9	94.6%	2.0	3.1	1.2												
COASTAL PLAIN	WHITE LAKE	18-46-8-1	May 27, 2008	CPF155B	8.0	24.0	4.7	95.1%	1.0	3.1	1.4												
COASTAL PLAIN	WHITE LAKE	18-46-8-1	May 27, 2008	CPF155C	8.0	24.3	4.7	95.6%	1.6	3.1	1.2												
					8.0	**24.2**	**4.8**	**95.1%**	**1.5**	**3.1**	**1.3**												
COASTAL PLAIN	WHITE LAKE	18-46-8-1	June 24, 2008	CPF155A	7.6	27.6	4.7	96.4%	1	3.1	0.5												
COASTAL PLAIN	WHITE LAKE	18-46-8-1	June 24, 2008	CPF155B	7.8	27.6	4.8	99.0%	4	3.1	1.3												
COASTAL PLAIN	WHITE LAKE	18-46-8-1	June 24, 2008	CPF155C	7.7	27.3	4.7	97.2%	1	3.1	1.2												
					7.7	**27.5**	**4.7**	**97.5%**	**1.7**	**3.1**	**1.0**												
COASTAL PLAIN	WHITE LAKE	18-46-8-1	July 29, 2008	CPF155A	7.0	30.1	4.6	92.8%	1.2	3.1	0.5												
COASTAL PLAIN	WHITE LAKE	18-46-8-1	July 29, 2008	CPF155B	7.1	30.0	4.7	94.0%	1.1	3.1	0.5												
COASTAL PLAIN	WHITE LAKE	18-46-8-1	July 29, 2008	CPF155C	7.2	30.1	5.3	95.4%	1.2	3.1	1.1												
					7.1	**30.1**	**4.9**	**94.1%**	**1.2**	**3.1**	**0.7**												
COASTAL PLAIN	WHITE LAKE	18-46-8-1	August 11, 2008	CPF155A	6.8	28.5	4.6	87.7%	1	3.1	0.5												
COASTAL PLAIN	WHITE LAKE	18-46-8-1	August 11, 2008	CPF155B	7.1	28.5	5.2	91.5%	0.5	3.1	0.5												
COASTAL PLAIN	WHITE LAKE	18-46-8-1	August 11, 2008	CPF155C	7.2	28.5	5.1	92.8%	1.1	3.1	0.5												
					7.0	**28.5**	**5.0**	**90.7%**	**0.9**	**3.1**	**0.5**												
COASTAL PLAIN	WHITE LAKE	18-46-8-1	October 2, 2008	CPF155A	8.2	22.3	5.1	94.4%	0.5	3.1	0.5												
COASTAL PLAIN	WHITE LAKE	18-46-8-1	October 2, 2008	CPF155B	8.0	22.6	5.0	92.6%	0.5	3.1	0.5												
COASTAL PLAIN	WHITE LAKE	18-46-8-1	October 2, 2008	CPF155C	8.1	22.9	5.0	94.3%	0.5	3.1	1.0												

APPENDIX B

CAPE FEAR RIVER BASIN LAKES 2008 USE SUPPORT DATA

					8.1	**22.6**	**5.0**	**93.8%**	**0.5**	**3.1**	**0.7**												
				N=	5	5	5	5	5	5	5												
				% EXCEED =	NCE	NCE	NCE	NCE	NCE	NCE	NCE												

Region	Lake	AU	Date m/d/yr	Sampling Station	SURFACE PHYSICAL DATA DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	SURFACE METALS Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardnes Calculated mg/L
COASTAL PLAIN	SINGLETARY LAKE	18-68-17-5-1	May 29, 2008	CPF176D	7.7	24.9	4.1	93.0%	17	3.1	7.2												
COASTAL PLAIN	SINGLETARY LAKE	18-68-17-5-1	May 29, 2008	CPF176E	7.8	24.8	4.2	94.1%	22	3.1	7.5												
COASTAL PLAIN	SINGLETARY LAKE	18-68-17-5-1	May 29, 2008	CPF176F	7.7	25.0	4.1	93.2%	16	6.0	7.2												
					7.7	**24.9**	**4.1**	**93.4%**	**18.3**	**4.1**	**7.3**												
COASTAL PLAIN	SINGLETARY LAKE	18-68-17-5-1	June 30, 2008	CPF176D	7.1	27.9	4.1	90.6%	27	3.1	10.0												
COASTAL PLAIN	SINGLETARY LAKE	18-68-17-5-1	June 30, 2008	CPF176E	7.1	28.1	4.1	90.9%	32	3.1	5.4												
COASTAL PLAIN	SINGLETARY LAKE	18-68-17-5-1	June 20, 2008	CPF176F	7.2	27.7	4.2	91.5%	44	6.0	7.8												
					7.1	**27.9**	**4.1**	**91.0%**	**34.3**	**4.1**	**7.7**												
COASTAL PLAIN	SINGLETARY LAKE	18-68-17-5-1	August 4, 2008	CPF176D	6.2	30.6	4.1	82.9%	7.0	3.1	4.9												
COASTAL PLAIN	SINGLETARY LAKE	18-68-17-5-1	August 4, 2008	CPF176E	6.0	30.2	3.9	79.7%	8.3	3.1	5.1												
COASTAL PLAIN	SINGLETARY LAKE	18-68-17-5-1	August 4, 2008	CPF176F	6.3	30.6	4.0	84.2%	7.4	3.1	5.3												
					6.2	**30.5**	**4.0**	**82.3%**	**7.6**	**3.1**	**5.1**												
COASTAL PLAIN	SINGLETARY LAKE	18-68-17-5-1	August 18, 2008	CPF176D	7.3	28.0	4.0	93.3%	14	3.1	4.3												
COASTAL PLAIN	SINGLETARY LAKE	18-68-17-5-1	August 18, 2008	CPF176E	7.1	27.9	4.0	90.6%	17	3.1	5.2												
COASTAL PLAIN	SINGLETARY LAKE	18-68-17-5-1	August 18, 2008	CPF176F	7.1	27.5	4.0	89.9%	16	3.1	4.8												
					7.2	**27.8**	**4.0**	**91.3%**	**15.7**	**3.1**	**4.8**												
COASTAL PLAIN	SINGLETARY LAKE	18-68-17-5-1	September 29, 2008	CPF176D	7.3	28.0	4.0	93.3%	4.8	3.1	4.7												
COASTAL PLAIN	SINGLETARY LAKE	18-68-17-5-1	September 29, 2008	CPF176E	7.1	27.9	4.0	90.6%	6.5	3.1	4.8												
COASTAL PLAIN	SINGLETARY LAKE	18-68-17-5-1	September 29, 2008	CPF176F	7.1	27.5	4.0	89.9%	9.1	3.1	5.3												
					7.2	**27.8**	**4.0**	**91.3%**	**6.8**	**3.1**	**4.9**												
				N=	5	5	5	5	5	5	5												
				% EXCEED =	NCE	NCE	NCE	NCE	NCE	NCE	NCE												

Region	Lake	AU	Date m/d/yr	Sampling Station	SURFACE PHYSICAL DATA DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	SURFACE METALS Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardnes Calculated mg/L
COASTAL PLAIN	BAY TREE LAKE	18-68-17-1-1	June 24, 2008	CPF155G	7.1	26.8	4.3	88.8%	2	6.0	2.8												
COASTAL PLAIN	BAY TREE LAKE	18-68-17-1-1	June 24, 2008	CPF155I	6.8	26.8	4.3	85.1%	2	3.1	4.3												
					7.0	**26.8**	**4.3**	**87.0%**	**2.0**	**4.6**	**3.6**												
COASTAL PLAIN	BAY TREE LAKE	18-68-17-1-1	July 29, 2008	CPF155G	7.0	30.0	4.1	92.6%	4	3.1	4.2												
COASTAL PLAIN	BAY TREE LAKE	18-68-17-1-1	July 29, 2008	CPF155I	7.1	28.8	4.1	92.0%	4	3.1	4.2												
					7.1	**29.4**	**4.1**	**92.3%**	**4.4**	**3.1**	**4.2**												
COASTAL PLAIN	BAY TREE LAKE	18-68-17-1-1	August 18, 2008	CPF155G	7.8	26.4	4.2	96.9%	6.2	3.1	3.8												
COASTAL PLAIN	BAY TREE LAKE	18-68-17-1-1	August 18, 2008	CPF155I	7.6	26.2	4.3	94.0%	4.6	3.1	3.7												
					7.7	**26.3**	**4.3**	**95.5%**	**5.4**	**3.4**	**3.8**												
COASTAL PLAIN	BAY TREE LAKE	18-68-17-1-1	October 2, 2008	CPF155G	7.8	23.4	4.4	91.6%	3.8	9.5	19.0												
COASTAL PLAIN	BAY TREE LAKE	18-68-17-1-1	October 2, 2008	CPF155I	8.0	23.2	4.5	93.6%	6.3	12.0	23.0												
					7.9	**23.3**	**4.5**	**92.6%**	**5.1**	**3.4**	**21.0**												
				N=	4	4	4	4	4	4	4												
				% EXCEED =	NCE	NCE	NCE	NCE	NCE	NCE	NCE												

Region	Lake	AU	Date m/d/yr	Sampling Station	SURFACE PHYSICAL DATA DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	SURFACE METALS Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardnes Calculated mg/L
COASTAL PLAIN	JONES LAKE	18-46-7-1	May 29, 2008	CPF1552A	7.0	23.7	4.1	82.7%	1	3.1	2.5												
COASTAL PLAIN	JONES LAKE	18-46-7-1	May 29, 2008	CPF1553A	7.2	23.4	4.1	84.6%	1	3.1	3.3												
					7.1	**23.6**	**4.1**	**83.7%**	**1.0**	**3.1**	**2.9**												
COASTAL PLAIN	JONES LAKE	18-46-7-1	June 25, 2008	CPF1552A	6.5	29.3	4.2	85.0%	4	3.1	2.5												
COASTAL PLAIN	JONES LAKE	18-46-7-1	June 25, 2008	CPF1553A	6.4	29.6	4.1	84.1%	3	3.1	3.3												
					6.5	**29.5**	**4.2**	**84.6%**	**3.5**	**3.1**	**2.9**												
COASTAL PLAIN	JONES LAKE	18-46-7-1	July 15, 2008	CPF1552A	6.2	28.8	3.8	80.4%	8	6.0	7.9												
COASTAL PLAIN	JONES LAKE	18-46-7-1	July 15, 2008	CPF1553A	6.6	28.8	3.6	85.5%	11	3.1	7.2												
					6.4	**28.8**	**3.7**	**83.0%**	**9.5**	**3.4**	**7.6**												
COASTAL PLAIN	JONES LAKE	18-46-7-1	September 10, 2008	CPF1552A	6.5	27.9	3.8	82.9%	0.5	3.1	1.3												
COASTAL PLAIN	JONES LAKE	18-46-7-1	September 10, 2008	CPF1553A	6.6	28.1	3.9	84.5%	1.2	3.1	1.2												
					6.6	**28.0**	**3.9**	**83.7%**	**0.9**	**3.4**	**1.3**												
COASTAL PLAIN	JONES LAKE	18-46-7-1	September 24, 2008	CPF1552A	7.5	21.9	3.7	85.6%	1.5	3.1	2.9												
COASTAL PLAIN	JONES LAKE	18-46-7-1	September 24, 2008	CPF1553A	7.5	21.9	4.1	85.6%	1.6	3.1	2.9												
					7.5	**21.9**		**85.6%**	**1.6**	**3.4**	**2.9**												
				N=	5	5	5	5	5	5	5												
				% EXCEED =	NCE	NCE	NCE	NCE	NCE	NCE	NCE												

APPENDIX B

CAPE FEAR RIVER BASIN LAKES 2008 USE SUPPORT DATA

					SURFACE PHYSICAL DATA											SURFACE METALS							
Region	Lake	AU	Date m/d/yr	Sampling Station	DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardnes Calculated mg/L
COASTAL PLAIN	SALTERS LAKE	18-44-4	June 25, 2008	CPF153C	7.4	30.1	4.1	98.1%	16	3.1	7.7												
COASTAL PLAIN	SALTERS LAKE	18-44-4	June 25, 2008	CPF153D	7.5	30.2	4.1	99.6%	9	3.1	6.8												
					7.5	**30.2**	**4.1**	**98.9%**	**12.5**	**3.1**	**7.3**												
COASTAL PLAIN	SALTERS LAKE	18-44-4	July 15, 2008	CPF153C	6.7	28.6	3.8	86.5%	26	3.1	5.0												
COASTAL PLAIN	SALTERS LAKE	18-44-4	July 15, 2008	CPF153D	6.5	28.6	3.6	83.9%	11	6.0	9.5												
					6.6	**28.6**	**3.7**	**85.2%**	**18.5**	**4.6**	**7.3**												
COASTAL PLAIN	SALTERS LAKE	18-44-4	August 20, 2008	CPF153C	7.5	28.5	4.1	96.7%	4.7	3.1	2.9												
COASTAL PLAIN	SALTERS LAKE	18-44-4	August 20, 2008	CPF153D	7.4	28.4	4.1	95.2%	5.2	3.1	2.4												
					7.5	**28.5**	**4.1**	**96.0%**	**5.0**	**3.4**	**2.7**												
COASTAL PLAIN	SALTERS LAKE	18-44-4	September 24, 2008	CPF153C	7.8	21.7	3.8	88.7%	12	3.1	5.3												
COASTAL PLAIN	SALTERS LAKE	18-44-4	September 24, 2008	CPF153D	8.1	21.7	4.0	92.1%	12	3.1	6.6												
					8.0	**21.7**	**3.9**	**90.4%**	**12.0**	**3.4**	**6.0**												
				N=	4	4	4	4	4	4	4												
				% EXCEED =	NCE	NCE	NCE	NCE	NCE	NCE	NCE												

					SURFACE PHYSICAL DATA											SURFACE METALS							
Region	Lake	AU	Date	Sampling Station	DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardnes Calculated mg/L
COASTAL PLAIN	BOILING SPRINGS LAKE	18-85-1-(1)	June 23, 2008	CPFBSL2	6.2	26.7	7.2	77.4%	3.3	3.1	2.5												
COASTAL PLAIN	BOILING SPRINGS LAKE	18-85-1-(1)	June 23, 2008	CPFBSL4	6.8	26.8	7.3	85.1%	2.4	3.1	1.1												
COASTAL PLAIN	BOILING SPRINGS LAKE	18-85-1-(1)	June 23, 2008	SPFBSL6	7.3	27.8	6.8	93.0%	2.0	3.1	1.1												
					6.8	**27.1**	**7.1**	**85.2%**	**2.6**	**3.1**	**1.6**												
COASTAL PLAIN	BOILING SPRINGS LAKE	18-85-1-(1)	July 1, 2008	CPFBSL2	6.6	27.8	6.9	84.0%	2.5	6.5	1.8												
COASTAL PLAIN	BOILING SPRINGS LAKE	18-85-1-(1)	July 1, 2008	CPFBSL4	6.9	28.2	7.4	88.5%	2.1	6.5	1.5												
COASTAL PLAIN	BOILING SPRINGS LAKE	18-85-1-(1)	July 1, 2008	SPFBSL6	7.0	28.8	7.5	90.7%	1.7	6.5	1.0												
					6.8	**28.3**	**7.3**	**87.7%**	**2.1**	**6.5**	**1.4**												
COASTAL PLAIN	BOILING SPRINGS LAKE	18-85-1-(1)	August 7. 2008	CPFBSL2	6.4	31.4	7.2	86.8%	1.9	6.0	1.7												
COASTAL PLAIN	BOILING SPRINGS LAKE	18-85-1-(1)	August 7, 2008	CPFBSL4	6.6	31.6	7.4	89.8%	1.6	3.1	2.7												
COASTAL PLAIN	BOILING SPRINGS LAKE	18-85-1-(1)	August 7. 2008	SPFBSL6	6.6	32.4	7.5	91.0%	1.1	3.1	1.5												
					6.5	**31.8**	**7.4**	**89.2%**	**1.5**	**4.1**	**2.0**												
COASTAL PLAIN	BOILING SPRINGS LAKE	18-85-1-(1)	September 8, 2008	CPFBSL2	6.9	29.2	7.2	90.1%	3.5	3.1	1.9												
COASTAL PLAIN	BOILING SPRINGS LAKE	18-85-1-(1)	September 8, 2008	CPFBSL4	6.9	30.0	7.4	91.3%	4.6	3.1	1.7												
COASTAL PLAIN	BOILING SPRINGS LAKE	18-85-1-(1)	September 8, 2008	SPFBSL6	6.9	29.7	7.5	90.8%	2.3	3.1	2.4												
					6.9	**29.6**	**7.4**	**90.7%**	**3.5**	**3.1**	**2.0**												
COASTAL PLAIN	BOILING SPRINGS LAKE	18-85-1-(1)	October 2, 2008	CPFBSL2	8.3	23.8	7.6	98.3%	3.6	3.1	1.6												
COASTAL PLAIN	BOILING SPRINGS LAKE	18-85-1-(1)	October 2, 2008	CPFBSL4	7.8	23.0	7.7	91.0%	3.2	3.1	2.1												
COASTAL PLAIN	BOILING SPRINGS LAKE	18-85-1-(1)	October 2, 2008	SPFBSL6	8.1	23.8	7.7	95.9%	2.7	3.1	2.3												
					8.1	**23.5**	**7.7**	**95.1%**	**3.2**	**3.1**	**2.0**												
				N=	5	5	5	5	5	5	5												
				% EXCEED =	NCE	NCE	NCE	NCE	NCE	NCE	NCE												

					SURFACE PHYSICAL DATA											SURFACE METALS							
Region	Lake	AU	Date m/d/yr	Sampling Station	DO mg/L	Water Temp C	pH s.u.	Percent DO SAT	Chla µg/L	TSS mg/L	Turbidity NTU	Hg µg/L	Zn µg/L	Pb µg/L	Ni µg/L	Cu µg/L	Cr µg/L	Cd µg/L	As µg/L	Mn µg/L	Fe µg/L	Chloride mg/L	Total Hardnes Calculated mg/L
COSTAL PLAIN	CABIN LAKE	18-74-23-2	May 19, 2008	CPFCL1	7.3	24.3	6.1	87.2%	88	14.0	21.0												
COSTAL PLAIN	CABIN LAKE	18-74-23-2	May 19, 2008	CPFCL2	8.8	23.9	6.0	104.4%	54	6.0	17.0												
COSTAL PLAIN	CABIN LAKE	18-74-23-2	May 19, 2008	CPFCL3	8.0	24.1	5.8	95.2%	34	9.8	15.0												
COSTAL PLAIN	CABIN LAKE	18-74-23-2	May 19, 2008	CPFCL4	7.4	23.2	5.7	86.6%	18	7.2	14.0												
					7.9	**23.9**	**5.9**	**93.4%**	**48.5**	**9.3**	**16.8**												
COSTAL PLAIN	CABIN LAKE	18-74-23-2	June 17, 2008	CPFCL1	7.1	30.3	6.4	94.4%	51	9.2	9.1												
COSTAL PLAIN	CABIN LAKE	18-74-23-2	June 17, 2008	CPFCL2	7.2	30.2	6.2	95.6%	47	8.5	9.4												
COSTAL PLAIN	CABIN LAKE	18-74-23-2	June 17, 2008	CPFCL3	7.3	30.1	6.4	96.8%	48	8.0	9.5												
COSTAL PLAIN	CABIN LAKE	18-74-23-2	June 17, 2008	CPFCL4	7.0	28.4	7.2	90.1%	47	8.0	9.3												
					7.2	**29.8**	**6.6**	**94.2%**	**48.3**	**8.4**	**9.3**												
COSTAL PLAIN	CABIN LAKE	18-74-23-2	July 28, 2008	CPFCL1	5.0	30.1	6.2	66.3%	17	28.0	20.0												
COSTAL PLAIN	CABIN LAKE	18-74-23-2	July 28, 2008	CPFCL2	6.1	30.0	6.4	80.7%	17	3.1	9.7												
COSTAL PLAIN	CABIN LAKE	18-74-23-2	July 28, 2008	CPFCL3	6.4	29.9	6.5	84.6%	19	3.1	8.5												
COSTAL PLAIN	CABIN LAKE	18-74-23-2	July 28, 2008	CPFCL4	6.2	29.3	6.8	81.1%	14	3.1	7.5												
					5.9	**29.8**	**6.5**	**78.2%**	**16.8**	**9.3**	**11.4**												
COSTAL PLAIN	CABIN LAKE	18-74-23-2	August 19, 2008	CPFCL1	6.0	28.1	6.6	76.8%	30	11.0	8.5												
COSTAL PLAIN	CABIN LAKE	18-74-23-2	August 19, 2008	CPFCL2	6.4	27.0	6.6	80.3%	24	8.0	7.8												
COSTAL PLAIN	CABIN LAKE	18-74-23-2	August 19, 2008	CPFCL3	7.5	27.8	6.7	95.5%	30	8.0	6.3												
COSTAL PLAIN	CABIN LAKE	18-74-23-2	August 19, 2008	CPFCL4	7.5	27.6	7.1	95.2%	31	6.0	6.7												
					6.9	**27.6**	**6.8**	**87.0%**	**28.8**	**8.3**	**7.3**												
COSTAL PLAIN	CABIN LAKE	18-74-23-2	September 22, 2008	CPFCL1	6.6	22.1	5.9	75.7%	20	12.0	14.0												
COSTAL PLAIN	CABIN LAKE	18-74-23-2	September 22, 2008	CPFCL2	6.6	22.4	5.8	76.1%	19	7.8	12.0												
COSTAL PLAIN	CABIN LAKE	18-74-23-2	September 22, 2008	CPFCL3	7.0	22.7	5.8	81.2%	24	3.1	12.0												

APPENDIX B

CAPE FEAR RIVER BASIN LAKES 2008 USE SUPPORT DATA

COSTAL PLAIN	CABIN LAKE	18-74-23-2	September 22, 2008	CPFCL4	7.1	22.7	5.9	82.3%	27	8.8	12.0												
					6.8	**22.5**	**5.9**	**78.8%**	**22.5**	**7.9**	**12.5**												
				N=	5	5	5	5	5	5	5												
				% EXCEED =	NCE	NCE	E 40%	E 20%	E 40%	NCE	NCE												