



October 24, 2010  
Electronic Filing (FERC eFiling)

Ms. Kimberly D. Bose  
Secretary  
Federal Energy Regulatory Commission  
888 First Street, NE  
Room 1-A – Dockets Room  
Washington, DC 20427

**BARTLETTS FERRY PROJECT, FERC PROJECT NUMBER P-485-063**  
Study Progress Report

Dear Ms. Bose:

Through this correspondence, in compliance with Federal Energy Regulatory Commission (Commission) Integrated Licensing Process regulations at 18 CFR Part 5 § 5.15(b), and the Commission's March 17, 2010 Study Plan Determination for the Bartletts Ferry Hydroelectric Project, Georgia Power is electronically filing the Bartletts Ferry Project Study Progress Report (Report). The Report is provided in an accompanying filing, in addition to this cover letter filing, and covers the following 8 resource areas.

- Geology and Soils
- Water Resources
- Fish and Aquatic Resources
- Wildlife and Botanical Resources
- Wetlands, Riparian, and Littoral Habitat
- Rare, Threatened, and Endangered Species
- Recreation and Land Use
- Cultural Resources

If you have questions or comments regarding this correspondence filing, please contact me directly at (404) 506-1357 or [gamartin@southernco.com](mailto:gamartin@southernco.com) or Courtenay O'Mara at (404) 506-7219 or [cromara@southernco.com](mailto:cromara@southernco.com).

Sincerely,

A handwritten signature in black ink, appearing to read "G. Martin", written over the word "Sincerely,".

George A. Martin  
Environmental Specialist,  
Hydro Relicensing Project Manager

SERVICE LIST

O. Ben Harris  
GPC VP Land Department  
241 Ralph McGill Blvd., NE  
BIN10150  
Atlanta, GA 30308-374

George A. Martin  
Environmental Specialist  
Hydro Relicensing Project Manager  
GPC Environmental Affairs  
241 Ralph McGill Blvd., NE  
BIN10221  
Atlanta, GA 30308-374

Joel Galt  
Supervisor  
SCG Hydro Services  
241 Ralph McGill Blvd., NE  
BIN 10190  
Atlanta, GA 30308



# Study Progress Report

## Bartletts Ferry Hydroelectric Project FERC Project Number 485

Prepared with  
Southern Company Generation Hydro Services  
and



October 2010

# Contents

---

<b>1.</b>	<b>Introduction.....</b>	<b>1-1</b>
1.1	Objective .....	1-1
1.2	Study Plan .....	1-1
1.3	Schedule.....	1-2
<b>2.</b>	<b>Geology and Soils .....</b>	<b>2-1</b>
2.1	Introduction.....	2-1
2.2	Study Progress .....	2-1
2.3	Variance from Study Plan and Schedule.....	2-3
2.4	Remaining Activities.....	2-3
<b>3.</b>	<b>Water Resources.....</b>	<b>3-1</b>
3.1	Introduction.....	3-1
3.2	Study Progress .....	3-1
3.3	Variance from Study Plan and Schedule.....	3-2
3.4	Remaining Activities.....	3-3
<b>4.</b>	<b>Fish and Aquatic Resources.....</b>	<b>4-1</b>
4.1	Introduction.....	4-1
4.2	Study Progress .....	4-2
4.3	Variance from Study Plan and Schedule.....	4-4
4.4	Remaining Activities.....	4-4
<b>5.</b>	<b>Wildlife and Botanical Resources .....</b>	<b>5-1</b>
5.1	Introduction.....	5-1
5.2	Study Progress .....	5-1
5.3	Variance from Study Plan and Schedule.....	5-2
5.4	Remaining Activities.....	5-2
<b>6.</b>	<b>Wetlands, Riparian, and Littoral Habitat.....</b>	<b>6-1</b>
6.1	Introduction.....	6-1
6.2	Study Progress .....	6-1
6.3	Variance from Study Plan and Schedule.....	6-2
6.4	Remaining Activities.....	6-2
<b>7.</b>	<b>Rare, Threatened, and Endangered Species .....</b>	<b>7-1</b>
7.1	Introduction.....	7-1
7.2	Study Progress .....	7-1
7.3	Variance from Study Plan and Schedule.....	7-2
7.4	Remaining Activities.....	7-2
<b>8.</b>	<b>Recreation and Land Use .....</b>	<b>8-1</b>
8.1	Introduction.....	8-1
8.2	Study Progress .....	8-1
8.3	Variance from Study Plan and Schedule.....	8-3
8.4	Remaining Activities.....	8-3
<b>9.</b>	<b>Cultural Resources .....</b>	<b>9-1</b>
9.1	Introduction.....	9-1
9.2	Study Progress .....	9-1

9.3	Variance from Study Plan and Schedule.....	9-2
9.4	Remaining Activities.....	9-2

**Tables**

1-1	Updated Master Schedule for Study Implementation for the Bartletts Ferry Project.....	1-2
2-1	Preliminary Findings for Selected Attributes from the Shoreline Reconnaissance Survey .....	2-3
8-1	Preliminary Numbers of Recreation Surveys Administered through 13 Events in Spring, Summer, and Early Fall 2010 .....	8-3

**Figures**

1-1	Project Boundary and Surrounding Area .....	1-3
-----	---	-----

# Acronyms and Abbreviations

---

ADCNR	Alabama Department of Conservation and Natural Resources
APE	Area of Potential Effect
CFR	Code of Federal Regulations
Commission	Federal Energy Regulatory Commission
DO	Dissolved oxygen
FERC	Federal Energy Regulatory Commission
ft	Feet, foot
FWS	U.S. Fish and Wildlife Service
g	Gram
GDNR	Georgia Department of Natural Resources
GIS	Geographic Information System
GPS	Global Positioning System
m	Meter
NRHP	National Register of Historic Places
PAD	Pre-Application Document
PD	Plant datum
PLP	Preliminary Licensing Proposal
RSP	Revised Study Plan
RTE	Rare, Threatened, and Endangered
SHPO	State Historic Preservation Officer
SPD	Study Plan Determination
WRD	Wildlife Resources Division

# 1. Introduction

---

Georgia Power Company (Georgia Power) is filing with the Federal Energy Regulatory Commission (Commission or FERC) its Study Progress Report as part of the relicensing of the existing 173-megawatt Bartletts Ferry Hydroelectric Project (FERC No. 485) (Bartletts Ferry Project, the Project). The Bartletts Ferry Project consists of a dam, two powerhouses, and a reservoir (also known as Lake Harding) located on the Chattahoochee River along the Georgia-Alabama border in Harris County, Georgia, and Lee and Chambers Counties, Alabama (Figure 1-1).

## 1.1 Objective

Pursuant to the Commission's regulations at 18 Code of Federal Regulations (CFR) § 5.15(b), this Study Progress Report provides updates on the implementation of eight studies included in the approved study plan for the Bartletts Ferry Project. These reports describe overall progress in completing the study activities, summarize preliminary findings as available, and explain any variance from the study plan and schedule.

## 1.2 Study Plan

The approved study plan for the Bartletts Ferry Project consists of Georgia Power's Revised Study Plan (RSP) and the Study Plan Determination (SPD) issued by FERC's Director of the Office of Energy Projects (Director).

Georgia Power filed its RSP with the Commission on February 18, 2010. The RSP included eight resource study plans. On March 17, 2010, the Director issued an SPD. The SPD approved the RSP with modifications to five of the study plans and added a ninth staff-recommended study plan to address project operations and drought management.

The FERC-approved study plan includes the following nine studies:

- Geology and Soils
- Water Resources
- Fish and Aquatic Resources
- Wildlife and Botanical Resources
- Wetlands, Riparian, and Littoral Habitat
- Rare, Threatened, and Endangered Species
- Recreation and Land Use
- Cultural Resources
- Project Operations and Drought Management Plan Study

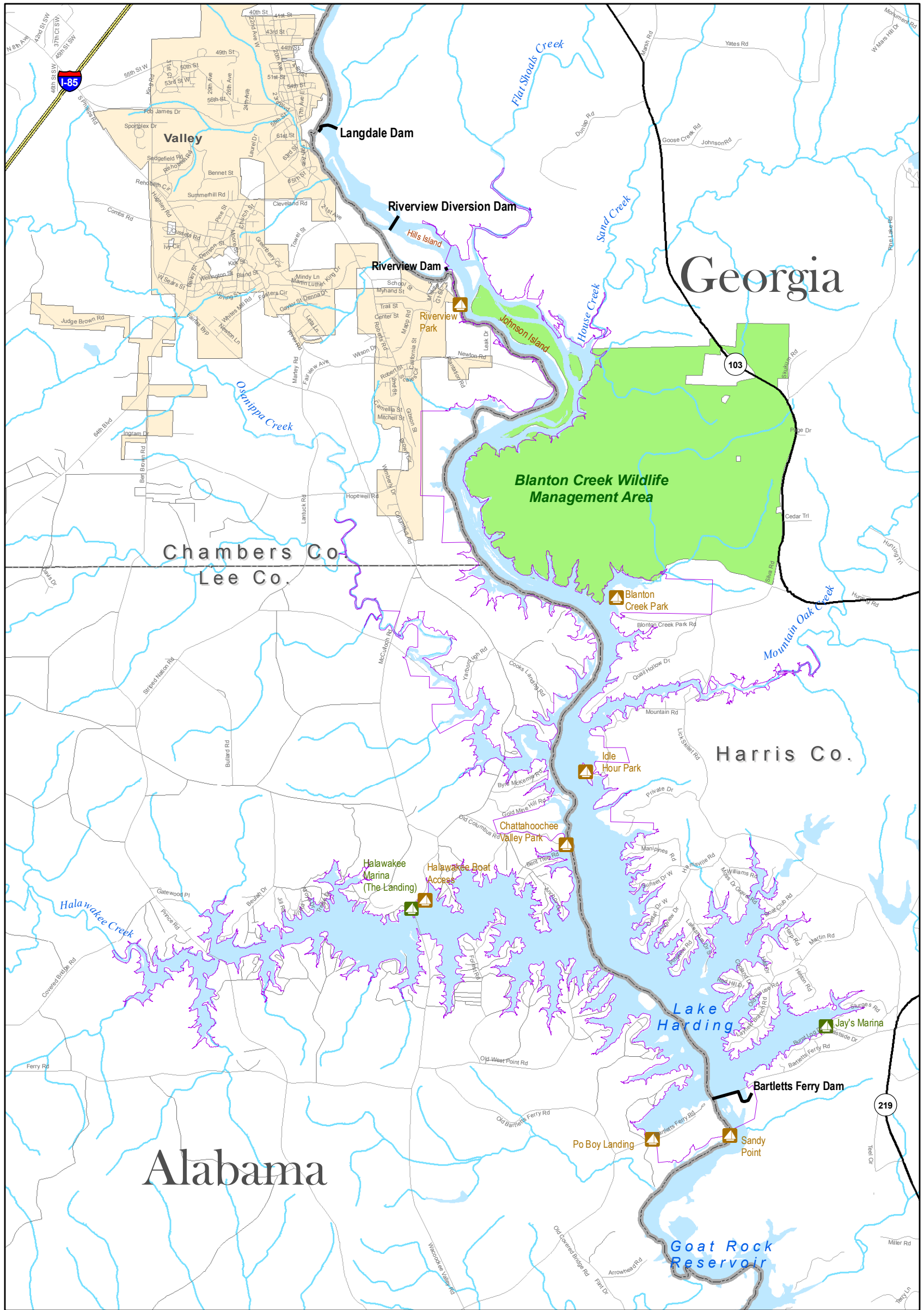
This Study Progress Report summarizes the progress made in implementing the first eight studies listed, as modified by the SPD. Georgia Power filed its progress report for the staff-recommended Project Operations and Drought Management Plan Study (ninth study) on July 29, 2010, in accordance with the schedule set forth for that study in the SPD.

## 1.3 Schedule

The updated master schedule in Table 1-1 provides current estimated completion dates for all field studies, deadlines for filing Study Reports, and the revised dates for the Study Results Meetings. On August 25, 2010, the Commission approved Georgia Power's request to change the filing date for the Bartletts Ferry study reports from January 18, 2011, to March 17, 2011. This change required other minor adjustments in schedule, such as the dates for the Study Results Meetings and associated comment deadlines, but does not affect filing of the license application by December 14, 2012.

TABLE 1-1  
Updated Master Schedule for Study Implementation for the Bartletts Ferry Project

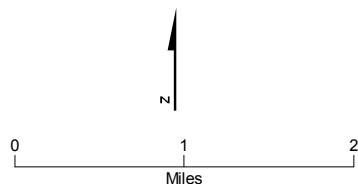
Activity	Completion Date or Deadline
<b>Field Studies</b>	
Geology and Soils	October 1, 2010
Water Resources	September 30, 2010
Fish and Aquatic Resources	October 29, 2010
Wildlife and Botanical Resources	October 29, 2010
Wetland, Riparian, and Littoral Habitats	October 29, 2010
Rare, Threatened, and Endangered Species	October 29, 2010
Recreation and Land Use	January 7, 2011
Cultural Resources	October 29, 2011
<b>Study Progress Reports Filed</b>	
Project Operations and Drought Management Plan Study	July 29, 2010
All Other Studies	October 26, 2010
<b>Final Study Reports Filed</b>	March 17, 2011
<b>Study Results Meetings</b>	March 30-April 1, 2011
<b>File Study Results Meeting Summary</b>	April 18, 2011
<b>File Study Results Meeting Summary Disagreements and/or Modified or New Study Requests</b>	May 18, 2011
<b>File Response to Study Results Meeting Summary Disagreements and/or Modified or New Study Requests</b>	June 17, 2011
<b>FERC Resolves Disagreements (and modifies Study Plans if necessary)</b>	July 18, 2011



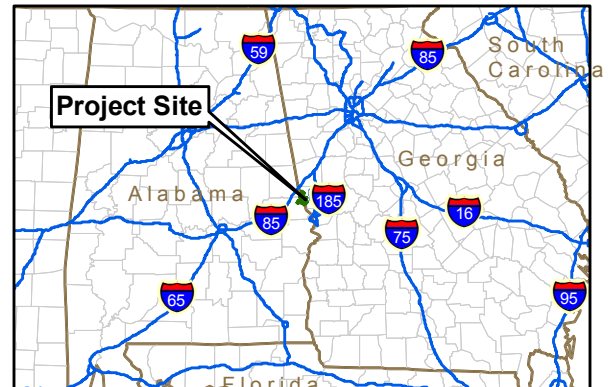
- Notes:
1. Georgia/Alabama State Boundary source USGS
  2. FERC Project Boundary source Georgia Power
  3. Basemap data source ESRI 2006
  4. Blanton Creek WMA source Georgia DNR

**LEGEND**

- |                             |                        |                      |
|-----------------------------|------------------------|----------------------|
| — FERC Project Boundary     | — GA/AL State Boundary | ■ Incorporated Areas |
| — Dam                       | — County Boundary      | ■ Blanton Creek WMA  |
| — River or Stream Channel   | — Interstate Highway   | — US Highway         |
| — Lake                      | — State Highway        | — County Road        |
| ▲ Private Recreation Access | — Local Road           |                      |
| ▲ Public Recreation Access  |                        |                      |



**VICINITY MAP**



**Figure 1-1**  
**Project Boundary and Surrounding Area**  
 Bartletts Ferry Project (FERC No. 485)

## 2. Geology and Soils

---

### 2.1 Introduction

Georgia Power is conducting a study to characterize existing erosion and sedimentation conditions within the Bartletts Ferry Project boundary and to develop information for analyzing the potential effects of continued project operation on geology and soils. The study is being conducted according to the study plan for the Bartletts Ferry Project approved by FERC on March 17, 2010. The results of the study will be presented in a Geology and Soils Study Report, which Georgia Power will file with the Commission by March 17, 2011. Georgia Power will use the information generated by the study to evaluate the environmental effects of its proposed action in the Preliminary Licensing Proposal (PLP), to be filed with the Commission by November 21, 2011.

The specific objective of the study is to characterize the distribution and sources of erosion and sedimentation within the FERC project boundary based on a shoreline field reconnaissance survey and review and analysis of existing information and aerial photography.

### 2.2 Study Progress

#### 2.2.1 Activities Completed

##### Shoreline Reconnaissance Survey

The following activities were completed to inventory and characterize existing sources of erosion and sedimentation within the project boundary:

- Prepared a Geographic Information System (GIS) shapefile defining 500-foot (ft) shoreline segments for the entire Bartletts Ferry reservoir for use in selecting sites for the shoreline reconnaissance survey.
- Partitioned the reservoir into three sections (upper mainstem, lower mainstem, and Halawakee Creek embayment) for stratified random selection of 500-ft shoreline segments for the shoreline reconnaissance survey.
- A total of 62 shoreline segments were selected for the shoreline reconnaissance survey, as follows:
  - First, shoreline segments were selected at all six public recreation access areas on the project reservoir.
  - Next, shoreline segments were randomly selected to include 20 total segments (including public access areas) in each of the three sections of the reservoir and 2 segments in the tailrace area (62 total 500-ft shoreline sites).
  - Some shoreline segments were repositioned to coincide with nearby areas sampled for fish as part of the Fish and Aquatic Resources Study (Section 4).

- If a randomly selected site was judged to be relatively inaccessible by either boat or foot, another site number was randomly generated to replace it.
- Determined and tabulated the geographic coordinates of the mid-point of each selected shoreline site using the GIS.
- Completed a shoreline reconnaissance survey of the 62 selected shoreline segments on September 27 and 28, 2010. Each site was evaluated and rated using the visual shoreline assessment protocol as described in the study plan. Digital photographs were taken at each shoreline survey site. All field studies have been completed.
- Began analyzing shoreline reconnaissance survey findings, including characterization of shoreline buffer zone conditions; ratings of bank stability and bank vegetative protection; shoreline structural stabilization practices; potential sources of active shoreline erosion; and sources of littoral zone fish cover.

### **Analysis of Existing Information and Data**

The following activities were conducted for characterizing the effects of continued project operation on shoreline conditions within the project boundary:

- Obtained 2010 aerial photography of project area for use in shoreline temporal change analysis.
- Identified and obtained reasonably available aerial photography of the project area for several years dating back to completion of the east powerhouse in 1986. This imagery has been compiled and screened for use in qualitatively characterizing temporal change in shoreline conditions. Available imagery from the years 1988, 1993, 1999, and 2010 has been selected for use.
- Reviewed existing literature dealing with shoreline structural stabilization practices, including preliminary findings of a study assessing littoral zone aquatic habitats associated with various shoreline structural stabilization practices in use at Alabama Power Company's (Alabama Power's) Martin Hydroelectric Project in Alabama.

## **2.2.2 Preliminary Findings**

### **Shoreline Reconnaissance Survey**

- Shoreline vegetative buffer zone condition ratings and bank stability ratings for the 62 shoreline sites are presented in Table 2-1. Of the 62 sites assessed, 28 (45 percent) were characterized by natural vegetative conditions, 23 (37 percent) were landscaped, and 11 (18 percent) had a mix of landscaped and natural vegetative conditions. Sixty of the assessed sites (97 percent) were characterized by stable or moderately stable banks.
- Shoreline structural stabilization practices, including seawalls, riprap, and combinations thereof, were observed at 35 of the 62 shoreline sites (56 percent). The majority of these sites were located in the lower mainstem reservoir and the Halawakee Creek embayment. Structural stabilization practices were observed at only 2 of 20 sites in the more naturally vegetated upper mainstem reach of the reservoir.

TABLE 2-1  
Preliminary Findings for Selected Attributes from the Shoreline Reconnaissance Survey

Attribute and Rating	Number of Sites with Rating				Total
	Upper Reservoir (20 sites)	Lower Reservoir (20 sites)	Halawakee Creek Embayment (20 sites)	Tailrace (2 sites)	
<b>Shoreline Vegetative Buffer Zone Condition:</b>					
Natural	17	3	6	2	28
Landscaped-Natural	2	5	4	--	11
Landscaped	1	12	10	--	23
<b>Bank Stability:</b>					
Stable	18	13	17	2	50
Moderately Stable	2	5	3	--	10
Moderately Unstable	--	2	--	--	2
<b>Shoreline Structural Stabilization Practices:</b>					
Present	2	17	15	1	35
Absent	18	3	5	1	27

## 2.3 Variance from Study Plan and Schedule

- There has been no variance to date from the study plan or schedule.

## 2.4 Remaining Activities

- Complete analysis of shoreline reconnaissance survey results.
- Prepare color copies of photographs taken at each shoreline survey site.
- Complete aerial photography review of temporal changes in shoreline conditions.
- Complete evaluation of operational data characterizing maximum and minimum reservoir fluctuations during normal, dry, and wet inflow periods.
- Complete analysis of existing information and data relative to the effects of project operations and current shoreline structural stabilization practices on shoreline erosion and sedimentation and littoral zone aquatic habitats.
- Prepare the Geology and Soils Study Report.

## 3. Water Resources

---

### 3.1 Introduction

Georgia Power is conducting a study to characterize existing water resources in the Chattahoochee River at the Bartletts Ferry Project, including water use, availability, and water quality, and evaluating potential impacts to water resources associated with continued project operation. The study is being conducted according to the study plan for the Bartletts Ferry Project approved by FERC on March 17, 2010. The results of the study will be presented in a Water Resources Study Report, which Georgia Power will file with the Commission by March 17, 2011. Georgia Power will use the information generated by the study to evaluate the environmental effects of its proposed action in the PLP, to be filed with the Commission by November 21, 2011.

The specific objectives of the Water Resources Study are to:

- Characterize water use, availability, and water quality in the Bartletts Ferry study area.
- Characterize the effects of continued project operation on water quality in the project reservoir and the tailrace area immediately downstream of the dam.
- Review the substantial water resources information and data available for the Chattahoochee River, along with findings of Georgia Power's water quality monitoring in the project waters, to evaluate the effects of continued project operations on water quality, particularly water temperature and dissolved oxygen (DO), and the effects of water use on water supply/withdrawals and wastewater assimilation in project-affected waters.

### 3.2 Study Progress

#### 3.2.1 Activities Completed

##### Monthly Water Quality Monitoring in Reservoir and Tailrace

- Conducted monthly water quality monitoring in the project reservoir and tailrace, including vertical profile measurements at 9 locations and analysis of 22 water chemistry parameters in surface grab samples (1 meter [m] depth) at 7 locations.
- Began compiling monthly monitoring results from 2009 and 2010 into a database for summary and analysis.

##### Hourly Monitoring Reservoir during Summer Peaking Event

- Completed one sampling event in August 2010 (concurrent with tailrace monitoring) to measure vertical profiles of DO and water temperature hourly at eight reservoir locations during a summer hydropower peaking cycle with normal water levels and representatively hot weather conditions. Georgia Power and Georgia Department of

Natural Resources (GDNR) Wildlife Resources Division (WRD) personnel jointly conducted the sampling.

### **Continuous Monitoring of DO and Water Temperature in Tailrace**

- Conducted continuous DO and water temperature monitoring in the Bartletts Ferry tailrace area (Station GR01) in summer 2010.
- Began compiling continuous monitoring data from June 2008 through the present for summary and analysis.

### **Hourly Monitoring of Tailrace during Summer Peaking Events**

- Consulted with WRD, U.S. Environmental Protection Agency, and U.S. Fish and Wildlife Service (FWS) in June-July 2010 on the detailed scope of tailrace DO monitoring during summer peaking operations. The agencies concurred with the survey approach.
- Completed six tailrace DO surveys during summer peaking operations at Bartletts Ferry dam in July-September 2010 during representatively hot summer weather. Vertical profiles were measured hourly along three transects representing the west tailrace channel, the east tailrace channel, and the approximate downstream extent of the project boundary.
- Began compiling and analyzing the data for characterizing variation in tailrace water quality during normal summer peaking operations and to support the analysis of Gulf striped bass summer habitat as part of the Fish and Aquatic Resources Study.

### **Analysis of Information and Data**

- Compiled real-time operational data from both powerhouses available since 2008.
- Began aligning continuous DO and water temperature monitoring data from the tailrace with real-time operational data to identify and isolate operational conditions during summer critical periods. Aligning these data will allow the detection of influences from the separate powerhouses on summer DO and water temperature conditions in the tailrace area.

### **3.2.2 Preliminary Findings**

- Data compilation and analysis for all monitoring activities are ongoing.

## **3.3 Variance from Study Plan and Schedule**

- The only variance to date from the study plan and schedule involves the completion of a seventh tailrace monitoring event during summer peaking operations as described below:
  - FERC's SPD modified the study plan for tailrace DO monitoring of summer peaking events to increase the number of sampling events to 7 days, occurring anytime during the summer critical period: June through September. Georgia Power completed six sampling events through mid-September in close collaboration with WRD biologists. However, declining basin inflows and declining air temperatures in the latter half of September precluded the completion of a seventh monitoring event.

Flows were inadequate for a sustained peaking event and hot summer conditions were no longer present. Thus, a seventh monitoring event could not be completed by September 30, 2010, as projected in the master schedule (Table 1-1).

### 3.4 Remaining Activities

- Compile and complete analysis of monthly water quality monitoring data for the project reservoir and tailrace collected from 2009 through 2010.
- Compile and complete analysis of continuous DO and water temperature data for the project tailrace area collected from June 2008 through the present.
- Complete analysis of real-time operational data and contemporaneous water quality data collected in the tailrace to evaluate the relationship between reservoir water quality, project operations at the two powerhouses, and the combined effect on summer DO and temperature values recorded in the tailrace.
- Complete literature review of relevant water resources information and data available for the project area since preparation of the Pre-Application Document (PAD).
- Prepare the Water Resources Study Report.
- As directed in FERC's SPD, file with the Commission copies of the requested documents from the Middle Chattahoochee Project relicensing proceeding.

# 4. Fish and Aquatic Resources

---

## 4.1 Introduction

Georgia Power is conducting a study to characterize the existing fish and aquatic resources in the Bartletts Ferry Project waters and to develop aquatic resource information for evaluating the potential impacts of continued project operation on the fish and aquatic resources of the Chattahoochee River. The study is being conducted according to the study plan for the Bartletts Ferry Project approved by FERC on March 17, 2010. The results of the study will be presented in a Fish and Aquatic Resources Study Report, which Georgia Power will file with the Commission by March 17, 2011. Georgia Power will use the information generated by the study to evaluate the environmental effects of its proposed action in the PLP, to be filed with the Commission by November 21, 2011.

The specific objectives of the Fish and Aquatic Resources Study are to:

- Conduct field surveys characterizing representative aquatic habitats and the species composition, relative abundance, and habitat use of fish communities in free-flowing habitats within the project boundary, including the Riverview shoals area at the upstream end of the Project, the lower free-flowing reaches of tributaries within and adjacent to the project boundary, and the Bartletts Ferry tailrace area.
- Evaluate the occurrence and habitat use of shoal bass within the project boundary and tailrace area, and the potential effects of continued project operation on shoal bass habitat.
- Review the substantial fisheries and aquatic resource information available for Bartletts Ferry reservoir, the Chattahoochee River, and its tributaries to characterize the overall health of the fisheries and evaluate the effects of continued project operation on reservoir and riverine fisheries habitat and fish passage.
- Characterize the availability and location of suitable summer water temperatures and DO levels for Gulf Coast race (Gulf) striped bass in Bartletts Ferry reservoir for evaluating the potential effects of continued project operation on striped bass summer habitat.
- Evaluate the potential for fish entrainment and turbine-induced mortality by applying common trends and data from entrainment field studies completed at numerous other hydroelectric projects to site-specific considerations of the physical, operational, and fisheries characteristics of the Bartletts Ferry Project.
- Conduct field surveys characterizing the occurrence, distribution, relative abundance, and species richness of the native freshwater mussel community, focusing on the most riverine habitats having the potential to support rare, threatened, and endangered (RTE) species of mussels.

## 4.2 Study Progress

### 4.2.1 Activities Completed

#### Shoal Bass and Riverine Fishery Surveys

- Consulted with WRD on the selection of 10 fishery survey sites in the project area, with emphasis on free-flowing habitats potentially suitable for shoal bass and transitional segments between free-flowing and lacustrine conditions; the sampling locations included the following areas:
  - Riverview shoals (headwaters of Bartletts Ferry reservoir)
  - Flat Shoals Creek
  - Bartletts Ferry reservoir next to Blanton Creek Wildlife Management Area
  - House Creek
  - Mountain Oak Creek
  - Osanippa Creek
  - Osanippa Creek embayment
  - Halawakee Creek
  - Bartletts Ferry reservoir across from Halawakee Creek confluence
  - Bartletts Ferry tailrace area
- Consulted with WRD on the selection of one additional fishery survey site on Mulberry Creek to represent known shoal bass spawning habitat in the project vicinity. Mulberry Creek is located outside of the project boundary and flows into the Chattahoochee River about 3.7 miles downstream of Bartletts Ferry dam.
- Completed three fishery survey events in June, July, and September 2010 using either boat-mounted or backpack electrofishing techniques dependent on environmental conditions and accessibility by a crew of at least four collectors supervised by an American Fisheries Society Certified Fisheries Professional and utilizing GDNR standardized methodologies for reservoir and/or wadeable stream assessment.
  - The first survey was conducted June 14-17 and represented a joint effort to compile fish occurrence data and document shoal bass distribution. The second survey was conducted July 16 and 19-21 at stations containing potentially suitable shoal bass habitat. The third and final survey was conducted September 17 and 20-22.
- Compiled fishery survey results into spreadsheet format and began analyzing the data for species composition, distribution, and relative abundance.

#### Shoal Bass Telemetry Survey

- Contracted Dr. Steven Sammons of Auburn University's Department of Fisheries and Allied Aquacultures to conduct the shoal bass telemetry survey for the purpose of documenting habitat use and movement of shoal bass within the project boundary.
- On March 31 and April 1, 2010, 40 shoal bass were collected using electrofishing and surgically implanted with radio tags (Advanced Telemetry Systems) in the main channel of the Chattahoochee River within the headwaters of Bartletts Ferry reservoir. Fish

ranged from 293-535 millimeters in total length and from 239-2,206 grams (g) in weight, and were implanted with 3.6-g radio tags with a 180-day life expectancy.

- Shoal bass were tracked approximately every 7 days beginning April 15, 2010, and have been tracked over a 26-week period as of October 4, 2010. Tracking has been conducted in the Riverview shoals area of Bartletts Ferry reservoir. Additionally, tracking was conducted in Flat Shoals Creek from the Georgia Highway 103 bridge (upstream of the project boundary) downstream to the Chattahoochee River confluence (within the project boundary) on four dates.
- On 7 dates, a subset of shoal bass in the Riverview shoals area was tracked every 2 hours over a 12-hour period to examine the effects of hydropower-peaking discharge from West Point Dam on shoal bass behavior.
- As of October 4, 2010, 29 tagged fish were still at large, 1 fish had been harvested by an angler (and the tag was found to have expired approximately 2 months prior to harvest), 5 fish had died, and 5 fish were missing.
- A survey via airplane has been scheduled for fall 2010 to search for missing tagged shoal bass in the Bartletts Ferry watershed, including tributary streams. Tracking activities are scheduled through December 2010.
- Data analyses will begin in January 2011, with a final report due to Georgia Power by March 4, 2011.

#### **Gulf Striped Bass Summer Habitat Analysis**

- Compiled and screened summer vertical profile data collected at multiple sites in Bartletts Ferry reservoir for the purpose of characterizing summer adult striped bass habitat availability. The data include:
  - Summer vertical profile data collected annually from 1992 to 2008
  - Monthly vertical profile data collected in 2009 and 2010
  - Hourly vertical profile data collected over the course of a single peaking event in summer 2010
- Reviewed existing literature on striped bass summer habitat use in southeastern reservoirs, habitat suitability criteria, and the telemetry study on habitat use and movement of Gulf striped bass in Lake Martin, Alabama, currently being conducted for the relicensing of Alabama Power's Martin Project.

#### **Fish Entrainment Evaluation**

- Began gathering primary literature sources of entrainment and mortality information for desktop assessment of the potential for fish entrainment and turbine-induced mortality at each of the project powerhouses.

#### **Freshwater Mussel Surveys**

- Completed mussel surveys in Bartletts Ferry reservoir during a planned maintenance drawdown in October 2009. Mussel surveys were conducted in representative shoreline

habitats of the project reservoir and the lower reaches of tributaries entering the reservoir at 14 locations.

- Began analyzing the fall 2009 mussel survey data for species composition, distribution, and relative abundance.
- Completed a mussel survey of the tailrace area on October 5-6, 2010, in the reach extending from Bartletts Ferry dam about 0.4 river mile downstream into the Goat Rock impoundment, including the area next to Sandy Point landing where a single specimen of the federally threatened purple bankclimber was found in 2001. Invited biologists from WRD, Alabama Department of Conservation and Natural Resources (ADCNR), FWS, and Columbus State University to participate in the survey.

#### **4.2.2 Preliminary Findings**

- Over 40 fish species were collected and identified among the three fishery surveys. Shoal bass were collected at the Riverview shoals, Flat Shoals Creek, and Halawakee Creek sites, as well as at the Mulberry Creek reference site. Additional shoal habitat was identified at both the Mountain Oak Creek and Osanippa Creek sites, but neither area produced any shoal bass in the collections. No shoal bass were collected in the tailrace.
- The October 2009 mussel survey in Bartletts Ferry reservoir and the October 2010 mussel survey in the tailrace area detected the occurrence of several species of native mussels and provided information for characterizing their distribution, habitat use, and relative abundance. No mussel species listed as federal or state endangered or threatened species were collected.

#### **4.3 Variance from Study Plan and Schedule**

- There has been no variance to date from the study plan or schedule.

#### **4.4 Remaining Activities**

- Complete the mussel survey activities in the Riverview shoals area at the upstream end of the project boundary in fall 2010.
- Complete analysis of shoal bass and riverine fishery survey data for species composition and distribution, relative abundance, catch-per-unit-effort, biomass, and length-frequency distributions of key sportfish.
- Complete the shoal bass telemetry study and prepare a study report presenting the data analyses.
- Complete the analysis of Gulf striped bass summer habitat availability for the project reservoir, including volume estimates of suitable habitat for a representative range of summer DO and temperature vertical profile conditions.
- Complete the analysis of Gulf striped bass summer habitat availability for the project tailrace based on the hourly monitoring of tailrace DO during summer peaking events.
- Complete the freshwater mussel surveys in the Riverview shoals area.

- Complete analysis of mussel survey data for species composition, distribution, and relative abundance.
- Complete analysis of existing information and data relative to characterizing existing fish and mussel communities; effects of project operations on fish and aquatic resources; and the potential for fish entrainment and turbine-induced mortality at the project powerhouses.
- Prepare the Fish and Aquatic Resources Study Report.

# 5. Wildlife and Botanical Resources

---

## 5.1 Introduction

Georgia Power is conducting a study to characterize existing wildlife and botanical resources at the Bartletts Ferry Project for use in analyzing the potential effects of continued project operation. The study is being conducted according to the study plan for the Bartletts Ferry Project approved by FERC on March 17, 2010. The results of the study will be presented in a Wildlife and Botanical Resources Study Report, which Georgia Power will file with the Commission by March 17, 2011. Georgia Power will use the information generated by the study to evaluate the environmental effects of its proposed action in the PLP, to be filed with the Commission by November 21, 2011.

The specific objectives of the study are to describe terrestrial wildlife and botanical resources occurring in the project area, including providing lists of representative plant and animal species that use representative upland habitats, and to identify invasive species in these habitats.

## 5.2 Study Progress

### 5.2.1 Activities Completed

#### Review of Existing Information

- Updated lists of breeding bird species documented by the North American Breeding Bird Survey in annual surveys along routes near Bartletts Ferry reservoir in Chambers County, Alabama.
- Obtained checklists of bird species observed by local birders in the project vicinity from the Columbus Audubon Society's Christmas Bird Count.
- Compiled lists of plant, mammal, amphibian, reptile, and bird species potentially occurring in the project area.

#### Field Reconnaissance Survey

- Completed field reconnaissance survey of a study area extending up to 2,000 ft beyond the project boundary between April 26 and 28, 2010.
- Completed a seasonal field survey for the federal candidate species white fringeless orchid (or monkey-faced orchid; *Platanthera integrilabia*) in potentially suitable habitat on August 11, 2010; no individuals of the species were found.
- Prepared lists of plant and animal species observed in upland habitats in the project area and prepared a list of invasive plant species observed.
- Prepared descriptions of dominant vegetative communities observed in the project area.

- Prepared vegetation cover map and estimated areas of various botanical communities occurring within 2,000 ft of the project boundary.

#### Reporting

- Began preparing Wildlife and Botanical Resources Study Report.

#### 5.2.2 Preliminary Findings

- A variety of terrestrial habitats and associated plant and wildlife species occur within 2,000 ft of the project boundary. The predominant land uses in this portion of the middle Chattahoochee River basin are forested in Georgia and low-density residential and forested or pasture in Alabama.

#### 5.3 Variance from Study Plan and Schedule

- There has been no variance to date from the study plan or schedule.

#### 5.4 Remaining Activities

- Complete the compilation of flora and fauna lists, descriptions of vegetative community types, preparation of the vegetative cover map, and a summary of Georgia Power's upland management techniques, including the locations and acreages of each technique, within the project boundary.
- Complete the Wildlife and Botanical Resources Study Report.

# 6. Wetlands, Riparian, and Littoral Habitat

---

## 6.1 Introduction

Georgia Power is conducting a study to characterize existing wetlands, riparian, and littoral habitats at the Bartletts Ferry Project for use in analyzing the potential effects of continued project operation. The study is being conducted according to the study plan for the Bartletts Ferry Project approved by FERC on March 17, 2010. The results of the study will be presented in a Wetlands, Riparian, and Littoral Habitat Study Report, which Georgia Power will file with the Commission by March 17, 2011. Georgia Power will use the information generated by the study to evaluate the environmental effects of its proposed action in the PLP, to be filed with the Commission by November 21, 2011.

The specific study objectives are to describe floodplain, wetlands, and riparian habitats occurring in the project area, including providing lists of representative plant and animal species that use representative habitats, to identify invasive species, and to prepare a map delineating wetland, riparian, and littoral habitat.

## 6.2 Study Progress

### 6.2.1 Activities Completed

#### Review of Existing Information

- Reviewed available published and online data pertaining to National Wetlands Inventory wetlands mapping for the project area.
- Reviewed available published and online data for U.S. Department of Agriculture Natural Resources Conservation Service soil survey mapping for the project area.
- Reviewed historical and current aerial photography for the project area.
- Reviewed recent Clean Water Act Section 404 permitting actions for properties on Bartletts Ferry Reservoir.

#### Field Reconnaissance Survey

- Completed field reconnaissance survey of wetland and aquatic vegetative communities in the project area extending up to 2,000 ft beyond the project boundary between April 26 and 28, 2010.
- Prepared lists of wetland and aquatic plant and animal species observed in project area and prepared list of invasive plant species observed.
- Prepared descriptions of dominant wetland vegetative community types observed in the project area.
- Prepared map of wetland, riparian, and littoral community types occurring within 2,000 ft of the project boundary.

## Reporting

- Began preparing Wetlands, Riparian, and Littoral Habitat Study Report.

### 6.2.2 Preliminary Findings

- Forested, scrub-shrub, and emergent wetlands occur primarily in the lower half of the project reservoir, where embayments and shallow flats are most common.
- Forested wetlands occur throughout the project area and are primarily associated with tributary streams and with islands in the mainstem river.
- Scrub-shrub wetlands typically occur along margins between forested areas and emergent wetlands within the project area.
- Emergent wetlands occur primarily near shorelines and in association with shallow flats and beaver ponds.
- Islands in the Bartletts Ferry reservoir have abrupt shorelines, resulting in few shallow flats and associated wetlands around the islands.

### 6.3 Variance from Study Plan and Schedule

- There has been no variance to date from the study plan or schedule.

### 6.4 Remaining Activities

- Complete compilation of flora and fauna lists and preparation of current vegetative cover map showing wetland and riparian vegetative cover in the project area.
- Complete the Wetlands, Riparian, and Littoral Habitat Study Report.

# 7. Rare, Threatened, and Endangered Species

---

## 7.1 Introduction

Georgia Power is conducting a study to characterize existing federal and state RTE species of plants and wildlife that may be present in the Bartletts Ferry Project area for use in analyzing the potential effects of continued project operation. The study is being conducted according to the study plan for the Bartletts Ferry Project approved by FERC on March 17, 2010. The results of the study will be presented in an RTE Species Study Report, which Georgia Power will file with the Commission by March 17, 2011. Georgia Power will use the information generated by the study to evaluate the environmental effects of its proposed action in the PLP, to be filed with the Commission by November 21, 2011.

The specific study objectives are to:

- List federal and state RTE plant and animal species with known records of occurrence near the Project.
- Identify their habitat requirements.
- Describe distributions and habitat use of RTE species presently occurring near the Project.

## 7.2 Study Progress

### 7.2.1 Activities Completed

#### Review of Existing Information

- Obtained updated information on known occurrences of RTE species in the project vicinity in Harris County, Georgia, and Chambers and Lee Counties, Alabama, from GDNR, ADCNR, and FWS.
- Reviewed other existing sources of information on the occurrence and habitat use of RTE species potentially occurring in the project vicinity.
- Prepared an updated tabular listing of RTE species with known records of occurrence near the Bartletts Ferry Project, their federal or state status, their habitat requirements, and county of known occurrence based on review of existing information sources.
- Analyzed distributions and habitat use of RTE species presently occurring near the Project.

#### Field Surveys

- Completed a field survey of the project area extending up to 2,000 ft beyond the project boundary between April 26 and 28, 2010, concurrent with the field survey activities for

the separate Wildlife and Botanical Resources Study (Section 5) and Wetlands, Riparian, and Littoral Habitat Study (Section 6).

- Completed a seasonal field survey for the federal candidate species white fringeless orchid in potentially suitable habitat on August 11, 2010; no individuals of the species were found.

#### **Reporting**

- Began preparing the RTE Species Study Report.

#### **7.2.2 Preliminary Findings**

- No federally endangered, threatened, or candidate species of plants or wildlife are presently known to occur within the Bartletts Ferry Project boundary.

### **7.3 Variance from Study Plan and Schedule**

- There has been no variance to date from the study plan or schedule.

### **7.4 Remaining Activities**

- Incorporate findings of the fish and freshwater mussel surveys (Section 4) relative to the potential occurrence of RTE aquatic species near the Project.
- Complete the RTE Species Study Report.

# 8. Recreation and Land Use

---

## 8.1 Introduction

Georgia Power is conducting a study characterizing existing recreational use and land use at the Bartletts Ferry Project and to evaluate the potential impacts of continued project operation on these resource areas. The study is being conducted according to the study plan for the Bartletts Ferry Project approved by FERC on March 17, 2010. The results of the study will be presented in a Recreation and Land Use Study Report, which Georgia Power will file with the Commission by March 17, 2011. Georgia Power will use the information generated by the study to evaluate the environmental effects of its proposed action in the PLP, to be filed with the Commission by November 21, 2011.

The specific objectives of the Recreation and Land Use study are to:

- Review existing information to describe recreation, land use, and visual aesthetic qualities in the Bartletts Ferry project area.
- Characterize existing recreational capacity and usage on the Bartletts Ferry reservoir and in the tailrace.
- Assess future recreational demand for the counties adjacent to the Project (Harris, Chambers, and Lee) or near the Project that are experiencing population growth.
- Assess the ability of existing recreation facilities to accommodate future demand and identify potential future capacity issues.
- Characterize existing project and adjacent land uses and evaluate this information in concert with findings from the shoreline reconnaissance survey conducted in the Geology and Soils Study (Section 2).

## 8.2 Study Progress

### 8.2.1 Activities Completed

#### Review of Existing Information

The following activities were conducted for describing existing recreation and land use in the project area:

- Prepared land use map in concert with vegetation cover mapping as part of Wildlife and Botanical Resources Study (Section 5) and estimated areas of various land cover types occurring within 2,000 ft of the project boundary.
- Performed a preliminary review of readily available population projections (to eventually assess future recreational demand) for the counties adjacent to the Project (Harris, Chambers, and Lee) or near the Project that are experiencing population growth (Russell, Troup, and Muscogee). Existing projections out to 2050 are available for the counties in Georgia from the Georgia Office of Planning and Budget as part of the

Georgia State-wide Water Plan. Projections for the Alabama counties extend through 2035 by the U.S. Census Bureau and Center for Business and Economic Research at the University of Alabama.

### Recreation Field Surveys

The following recreation survey activities were completed to characterize existing use of public recreation areas providing access to project waters:

- Completed 13 of 16 recreation field surveys at 6 public recreation areas, including: Blanton Creek Park and Idle Hour Park in Georgia; and Po' Boys Landing, Halawakee Access, Chattahoochee Valley Park, and Riverview Park in Alabama. Questionnaires were completed by 614 users during the first 13 surveys; an additional 46 surveys were completed by Blanton Creek Park campground users on a random basis and returned to the Park Host.
- Began compiling recreation survey results into a database for summarizing response trends and developing recreation use estimates.
- Reviewed and requested campground information from the Blanton Creek Park campground database, which tracks pavilion, campground, and day use receipts to augment the surveys administered at the Blanton Creek Park boat access area.
- Documented observations regarding the visual aesthetic qualities of each access location via photography.
- Inventoried existing capacity of each access location, noting handicap accessibility and confirmed corresponding ownership, operation & maintenance, and capital improvement responsibilities.

### Interview of Organizations and User Groups

- Developed a survey form and distributed to recreational groups that use Bartletts Ferry reservoir to obtain information on recreational opportunities, use, and user perspectives in the project area. Five organizations have responded to date, including: City of Valley, Alabama; Ducks Unlimited; Jay's Marina; Lake Harding Homeowners Association; and WRD Game Warden.

## 8.2.2 Preliminary Findings

### Recreation Field Surveys

- Table 8-1 summarizes the survey counts per access point for the 13 events completed to date. Of approximately 614 surveys administered, the largest numbers of recreational users have been surveyed at Po' Boys Landing (24 percent), Idle Hour Park (23 percent), and Halawakee Access (21 percent). The lowest numbers have been surveyed at Chattahoochee Valley Park and Blanton Creek Park (about 8 percent each). Blanton Creek Park operates seasonally and charges a user fee for the boat ramp, factors which may contribute to lower relative use. An additional 46 surveys (not listed in Table 8-1) were completed by Blanton Creek Park campground users on a random basis and returned to the Park Host, and these surveys will be added to the analysis.

TABLE 8-1  
Preliminary Numbers of Recreation Surveys Administered through 13 Events in Spring, Summer, and Early Fall 2010

Event	Date	Blanton Creek Park	Idle Hour Park	Chattahoochee Valley Park	Halawakee Boat Access	Po' Boys Landing	Riverview Park	Total
Spring 1	Thursday, 3/25/2010	0	4	1	6	5	7	23
Spring 2	Saturday, 3/27	0	21	1	10	6	20	58
Spring 3	Wednesday, 4/14	0	16	0	9	2	10	37
Spring 4	Sunday, 4/ 18, Holiday	2	8	8	20	21	9	68
Spring 5	Tuesday, 5/25	1	2	1	6	7	6	23
Spring 6	Saturday, 5/29, Holiday	17	6	1	3	14	5	46
Summer 7	Thursday, 6/10	6	2	2	6	9	8	33
Summer 8	Saturday, 7/3	12	29	12	38	34	11	136
Summer 9	Tuesday, 7/20	0	9	7	4	16	6	42
Summer 10	Sunday, 8/15	0	16	3	8	16	5	48
Fall 11	Saturday, 9/4, Holiday	10	11	10	8	8	8	55
Fall 12	Tuesday, 10/5	Closed	1	0	4	5	0	10
Fall 13	Saturday, 10/9	Closed	18	1	8	4	4	35
Fall 14	Tuesday, 11/23	Closed						
Winter 15	Saturday, 12/12/2010	Closed						
Winter 16	Thursday, 1/6/2011	Closed						
<b>Access Point Total</b>		48	143	47	130	147	99	614

### 8.3 Variance from Study Plan and Schedule

- There has been no variance to date from the study plan or schedule.

### 8.4 Remaining Activities

- Conduct three more recreation surveys in November and December 2010 and January 2011.
- Complete compilation and analysis of the recreation survey results with respect to user response trends, current and future visitation, and current use of project waters compared to facility or resource capacity.
- Complete interviews with user groups and organizations and compile results.
- Complete analysis of information and data relative to existing recreation facilities and opportunities in the project area; regionally or nationally important recreation areas in the project vicinity; current and future recreation needs identified in applicable plans; and effects of project operations on recreational use.

- Complete analysis of information and data relative to surrounding land use in the project area; existing shoreline management within the project boundary; and visual characteristics of lands and waters affected by the project.
- Prepare the Recreation and Land Use Study Report.

# 9. Cultural Resources

---

## 9.1 Introduction

Georgia Power is conducting a study to survey the Bartletts Ferry Project shoreline for unknown archeological resources and to research recorded information of known archeological and historical sites at the Project. The study is being conducted according to the study plan for the Bartletts Ferry Project approved by the Commission on March 17, 2010. The results of the study will be presented in two reports, a Historic Hydro-Engineering Study Report and a Historic Properties Study Report, which Georgia Power will file with the Commission by March 17, 2011. Georgia Power will use the information generated by the study to evaluate the effects of its proposed Project in the PLP, to be filed with the Commission by November 21, 2011. The study findings also will serve as the basis for developing the Historic Properties Management Plan for the Project.

Specific objectives of the Cultural Resources Study are to:

- Identify and delineate the area of potential effect (APE).
- Identify known historic resources through literature and site file review.
- Identify presently unknown archeological resources through a terrestrial survey within the project boundary.
- Determine if any historic properties are eligible for listing on the National Register of Historic Places (NRHP).
- Evaluate the potential for effects upon historic resources by the operation of the Project or by activities conducted along the shoreline of the project reservoir.

## 9.2 Study Progress

### 9.2.1 Activities Completed

#### Historic Hydro-Engineering Study

- August-September 2010 – Began background research at Georgia Power archives and State of Georgia Library and Archives.
- October 2010 – Completed photo-documentation of dam, powerhouse, and related structures.

#### Historic Properties Study

- May 2009 – FERC sends letter to federally recognized Indian Tribes requesting consultation on relicensing.
- June 2009 – The Alabama-Coushatta tribe responds to FERC that it would like to consult by conference but is currently under budget restraints and may respond in future.

- October 2009 – The Eastern Band of Cherokee Indians responds to say that it wishes to consult and asks for all study-related materials for review. One week later, in a phone conversation and email with Janet Hutzler (FERC), the tribe acknowledges that it does not consider the area part of its traditional territory and does not wish to consult.
- July 2010 – The Seminole Tribe of Florida responds to say that it does not wish to consult.
- August-September 2009 – Georgia Power develops research design for a proposed drawdown at the Project, concentrating on areas below full pool in the northern part of the project reservoir and attempts to revisit previously recorded sites normally inundated.
- September 2009 – Georgia and Alabama State Historic Preservation Officers (SHPOs) concur with the drawdown research design.
- October-November 2009 – Brockington & Associates (Brockington), a professional cultural resources consulting firm, conducts drawdown/shoreline survey and also covers some of the upland areas identified in study plan.
- March 2010 – Upon issuance of the SPD by FERC, Georgia Power sends letters to Georgia and Alabama SHPOs asking for formal concurrence with proposed APE.
- April 2010 – Georgia SHPO concurs with proposed APE.
- July 2010 – Brockington completes survey of upland areas within the project boundary.
- October 2010 – Alabama SHPO concurs with proposed APE.

## 9.2.2 Preliminary Findings

### Historic Properties Study

- Field survey identified 14 new archeological sites and 8 isolated finds of cultural material, and revisited one previously recorded site. Two of the newly recorded sites are being recommended as eligible for inclusion on the NRHP.
- The Bartletts Ferry dam and west (old) powerhouse will be recommended eligible for inclusion on the NRHP.

## 9.3 Variance from Study Plan and Schedule

- There has been no variance to date from the study plan or schedule.
- Drawdown shoreline study proceeded faster than expected due to reservoir/river channel morphology (i.e., not much area below pool capable of containing sites), so some upland portions were also surveyed in the October-November 2009 window.

## 9.4 Remaining Activities

### Historic Hydro-Engineering Study

- Complete the Historic Hydro-Engineering Study Report.

## Historic Properties Study

- Prepare the Historic Properties Study Report for review by Georgia and Alabama SHPOs, Indian Tribes, and the Commission.