

**STUDY PROGRESS REPORT  
FISH AND AQUATIC RESOURCES  
MORGAN FALLS PROJECT (FERC NO. 2237)**

**NOVEMBER 2005**

**1. INTRODUCTION**

Georgia Power is conducting a study to characterize existing fish and aquatic resources in the Morgan Falls Project waters and to develop information for analyzing the potential effects of continued project operation on fish and aquatic resources of the Chattahoochee River. The study is being conducted according to the study plan for the Morgan Falls Project approved by the Federal Energy Regulatory Commission (Commission) on November 26, 2004. The results of the study will be presented in a Fish and Aquatic Resources Study Report, which Georgia Power will distribute to participants and file with the Commission by April 1, 2006. Georgia Power will use the information generated by the study to evaluate the environmental effects of its proposed project in the Preliminary Licensing Proposal, to be filed with the Commission by October 2, 2006.

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 overall health of the fish community in the Morgan Falls impoundment (Bull Sluice Lake), the project tailrace area, and the Chattahoochee River downstream of Morgan Falls dam.
- Review aquatic resources information and data available for the Chattahoochee River to evaluate the effects of continued project operations on the put-grow-and-take trout fishery, warm-water fish populations, and native mussels in the Chattahoochee River downstream of the project.
- 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 Morgan Falls Project.

**2. STUDY PROGRESS**

**2.1 Activities Completed**

**Fishery Surveys**

- Consulted with Georgia Department of Natural Resources Wildlife Resources Division (WRD), National Park Service (NPS), and U.S. Fish and Wildlife Service biologists in selecting downstream sampling locations between tailrace area and Peachtree Creek.

- Completed seasonal fishery surveys of the Morgan Falls impoundment, tailrace area, and two downstream locations on the Chattahoochee River in May and October 2005. WRD and NPS participated in sampling of downstream locations. Locations surveyed are listed below:

Location Number	Description
<b>Morgan Falls impoundment:</b>	
1	Upper project boundary (lower end of Island Ford shoals) to Georgia 400 bridge
2	Georgia 400 bridge to Roswell Road bridge, including Big Creek embayment
3	Roswell Road bridge to Azalea Road where it diverges from river
4	Azalea Road divergence from river to Willeo Creek confluence, including Willeo Creek
5	Willeo Creek confluence to upper entrance to Sullivan Creek embayment, including flats across from Willeo Creek
6	Upper entrance to Sullivan Creek embayment to Morgan Falls dam, including Sullivan Creek embayment and flats
<b>Chattahoochee River between Morgan Falls dam and Peachtree Creek:</b>	
7	Morgan Falls tailrace area
8	Sope Creek to Cochran Shoals, including mouth of Sope Creek and Cochran Shoals
9	Upstream and downstream of Paces Mill boat ramp

- Compiled spring and fall fishery survey results into spreadsheet format for data analysis.
- Began analyzing spring and fall fishery survey data for species composition, distribution, and relative abundance.

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

- Obtained fisheries information from NPS, including: fish species data for two locations on the Chattahoochee River below Morgan Falls dam from fish inventory being conducted by Auburn University within the Chattahoochee River National Recreation Area; interim report on ecological investigations of the exotic Asian rice eel in the Chattahoochee River system by University of Georgia; and information on 1995 collections of highscale shiner (*Notropis hysilepis*), a Georgia threatened species, in Big Creek.
- Summarized benthic macroinvertebrate data collected by Chattahoochee Coldwater Fishery Foundation at several locations on the Chattahoochee River between 1998 and 2004.

- Gathered and reviewed existing information sources for characterizing fish and aquatic resources in the project area.
- Gathered primary literature sources of entrainment and mortality information for desktop assessment of the potential for fish entrainment and turbine-induced mortality at the project powerhouse.

## 2.2 Preliminary Findings

- The spring and fall 2005 fishery surveys reflected species composition similar to historical surveys in the Chattahoochee River as summarized in the Pre-Application Document. No fish species listed as federal or state endangered or threatened species were collected. A preliminary list of fish species collected in the spring and fall surveys is provided below:

Scientific Name	Common Name	Morgan Falls Impoundment	Chattahoochee River below Dam
<i>Lepisosteus osseus</i>	longnose gar		X
<i>Alosa aestivalis</i>	blueback herring	X	X
<i>Dorosoma cepedianum</i>	gizzard shad	X	X
<i>Cyprinus carpio</i>	common carp	X	X
<i>Notemigonus crysoleucas</i>	golden shiner	X	X
<i>Notropis hudsonius</i>	spottail shiner	X	X
<i>Catostomus commersoni</i>	white sucker	X	X
<i>Hypentelium etowanum</i>	Alabama hogsucker	X	X
<i>Minytrema melanops</i>	spotted sucker	X	X
<i>Moxostoma</i> sp. cf. <i>poecilurum</i>	grayfin redhorse	X	X
<i>Scartomyzon lachneri</i>	greater jumprock	X	X
<i>Ameiurus melas</i>	black bullhead		X
<i>Ameiurus nebulosus</i>	brown bullhead		X
<i>Ameiurus platycephalus</i>	flat bullhead	X	
<i>Ictalurus punctatus</i>	channel catfish	X	X
<i>Esox niger</i>	chain pickerel	X	
<i>Oncorhynchus mykiss</i>	rainbow trout	X	X
<i>Salmo trutta</i>	brown trout	X	X
<i>Gambusia holbrooki</i>	eastern mosquitofish	X	
<i>Morone saxatilis</i>	striped bass		X
<i>Lepomis auritus</i>	redbreast sunfish	X	X
<i>Lepomis cyanellus</i>	green sunfish	X	X
<i>Lepomis gulosus</i>	warmouth	X	X
<i>Lepomis macrochirus</i>	bluegill	X	X
<i>Lepomis microlophus</i>	redecor sunfish	X	X
<i>Micropterus cataractae</i>	shoal bass		X
<i>Micropterus punctulatus</i>	spotted bass	X	X
<i>Micropterus salmoides</i>	largemouth bass	X	X
<i>Pomoxis nigromaculatus</i>	black crappie	X	X
<i>Perca flavescens</i>	yellow perch	X	X
<i>Percina nigrofasciata</i>	blackbanded darter		X
<i>Cottus carolinae</i>	banded sculpin	X	

Scientific Name	Common Name	Morgan Falls Impoundment	Chattahoochee River below Dam
<i>Cottus sp. cf. bairdi</i>	mottled sculpin		X
<b>Total Number of Species</b>		<b>26</b>	<b>29</b>

### 3. VARIANCE FROM STUDY PLAN AND SCHEDULE

- There has been no substantive variance to date from the study plan or schedule. Minor adjustments were made in the survey methodology as described below.
- Six locations were sampled in the Morgan Falls impoundment in the spring and fall surveys, rather than five as indicated in the Commission-approved study plan, to ensure adequate sampling of all habitat types.
- Boat-mounted electrofishing was the primary gear type used in the spring and fall fishery surveys of the Morgan Falls impoundment and downstream reach. The use of multiple gear types was limited by habitat accessibility and safety considerations. Seining using quadrant hauls in shoreline sections of the impoundment could not be effectively conducted because of excessive depth, obstructions, and/or lack of safe conditions for wading. Limited seining and backpack electrofishing were conducted at the lower end of Island Ford shoals within the impoundment (Location 1). Backpack electrofishing also was used in the river downstream of the dam in areas safely accessible by wading.

### 4. REMAINING ACTIVITIES

- Complete analysis of spring and fall fishery survey data for species composition and distribution, relative abundance, catch-per-unit-effort, biomass, and length-frequency distributions of key sportfish.
- Complete analysis of existing information and data relative to characterizing existing fish and macroinvertebrate communities; effects of project operations on riverine aquatic habitat downstream of Morgan Falls dam; and the potential for fish entrainment and turbine-induced mortality at the project powerhouse.
- Prepare the Fish and Aquatic Resources Study Report.