



Southern Company Generation.  
241 Ralph McGill Boulevard, NE  
BIN 10193  
Atlanta, GA 30308-3374  
404 506 7219 tel

January 29, 2021

FERC Project No. 2336-094  
Lloyd Shoals Project  
Study Progress Report for 2<sup>nd</sup> Season

Ms. Kimberly D. Bose, Secretary  
Federal Energy Regulatory Commission  
888 First Street, N.E.  
Washington, D.C. 20426

Dear Secretary Bose:

On behalf of Georgia Power Company, Southern Company is filing this letter to provide the second season Study Progress Report for relicensing the Lloyd Shoals Project, in compliance with Federal Energy Regulatory Commission Integrated Licensing Process regulations at 18 C.F.R. 5.15(b). This study progress report provides updates on the overall progress for the Water Resources, American Eel Abundance and Upstream Movements, and Recreation and Land Use studies, all of which continued past the Initial Study Report filed in May 2020 and are ongoing at this time.

The approved Study Plan for the Lloyd Shoals Project consists of Georgia Power's Revised Study Plan (RSP) filed on April 19, 2019, FERC's Study Plan Determination (SPD) issued on May 20, 2019, and two FERC-approved study plan amendments filed by Georgia Power on October 14, 2020 to address agency comments on the Initial Study Report.

If you require further information, please contact me at 404.506.7219.

Sincerely,

A handwritten signature in cursive script that reads "Courtenay R. O'Mara".

Courtenay R. O'Mara, P.E.  
Hydro Licensing and Compliance Supervisor

cc: FERC/OEP – Neetu Deo, Allan Creamer  
Kleinschmidt – Steven Layman, Ph.D.  
Troutman Pepper – Hallie Meushaw



# STUDY PROGRESS REPORT

## SECOND SEASON OF STUDIES

LLOYD SHOALS HYDROELECTRIC PROJECT  
(FERC No. 2336)

*Prepared with:*

**Southern Company Generation Hydro Services**

*and*

**Kleinschmidt**

January 2021

**STUDY PROGRESS REPORT  
LLOYD SHOALS HYDROELECTRIC PROJECT  
(FERC No. 2336)**

**TABLE OF CONTENTS**

1.0	INTRODUCTION .....	1
1.1	OBJECTIVE .....	1
1.2	SCHEDULE.....	2
2.0	WATER RESOURCES .....	3
2.1	INTRODUCTION .....	3
2.2	STUDY PROGRESS .....	3
	2.2.1 ACTIVITIES COMPLETED .....	3
	2.2.2 PRELIMINARY FINDINGS .....	4
2.3	VARIANCE FROM STUDY PLAN AND SCHEDULE .....	4
2.4	REMAINING ACTIVITIES .....	4
3.0	AMERICAN EEL ABUNDANCE AND UPSTREAM MOVEMENTS .....	5
3.1	INTRODUCTION .....	5
3.2	STUDY PROGRESS .....	6
	3.2.1 ACTIVITIES COMPLETED .....	6
	3.2.2 PRELIMINARY FINDINGS .....	6
3.3	VARIANCE FROM STUDY PLAN AND SCHEDULE .....	6
3.4	REMAINING ACTIVITIES .....	6
4.0	RECREATION AND LAND USE .....	7
4.1	INTRODUCTION .....	7
4.2	STUDY PROGRESS .....	8
	4.2.1 ACTIVITIES COMPLETED .....	8
	4.2.2 PRELIMINARY FINDINGS .....	8
4.3	VARIANCE FROM STUDY PLAN AND SCHEDULE .....	8
4.4	REMAINING ACTIVITIES .....	8

**LIST OF TABLES**

TABLE 1-1	SECOND-SEASON STUDY SCHEDULE FOR THE LLOYD SHOALS PROJECT.....	2
-----------	--	---

**STUDY PROGRESS REPORT  
LLOYD SHOALS HYDROELECTRIC PROJECT  
(FERC No. 2336)**

## **1.0 INTRODUCTION**

---

Georgia Power Company (Georgia Power) is filing with the Federal Energy Regulatory Commission (FERC or Commission) this Study Progress Report for the second season of studies for relicensing of the Lloyd Shoals Hydroelectric Project (FERC No. 2336) (Lloyd Shoals Project, the Project). The Lloyd Shoals Project consists of a dam, powerhouse, and 4,750-acre reservoir (Lake Jackson, or Jackson Lake) on the Ocmulgee River in Butts, Henry, Jasper, and Newton Counties, Georgia. Georgia Power is not proposing to make any major modifications to the Project under the new license. The current license expires December 31, 2023.

### **1.1 OBJECTIVE**

Pursuant to the Commission's Integrated Licensing Process regulations at 18 Code of Federal Regulations (CFR) § 5.15(b), this Study Progress Report provides updates on the overall progress in completing the three ongoing resource studies included in the approved Study Plan for the Lloyd Shoals Project: Water Resources, American Eel Abundance and Upstream Movements, and Recreation and Land Use.

The approved Study Plan for the Lloyd Shoals Project consists of Georgia Power's Revised Study Plan (RSP) filed on April 19, 2019, FERC's Study Plan Determination issued on May 20, 2019, and two FERC-approved study plan amendments filed by Georgia Power on October 14, 2020 to address agency comments on the Initial Study Report. The study plan was amended for the American Eel Abundance and Upstream Movements Study and the Recreation and Land Use Study to extend field activities into a second season in 2021. Although the tailrace water quality monitoring activities for the Water Resources Study were completed after one year of study in July 2020, the Initial Study Report included only the data collected through April 2020. Therefore, an Updated Water Resources Study Report is being prepared to present and evaluate the complete set of tailrace monitoring data.

## 1.2 SCHEDULE

The schedule in Table 1-1 provides the planned completion dates for second-season field studies in 2021, deadlines for filing Updated Study Reports, and the date for the Updated Study Results Meeting. The Updated Study Report will be filed as a package of three individual study reports for Water Resources, American Eel Abundance and Upstream Movements, and Recreation and Land Use by May 19, 2021. The Updated Study Report will be followed by an Updated Study Results Meeting on June 3, 2021.

Georgia Power will use the information generated by the resource studies to evaluate the environmental effects of its proposed action in the Preliminary Licensing Proposal (PLP), to be filed with the Commission by August 3, 2021.

**TABLE 1-1 SECOND-SEASON STUDY SCHEDULE FOR THE LLOYD SHOALS PROJECT**

ACTIVITY	START DATE	COMPLETION DATE OR DEADLINE
Conduct Second Season of Field Studies		
American Eel Abundance and Upstream Movements	November 2020	June 2021 <sup>b</sup>
Recreation Surveys	March 15, 2021	April 15, 2021
File Updated Study Report <sup>a</sup>	NA	May 19, 2021
Updated Study Results Meeting	NA	June 3, 2021
File Updated Study Results Meeting Summary	NA	June 18, 2021

NA = not applicable.

<sup>a</sup> Consisting of individual updated study reports for Water Resources, American Eel Abundance and Upstream Movements, and Recreation and Land Use studies.

<sup>b</sup> Because field surveys will extend beyond the Updated Study Report deadline, an updated study report addendum will be filed in August 2021 to present May-June sampling results.

## **2.0 WATER RESOURCES**

---

### **2.1 INTRODUCTION**

Georgia Power is conducting a study to characterize existing water resources in Lake Jackson and the Ocmulgee River below the Lloyd Shoals 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 Lloyd Shoals Project approved by FERC on May 20, 2019. The initial results of the study were presented in the Water Resources Study Report, filed with the Commission as part of the Initial Study Report on May 19, 2020. Georgia Power is preparing an Updated Water Resources Study Report to present continuous tailrace water quality monitoring and monthly water chemistry sampling data collected in May-July 2020. Georgia Power will use the information generated by the Water Resources Study to evaluate the environmental effects of its proposed action in the PLP, to be filed by August 3, 2021.

The specific objectives of the study are to:

- Characterize water use, availability, and water quality in the Lloyd Shoals project study area.
- Characterize the effects of continued project operation on water quality in Lake Jackson and the tailrace area within the project boundary.
- Review the substantial amount of water resources information and data available for the Ocmulgee River, along with the findings of Georgia Power's water quality monitoring in project waters, to evaluate the effects of continued project operation on water quality, including water temperature and dissolved oxygen (DO) concentrations, in Lake Jackson and the tailrace area.

### **2.2 STUDY PROGRESS**

#### **2.2.1 ACTIVITIES COMPLETED**

##### ***Water Quality Monitoring in the Tailrace***

- Completed one year of continuous water quality monitoring in the Lloyd Shoals tailrace area in July 2020. The monitoring buoy recorded measurements of water temperature, DO, conductivity, pH, and turbidity at 15-minute intervals.
- Completed one year of monthly water chemistry sampling in the tailrace area in July 2020, which included six parameters analyzed in grab samples from 1-meter depth.

### ***Tailrace Monitoring Data Analysis***

- Compiled continuous water quality monitoring buoy data and water chemistry data from May-July 2020 for summary and analysis of the complete monitoring data set.
- Began aligning continuous DO data with real-time operational data for the months May-July 2020 to evaluate how turbine operations may have affected water quality in the tailrace area.

#### **2.2.2 PRELIMINARY FINDINGS**

- Data compilation and analysis of the tailrace monitoring data sets are ongoing.

#### **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 the tailrace water quality monitoring data for the one-year period July 2019-July 2020.
- Prepare the Updated Water Resources Study Report (May 2021).

## **3.0 AMERICAN EEL ABUNDANCE AND UPSTREAM MOVEMENTS**

---

### **3.1 INTRODUCTION**

Georgia Power is conducting a study to evaluate the abundance and upstream movements of American Eel (*Anguilla rostrata*) in the Ocmulgee River downstream of Lloyd Shoals Dam. The study is being conducted according to the Study Plan approved by FERC, with staff-recommended modifications, on May 20, 2019, and as modified by the FERC-approved *Proposed Study Plan Amendment for American Eel Abundance and Upstream Movements* filed by Georgia Power on October 14, 2020. The initial study results were presented in the American Eel Abundance and Upstream Movements Study Report, filed as part of the Initial Study Report on May 19, 2020. Georgia Power filed an addendum to the study report on August 7, 2020 to cover sampling data collected in May-July 2020 and supplement the original study report. Based on resource agency consultation, Georgia Power is now conducting a second year of study in accordance with the Study Plan Amendment. An Updated American Eel Abundance and Upstream Movements Study Report will be prepared to present and analyze all data gathered since the beginning of the study in 2019. 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 by August 3, 2021.

The goal of this study is to develop current baseline information on the abundance, life stages, size range, and timing of upstream movements of American Eel that approach Lloyd Shoals Dam within the project boundary. This information will enable the National Marine Fisheries Service and U.S. Fish and Wildlife Service to evaluate whether passage may be needed for American Eel at Lloyd Shoals Dam.

The objectives of this study are to:

- Objective 1 – Identify the life stage and size range of American Eels migrating to Lloyd Shoals Dam.
- Objective 2 – Identify the timing of upstream movements of American Eels migrating to Lloyd Shoals Dam in terms of seasonality and correlation to environmental variables, including discharge, water temperature, and the percent of moon illumination.
- Objective 3 – Calculate indices of abundance of American Eels migrating to the Lloyd Shoals Project.



## **3.2 STUDY PROGRESS**

### **3.2.1 ACTIVITIES COMPLETED**

#### ***Electrofishing and Eel Trapping***

- Conducted electrofishing and nighttime eel trapping monthly from September 2019 to December 2020.
- Conducted nighttime visual surveys from June to December 2020.

#### ***Data Analysis***

- Continued compiling data from eel sampling activities.

### **3.2.2 PRELIMINARY FINDINGS**

- Eel sampling and data compilation and analysis activities are ongoing.
- A total of 51 American Eels have been captured to date via electrofishing, 46 have been implanted with passive integrated transponder (PIT) tags, and one eel has been recaptured.
- Total length of captured eels has ranged from 184 to 575 millimeters.
- Highest catch rates thus far were for backpack electrofishing in July 2020.

## **3.3 VARIANCE FROM STUDY PLAN AND SCHEDULE**

- Sampling could not be conducted in February 2020 due to high river flows.
- Boat and backpack electrofishing were not conducted in April 2020 due to safety concerns associated with COVID-19.
- Backpack electrofishing could not be conducted in March, May, and June 2020 due to high river flows.

## **3.4 REMAINING ACTIVITIES**

- Continue electrofishing, trapping, and visual survey activities through June 2021.
- Continue compiling and analyzing results of American Eel sampling activities.
- Collect and analyze data for environmental variables (river discharge, water temperature, and percent of moon illumination) relative to eel catch for the sampling periods.
- Prepare an Updated American Eel Abundance and Upstream Movements Study Report (May 2021).

## 4.0 RECREATION AND LAND USE

---

### 4.1 INTRODUCTION

Georgia Power is conducting a study to characterize existing recreational use and land use at the Lloyd Shoals 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 Lloyd Shoals Project approved by FERC on May 20, 2019, as amended by the FERC-approved *Proposed Study Plan Amendment for Recreation and Land Use* filed by Georgia Power on October 14, 2020. The initial study results were presented in the Recreation and Land Use Study Report, filed as part of the Initial Study Report on May 19, 2020. Based on resource agency consultation, Georgia Power is rescheduling and completing the final two recreation surveys in spring 2021 to replace the two surveys cancelled in spring 2020 due to the COVID-19 pandemic, in accordance with the Study Plan Amendment. The results of the spring 2021 recreation surveys will be presented in an Updated Recreation and Land Use Study Report to be filed by May 19, 2021. Georgia Power will use the information generated by the Recreation and Land Use Study to evaluate the environmental effects of its proposed action in the PLP, to be filed by August 3, 2021.

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

- Review existing information to describe existing recreation and land use in the Lloyd Shoals project area.
- Characterize the effects of continued project operation on recreational opportunities at the Project.
- Characterize existing recreational capacity and usage on Lake Jackson and in the Lloyd Shoals tailrace area.
- Evaluate the adequacy of existing recreational facilities to meet current and future recreational demand.
- Evaluate the adequacy of the existing Shoreline Management Program to address land use practices, including erosion, and protect environmental resources within the project boundary.

## **4.2 STUDY PROGRESS**

### **4.2.1 ACTIVITIES COMPLETED**

- Based on the continuing spread of COVID-19 in January 2021 and applicable social distancing guidance, Georgia Power has determined that in-person surveys will not be conducted in spring 2021 to protect the safety of its employees, contractors, and the public. Alternatively, in accordance with the Study Plan Amendment, planning is underway for recreation survey activities from March 15 to April 15 to include: visual spot counts of parked vehicles, boats, and recreation users on two days; the use of survey drop boxes with paper survey forms; and the use of an online survey accessible to smartphones from a Quick Response (QR) code posted next to each survey drop box.

### **4.2.2 PRELIMINARY FINDINGS**

- The spring 2021 survey activities are scheduled for March-April.

## **4.3 VARIANCE FROM STUDY PLAN AND SCHEDULE**

- The two recreation surveys originally planned for spring 2020 were cancelled due to COVID-19 restrictions and are being replaced in spring 2021 with a combination of spot counts, survey drop boxes, and an online survey, as described in the Study Plan Amendment.

## **4.4 REMAINING ACTIVITIES**

- Complete visual spot counts of parked vehicles, boats, and users on two days in March-April 2021, one on a weekday and one on a weekend.
- Complete recreation surveys from March 15 to April 15 using on-site drop box survey forms and an online survey form accessible via QR code.
- Complete analysis of all recreation user surveys and user count data collected since the beginning of the study in 2019 to describe user trends, carrying capacity, adequacy of existing facilities, and future needs.
- Prepare an Updated Recreation and Land Use Study Report (May 2021).