



STUDY REPORT ADDENDUM

AMERICAN EEL ABUNDANCE AND UPSTREAM MOVEMENTS

LLOYD SHOALS HYDROELECTRIC PROJECT
(FERC No. 2336)

Prepared with:

Kleinschmidt

Lexington, South Carolina
www.Kleinschmidtgroup.com

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1.0 INTRODUCTION

This report addendum presents additional findings of the American Eel Abundance and Upstream Movements Study conducted for Federal Energy Regulatory Commission (FERC) relicensing of Georgia Power Company's (Georgia Power's) Lloyd Shoals Hydroelectric Project (Lloyd Shoals Project) (FERC No. 2336). This addendum updates the initial study report filed on May 19, 2020 by reporting the results of three additional monthly sampling events conducted in May, June, and July 2020. The additional sampling events were conducted to make up for electrofishing sampling efforts that were cancelled in spring 2020 due to high river flows or Covid-19 health and safety concerns.

The additional study effort was conducted according to the approved study plan for the Lloyd Shoals Project, with some modifications in June and July 2020, as described in Section 2.0 (Methods). Georgia Power will use the information generated by the study to evaluate the environmental effects of its proposed action in the Preliminary Licensing Proposal, to be filed with FERC by July 1, 2021.

2.0 METHODS

Sampling for American Eel was conducted monthly in May-July 2020 in the study area, which was extended to the shoal complex just downstream of the Georgia Highway (Hwy) 16 bridge to improve backpack electrofishing access to shallow-water habitats. Georgia Power has been consulting with the National Marine Fisheries Service and U.S. Fish and Wildlife Service about the study findings and adapting the sampling methods to Covid-19 restrictions and site-specific constraints (Appendix A).

Multiple gear types were used as described below:

- Boat electrofishing followed the same methodology described in the initial study report in that portion of the study area between Lloyd Shoals Dam and the Hwy 16 bridge.
- Backpack electrofishing could not safely be conducted in May or June 2020 due to flow conditions that were unsuitable for wading. Backpack electrofishing was conducted in July 2020 in the shoals immediately downstream of the Hwy 16 bridge.
- Trapping was conducted according to the same methodology described in the initial study report, with the addition of a ramp trap deployed on the west side of the tailrace between the powerhouse and fishing pier.
- The ramp trap consisted of an 8-foot (ft) long by 2.5-ft wide wooden raceway with an ABS strip drain as the climbing substrate. Water supplied from a spigot at the dam was used to keep the ramp wetted and provide an attraction flow at the toe of the ramp (Figures 1 and 2).
- Nighttime observations were performed using flashlights in June and July 2020 to enhance detection of eels migrating to the base of the dam in the tailrace and spillway area. Up to one hour of effort was expended on each occasion.

3.0 RESULTS

A total of 51 American Eel were captured or observed during sampling events in May, June, and July 2020, with 35 captured or observed during the July sampling event. A summary of captures/observations by method is presented in Table 1. Table 2 provides lengths, weights, and passive integrated transponder (PIT) tag identification numbers of individual eels captured by each method from May to July 2020.

4.0 SUMMARY AND CONCLUSIONS

Catch rates of eels by boat and backpack electrofishing were much higher in May to July 2020 compared to the September 2019 to April 2020 period covered in the initial study report. Focusing backpack electrofishing efforts in the shoals below Hwy 16 resulted in the largest catch of eels to date. Flashlight surveys conducted in June and July 2020 resulted in additional detections at the base of the dam.

Georgia Power plans to continue sampling for American Eel monthly at the Lloyd Shoals Project through October 2020 to complete the study. Georgia Power proposes to file a second report addendum by December 2020 to update the final study results.

TABLES

TABLE 1 SUMMARY OF ENVIRONMENTAL AND CAPTURE DATA FROM EEL STUDY SAMPLING EVENTS

Date	Moon (% visible)	Discharge (cfs)	Water Temp. (°C)	Total Eels Captured or Observed			
				Boat	Backpack	Trap	Flashlight
5/29/2020	43	2,440	22.3	10	NSF ¹	0	NA
6/24/2020	12	1,640	26.5	3	NSF ¹	0	3
7/22/2020	4	658	29.7	7	26	1	1

¹ NSF = not sampled due to high flows

TABLE 2 AMERICAN EELS OBSERVED OR CAPTURED IN THE STUDY AREA BETWEEN MAY AND JULY 2020

Date	Method	Length (mm)	Weight (g)	Tag Number	Notes
5/29/2020	Boat	440	181	982F126058800492	
5/29/2020	Boat	575	468	982F126058800489	
5/29/2020	Boat	265	29	982F126058800481	
5/29/2020	Boat	294	38	982F126058800482	
5/29/2020	Boat	450*	NA	NA	Observed/not captured
5/29/2020	Boat	300*	NA	NA	Observed/not captured
5/29/2020	Boat	300*	NA	NA	Observed/not captured
5/29/2020	Boat	300*	NA	NA	Observed/not captured
5/29/2020	Boat	300*	NA	NA	Observed/not captured
6/24/2020	Boat	300*	NA	NA	Observed/not captured
6/24/2020	Boat	300*	NA	NA	Observed/not captured
6/24/2020	Boat	300*	NA	NA	Observed/not captured
6/24/2020	Flashlight	130*	NA	NA	Observed/not captured
6/24/2020	Flashlight	200*	NA	NA	Observed/not captured
6/24/2020	Flashlight	200*	NA	NA	Observed/not captured
7/22/2020	Backpack	292	47	982F126058800418	
7/22/2020	Backpack	345	85	982F126058800467	
7/22/2020	Backpack	268	34	982F126058800421	
7/22/2020	Backpack	267	33	982F126058800448	
7/22/2020	Backpack	231	23	982F126058800493	
7/22/2020	Backpack	295	49	982F126058800487	
7/22/2020	Backpack	212	17	982F126058800496	
7/22/2020	Backpack	212	17	982F126058800466	
7/22/2020	Backpack	335	71	982F126058800476	
7/22/2020	Backpack	433	133	982F126058800451	
7/22/2020	Backpack	278	40	982F126058800429	
7/22/2020	Backpack	277	37	982F126058800416	
7/22/2020	Backpack	208	15	982F126058800468	

Date	Method	Length (mm)	Weight (g)	Tag Number	Notes
7/22/2020	Backpack	414	169	982F126058800439	
7/22/2020	Backpack	460	225	982F126058800419	
7/22/2020	Backpack	418	164	982F126058800460	
7/22/2020	Backpack	541	343	982F126058800437	
7/22/2020	Backpack	184	10	Not tagged	
7/22/2020	Trap	200	16	Not tagged	
7/22/2020	Boat	232	23	982F126058800401	
7/22/2020	Boat	310	60	982F126058800484	
7/22/2020	Boat	358	98	982F126058800406	
7/22/2020	Boat	300*	NA	NA	Observed/not captured
7/22/2020	Boat	300*	NA	NA	Observed/not captured
7/22/2020	Boat	230*	NA	NA	Observed/not captured
7/22/2020	Boat	300*	NA	NA	Observed/not captured
7/22/2020	Backpack	230*	NA	NA	Observed/not captured
7/22/2020	Backpack	230*	NA	NA	Observed/not captured
7/22/2020	Backpack	230*	NA	NA	Observed/not captured
7/22/2020	Backpack	230*	NA	NA	Observed/not captured
7/22/2020	Backpack	300*	NA	NA	Observed/not captured
7/22/2020	Backpack	300*	NA	NA	Observed/not captured
7/22/2020	Backpack	300*	NA	NA	Observed/not captured
7/22/2020	Backpack	300*	NA	NA	Observed/not captured
7/22/2020	Flashlight	250*	NA	NA	Observed/not captured

*Estimated length

FIGURES



FIGURE 1 PHOTO OF EEL RAMP TRAP DURING TESTING



FIGURE 2 PHOTO OF EEL RAMP TRAP DEPLOYED IN LLOYD SHOALS TAILRACE

APPENDIX A

CONSULTATION DOCUMENTATION

Conference Call Summary
Lloyd Shoals Eel Sampling Update

Patrick O'Rourke (Georgia Power) and Courtenay O'Mara (Southern Company Generation Hydro Services) spoke via Microsoft Teams with Twyla Cheatwood (National Marine Fisheries Service) on July 24, 2020 to provide an update on summer American Eel sampling at the Lloyd Shoals Project. Eel catch rates in May, June, and July 2020 were provided for boat and backpack electrofishing as well as trapping. Additionally, results of flashlight surveys in June and July were shared. These are the same results that were presented at the July 29 Study Results Meeting. Georgia Power reiterated their commitment to continue this sampling protocol through October 2020 and thanked NMFS for their cooperation in addressing sampling challenges due to high flows, the COVID-19 pandemic, and equipment vandalism over the course of the study.

From: O'Rourke, Patrick Michael
Sent: Friday, July 24, 2020 1:03 PM
To: Twyla Cheatwood - NOAA Federal <twyla.cheatwood@noaa.gov>
Cc: Pace Wilber - NOAA Federal <pace.wilber@noaa.gov>; O'Mara, Courtenay R. <CROMARA@SOUTHERNCO.COM>
Subject: RE: Lloyd Shoals Eel Sampling Update

OK, great. I'll send both of you an invite for 2:30 in case Pace can make it. Shouldn't take too long, but it would be good to talk through details to date.

Patrick

From: Twyla Cheatwood - NOAA Federal <twyla.cheatwood@noaa.gov>
Sent: Friday, July 24, 2020 12:01 PM
To: O'Rourke, Patrick Michael <PMOROUKE@southernco.com>
Cc: Pace Wilber - NOAA Federal <pace.wilber@noaa.gov>; O'Mara, Courtenay R. <CROMARA@SOUTHERNCO.COM>
Subject: Re: Lloyd Shoals Eel Sampling Update

EXTERNAL MAIL: Caution Opening Links or Files

Patrick,

My apologies for the late response. I am available today except from 3-4pm.

Thank you for your coordination,

Twyla

On Wed, Jul 22, 2020 at 4:07 PM O'Rourke, Patrick Michael <PMOROUKE@southernco.com> wrote:

Twyla and Pace,

We're finishing collecting July samples today and tonight. We had hoped to get those done earlier in July, but unfortunately the weather had different plans.

Would either or both of you be interested in jumping on a call to go over our sampling results over the past three months prior to next Wednesday's study results call? I'm available tomorrow (Thursday) afternoon and basically all day Friday. I can also be available as needed on Monday or Tuesday.

Thank you,

Patrick

From: Twyla Cheatwood - NOAA Federal <twyla.cheatwood@noaa.gov>
Sent: Friday, May 08, 2020 2:49 PM
To: O'Rourke, Patrick Michael <PMOROUKE@southernco.com>
Cc: Pace Wilber - NOAA Federal <pace.wilber@noaa.gov>; O'Mara, Courtenay R. <CROMARA@SOUTHERNCO.COM>; Crabbe, Melissa C. <MCCRABBE@SOUTHERNCO.COM>
Subject: Re: Lloyd Shoals Eel Sampling Update

EXTERNAL MAIL: Caution Opening Links or Files

Patrick,

Thank you for taking the time to discuss the eel study at Lloyd Shoals with staff from NMFS last week. We appreciate your determination to close out the first year of the study with as much available data as possible considering the setbacks due to high flows, vandalism, and impacts from COVID-19. We look forward to your continued coordination and hope to see you in July.

Twyla

On Fri, May 8, 2020 at 8:01 AM O'Rourke, Patrick Michael <PMOROUKE@southernco.com> wrote:

Pace and Twyla:

Thank you again for taking the time last week to discuss our eel study at Lloyd Shoals. Below are the main points that I took away from our discussion...please let me know if you think anything needs to be added or corrected.

-Georgia Power is requesting a modification of the FERC schedule as a result of COVID-19; if approved, the public study results meeting will be held in person on July 29 instead of June 3 (as an update since our discussion, this was approved by FERC)

-The first year study report will still be filed on May 19 as originally planned

-There have been several unexpected deviations from the approved study plan:

-Backpack electrofishing samples were not collected in December, January, and March due to high flows as well as in April due to COVID-19 social distancing concerns

-Boat electrofishing samples were not collected in April due to COVID-19 social distancing concerns

-May samples and potentially June samples for electrofishing are expected to be impacted by COVID-19

-Ramp traps have been deployed, but due to vandalism and logistical difficulties no samples have been completed

-Georgia Power is considering implementing nighttime flashlight surveys at Lloyd Shoals Dam to mitigate for the loss of electrofishing surveys in May and June; NMFS agrees this could be useful provided that methods are done in an objective and repetitive manner

-Once electrofishing can safely resume, Georgia Power will continue sampling through October regardless of the previous 28 C temperature threshold due to missed samples

-The study reach for backpack electrofishing will be expanded to include shoals immediately downstream of Highway 16 which may provide better habitat and sampling conditions

-Georgia Power plans to file an addendum to the May 19 study report prior to the July 29 meeting summarizing all additional sampling data collected in this expanded period

I look forward to hearing back from you, and hopefully we're able to see one or both of you in July.

Patrick

Patrick O'Rourke

Fisheries Biologist

Georgia Power

pmorouke@southernco.com

241 Ralph McGill Blvd.

Atlanta, GA 30308

(404) 506-5025 (Office)

(470) 426-5322 (Cell)

From: Pace Wilber - NOAA Federal <pace.wilber@noaa.gov>
Sent: Friday, April 24, 2020 12:29 PM
To: O'Rourke, Patrick Michael <PMOROUKE@southernco.com>
Subject: Re: Lloyd Shoals Eel Sampling Update

EXTERNAL MAIL: Caution Opening Links or Files

Thanks Patrick. Sounds great. Please include Twyla.Cheatwood@noaa.gov on the meeting invite. And in the unlikely case Georgia Power is using Zoom, NOAA will not allow us to use it on government computers. Pace

On Fri, Apr 24, 2020 at 11:32 AM O'Rourke, Patrick Michael <PMOROUKE@southernco.com> wrote:

Ok, great. Tuesday works well for me. Let's say 1 PM. I'll send a calendar invite if that's good for you.

Patrick

Patrick O'Rourke

Fisheries Biologist

Georgia Power

From: Pace Wilber - NOAA Federal <pace.wilber@noaa.gov>
Sent: Friday, April 24, 2020 10:30:37 AM
To: O'Rourke, Patrick Michael <PMOROUKE@southernco.com>
Subject: Re: Lloyd Shoals Eel Sampling Update

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Hi Patrick. I'd be happy to talk with you next week. Tuesday afternoon is open as is Wednesday afternoon before 3. If other times work better for you, please let me know. Pace

On Tue, Apr 21, 2020 at 10:54 AM O'Rourke, Patrick Michael <PMOROUKE@southernco.com> wrote:

Pace:

I hope you and your loved ones are doing well and staying safe. Would you have some time next week that you and I can round up via phone and discuss our eel study happening at the Lloyd Shoals project as part of FERC relicensing? I want to quickly update you on how COVID has impacted our efforts as well as where we are in general to date on sampling.

Thank you,

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Pace Wilber, Ph.D.

HCD Atlantic Branch Supervisor

NOAA Fisheries Service

331 Ft Johnson Road<----New Number

Charleston, SC 29412

843-460-9926 <----Office Number

843-568-4184 <----Office Cell Number

Pace.Wilber@noaa.gov

--

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--

Twyla H Cheatwood

Fishery Biologist

*Southeast Region, Habitat Conservation Division
NOAA Fisheries
Beaufort, NC 28516
Office: (252) 728-8758*

Twyla.cheatwood@noaa.gov



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Twyla H Cheatwood

Fishery Biologist

Southeast Region, Habitat Conservation Division

NOAA Fisheries

Beaufort, NC 28516

Office: (252) 728-8758

Twyla.cheatwood@noaa.gov



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Twitter www.twitter.com/noaafisheries [twitter.com]

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