

April 12, 2021

VIA ELECTRONIC FILING

Project No. 2628-065
R.L. Harris Hydroelectric Project
Transmittal of the Final Downstream Aquatic Habitat Report

Ms. Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street NE
Washington, DC 20426

Dear Secretary Bose,

Alabama Power Company (Alabama Power) is the Federal Energy Regulatory Commission (FERC or Commission) licensee for the R.L. Harris Hydroelectric Project (Harris Project) (FERC No. 2628-065). On April 12, 2019, FERC issued its Study Plan Determination¹ (SPD) for the Harris Project, approving Alabama Power's ten relicensing studies with FERC modifications. On May 13, 2019, Alabama Power filed Final Study Plans to incorporate FERC's modifications and posted the Final Study Plans on the Harris relicensing website at www.harrisrelicensing.com.

Consistent with FERC's April 12, 2019 SPD, Alabama Power filed the Draft Downstream Aquatic Habitat Report (Draft Report) on June 30, 2020². Stakeholders were to submit their comments to Alabama Power on the Draft Report by August 1, 2020. The Alabama Department of Conservation and Natural Resources, Alabama Rivers Alliance, stakeholders, and FERC submitted comments on the Draft Report. In addition, Alabama Rivers Alliance and FERC submitted comments and questions regarding the Draft Report prior to the Initial Study Report Meeting on April 28, 2020. These comments are included in the updated consultation record (April 2019 through March 2021) for this study (Attachment 1) and responses to comments on the Draft Report are provided in Attachment 2. The Final Downstream Aquatic Habitat Report is included as Attachment 3³.

¹ Accession Number 20190412-3000.

² Accession Number 20200630-5200.

³ Please note that the style and format of the Harris Project relicensing study reports has changed since submittal of the Draft Report; however, the content of the report has not changed except for the edits made based on stakeholder comments.

If there are any questions concerning this filing, please contact me at arsegars@southernco.com or 205-257-2251.

Sincerely,



Angie Anderegg
Harris Relicensing Project Manager

Attachment 1 – Downstream Aquatic Habitat Consultation Record (April 2019 – March 2021)
Attachment 2 – Comments and Responses on the Draft Downstream Aquatic Habitat Report
Attachment 3 – Final Downstream Aquatic Habitat Report

cc: Harris Action Team 3 Stakeholder List

Attachment 1
Downstream Aquatic Habitat Consultation Record (April
2019 – March 2021)

APC Harris Relicensing

From: APC Harris Relicensing
Sent: Friday, February 22, 2019 11:01 AM
To: APC Harris Relicensing
Subject: HAT 3 meeting

HAT 3,

Please save the date for a HAT 3 meeting on March 20th at the E.W. Shell Fisheries Center in Auburn from 10:00 to 2:00. At this meeting we will provide an update on the Aquatic Resources Study Plan and Downstream Aquatic Habitat Study Plan activities, as well as give everyone an opportunity to visit the lab that will be used for the Bioenergetics model. Lunch will be provided. Please RSVP to harrisrelicensing@southernco.com no later than March 13th.

Thanks,

Angie Anderegg
205-257-2251

HAT 3 meeting - next Wednesday

APC Harris Relicensing

Thu 3/14/2019 8:19 PM

To:'harrisrelicensing@southernco.com' <harrisrelicensing@southernco.com>;

Bcc:damon.abernethy@dcnr.alabama.gov <damon.abernethy@dcnr.alabama.gov>; steve.bryant@dcnr.alabama.gov <steve.bryant@dcnr.alabama.gov>; stan.cook@dcnr.alabama.gov <stan.cook@dcnr.alabama.gov>; taconya.goar@dcnr.alabama.gov <taconya.goar@dcnr.alabama.gov>; chris.greene@dcnr.alabama.gov <chris.greene@dcnr.alabama.gov>; keith.henderson@dcnr.alabama.gov <keith.henderson@dcnr.alabama.gov>; mike.holley@dcnr.alabama.gov <mike.holley@dcnr.alabama.gov>; evan.lawrence@dcnr.alabama.gov <evan.lawrence@dcnr.alabama.gov>; nick.nichols@dcnr.alabama.gov <nick.nichols@dcnr.alabama.gov>; amy.silvano@dcnr.alabama.gov <amy.silvano@dcnr.alabama.gov>; ken.wills@jcdh.org <ken.wills@jcdh.org>; arsegars@southernco.com <arsegars@southernco.com>; dkanders@southernco.com <dkanders@southernco.com>; jefbaker@southernco.com <jefbaker@southernco.com>; jcarlee@southernco.com <jcarlee@southernco.com>; kechandl@southernco.com <kechandl@southernco.com>; rskrotze@southernco.com <rskrotze@southernco.com>; ammcvica@southernco.com <ammcvica@southernco.com>; tlmills@southernco.com <tlmills@southernco.com>; cchaffin@alabamarivers.org <cchaffin@alabamarivers.org>; clowry@alabamarivers.org <clowry@alabamarivers.org>; gjobsis@americanrivers.org <gjobsis@americanrivers.org>; kmo0025@auburn.edu <kmo0025@auburn.edu>; devridr@auburn.edu <devridr@auburn.edu>; irwiner@auburn.edu <irwiner@auburn.edu>; wrighr2@aces.edu <wrighr2@aces.edu>; lgallen@balch.com <lgallen@balch.com>; jhancock@balch.com <jhancock@balch.com>; chrisoberholster@birminghamaudubon.org <chrisoberholster@birminghamaudubon.org>; kate.cosnahan@kleinschmidtgroup.com <kate.cosnahan@kleinschmidtgroup.com>; colin.dinken@kleinschmidtgroup.com <colin.dinken@kleinschmidtgroup.com>; amanda.fleming@kleinschmidtgroup.com <amanda.fleming@kleinschmidtgroup.com>; henry.mealing@kleinschmidtgroup.com <henry.mealing@kleinschmidtgroup.com>; jason.moak@kleinschmidtgroup.com <jason.moak@kleinschmidtgroup.com>; kelly.schaeffer@kleinschmidtgroup.com <kelly.schaeffer@kleinschmidtgroup.com>; sforehand@russellands.com <sforehand@russellands.com>; lgarland68@aol.com <lgarland68@aol.com>; pace.wilber@noaa.gov <pace.wilber@noaa.gov>; mitchell.reid@tnc.org <mitchell.reid@tnc.org>; donnamat@aol.com <donnamat@aol.com>; mhpwedowee@gmail.com <mhpwedowee@gmail.com>; triciastearns@gmail.com <triciastearns@gmail.com>; trayjim@bellsouth.net <trayjim@bellsouth.net>; straylor426@bellsouth.net <straylor426@bellsouth.net>; decker.chris@epa.gov <decker.chris@epa.gov>; holliman.daniel@epa.gov <holliman.daniel@epa.gov>; evan_collins@fws.gov <evan_collins@fws.gov>; jennifer_grunewald@fws.gov <jennifer_grunewald@fws.gov>; bill_pearson@fws.gov <bill_pearson@fws.gov>; jeff_powell@fws.gov <jeff_powell@fws.gov>; jeff_duncan@nps.gov <jeff_duncan@nps.gov>;

1 attachments (46 KB)

2019-03-20 HAT3 Meeting Agenda.docx;

HAT 3,

This is a friendly reminder that we will have a HAT 3 meeting next Wednesday, March 20, in Auburn. A google map link to the E.W. Shell Fisheries Center is provided below and an agenda is attached. If you haven't already done so, please let us know ASAP if you plan to attend so we can plan on you for lunch.

<https://goo.gl/maps/Mqj58oBEX7Q2>

Thanks!

Angie Anderegg

Hydro Services
(205)257-2251
arsegars@southernco.com

HAT 3,

Please save the date for a HAT 3 meeting on March 20th at the E.W. Shell Fisheries Center in Auburn from 10:00 to 2:00. At this meeting we will provide an update on the Aquatic Resources Study Plan and Downstream Aquatic Habitat Study Plan activities, as well as give everyone an opportunity to visit the lab that will be used for the Bioenergetics model. Lunch will be provided. Please RSVP to harrisrelicensing@southernco.com no later than March 13th.

Thanks,

Angie Anderegg
205-257-2251



R. L. Harris Hydroelectric Project

FERC No. 2628

HAT 3 Meeting **March 20, 2019** **E.W. Shell Fisheries Center** **10 AM – 2 PM**

- Welcome and Safety Moment
- Relicensing Update
- Aquatic Resources Study
 - Fall Wadeable Fish Survey update – Alabama Power
 - Temperature Data Analysis – Auburn
- LUNCH
- Downstream Aquatic Habitat Study
 - Draft Mesohabitat Analysis
 - Level Logger Deployment
 - HEC-RAS model
- Research Lab Tour

HAT 3 meeting notes

Anderegg, Angela Segars

Fri 4/12/2019 7:54 PM

To:'harrisrelicensing@southernco.com' <harrisrelicensing@southernco.com>;

Bcc:damon.abernethy@dcnr.alabama.gov <damon.abernethy@dcnr.alabama.gov>; lgallen@balch.com <lgallen@balch.com>; arsegars@southernco.com <arsegars@southernco.com>; dkanders@southernco.com <dkanders@southernco.com>; jefbaker@southernco.com <jefbaker@southernco.com>; steve.bryant@dcnr.alabama.gov <steve.bryant@dcnr.alabama.gov>; Matt and Ann Campbell (wmcampbell218@gmail.com) <wmcampbell218@gmail.com>; jcarlee@southernco.com <jcarlee@southernco.com>; cchaffin@alabamarivers.org <cchaffin@alabamarivers.org>; kechandl@southernco.com <kechandl@southernco.com>; kmo0025@auburn.edu <kmo0025@auburn.edu>; evan_collins@fws.gov <evan_collins@fws.gov>; stan.cook@dcnr.alabama.gov <stan.cook@dcnr.alabama.gov>; kate.cosnahan@kleinschmidtgroup.com <kate.cosnahan@kleinschmidtgroup.com>; decker.chris@epa.gov <decker.chris@epa.gov>; devridr@auburn.edu <devridr@auburn.edu>; colin.dinken@kleinschmidtgroup.com <colin.dinken@kleinschmidtgroup.com>; jeff_duncan@nps.gov <jeff_duncan@nps.gov>; amanda.fleming@kleinschmidtgroup.com <amanda.fleming@kleinschmidtgroup.com>; sforehand@russelllands.com <sforehand@russelllands.com>; lgarland68@aol.com <lgarland68@aol.com>; taconya.goar@dcnr.alabama.gov <taconya.goar@dcnr.alabama.gov>; chris.greene@dcnr.alabama.gov <chris.greene@dcnr.alabama.gov>; jennifer_grunewald@fws.gov <jennifer_grunewald@fws.gov>; jhancock@balch.com <jhancock@balch.com>; keith.henderson@dcnr.alabama.gov <keith.henderson@dcnr.alabama.gov>; mike.holley@dcnr.alabama.gov <mike.holley@dcnr.alabama.gov>; holliman.daniel@epa.gov <holliman.daniel@epa.gov>; irwiner@auburn.edu <irwiner@auburn.edu>; gjobsis@americanrivers.org <gjobsis@americanrivers.org>; rskrotze@southernco.com <rskrotze@southernco.com>; evan.lawrence@dcnr.alabama.gov <evan.lawrence@dcnr.alabama.gov>; clowry@alabamarivers.org <clowry@alabamarivers.org>; donnamat@aol.com <donnamat@aol.com>; ammcvica@southernco.com <ammcvica@southernco.com>; henry.mealing@kleinschmidtgroup.com <henry.mealing@kleinschmidtgroup.com>; tlmills@southernco.com <tlmills@southernco.com>; jason.moak@kleinschmidtgroup.com <jason.moak@kleinschmidtgroup.com>; nick.nichols@dcnr.alabama.gov <nick.nichols@dcnr.alabama.gov>; chrisoberholster@birminghamaudubon.org <chrisoberholster@birminghamaudubon.org>; mhpwedowee@gmail.com <mhpwedowee@gmail.com>; bill_pearson@fws.gov <bill_pearson@fws.gov>; jeff_powell@fws.gov <jeff_powell@fws.gov>; mitchell.reid@tnc.org <mitchell.reid@tnc.org>; kelly.schaeffer@kleinschmidtgroup.com <kelly.schaeffer@kleinschmidtgroup.com>; amy.silvano@dcnr.alabama.gov <amy.silvano@dcnr.alabama.gov>; triciastearns@gmail.com <triciastearns@gmail.com>; trayjim@bellsouth.net <trayjim@bellsouth.net>; straylor426@bellsouth.net <straylor426@bellsouth.net>; pace.wilber@noaa.gov <pace.wilber@noaa.gov>; ken.wills@jcdh.org <ken.wills@jcdh.org>; wrighr2@aces.edu <wrighr2@aces.edu>;

1 attachments (4 MB)

2019-03-20 HAT 3 meeting notes and presentations.pdf;

Good afternoon HAT 3,

Attached are notes, along with presentations, from our March 20th meeting at the Auburn Fisheries Center. These notes and presentations can also be found at www.harrisrelicensing.com under the HAT 3 folder.

Thanks,

Angie Anderegg

Hydro Services
(205)257-2251
arsegars@southernco.com



R. L. Harris Hydroelectric Project

FERC No. 2628

HAT 3 Stakeholder Meeting Summary

March 20, 2019

10 am to 2 pm

E. W. Shell Fisheries Center, Auburn, AL

Participants:

Taconya Goar – Alabama Department of Conservation of Natural Resources
Mike Holley – Alabama Department of Conservation of Natural Resources
Nick Nichols – Alabama Department of Conservation of Natural Resources
Angie Anderegg – Alabama Power
Jeff Baker – Alabama Power
Jason Carlee – Alabama Power
Keith Chandler – Alabama Power
Steve Krotzer – Alabama Power
Tina Mills – Alabama Power
Curt Chaffin – Alabama Rivers Alliance
Kristie Coffman – Auburn University
Dennis Devries – Auburn University
Elise Irwin – Auburn University
Ehlana Stell – Auburn University
Russell Wright – Auburn University
Matt and Ann Campbell – Alabama Water Watch
Leslie Allen – Balch and Bingham
Jim Hancock – Balch and Bingham
Colin Dinken – Kleinschmidt
Amanda Fleming – Kleinschmidt
Jason Moak – Kleinschmidt

Action Items:

- Alabama Power will continue to conduct relicensing studies and provide periodic updates to Harris Action Team (HAT) members.
- Kleinschmidt will add Matt and Ann Campbell (Alabama Water Watch (AWW)) to the email stakeholder database.

Notes:

The following is a summary of the March 20, 2019 Harris Action Team (HAT) 3 meeting. The presentations from the meeting are included in Attachment A.

Introduction – Angie Anderegg (Alabama Power)

Angie gave an introduction, a safety moment, and the status of the Alabama Power R.L. Harris Project (Project) relicensing process. Alabama Power filed Study Plans in November 2018 and comments were made during and following the December 2018 study plan meeting. Revised Study Plans were filed March 13, 2019. The FERC will issue their decision on the Study Plans on April 13, 2019.

Aquatic Resources – Jason Moak (Kleinschmidt)

Jason discussed the goal, geographic scope, and components of the Aquatic Resources Study, including temperature requirements of fish, an assessment of temperature data from both

regulated and unregulated reaches of the river, and fish community surveys by both wadeable (30+2 method) and boat-mounted methods. Jason explained that recent weather events and high flows have delayed field work, which will continue in the spring. Results of the 2017 and 2018 fish surveys at Heflin, Malone, and Wadley were similar to results reported over the past 14 years. The majority of specimens sampled were species of minnows and sunfish. Next, Jason explained that the Alabama Department of Environmental Management (ADEM) was looking to develop a standardized procedure for non-wadeable areas similar to the 30+2 method used in wadeable reaches. Jeff Baker (Alabama Power) noted that fish were sampled at Wadley and Horseshoe Bend using boat-mounted electrofishing in summer of 2018. Some species found in these areas are not typically seen in wadeable areas. Jason explained that Horseshoe Bend yielded twice as many fish as Wadley. Matt Campbell asked if dissolved oxygen or other water quality factors at Horseshoe Bend could have affected those results. Jason replied that it is hard to determine, as monitors are not present in these locations yet and these were individual sampling events; multiple sampling events may have reduced variation between the two sites.

Aquatic Resources Study Continued – Dr. Dennis Devries, Dr. Russell Wright, and Ehlana Stell (Auburn University)

Dr. Devries discussed the research objectives. The first objective is to review relevant research to determine temperature tolerances and limits of Redbreast Sunfish, Tallapoosa Bass, and Channel Catfish. Dr. Devries explained that there is little temperature data available for the Redbreast Sunfish and Tallapoosa Bass species; however, Spotted Bass data could possibly be used as surrogate data for Tallapoosa Bass. There is more temperature data available for Channel Catfish than Redbreast Sunfish and Tallapoosa Bass, but much of this is applied to pond settings, and may not be applicable to riverine habitat.

Dr. Wright then explained bioenergetics and how temperature is involved. Many bioenergetic components are temperature dependent. Bioenergetics will be used in this study to assess the effects of Harris Dam operations on fish growth and stress. Dr. Wright explained the components of bioenergetics models and how results may be used in predicting growth. Dr. Wright explained the limitations to the bioenergetics model: (1) there is currently no model for Redbreast Sunfish or Tallapoosa Bass (although one could possibly be generated using similar species such as Bluegill Sunfish and Spotted Bass), (2) the current model for Channel Catfish is derived from pond systems instead of riverine systems, and (3) in the current model code, temperature and activity operate on a daily time step, so a model using a sub-daily timestep may be necessary.

Ehlana described the temperature data provided by Alabama Power to Auburn University. Minimum, maximum, and mean temperature data were presented by location (tailrace, Malone, and Wadley) and compared pre- and post-Green Plan conditions from 2000-2019. Ehlana displayed histograms depicting daily temperature range (daily maximum – daily minimum) for each location and noted that the occurrence of daily temperature ranges of 10° C or greater was extremely rare. Jason explained that water is drawn into the forebay around 30 feet below the surface at full pool and may be pulled from shallower depths depending on the number of turbines that are running. Ehlana said that in winter, reservoir waters are not stratified and there would not be a large temperature difference between surface and deeper waters. Dr. Wright stated that presently, the temperature difference may be only a few degrees. Taconya Goar (Alabama Department of Conservation and Natural Resources (ADCNR)) stated that some variability may be missed when using daily data instead of hourly data. Dr. Wright said daily mean temperatures were calculated from hourly measurements, and the daily fluctuation were

calculated as the difference between the maximum and minimum hourly reading for each day. Jason noted that some additional analysis may be performed to determine the magnitude and frequency of sub-daily temperature fluctuations (e.g. 1-hr, 2-hr, etc). Matt Campbell asked about the effects of turbidity on fish. Jason noted that excess turbidity could result from bank erosion or sediment contributions from tributaries and described the elements of the Harris Erosion and Sedimentation Study. Jason explained that Auburn's 2018 fish sampling in the fall and winter did not occur due to high flow conditions, and sampling would likely begin in April 2019. Matt Campbell asked about shoal lilies (or Cahaba lilies). Jason replied that while we are aware of the presence of lilies at Irwin Shoals, stakeholders have not indicated an issue that would require a study.

Downstream Release Alternatives – Jason Moak (Kleinschmidt)

Jason discussed the goal, geographic scope, and components of the Downstream Aquatic Habitat Study, including mesohabitat analysis (desktop analysis of the types of available habitat), installation of water level loggers at 20 sites between Harris Dam through Horseshoe Bend, and the use of the HEC-RAS model to evaluate the effect of current operations on the amount and persistence of wetted aquatic habitat, especially shoals and shallow-water habitat. The mesohabitat was evaluated using GIS to classify reaches of the Tallapoosa River downstream of Harris Dam as pools, riffles, or runs. Some stretches were easy to classify using aerial imagery. Jason explained that the classifications may be improved with information gathered during field work. The mesohabitat type was summarized by reach: Malone, Wadley, Bibby's Ferry, Germany Ferry, Horseshoe Bend, and Irwin Shoals. Jason explained that level logger locations were chosen based on the need to space them out evenly along the river and to incorporate data from pools, riffles, and runs. Lake Harris will begin filling on April 1, potentially opening a window of flows in which level loggers can be deployed. Jason anticipates collecting one year of data and will download data from the loggers on a regular basis. Taconya asked if ADEM was measuring turbidity and Jason noted ADEM did gather some turbidity data every few years dating back 15-20 years, which would be used as a component in the Harris Water Quality Study. Keith Chandler (Alabama Power) said Alabama Power would incorporate any turbidity data from ADEM according to the Water Quality Study Plan.

Jason explained the HEC-RAS model. It is based on transects crossing the river (cross sections) and the topographic profile. Alabama Power collected bathymetric data from the upper reach (Harris Dam to Wadley) in the 2000s. Alabama Power also conducted a depth survey of the thalweg (center of the river channel) to provide data for the HEC-RAS model during its development in the 2000s. However, many model cross-sections downstream of Wadley were interpolated and were not actual bathymetric profiles. Jason presented examples of transects with good and poor bathymetry data and noted the importance of accurate data when evaluating wetted habitat. As a result, Alabama Power will be collecting additional bathymetric data. Some bathymetry data was collected during level logger deployment in fall 2018. Jason showed a figure displaying the slope of the river and the water depth. Dr. Wright commented that it appears flow rate will negatively correlate with depth. Jason explained that this study is trying to quantify the amount and persistence of wetted habitat and to compare present conditions with possible alternatives. Jason stated that the Downstream Release Alternatives Study will review current operations and several possible alternatives: no change (baseline), a continuous minimum flow of 150 cubic feet per second (cfs), or a modified Green Plan (changing the timing of releases).

The group then embarked on a walking tour of the laboratory facilities, including views of the swimming chambers and static respirometry labs. The meeting adjourned at 2:00 pm.

R.L. Harris Project Relicensing

HAT 3 – Aquatic and Wildlife Resources

March 20, 2018



Safety Moment



In case of an emergency.....

- Designee will contact 911
- Exit locations
- Designated meeting area
- Location of AED



Meeting Agenda



- Process Update
- Aquatic Resources Study
 - Fall Wadeable Fish Survey Update
 - Temperature Data Analysis
- LUNCH
- Downstream Aquatic Habitat Study
 - Draft Mesohabitat Analysis
 - Level Logger Deployment Update
 - HEC-RAS Model Development
- Research Lab Tour



Process Update



March 13 - Revised Study Plans Filed

April 12 - FERC Study Plan Determination

Summer/Fall 2019 – Various HAT meetings

Aquatic Resources Study



Goal

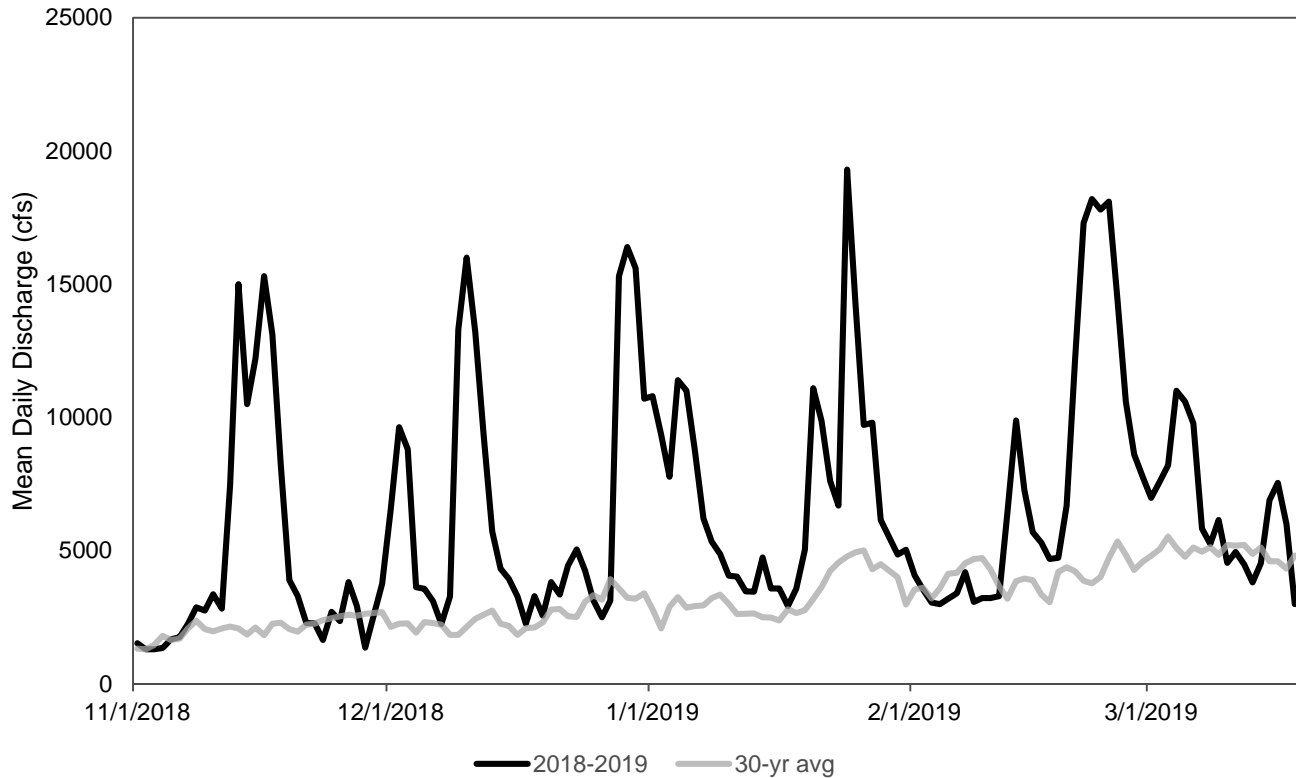
Evaluate the effects of the Harris Project on aquatic resources.

Geographic Scope

Harris Reservoir, the Tallapoosa River downstream of Harris Dam through Horseshoe Bend, and in selected unregulated reference streams.

Study Components

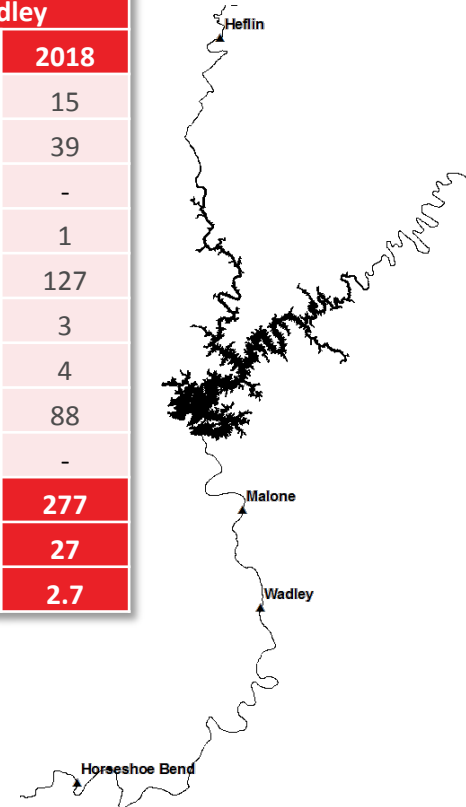
- Desktop Assessment of Aquatic Resources
- Downstream Fish Population Research
 - Fish Temperature Requirements
 - Assessment of Temperature Data from Regulated and Unregulated Reaches
- Fish Community Surveys
 - Wadeable standardized (30+2) sampling
 - Boat Electrofishing
- Bioenergetics Modeling



2017 & 2018 Fish Survey Results

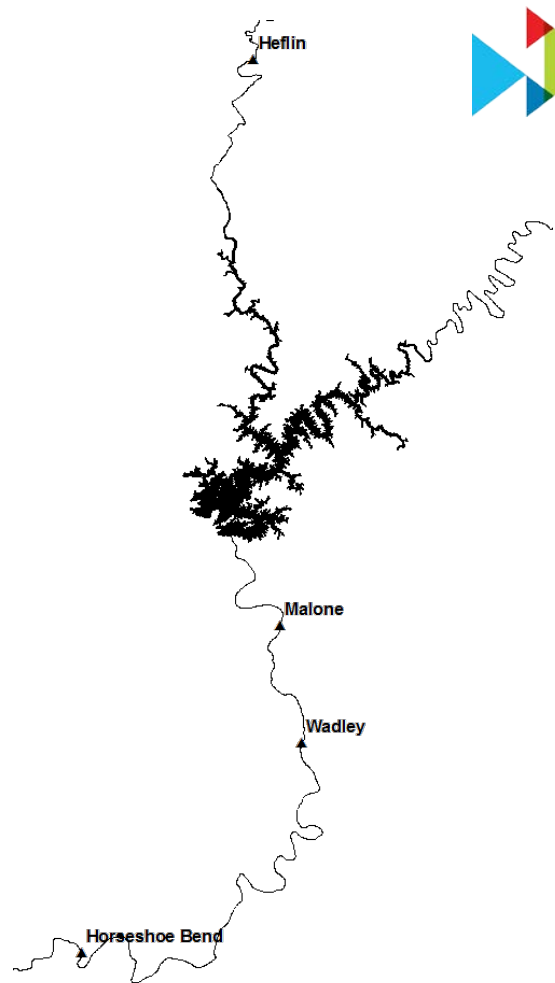


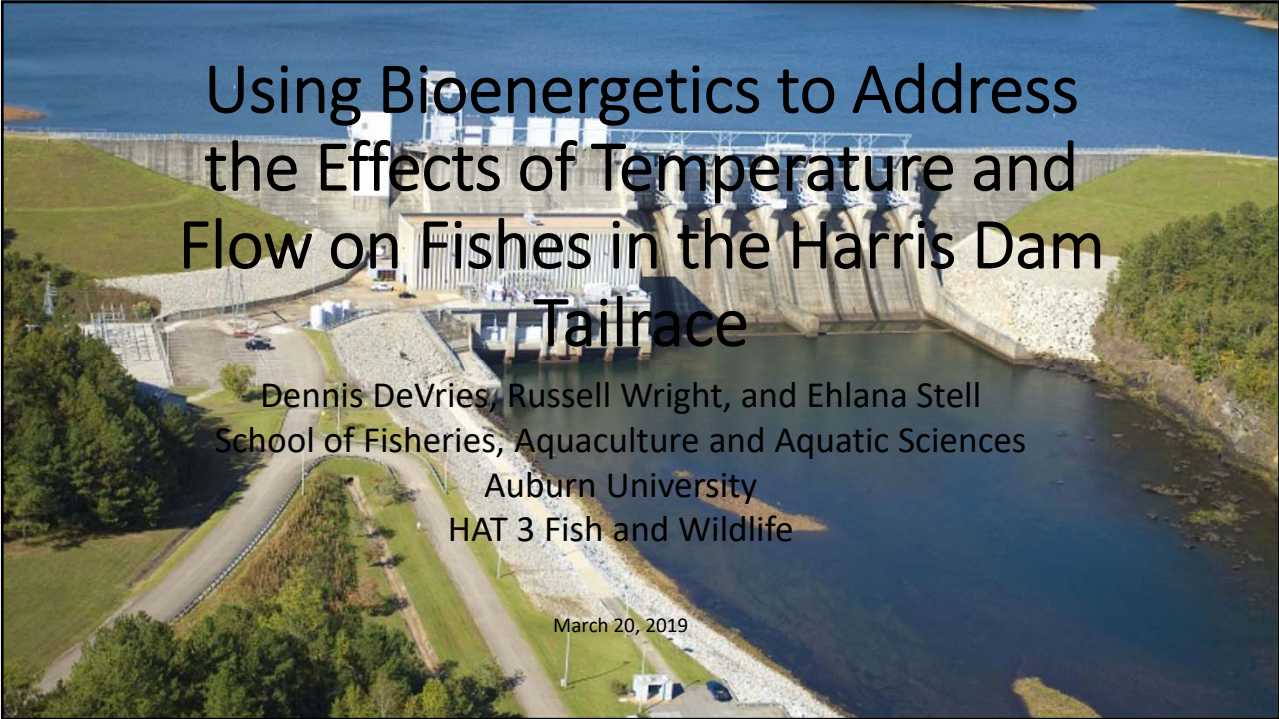
Family	Heflin		Malone		Wadley	
	2017	2018	2017	2018	2017	2018
Catostomidae	28	19	14	23	16	15
Centrarchidae	95	51	45	22	97	39
Clupeidae	-	-	1	-	-	-
Cottidae	2	1	-	-	-	1
Cyprinidae	207	121	61	91	41	127
Fundulidae	23	6	2	1	2	3
Ictaluridae	8	4	6	1	5	4
Percidae	242	124	153	174	80	88
Poeciliidae	5	-	-	-	-	-
Total Individuals	610	326	282	312	241	277
# Taxa	31	26	19	18	20	27
Diversity (H')	2.8	2.6	2.3	2.2	2.5	2.7





Family	Common Name	Wadley	Horseshoe Bend
Clupeidae	Gizzard Shad	-	1
Cyprinidae	Alabama Shiner	5	31
	Blacktail Shiner	11	15
	Common Carp	11	9
	Grass Carp	-	3
	Silverstripe Shiner	10	29
	Striped Shiner	3	-
	Tallapoosa Shiner	1	1
	Catostomidae	Alabama Hogsucker	1
Black Redhorse		1	6
Blacktail Redhorse		33	49
Golden Redhorse		-	1
Largescale Stoneroller		8	-
River Redhorse		-	2
Ictaluridae	Blue Catfish	-	8
	Channel Catfish	2	17
	Flathead Catfish	-	3
Fundulidae	Blackspotted Topminnow	3	1
Centrarchidae	Alabama Bass	13	81
	Black Crappie	3	-
	Bluegill	33	21
	Lepomis sp. Hybrid	1	-
	Green Sunfish	-	5
	Largemouth Bass	3	-
	Redbreast Sunfish	51	150
	Redear Sunfish	1	4
	Shadow Bass	11	18
	Tallapoosa Bass	4	16
	Percidae	Bronze Darter	1
Lipstick Darter		1	-
Muscadine Darter		2	1
Speckled Darter		1	-
Tallapoosa Darter		1	-
# Individuals		215	483
# Taxa		26	26





Using Bioenergetics to Address the Effects of Temperature and Flow on Fishes in the Harris Dam Tailrace

Dennis DeVries, Russell Wright, and Ehlana Stell
School of Fisheries, Aquaculture and Aquatic Sciences
Auburn University
HAT 3 Fish and Wildlife

March 20, 2019



Project Objectives

1. Summarize the data that are available in the literature concerning temperature requirements for target species, including spawning and hatching temperatures, lethal limits, and thermal tolerance
2. Summarize the data that are available in reports and from relevant agencies for water temperatures across a gradient downstream from the Harris Dam tailrace and compare those data with similar data from reference sites upstream of Harris Reservoir

Objective 1: Temperature Requirements

- Reviewed published literature, grey literature reports, agency reports, theses/dissertations, etc. for information on target and related species
 - Redbreast Sunfish
 - Tallapoosa Bass
 - Channel Catfish



Redbreast Sunfish

- Continuing to search for published temperature tolerance information
- Aho and Anderson 1986 (similar to LMB?)
- Some suggestion that metabolic patterns may be system-dependent?

Centrarchid Spawning in the Florida Everglades

JAMES P. CLUGSTON

KNOWLEDGE of the spawning characteristics and requirements of freshwater fishes is important to present day fish management. Predictions of future fishing success are sometimes made possible by knowledge of spawning activities. In some instances fish populations have been regulated by encouraging or discouraging the spawning of certain species. Water levels kept at the proper height during the spawning season of the shore-spawning species will permit a normal hatch while a drawdown can be used to suppress

TRANSACTIONS of the AMERICAN FISHERIES SOCIETY

Transactions of the American Fisheries Society 110:1-13, 1981
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Similarities in Acute Temperature Preferences of Freshwater Fishes

DILIP MATHUR AND ROBERT M. SCHUTSKY
*Muddy Run Ecological Laboratory, Post Office Box 10
Drumore, Pennsylvania 17518*

EDMUND J. PURDY, JR.

BIOLOGICAL REPORT 80/10 116
NOVEMBER 1986

HABITAT SUITABILITY INDEX MODELS
AND INSTREAM FLOW SUITABILITY
CURVES: REDBREAST SUNFISH



1986

January 1981

VOLUME 110

NUMBER 1

Tallapoosa Bass

- Type of Redeye Bass/
 - white ring along fins
 - no data available? Maybe for spotted/Alabama bass?




SEPTEMBER 2008

HABITAT SUITABILITY INDEX MODELS AND INSTREAM FLOW SUITABILITY CURVES: SPOTTED BASS

???



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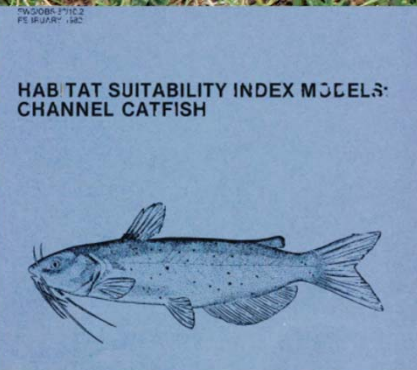
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Diversity within the Redeye Bass, *Micropterus coosae* (Perciformes: Centrarchidae) species group, with descriptions of four new species

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¹910 Lindsey Place, Alexander City, Alabama 35010, USA. E-mail: whrbaker@earthlink.net

Channel Catfish

- Some data available, but most are for pond fish

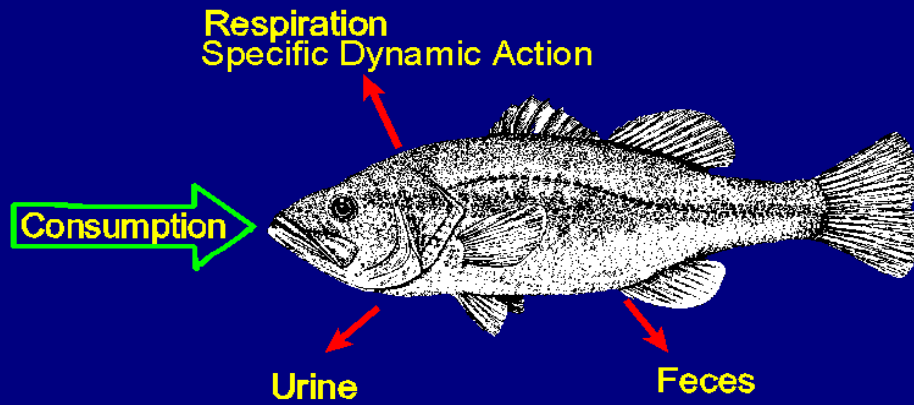



HABITAT SUITABILITY INDEX MODELS: CHANNEL CATFISH

Table 4. Estimated physiological parameter values of channel catfish used as inputs to the Hewett & Johnson (1992) model

Parameters	Definition	Value	Reference
Consumption			
CA	Intercept Cmax	0.33	Cuenco <i>et al.</i> (1985), Andrews <i>et al.</i> (1985)
CB	Slope	-0.33	Cuenco <i>et al.</i> (1985)
CQ	Temperature dependent coefficient	2.3	Andrews & Matsuda (1975)
CTO	Optimum temperature	31°C	Andrews & Stickney (1972)
		30°C	
CTM	Maximum temperature	30–32°C	Gammon (1973; large adult)
	Acclimation temperature (=26)	37°C	
	Indiana maximum temperature	36.6°C	Allen & Strawn (1968)
	Lethal	37.8°C	Proffitt & Brenda (1971)
		36°C	Jobling (1981)

Basic Bioenergetics Approach



$$\text{Growth} = \text{Consumption} - (\text{Respiration} + \text{SDA} + \text{Feces} + \text{Urine})$$

Uses of Bioenergetics Models

- evaluation of stocking
- nutrient recycling
- contaminant accumulation
- aquaculture
- exploring evolutionary influences

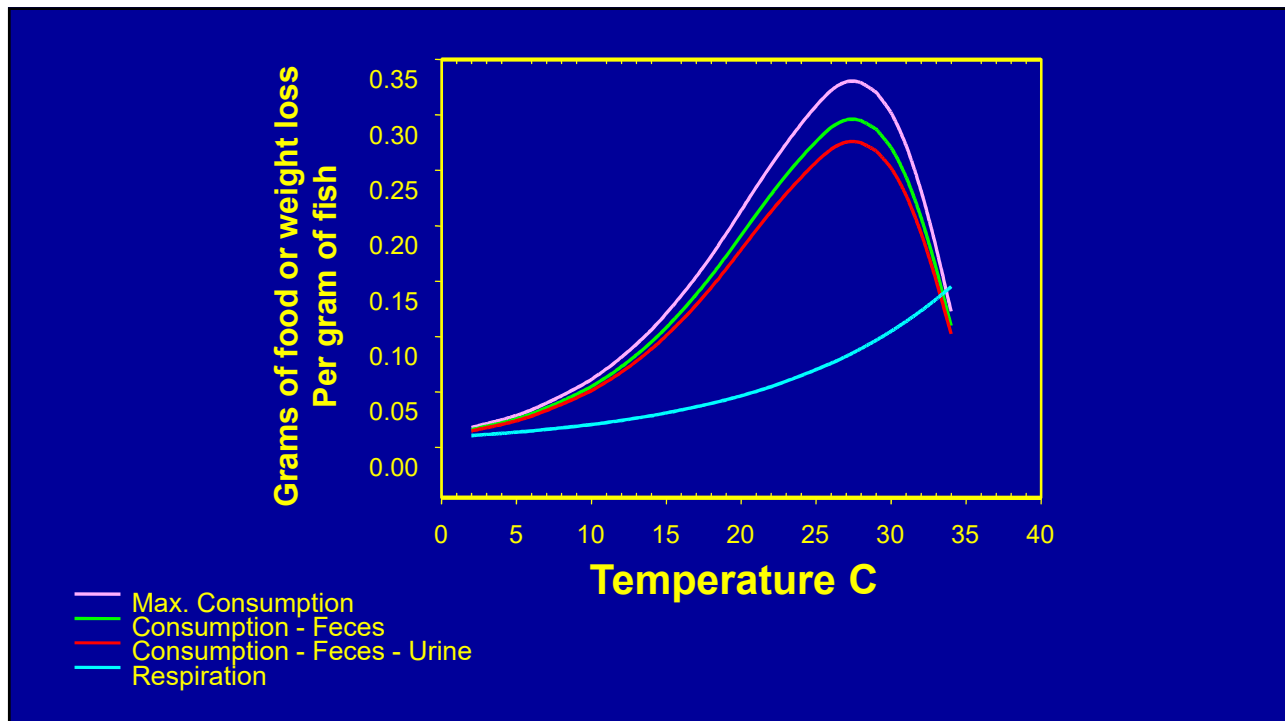
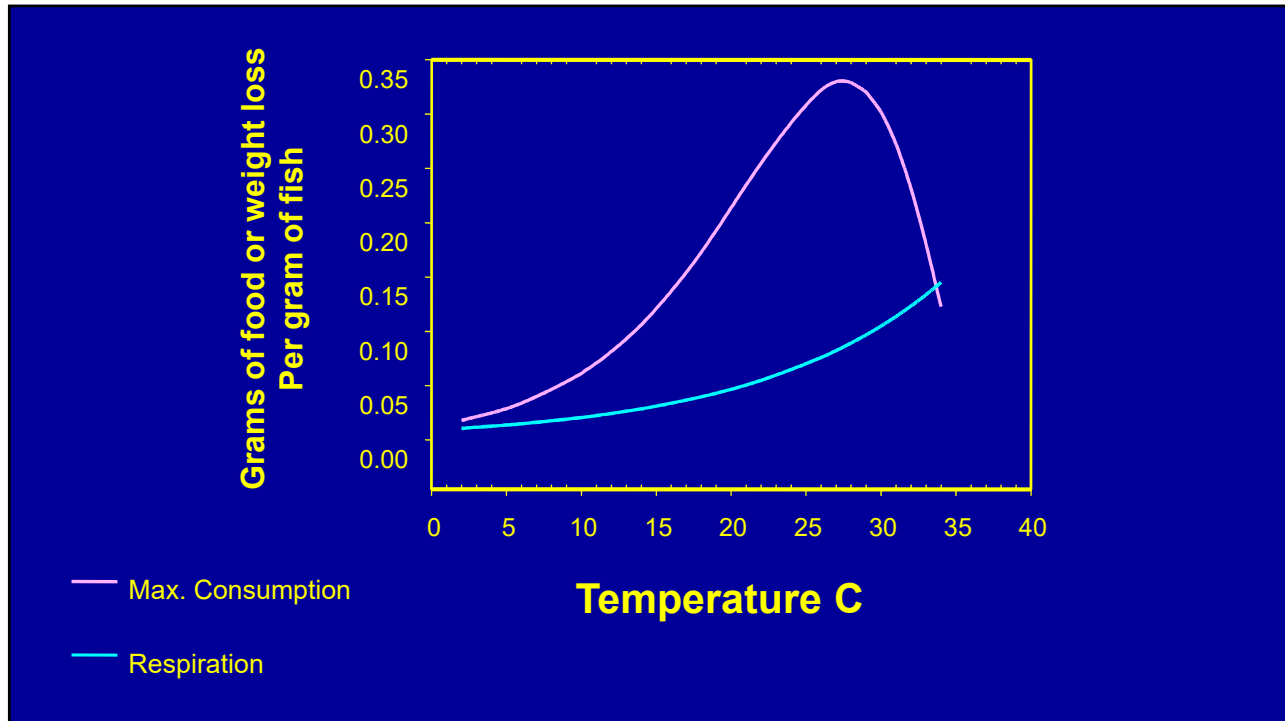
Uses of Bioenergetics Models

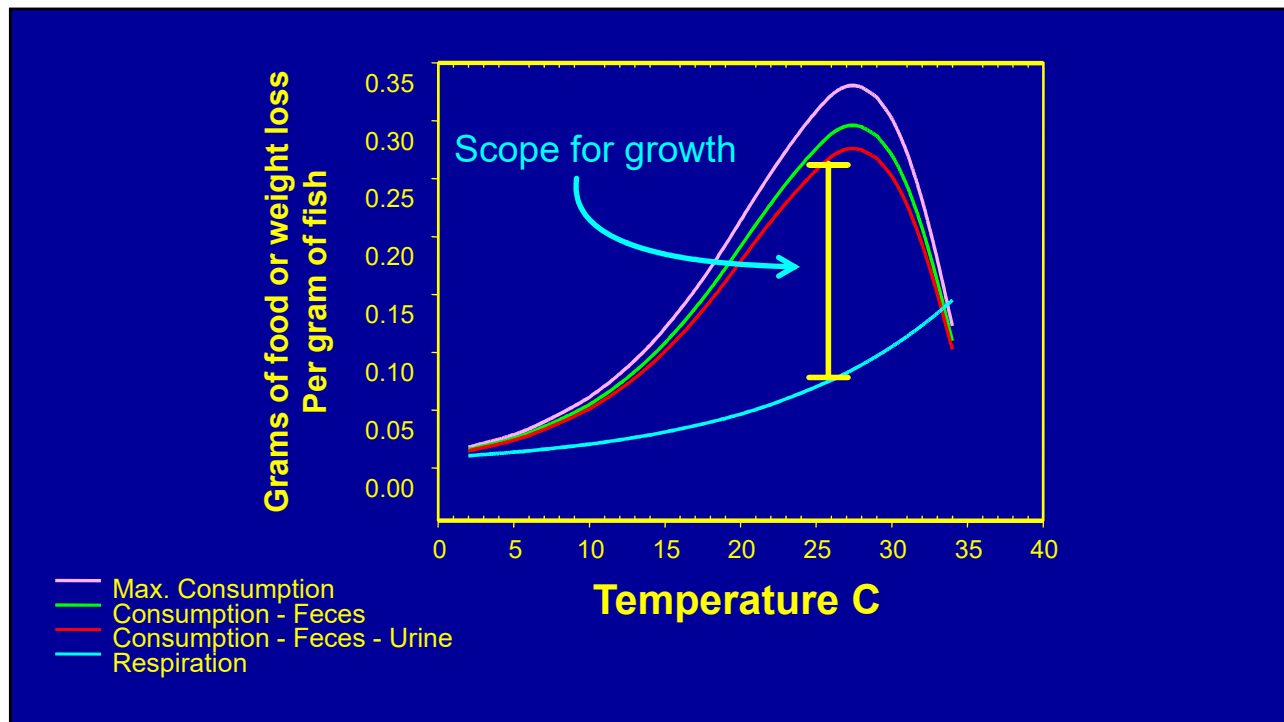
- evaluation of stocking
- nutrient recycling
- contaminant accumulation
- aquaculture
- exploring evolutionary influences
- habitat effects on growth
- effects of environmental stress

9

$$\text{Growth} = \text{Consumption} - (\text{Costs})$$

$$\text{Costs} = \text{Respiration} + \text{Feces} + \text{Urine} + \text{Cost of Digestion}$$





Model Inputs

Individual Model

- Growth
 - body size, caloric density, reproduction
- Diet
 - prey type, caloric density
- Temperature

Population Level

- Density
- Mortality

Application of Bioenergetics Approaches to Harris Dam Impact Assessment

- **Temperature fluctuation effect on metabolism**
- **Flow impact on activity rate – metabolism**
- **Downstream shifts on community structure and food availability**

15

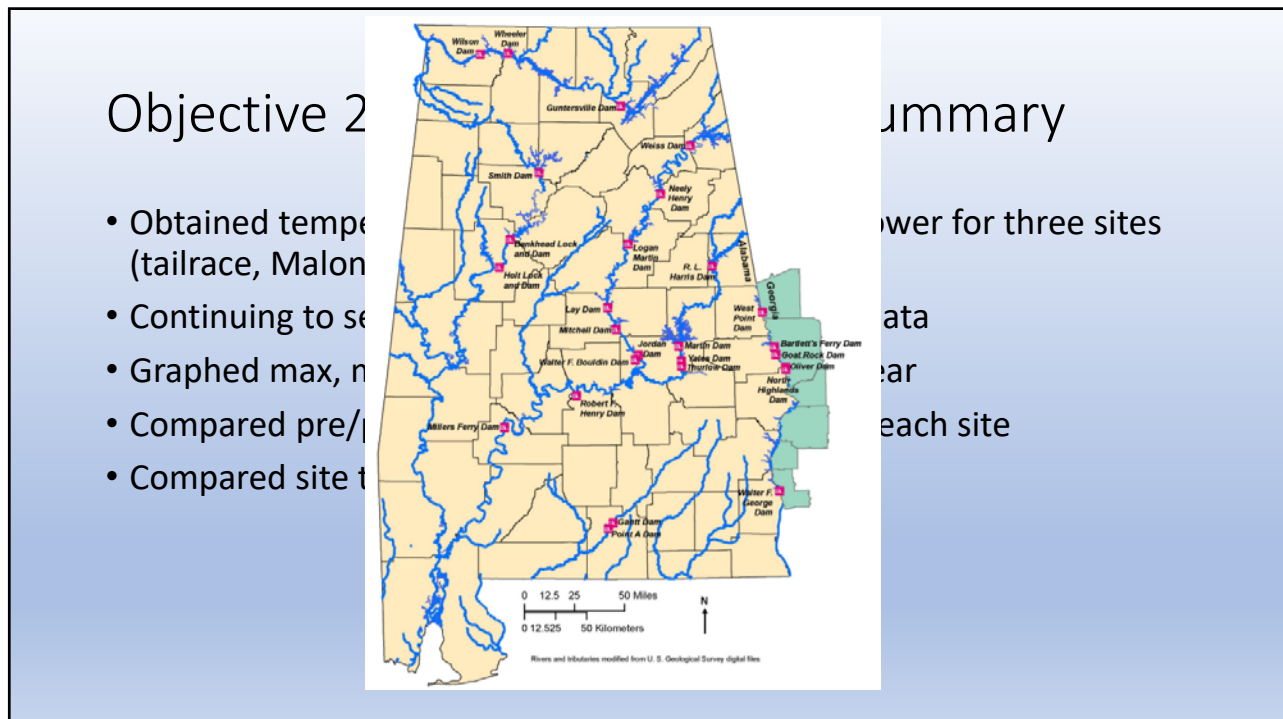
Limitations of the “Wisconsin” Bioenergetics Model

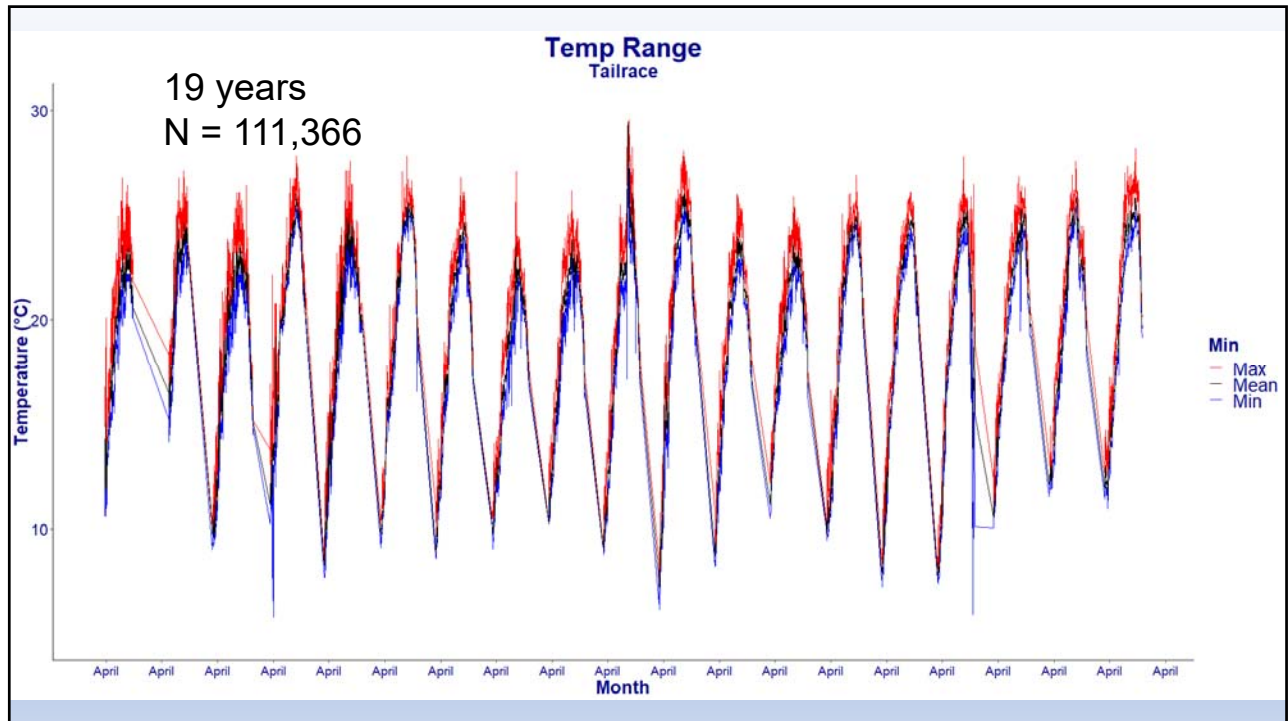
- **Currently no model for Tallapoosa Bass or Redbreast Sunfish**
- **Channel Catfish model parameters from lentic systems**
- **Temperature and activity operate on a daily time step**

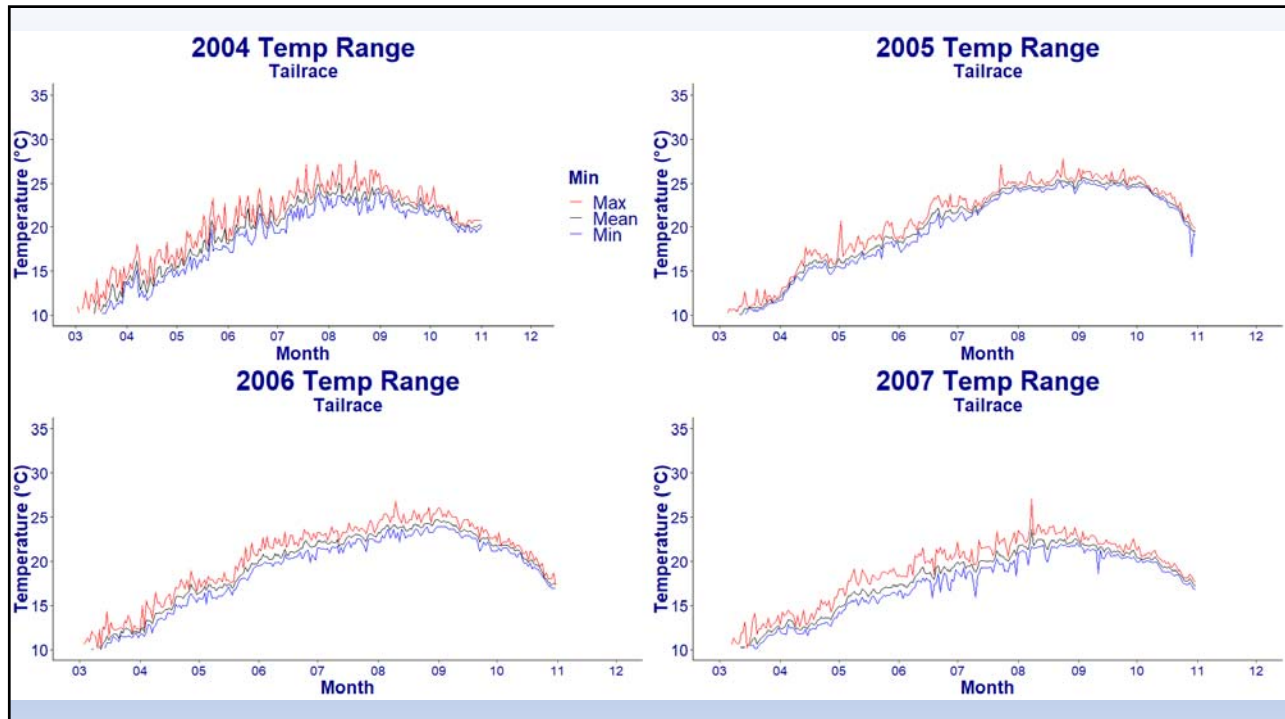
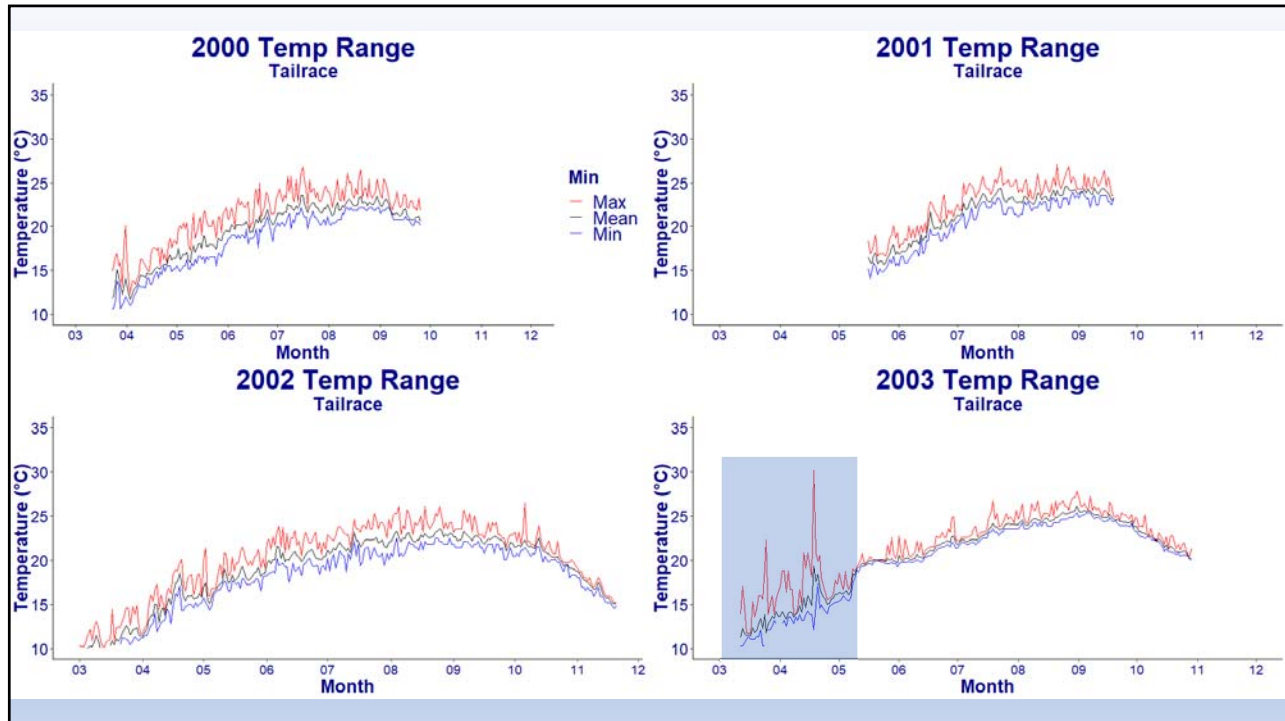
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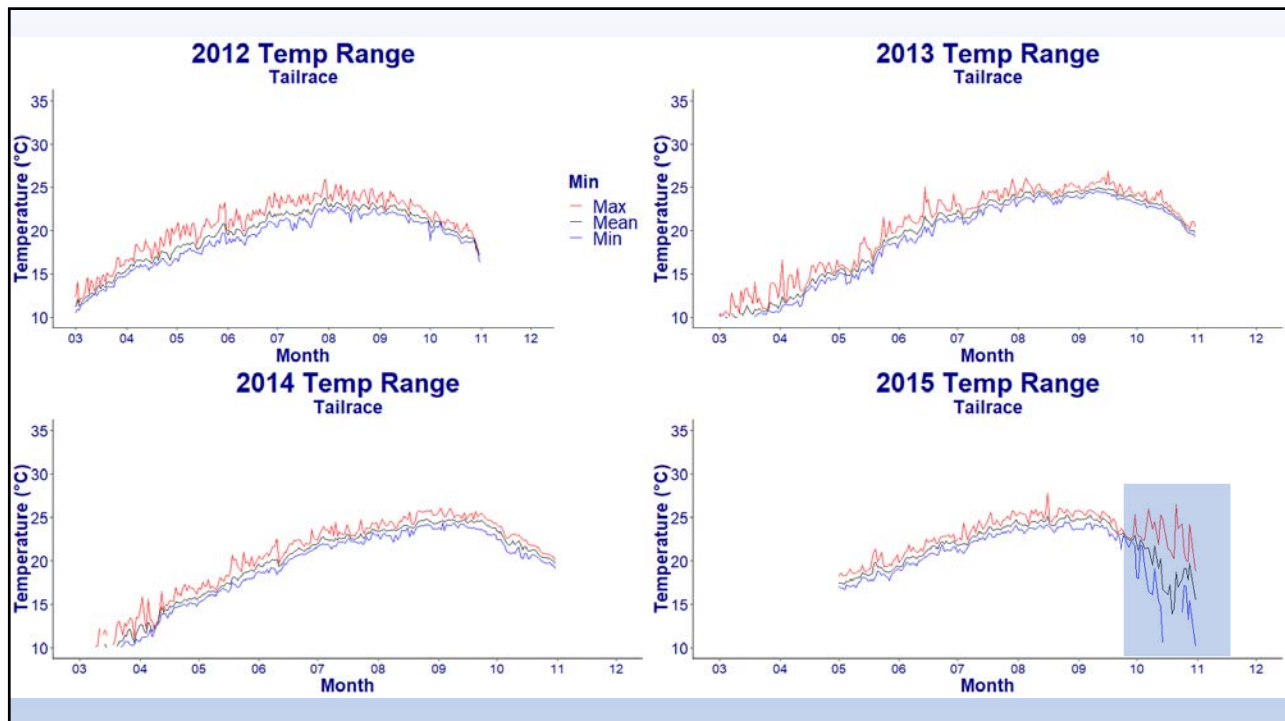
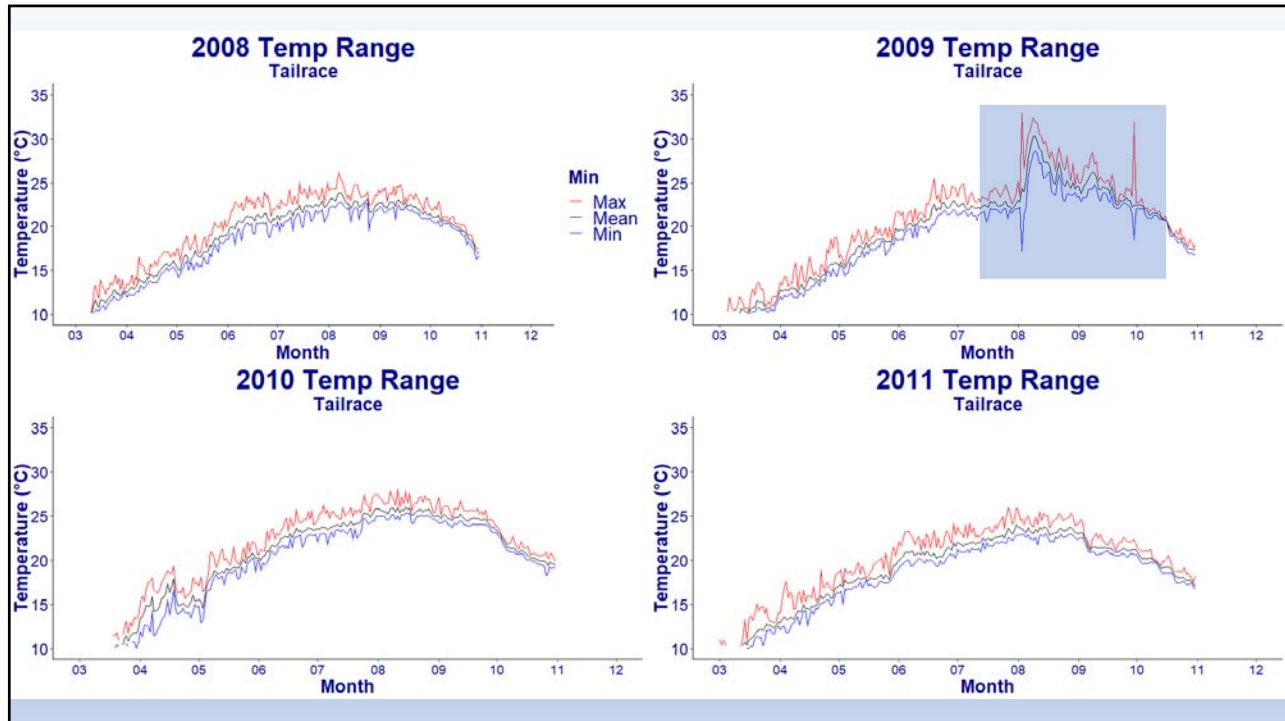
Objective 1: Temperature Requirements

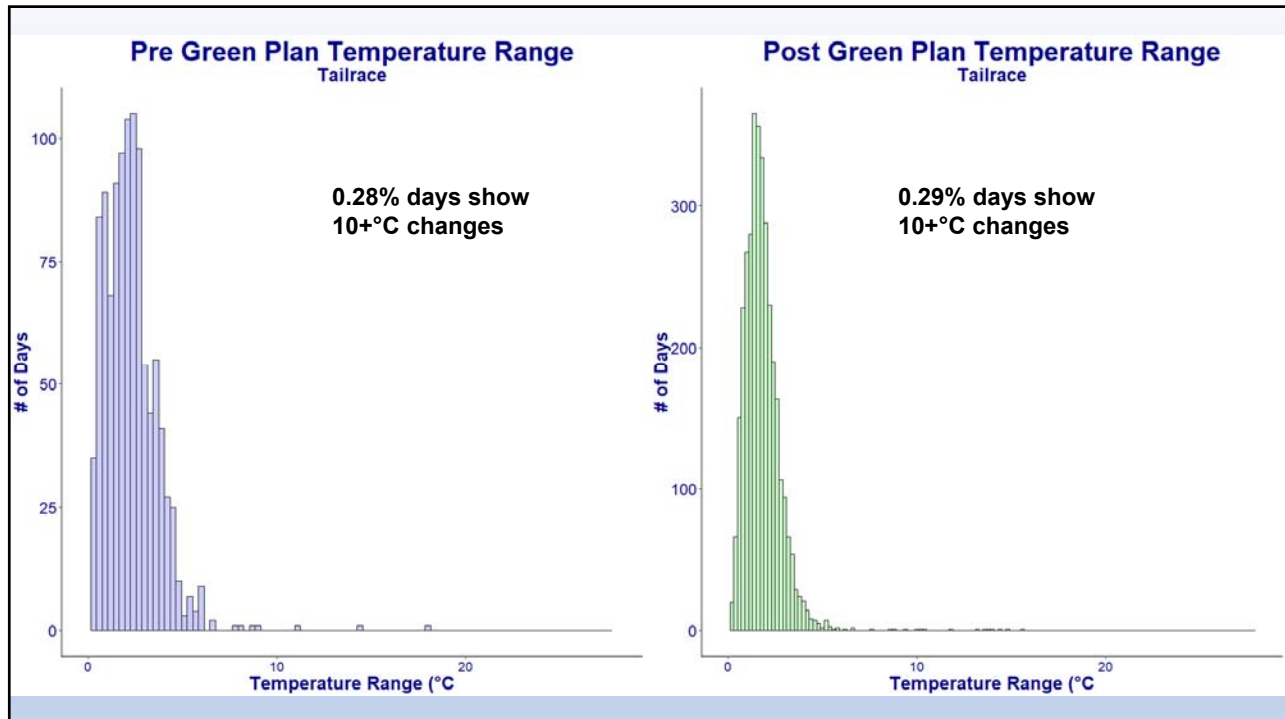
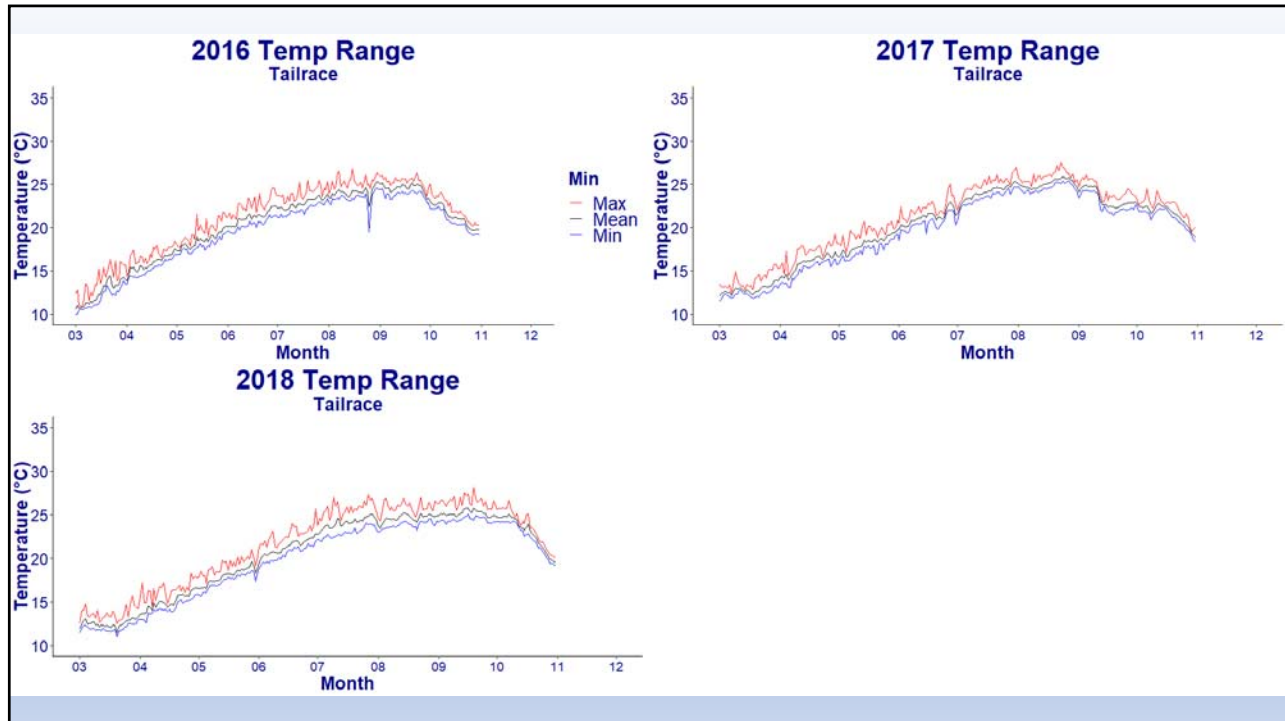
- Reviewed published literature, grey literature reports, agency reports, theses/dissertations, etc. for information on target and related species
 - Redbreast Sunfish
 - Tallapoosa Bass
 - Channel Catfish
- **Extremely limited data available except for Channel Catfish in ponds/reservoirs**
- **Continuing our search for additional data**

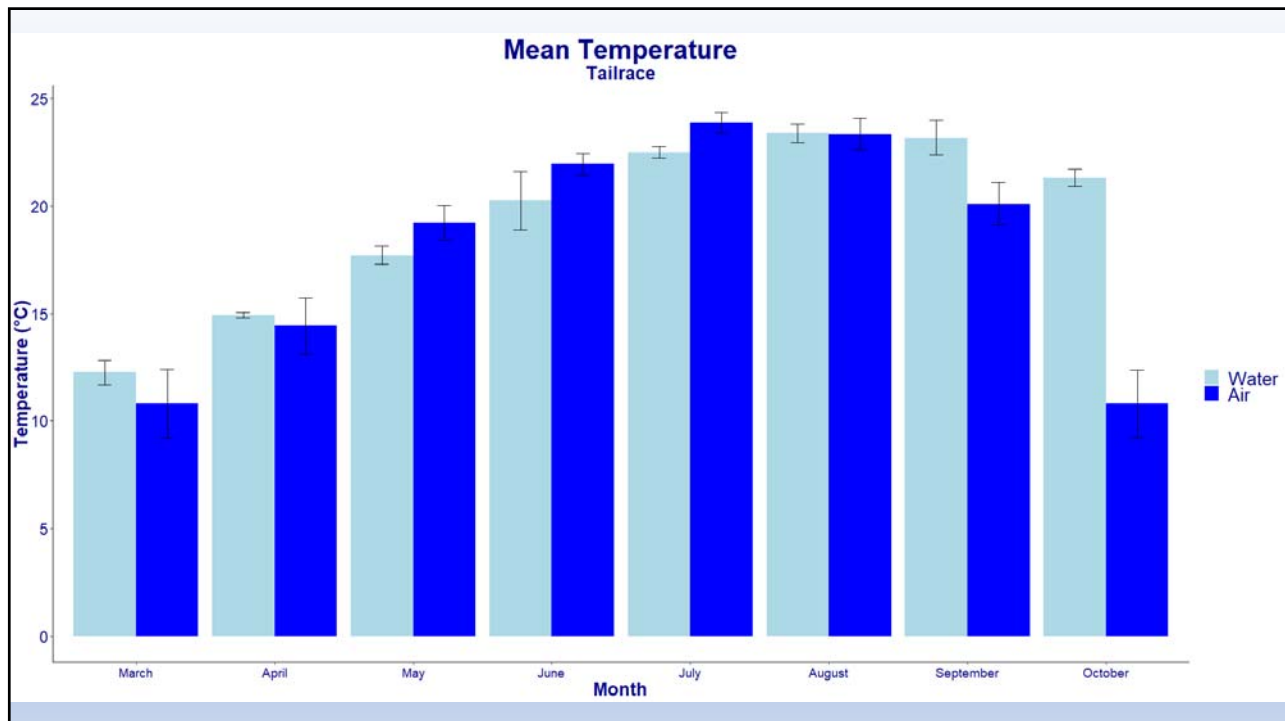
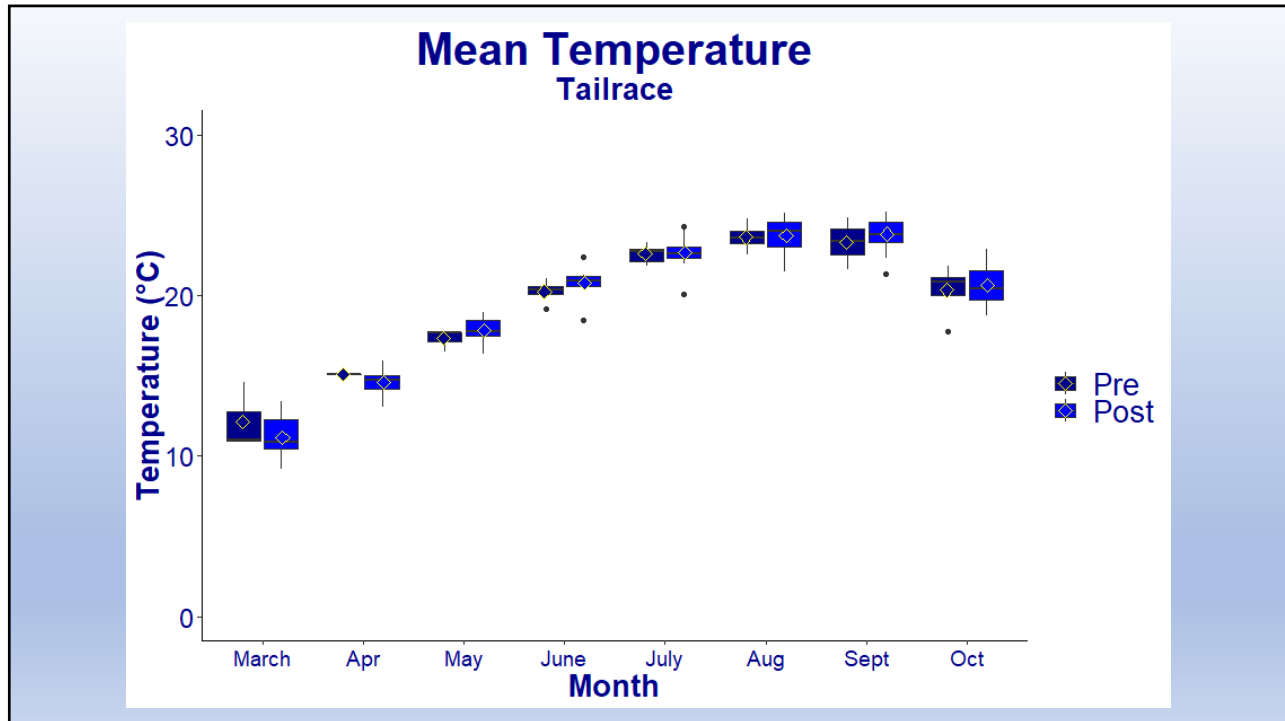


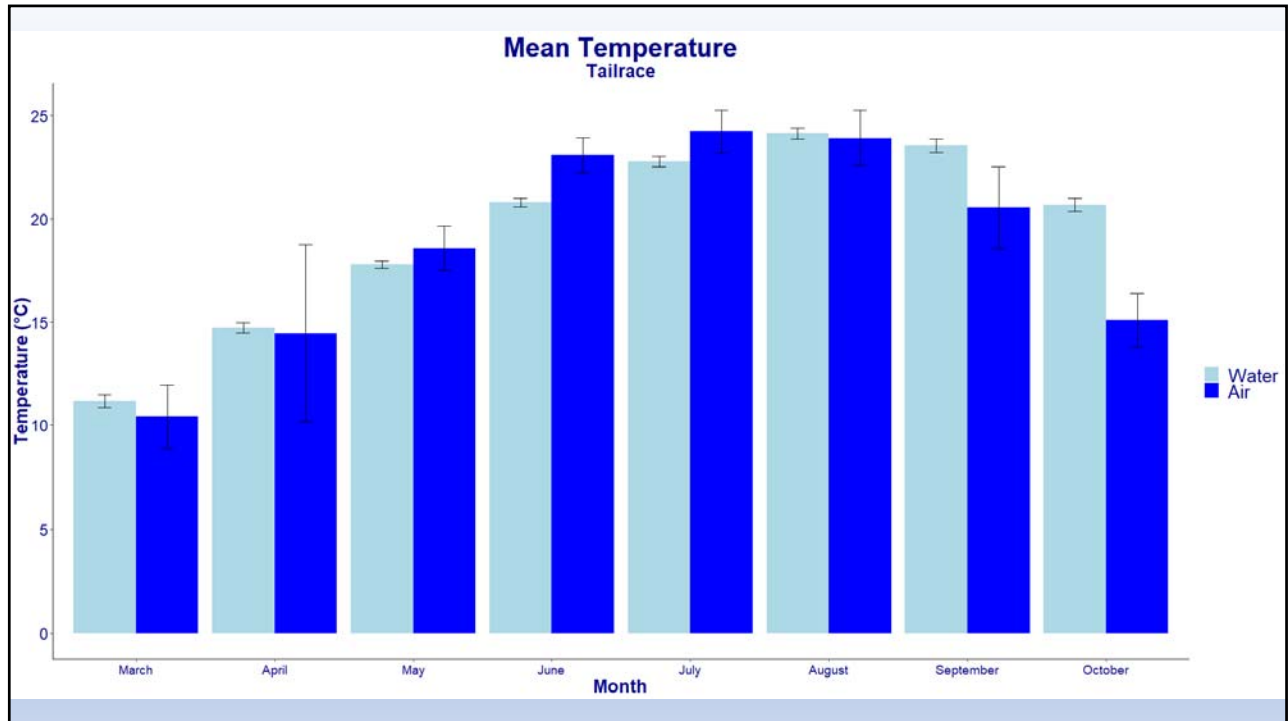


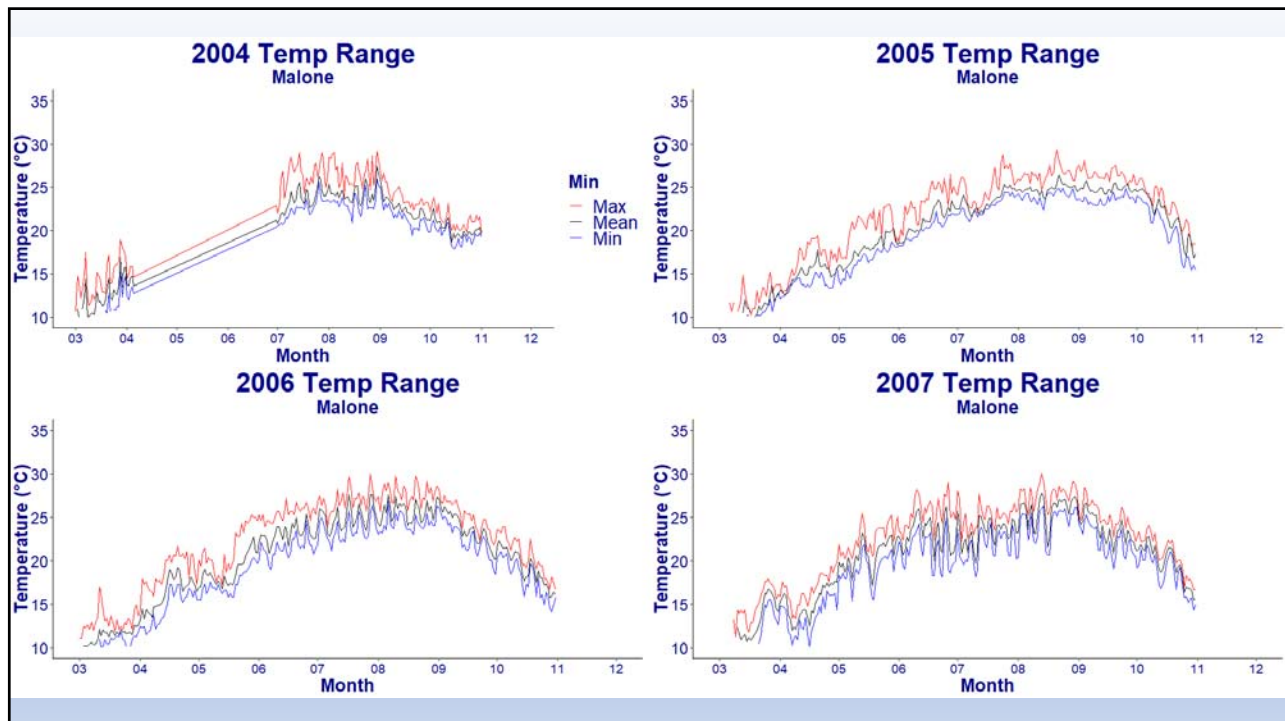
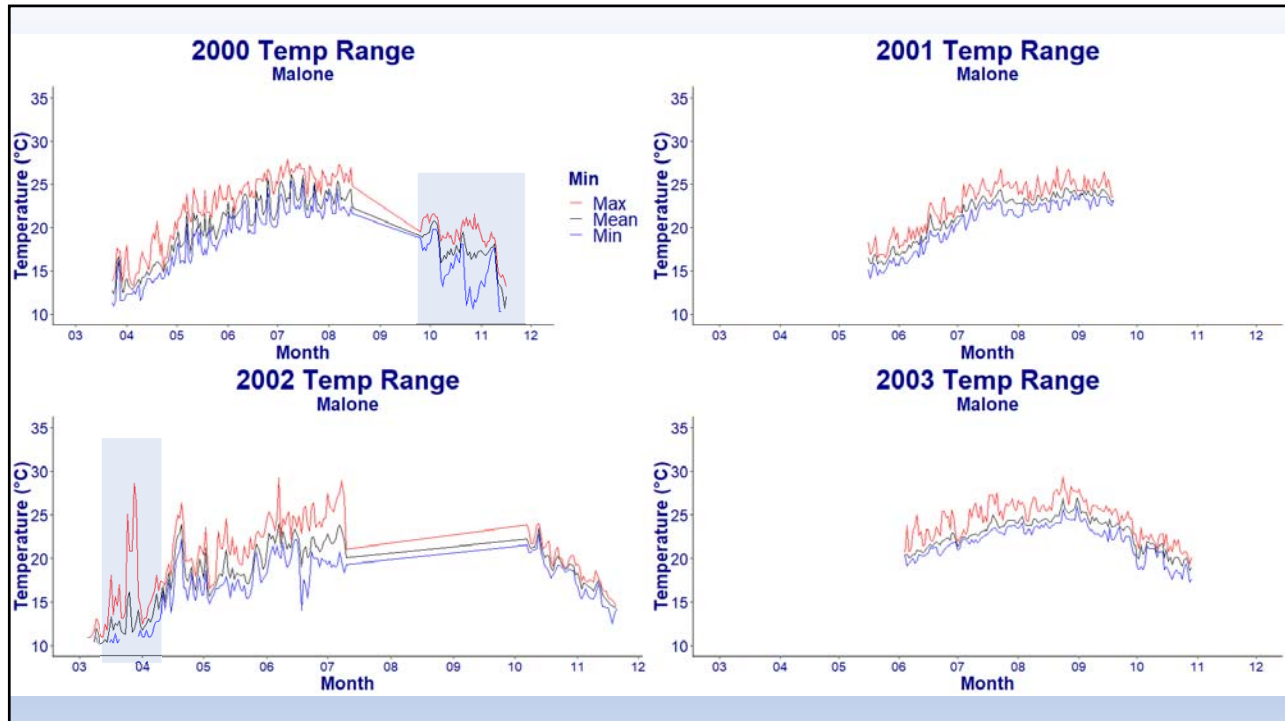


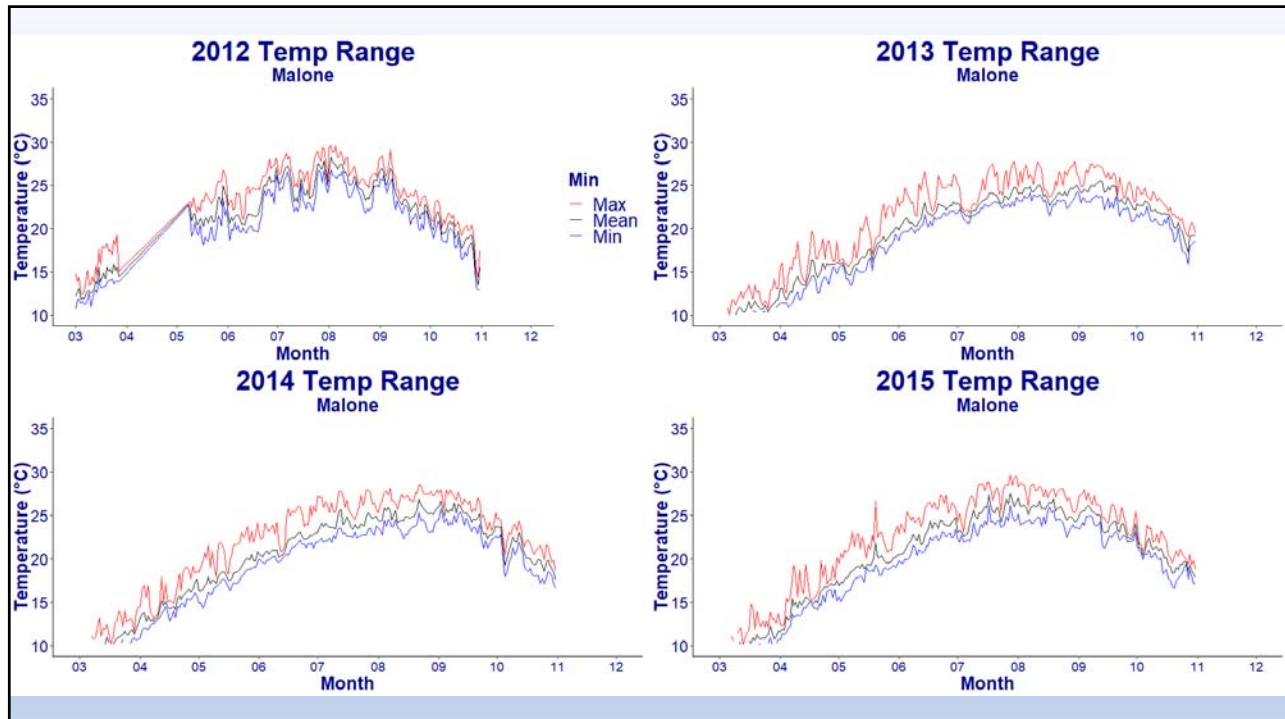
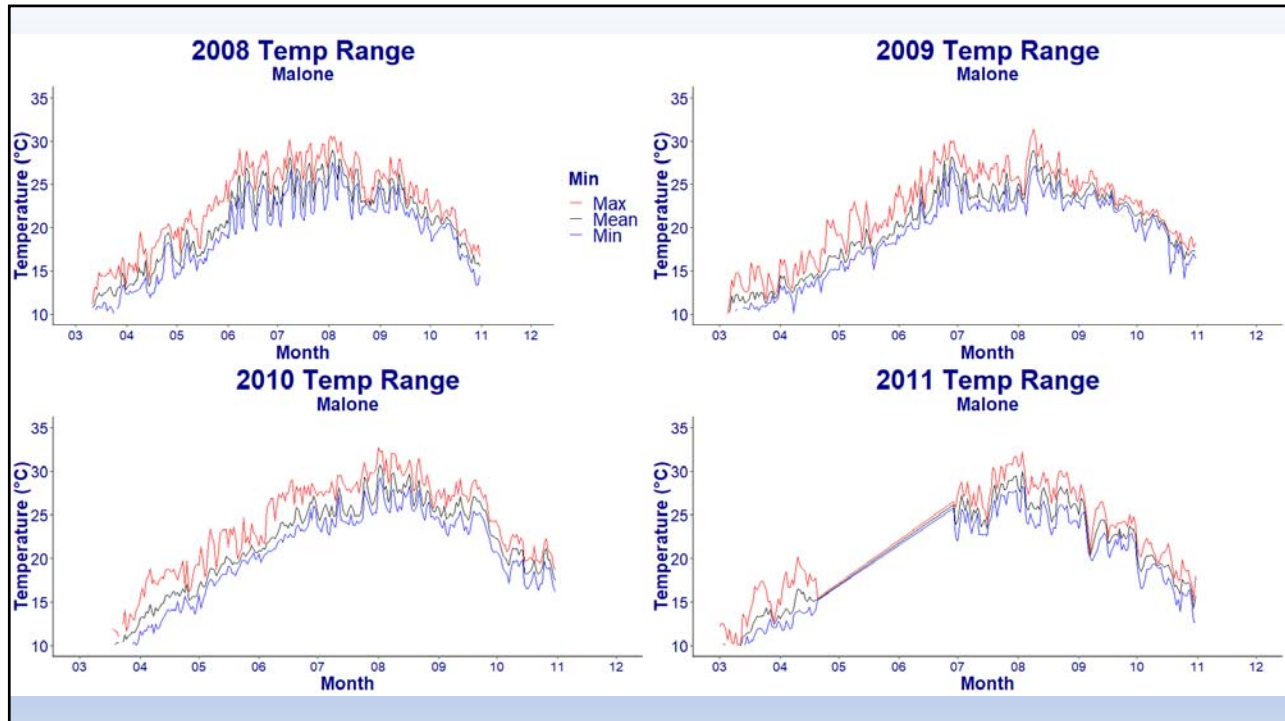


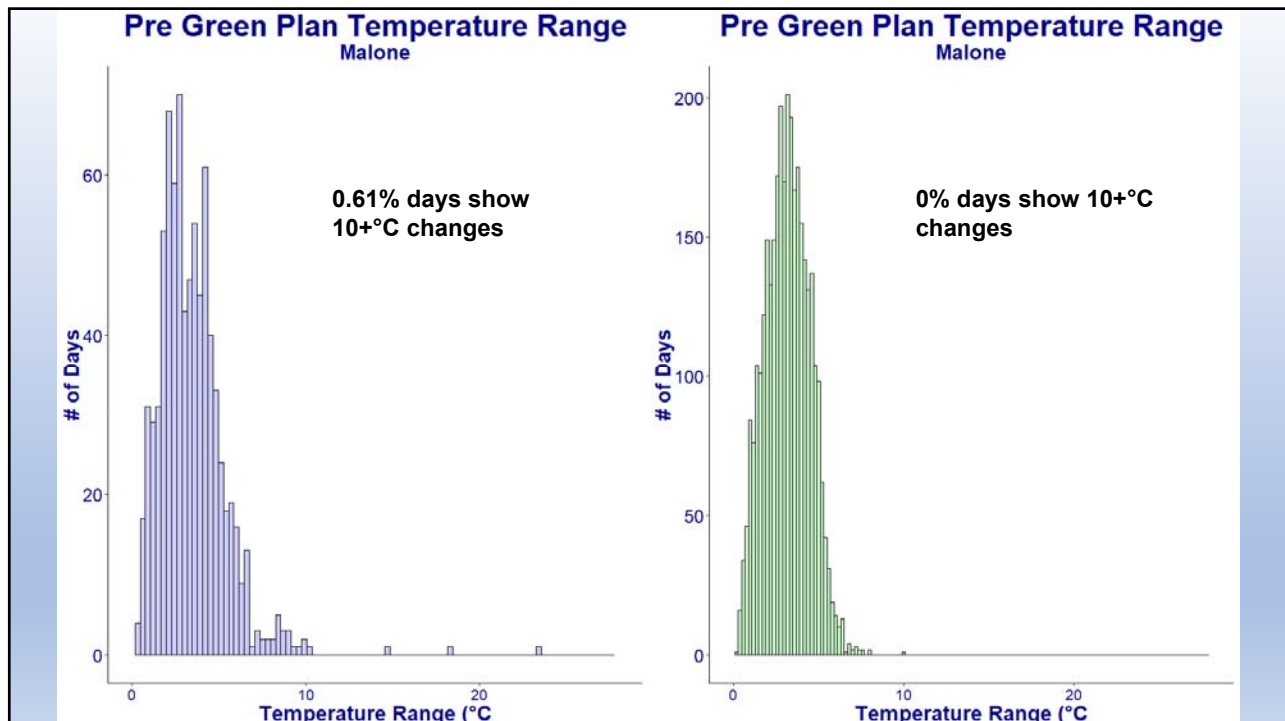
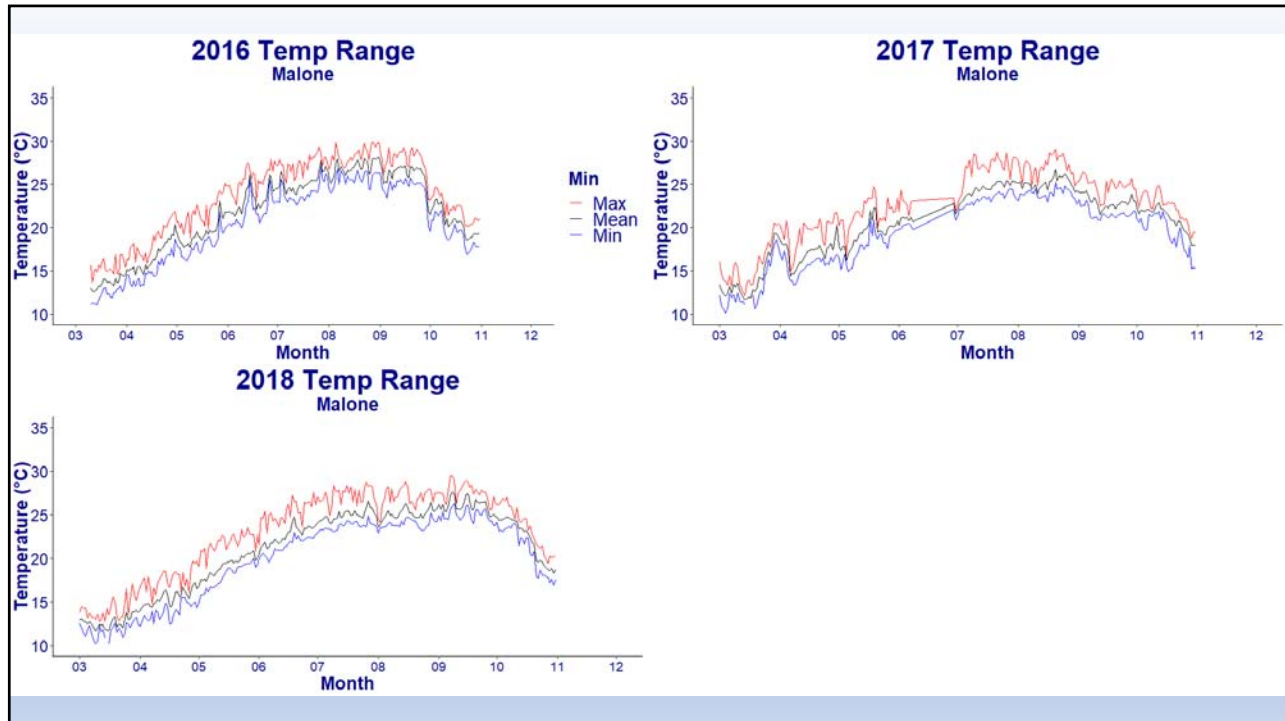


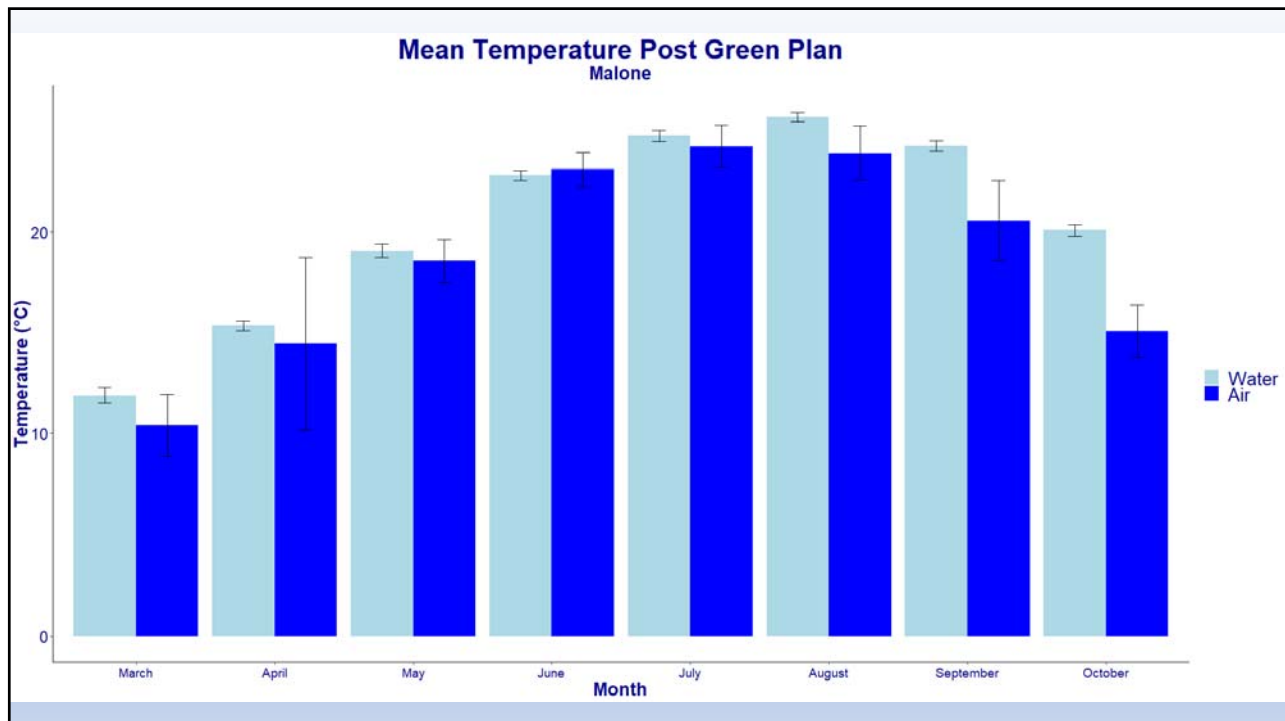
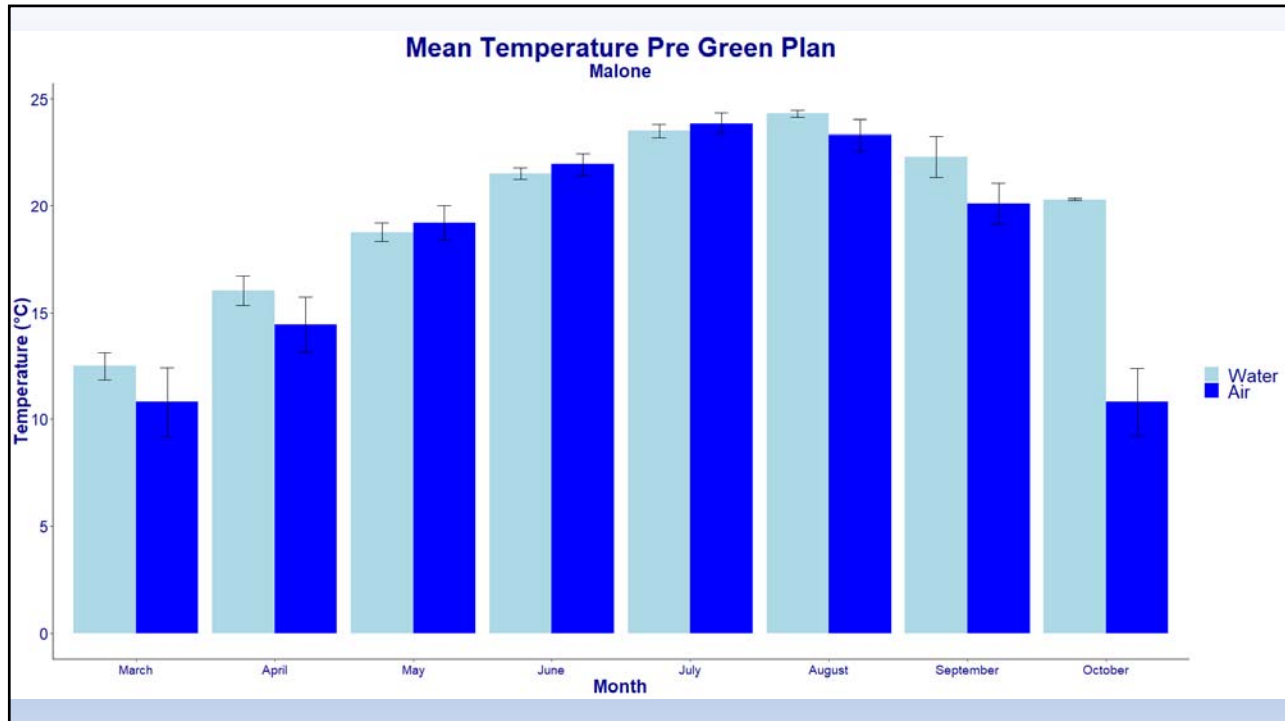


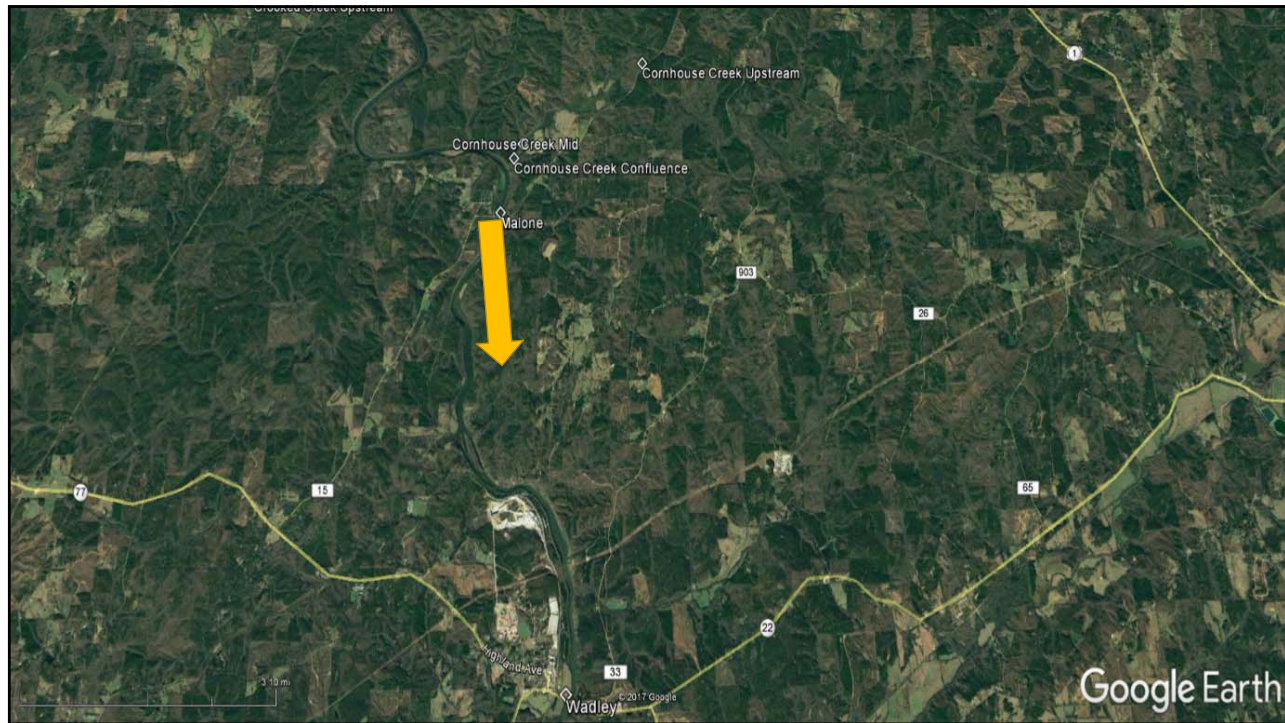
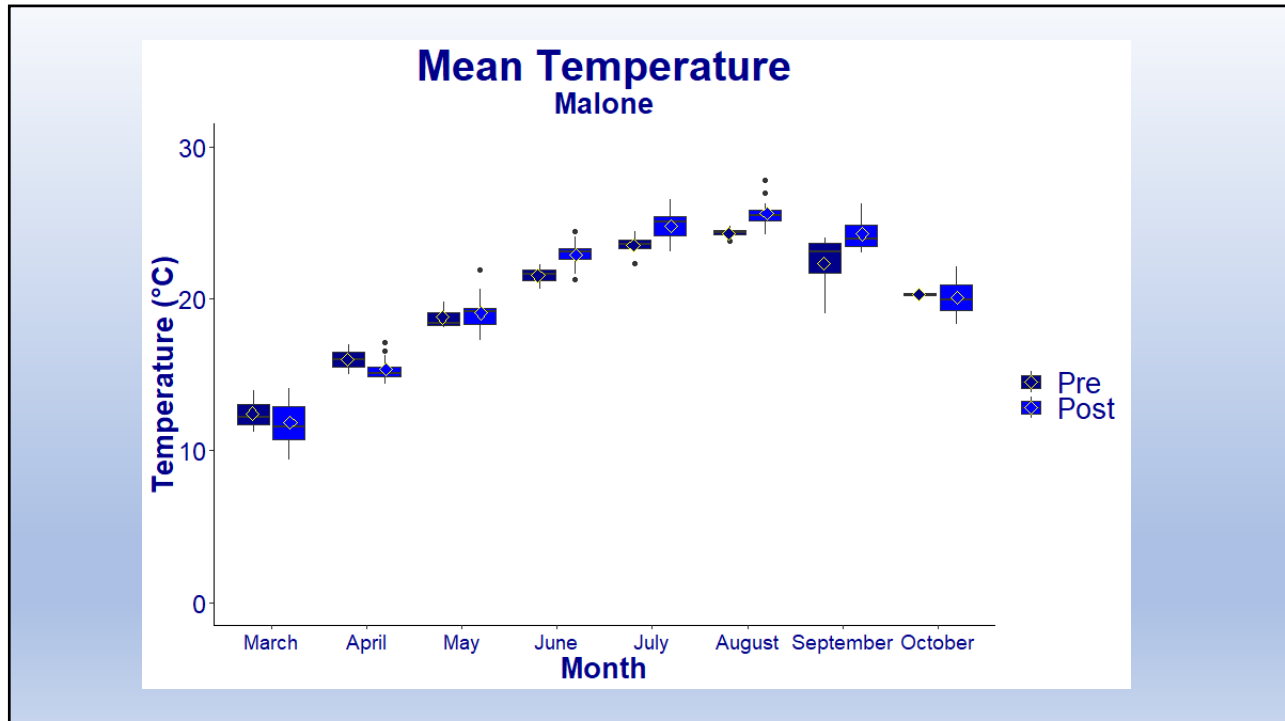


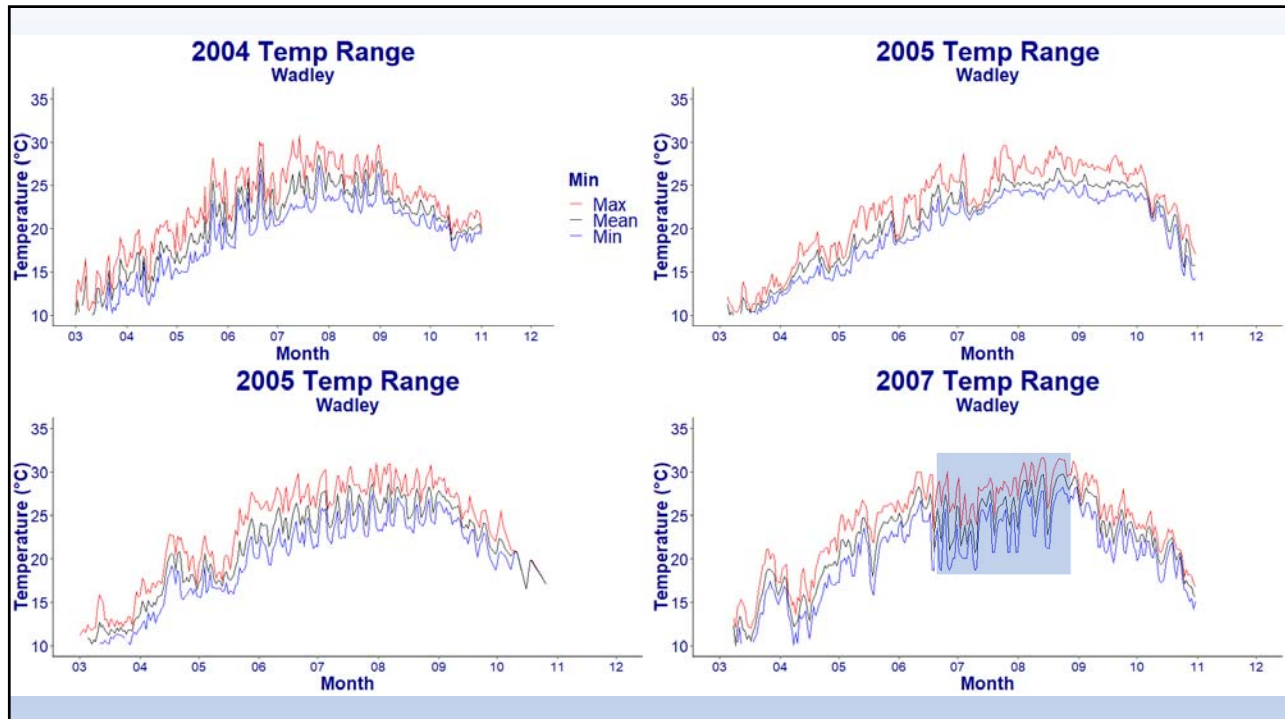
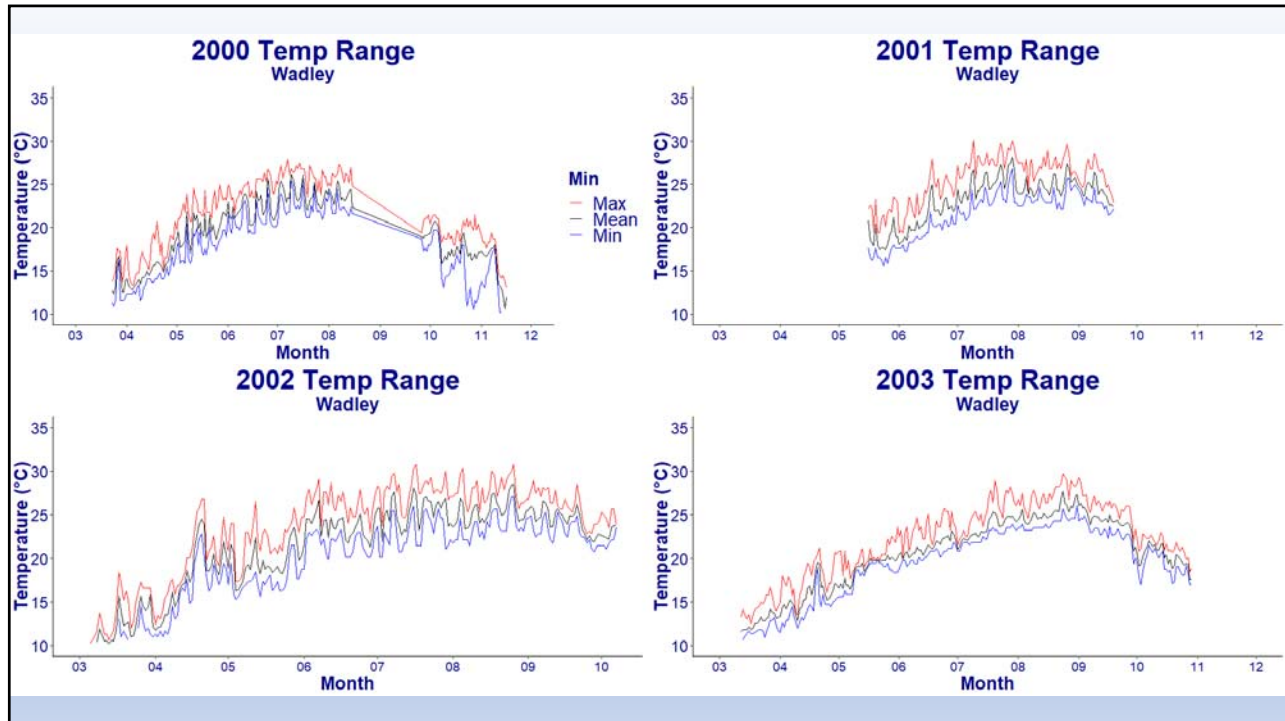


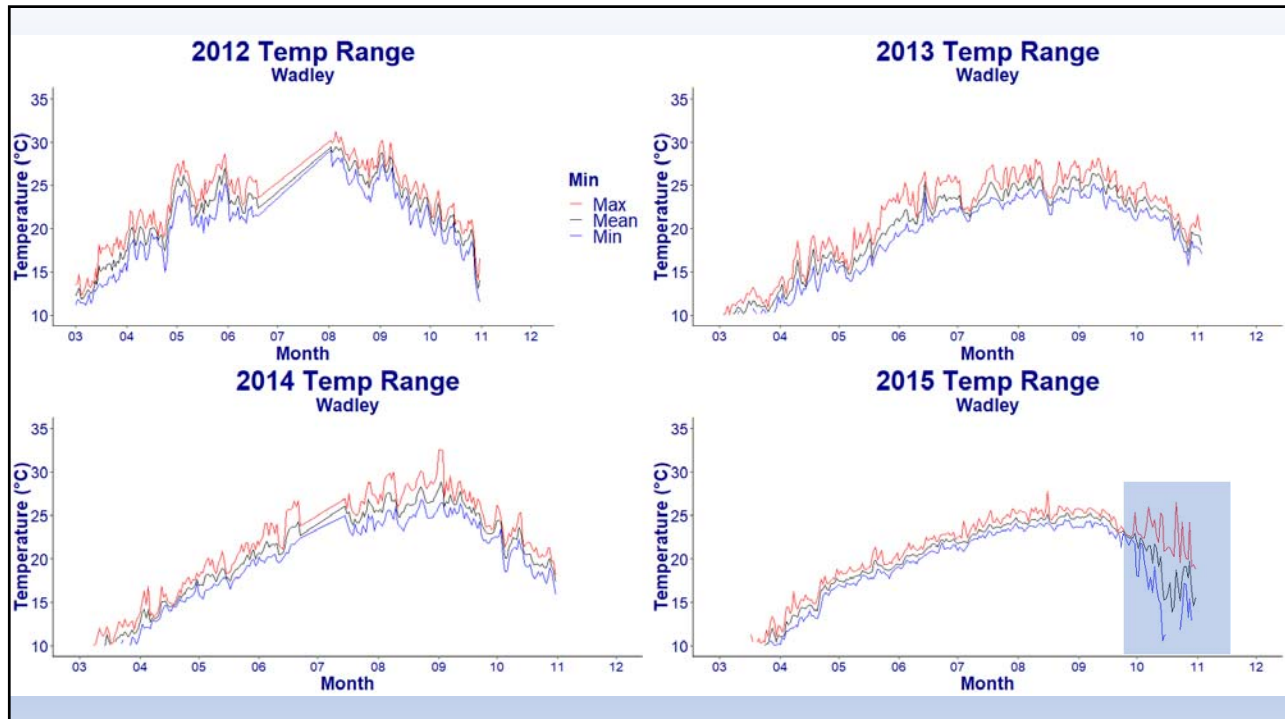
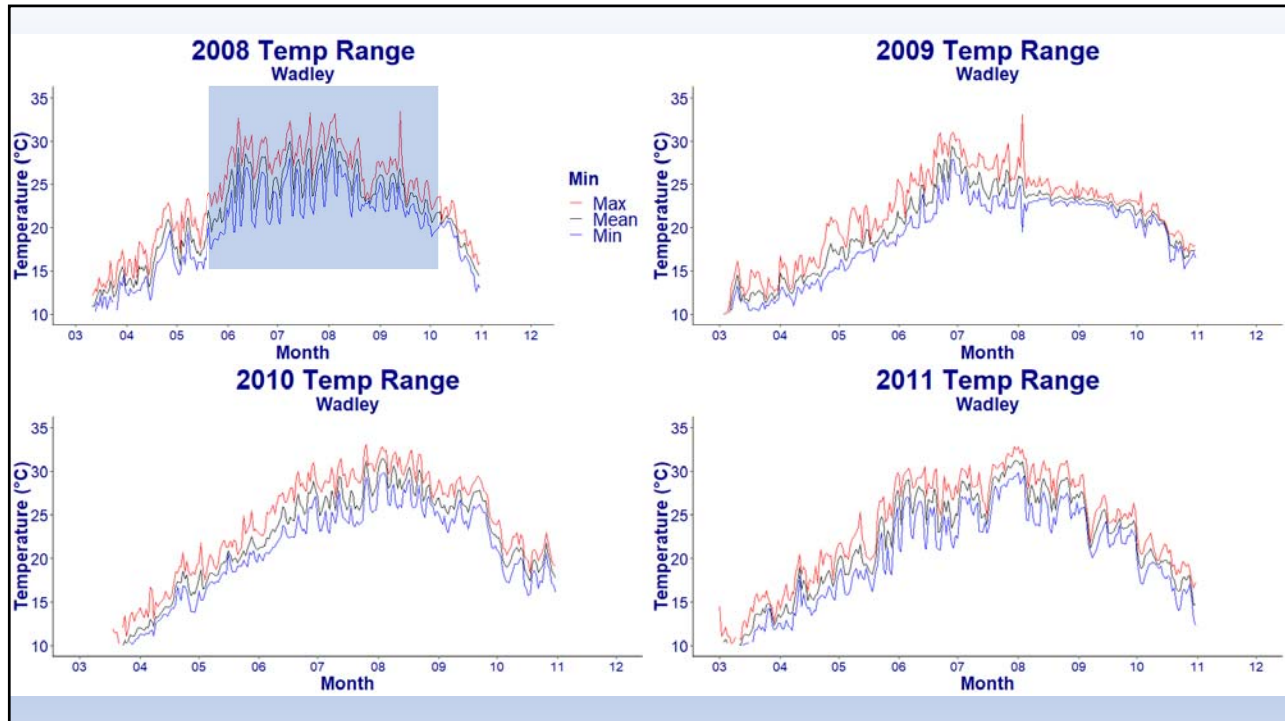


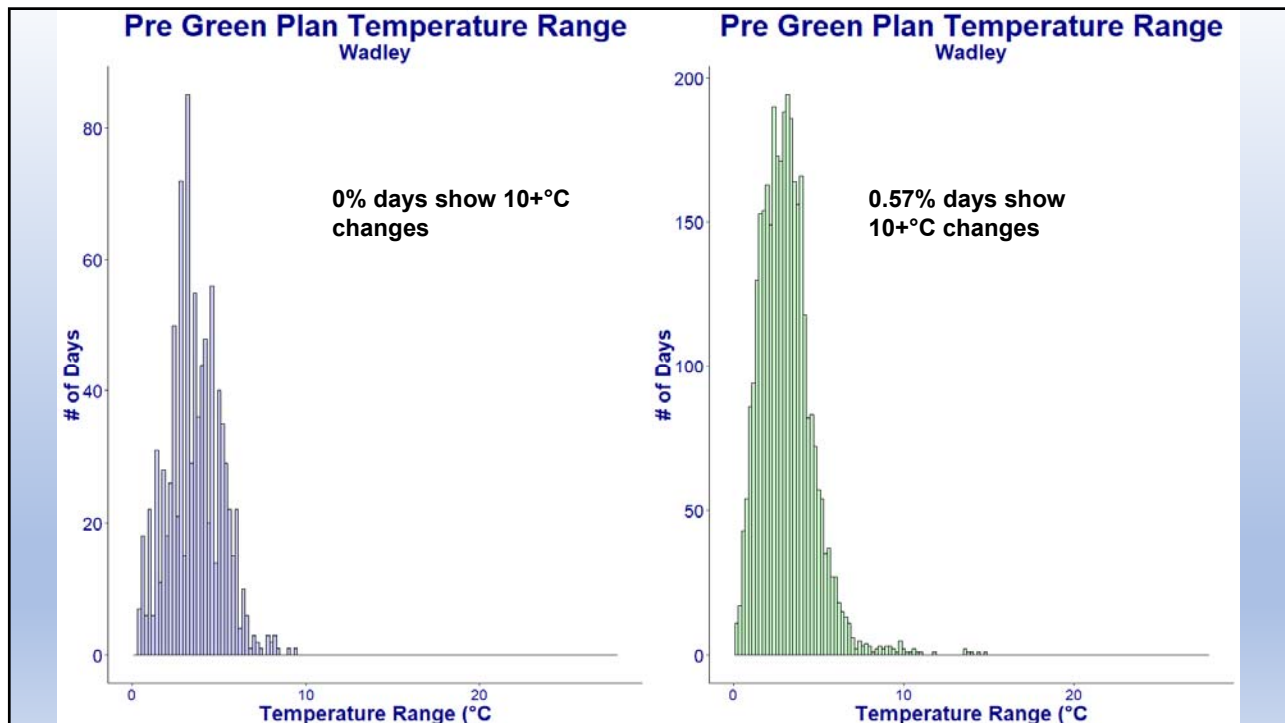
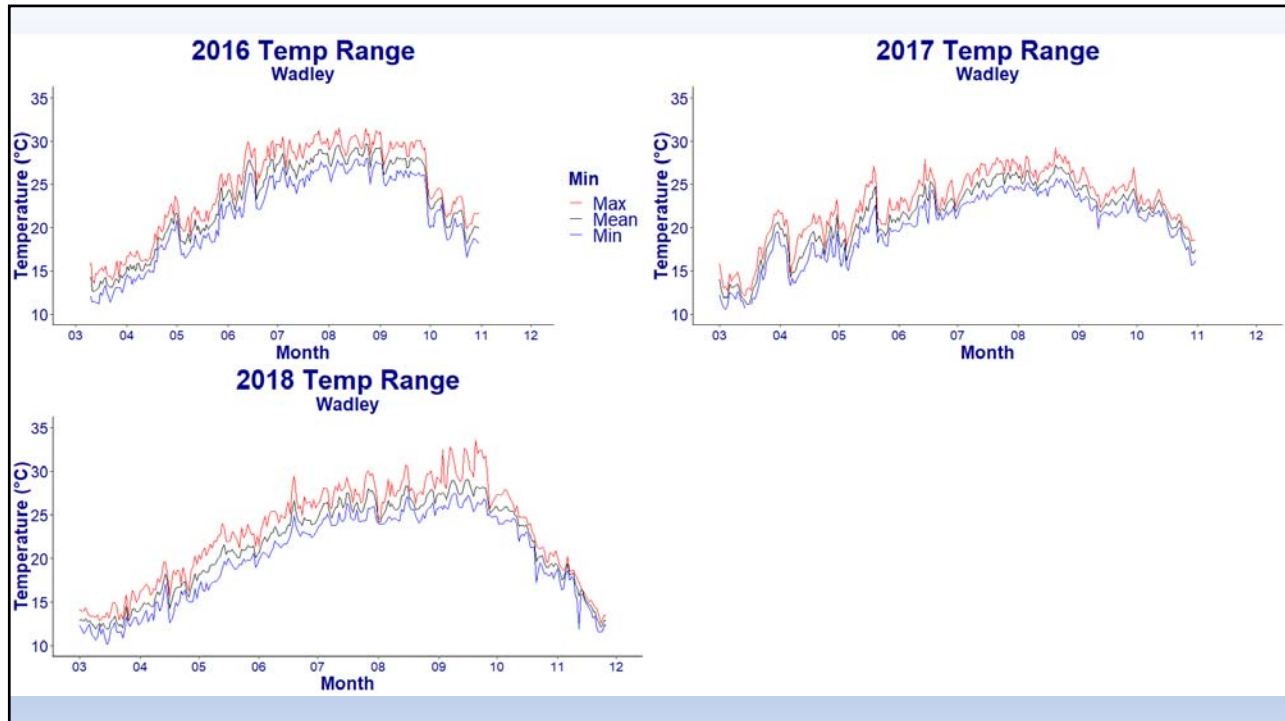


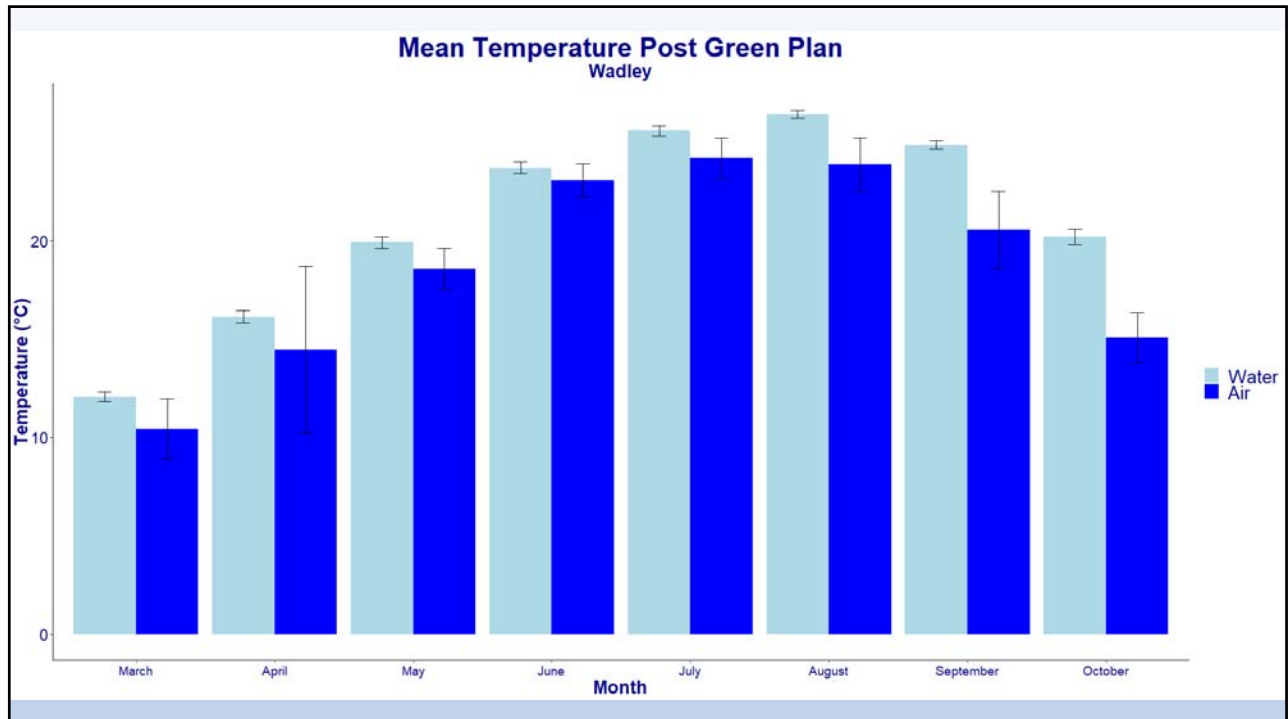
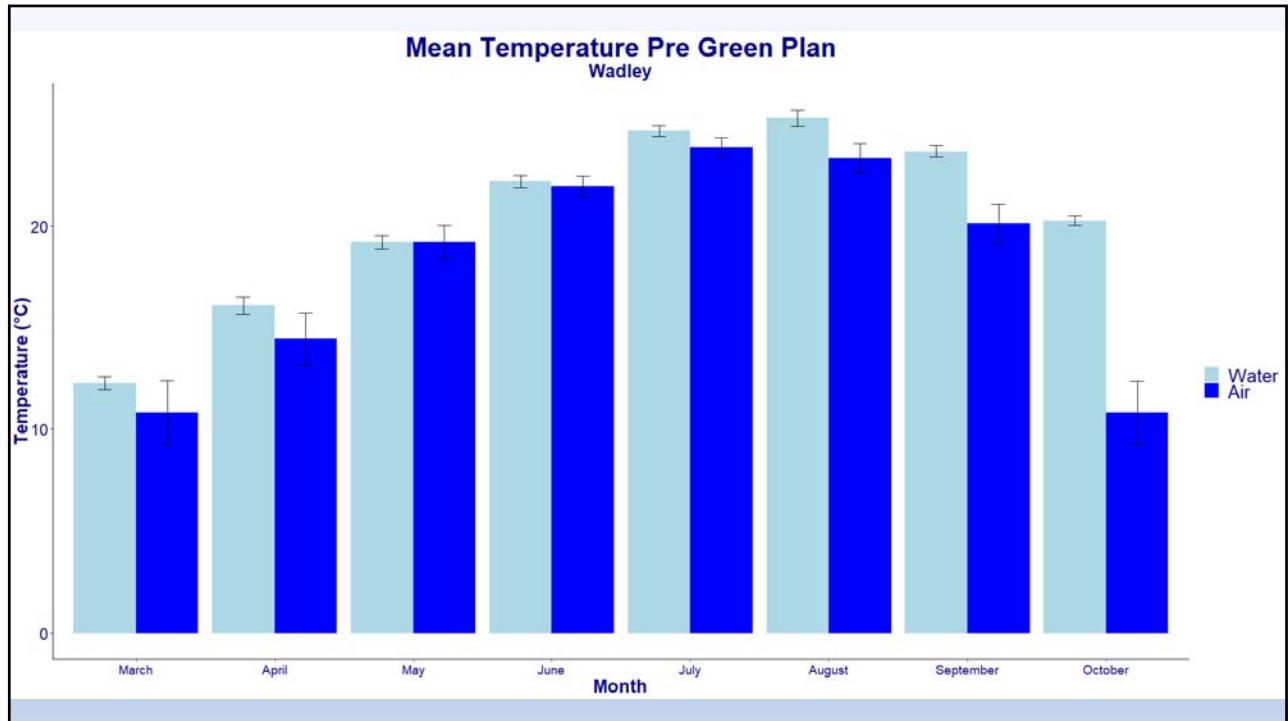


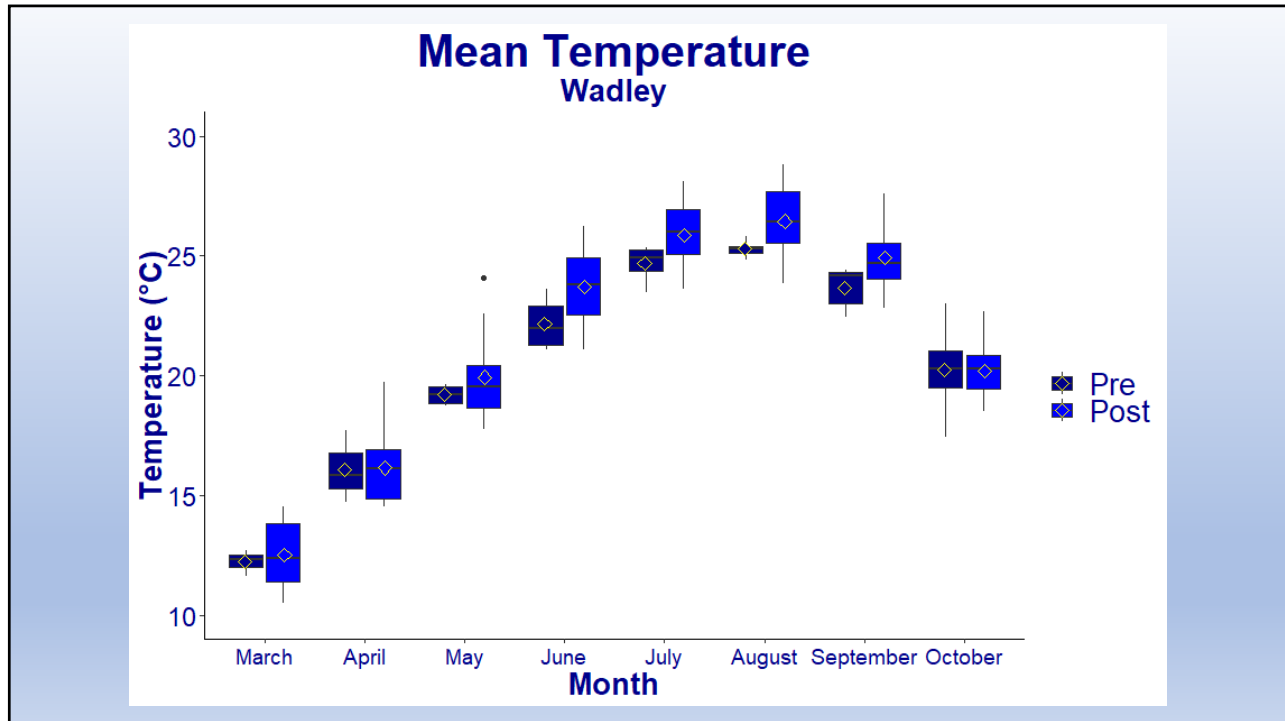


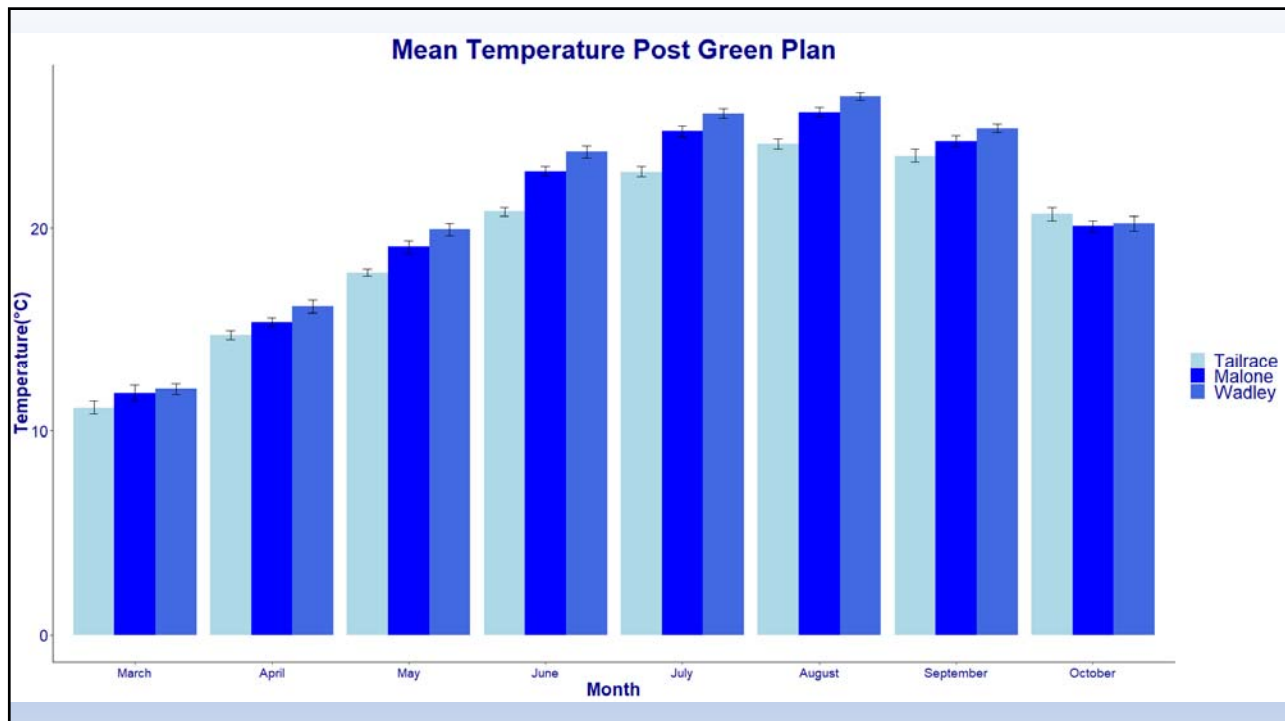
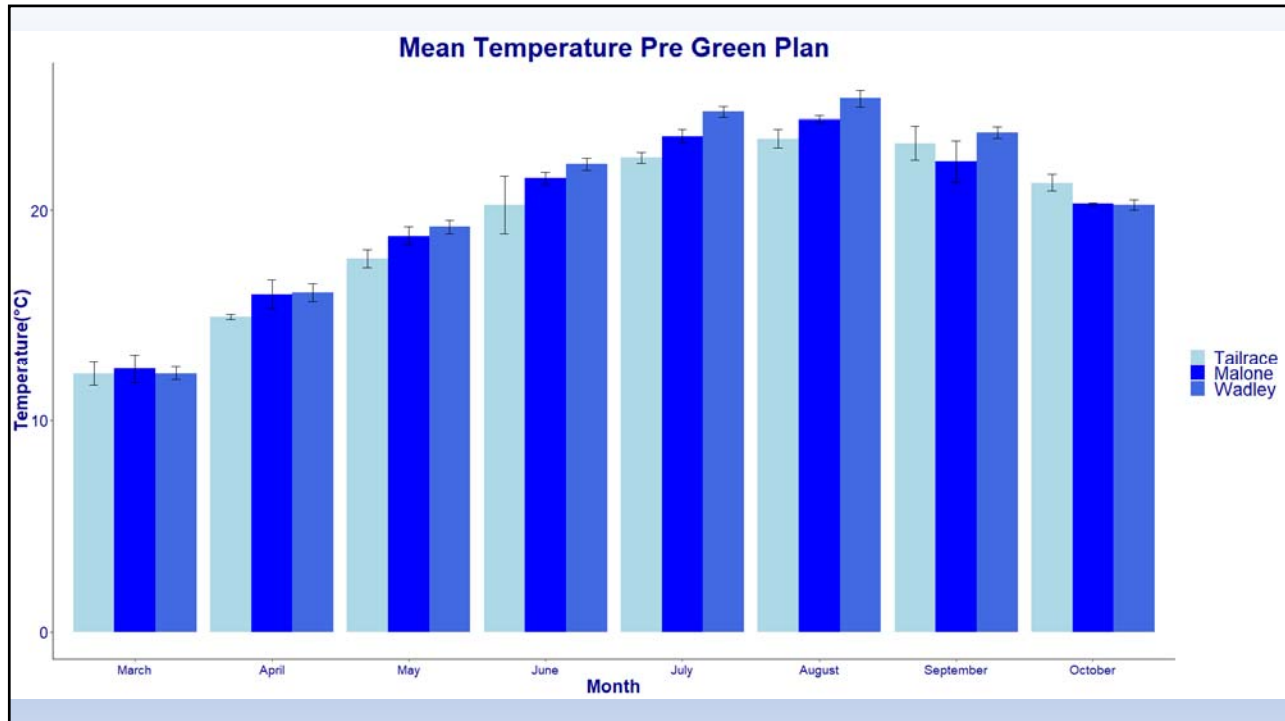












Preliminary Summary

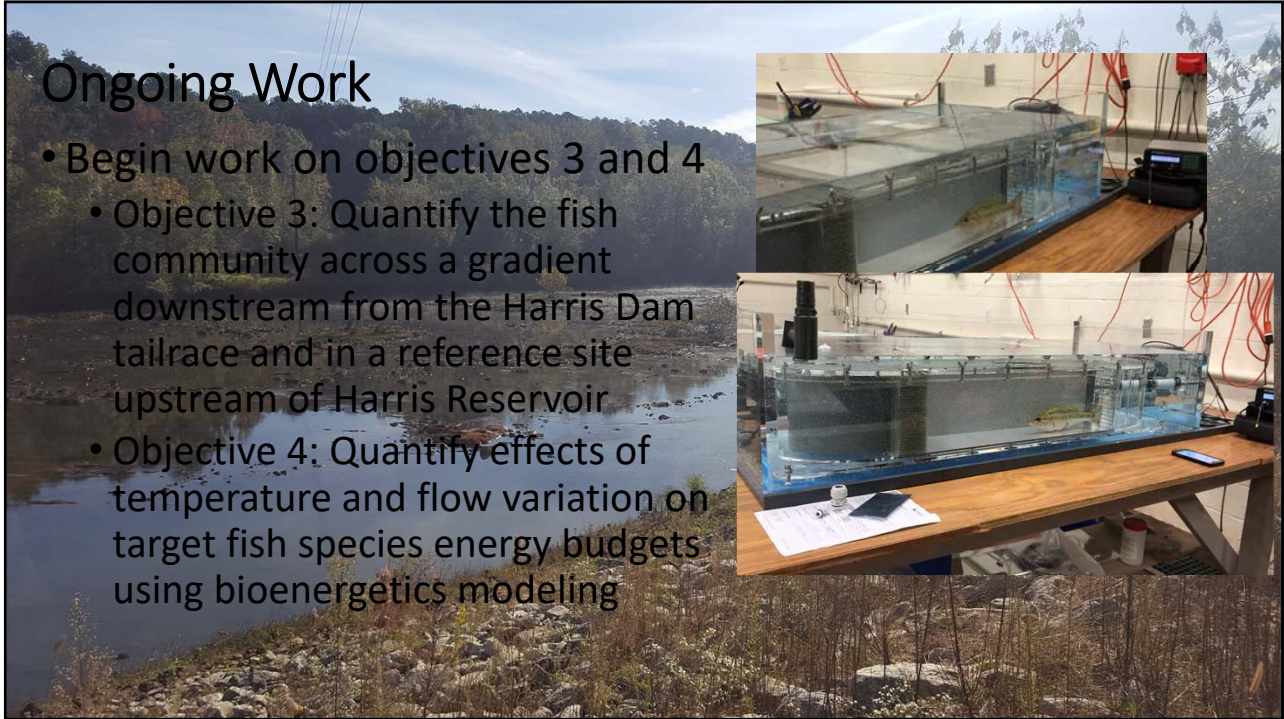
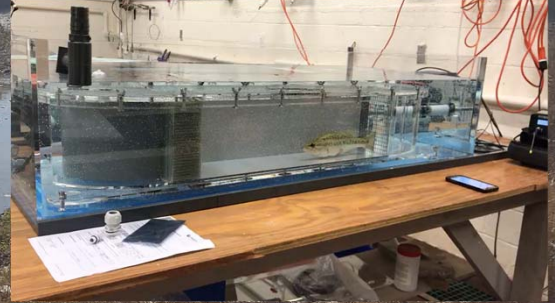
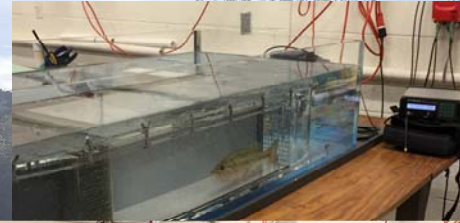
- No significant difference between temperatures before/after Green Plan
- Large variation in temperature during certain times
- Need winter temperature data
- Limited temperature tolerance data for riverine fish of interest

Ongoing Work

- Continue to address objectives 1 and 2
 - Deploy temperature loggers
 - Compare flow and temperature patterns
 - Continue searching for temperature tolerance data

Ongoing Work

- Begin work on objectives 3 and 4
 - Objective 3: Quantify the fish community across a gradient downstream from the Harris Dam tailrace and in a reference site upstream of Harris Reservoir
 - Objective 4: Quantify effects of temperature and flow variation on target fish species energy budgets using bioenergetics modeling



Downstream Aquatic Habitat Study



Goal

To develop a model that describes the relationship between Green Plan operations and aquatic habitat.

Geographic Scope

Harris Dam through Horseshoe Bend

Methods

1. Mesohabitat Analysis: Desktop analysis of the types of available habitat (classified as riffle, run, pool)
2. Install water level loggers at up to 20 sites
3. Use HEC-RAS to evaluate the effect of current operations on the amount and persistence of wetted aquatic habitat, especially shoal/shallow-water habitat.

Mesohabitat Analysis

File Edit View Bookmarks Insert Selection Geoprocessing Customize Windows Help

1:8,000

Drawing

Editor

Labeling

Fast



Table Of Contents

- Jayers
 - Talapoosa\Sections_Survey
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 - Survey
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 - Yes
 - Reference
 - Talapoosa_Mesohabitat
 - <all other values>
 - MesoHab_Ty
 - Pool
 - Kilite
 - Run
 - TalapoosaRiverShape
 - NHDArea
 - Basemap
 - World Imagery (Clarity)
 - World Imagery



Talapoosa_Meshabitat.mxd - ArcMap

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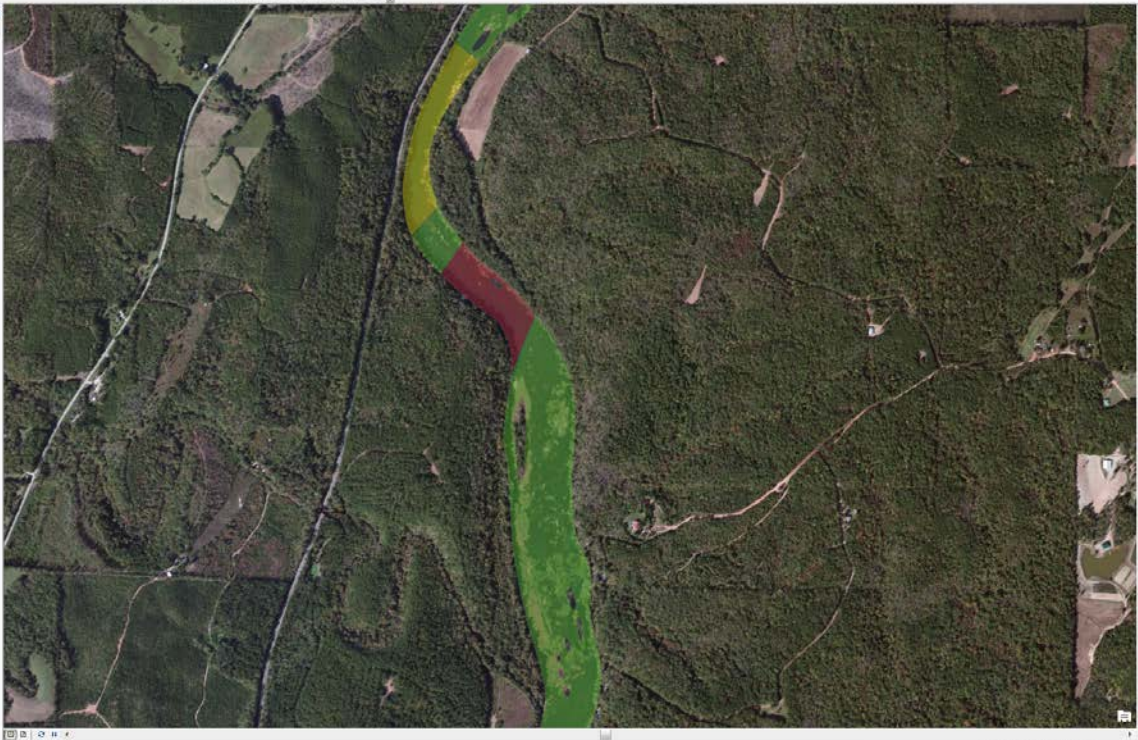
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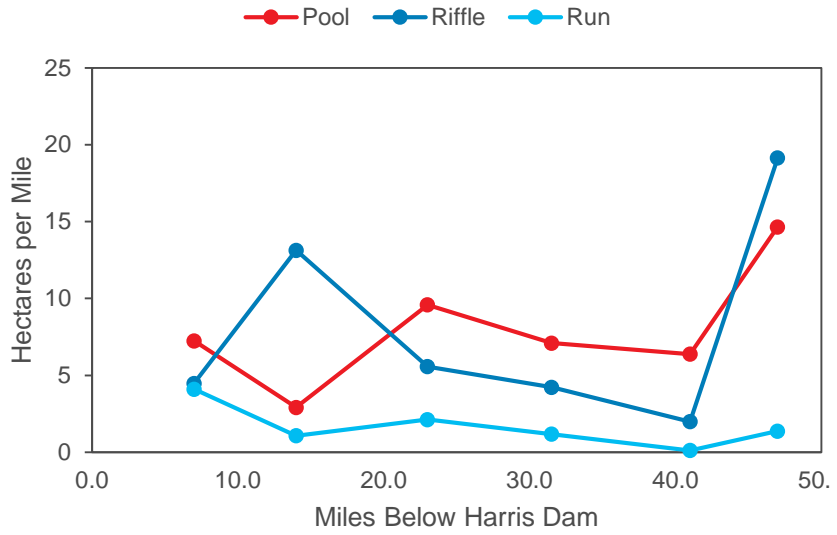
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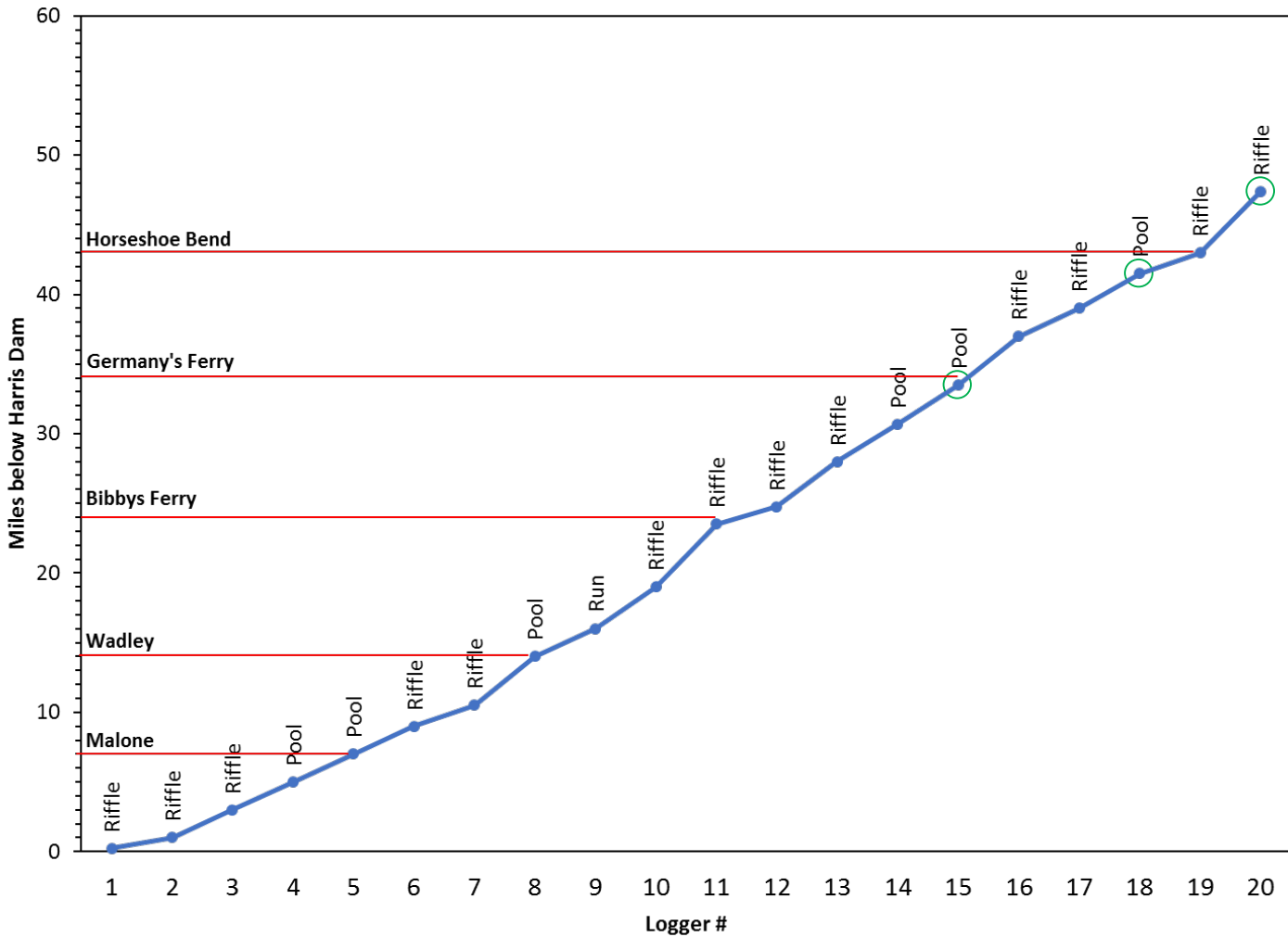


Mesohabitat Type by Reach (hectares)

Reach	Pool
Malone	50.7
Wadley	20.4
Bibbys Ferry	86.3
Germany's Ferry	60.3
Horseshoe Bend	60.7
Irwin Shoals	87.9
Grand Total	366.3

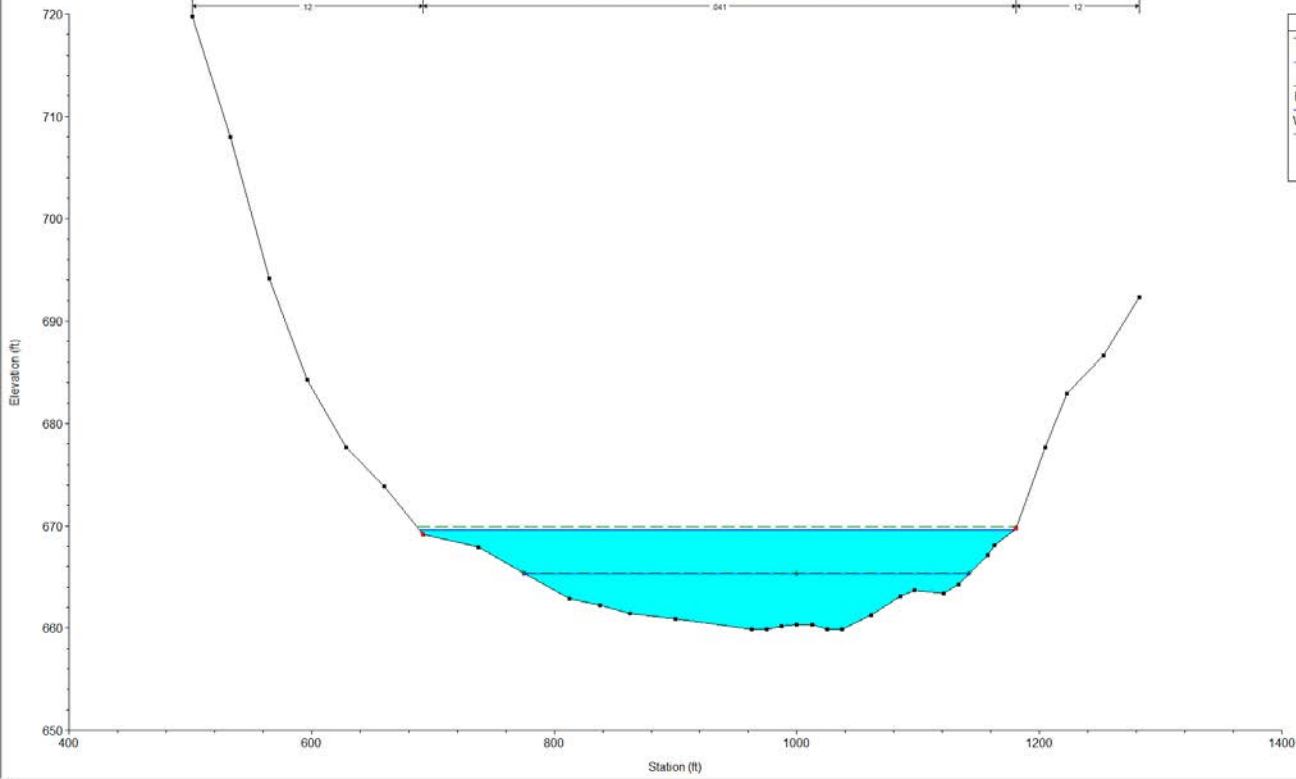


Water Level Logger Deployments



HEC-RAS Model Development

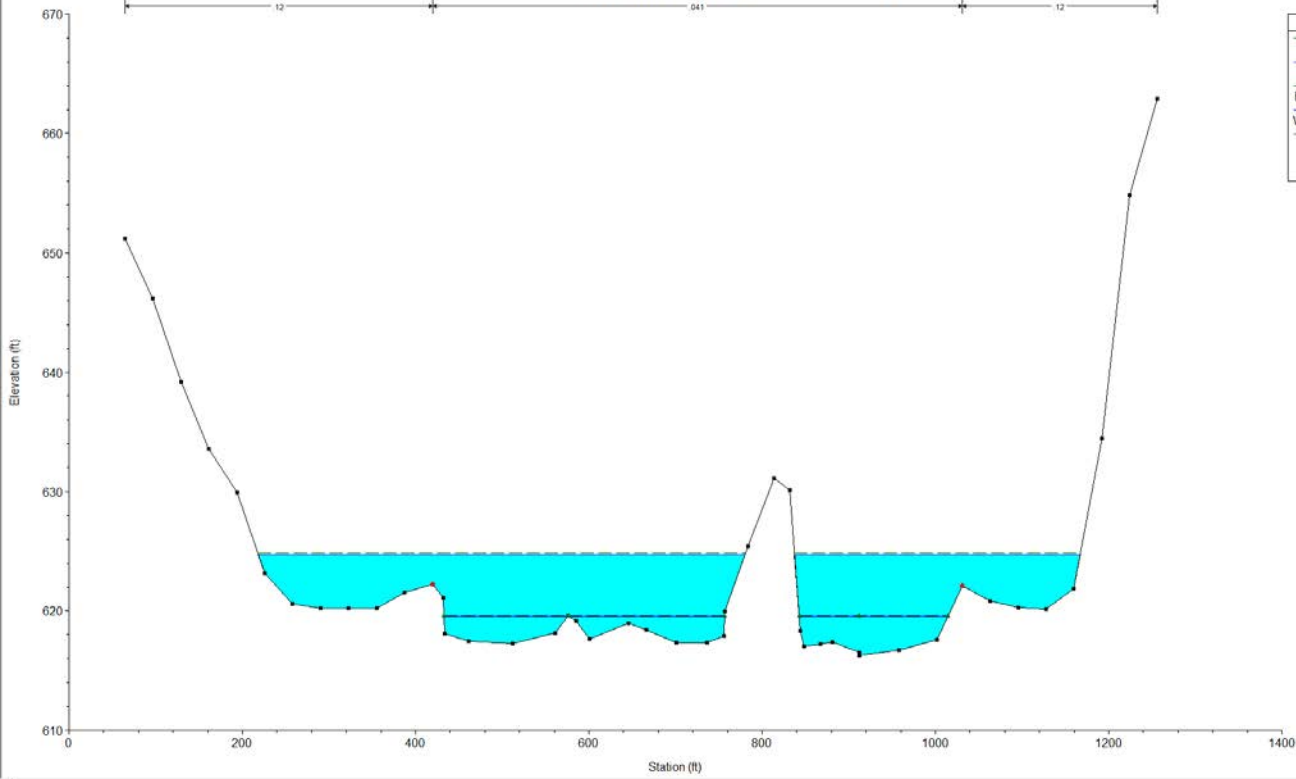
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 River = Tallapoosa Reach = Martin-Harris RS = 136.56 401062.7



Legend

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- WS Max WS
- EG 17MAY2016 2400
- WS 17MAY2016 2400
- Ground
- Bank Sta

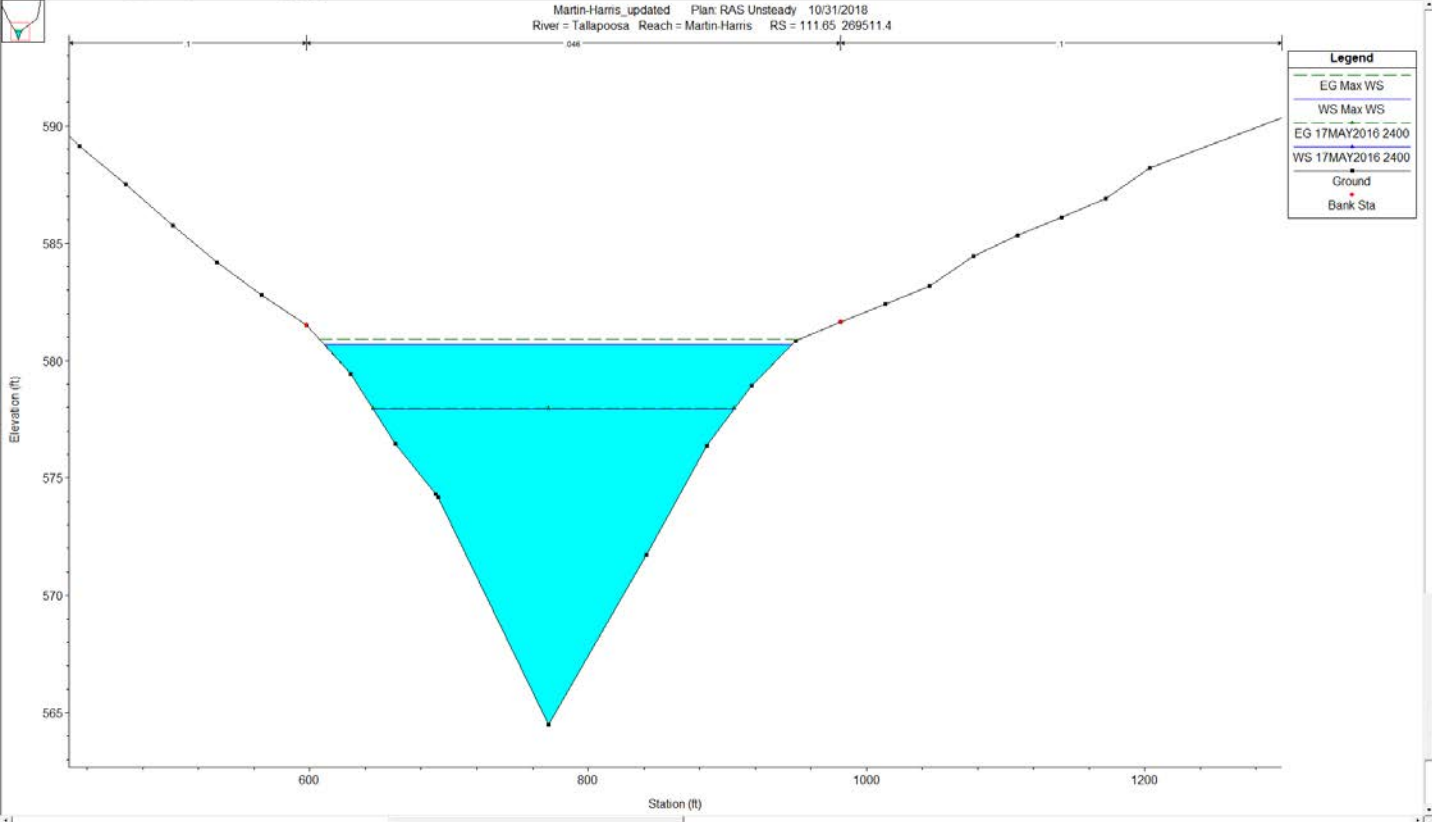
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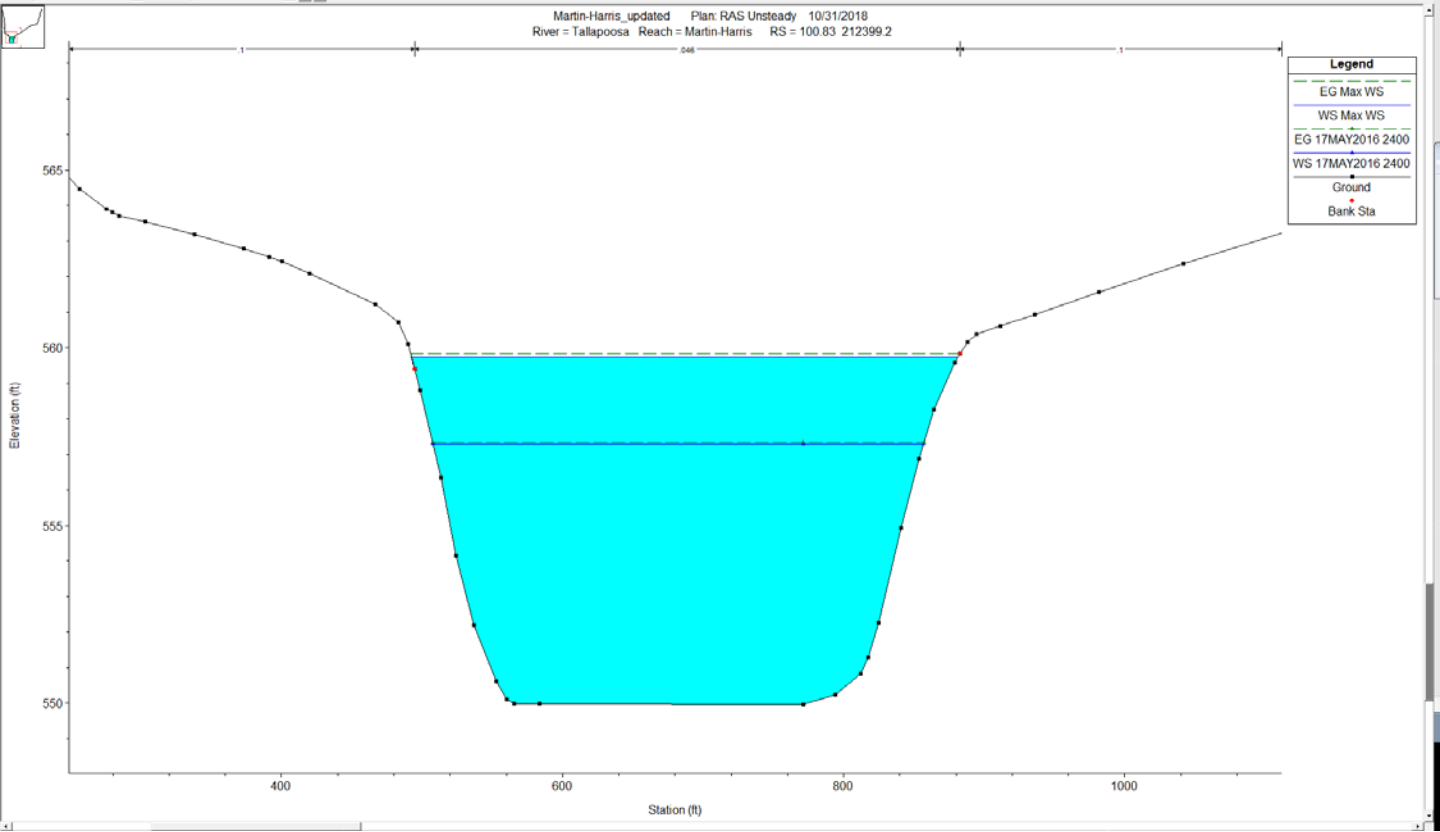
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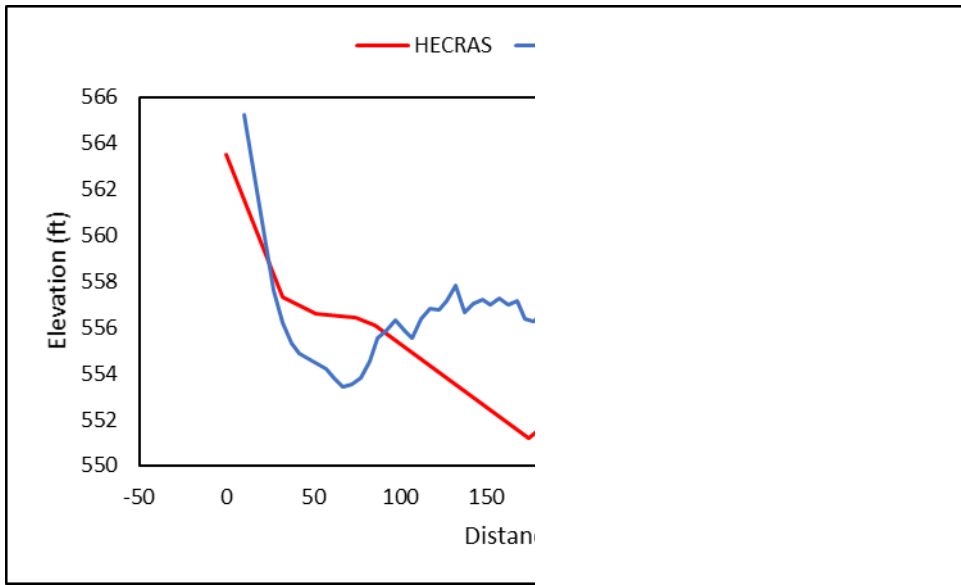
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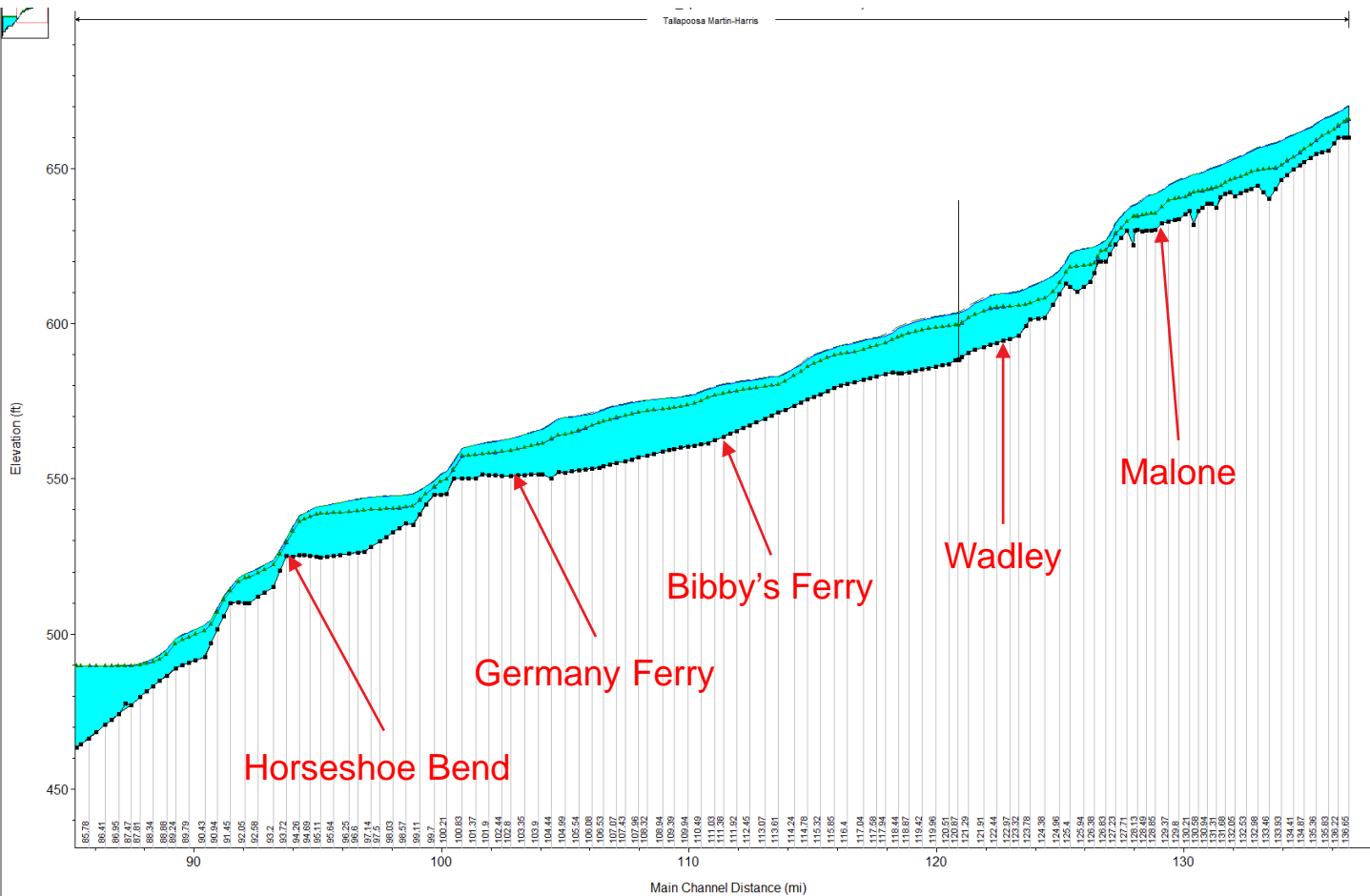
- EG Max WS
- WS Max WS
- EG 17MAY2016 2400
- WS 17MAY2016 2400
- Ground
- Bank Sta



~200 cross-sections

Collect bathymetry data at:

- Poorly interpolated cross-sections
- New cross-sections where gradient is steep



Level logger information

APC Harris Relicensing

Mon 10/14/2019 6:34 PM

To: 'harrisrelicensing@southernco.com' <harrisrelicensing@southernco.com>
 Bcc: damon.abernethy@dcnr.alabama.gov <damon.abernethy@dcnr.alabama.gov>;
 steve.bryant@dcnr.alabama.gov <steve.bryant@dcnr.alabama.gov>; stan.cook@dcnr.alabama.gov
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Good afternoon,

There have several questions at recent HAT meetings about the location of the level loggers that are collecting elevation and temperature data that will be used in several of the relicensing studies. For your information, here is a link to a map that shows the locations of the 20 level logger monitors: [Level Logger Locations](#). This link will also be placed under HATs 1 and 3 on the Harris relicensing website, www.harrisrelicensing.com.

Thanks,

Angie Anderegg

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Harris Relicensing Progress Update

APC Harris Relicensing

Wed 10/30/2019 5:39 PM

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Harris Relicensing stakeholders,

In the Harris Project Final Study Plans, filed with FERC on May 13, 2019, Alabama Power agreed to file
 voluntary Progress Updates with FERC in October 2019 and October 2020. The purpose of the
 Progress Update is to ensure that stakeholders and FERC can review the study progress to date and
 plan for future reports, meetings, and overall relicensing activities. This is a voluntary action that is
 not required under the ILP. Alabama Power has filed the October 2019 Progress Update with FERC
 and posted it to the Harris Project relicensing website: www.harrisrelicensing.com
[\[harrisrelicensing.com\]](http://harrisrelicensing.com) (in the Relicensing Documents folder).

Thanks,

Angie Anderegg

Hydro Services
(205)257-2251
arsegars@southernco.com



600 North 18th Street
Hydro Services 16N-8180
Birmingham, AL 35203
205 257 2251 tel
arsegars@southernco.com

October 30, 2019

VIA ELECTRONIC FILING

Project No. 2628-065
R.L. Harris Hydroelectric Project
Progress Update

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

Dear Secretary Bose,

Alabama Power Company (Alabama Power) is the Federal Energy Regulatory Commission (FERC) licensee for the R.L. Harris Hydroelectric Project (Harris Project) (FERC No. 2628). On March 13, 2019, Alabama Power filed 10 study plans for FERC approval as part of the Integrated Licensing Process for the Harris Project. On April 12, 2019, FERC approved Alabama Power's study plans with FERC modifications. Alabama Power filed the Final Study Plans with FERC on May 13, 2019 and posted the Final Study Plans to the Harris Project relicensing website at www.harrisrelicensing.com.

As part of the May 13, 2019 filing, Alabama Power recognized the complexity of tracking the 10 relicensing studies and committed to filing a voluntary Progress Update with FERC in October 2019 and October 2020. The purpose of this Progress Update (Attachment A) is to ensure that stakeholders and FERC can review the study progress to date and plan for future reports, meetings, and overall relicensing activities. This is a voluntary action that is not required under the ILP. Alabama Power will post this Progress Update to the Harris Project relicensing website. The Harris Action Team distribution lists are included as Attachment B.

If there are any questions concerning this filing, please contact me at arsegars@southernco.com or 205-257-2251.

Sincerely,

A handwritten signature in blue ink that reads "Angie Anderegg".

Angie Anderegg
Harris Relicensing Project Manager

Attachments (2)

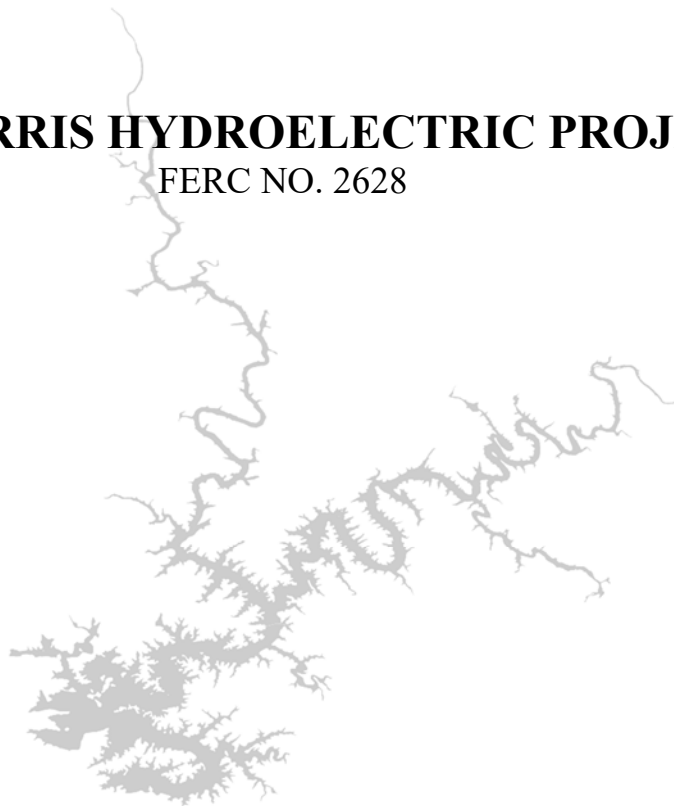
cc: Harris Stakeholder List

Attachment A
October 2019 Harris Project Progress Update



PROGRESS UPDATE

R. L. HARRIS HYDROELECTRIC PROJECT
FERC NO. 2628



Prepared by:

ALABAMA POWER COMPANY
BIRMINGHAM, ALABAMA



October 2019

**ALABAMA POWER COMPANY
BIRMINGHAM, ALABAMA**

**R. L. HARRIS HYDROELECTRIC PROJECT
FERC NO. 2628**

PROGRESS UPDATE

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	HAT 1 – PROJECT OPERATIONS	2
2.1	DOWNSTREAM RELEASE ALTERNATIVES STUDY PLAN	2
2.2	OPERATING CURVE CHANGE FEASIBILITY ANALYSIS STUDY PLAN	2
3.0	HAT 2 – WATER QUALITY AND USE	3
3.1	EROSION AND SEDIMENTATION STUDY PLAN	3
3.2	WATER QUALITY STUDY PLAN	3
4.0	HAT 3 – FISH AND WILDLIFE	4
4.1	AQUATIC RESOURCES STUDY PLAN	4
4.2	DOWNSTREAM AQUATIC HABITAT STUDY PLAN	4
4.3	THREATENED AND ENDANGERED (T&E) SPECIES STUDY PLAN	5
5.0	HAT 4 – PROJECT LANDS	6
5.1	PROJECT LANDS EVALUATION STUDY PLAN	6
6.0	HAT 5 – RECREATION	7
6.1	RECREATION EVALUATION STUDY PLAN	7
7.0	HAT 6 – CULTURAL RESOURCES	8
7.1	CULTURAL RESOURCES PROGRAMMATIC AGREEMENT AND HISTORIC PROPERTIES MANAGEMENT PLAN STUDY PLAN	8

**ALABAMA POWER COMPANY
BIRMINGHAM, ALABAMA**

**R. L. HARRIS HYDROELECTRIC PROJECT
FERC NO. 2628**

PROGRESS UPDATE

1.0 INTRODUCTION

Alabama Power Company (Alabama Power) is the Federal Energy Regulatory Commission (FERC) licensee for the R.L. Harris Hydroelectric Project (Harris Project) (FERC No. 2628). On June 1, 2018, Alabama Power filed a Pre-Application Document and began the Integrated Licensing Process (ILP) for the Harris Project¹.

On November 13, 2018, Alabama Power filed ten proposed study plans for the Harris Project. FERC issued a Study Plan Determination on April 12, 2019, which included FERC staff recommendations. Alabama Power incorporated FERC's recommendations and filed the Final Study Plans with FERC on May 13, 2019². Based upon FERC's prior comments and as part of the Final Study Plans, Alabama Power incorporated within each study plan's schedule a milestone to file a voluntary Progress Update in October 2019 and October 2020. This Progress Update is designed to inform stakeholders and FERC of the study progress, future reports, Harris Action Team (HAT) meetings, and overall relicensing activities. A summary of the Harris Project relicensing activities follows in Section 2 to Section 7 of this report.

¹ Accession No. 20180601-5125

² Accession No. 20190513-5093

2.0 HAT 1 – PROJECT OPERATIONS

2.1 DOWNSTREAM RELEASE ALTERNATIVES STUDY PLAN

- Alabama Power deployed 20 level loggers and has collected bathymetry data in the Tallapoosa River needed for the HEC-RAS modeling.
- Alabama Power held a HAT 1 meeting on September 11, 2019, to discuss the models used in the Downstream Release Alternatives Study Plan and status of the modeling analysis.
- Alabama Power posted the September 11, 2019 HAT 1 meeting summary on the Harris Relicensing website at www.harrisrelicensing.com.
- Beginning in November 2019, Alabama Power will download the level logger data and complete the HEC-RAS model.
- In accordance with the FERC approved study plan, Alabama Power will host a HAT 1 meeting to present initial model results in February/March 2020.

2.2 OPERATING CURVE CHANGE FEASIBILITY ANALYSIS STUDY PLAN

- Alabama Power hosted a HAT 1 meeting on September 11, 2019, to discuss the models, methods, and model inputs and outputs (how the model will be used) for the Operating Curve Change Feasibility Analysis.
- Alabama Power posted the September 11, 2019 HAT 1 meeting summary on the Harris Relicensing website at www.harrisrelicensing.com.
- Alabama Power is in the process of modeling the four alternative winter operating curve elevations and will evaluate the effects on flood control, navigation, generation, drought operations, and Green Plan operations.
- In accordance with the FERC approved study plan, Alabama Power will host a HAT 1 meeting to present initial model results in February/March 2020.

3.0 HAT 2 – WATER QUALITY AND USE

3.1 EROSION AND SEDIMENTATION STUDY PLAN

- Alabama Power distributed an email on May 1, 2019 to HAT 2 members requesting any locations of additional areas of erosion and sedimentation concerns on Lake Harris and in the Tallapoosa River downstream of Harris Dam. Alabama Power did not receive any comments from stakeholders regarding additional areas of erosion and sedimentation concern.
- Alabama Power held a HAT 2 meeting on September 11, 2019, where it presented GIS overlays and maps of the erosion and sedimentation sites that will be assessed when the reservoir level is at winter pool elevation.
- Alabama Power posted the September 11th HAT 2 meeting summary and meeting materials, as well as a link to an online map with the locations of the identified erosion and sedimentation study sites, on the Harris Relicensing website at www.harrisrelicensing.com.
- Following the September 11 HAT 2 meeting, a stakeholder requested, and Alabama Power agreed, to include one additional erosion site in the field assessment.
- Trutta Environmental Solutions conducted a bank erosion susceptibility survey on the Tallapoosa River from the Harris Dam through Horseshoe Bend. Trutta Environmental Solutions is in the process of analyzing the data and preparing a report.
- In November/December, Alabama Power will conduct the field assessment of the erosion and sedimentation areas.
- In accordance with the FERC-approved study plan, Alabama Power will prepare and distribute a Draft Erosion and Sedimentation Study Report to HAT 2 in March 2020.

3.2 WATER QUALITY STUDY PLAN

- Alabama Power distributed an email on May 1, 2019, to HAT 2 members requesting locations of any additional areas of water quality concerns on Lake Harris. Alabama Power did not receive any comments from stakeholders regarding additional areas of water quality concern.
- Alabama Power held a HAT 2 meeting on September 11, 2019, to provide an update on the Water Quality Study Plan.
- Alabama Power posted the September 1, 2019 HAT 2 meeting summary on the Harris Relicensing website at www.harrisrelicensing.com.
- Alabama Power is continuing to monitor temperature and dissolved oxygen in the tailrace and at a monitoring location approximately ½ mile downstream of Harris Dam through October 31, 2019. Additionally, Alabama Power will continue to collect monthly vertical water quality profiles in the forebay through October 31, 2019.
- In accordance with the FERC-approved study plan, Alabama Power will distribute a Draft Water Quality Study Report to HAT 2 in March 2020.

4.0 HAT 3 – FISH AND WILDLIFE

4.1 AQUATIC RESOURCES STUDY PLAN

- Alabama Power is developing the desktop assessment of aquatic resources, per Task 4.1 of the approved study plan.
- Auburn University has identified several sources of existing information, per Task 4.2.1 of the approved study plan. Where information is not available for a particular species, data for similar (surrogate species) may be used.
- Auburn University has analyzed Pre and post Green Plan temperature data from the regulated reaches, per Task 4.2.2 of the approved study plan. Preliminary results of this analysis were presented to HAT 3 members on March 20, 2019.
- Auburn University is collecting additional temperature data and analyzing all available temperature data on a sub-daily basis.
- Alabama Power posted the March 20, 2019 HAT 3 meeting summary on the Harris Relicensing website at www.harrisrelicensing.com.
- Auburn University has collected electrofishing samples in April, July, and September 2019, per Task 4.2.3 of the approved study plan. Additional methods to increase catch rates for some target species are being explored.
- Auburn University is performing analyses of age/growth and diet of target species collected during electrofishing, per Task 4.2.4 of the approved study plan. Individuals from target species collected during electrofishing are undergoing swim performance tests to determine active metabolic rates and static respirometry tests to assess to determine resting metabolic rates.
- In accordance with the FERC approved study plan, Alabama Power will host a HAT 3 meeting on progress to date in March 2020.

4.2 DOWNSTREAM AQUATIC HABITAT STUDY PLAN

- Alabama Power held a HAT 3 meeting on March 20, 2019, regarding the Downstream Aquatic Habitat Study Plan.
- Alabama Power posted the March 20, 2019 HAT 3 meeting summary on the Harris Relicensing website at www.harrisrelicensing.com.
- Alabama Power has deployed 20 level loggers and has collected approximately 90 percent of the bathymetry data needed for modeling.
- Alabama Power has completed the mesohabitat analysis for the study area.
- In the next few months, Alabama Power will collect the remaining bathymetry data and download data (i.e., elevation and temperature) collected by level loggers.
- Alabama Power will complete the HEC-RAS modeling for habitat in Q4 2019 and Q1 2020.

- In accordance with the FERC approved study plan, Alabama Power will host HAT 3 progress meetings in November/December 2019 and February/March 2020.

4.3 THREATENED AND ENDANGERED (T&E) SPECIES STUDY PLAN

- Alabama Power held a HAT 3 meeting on August 27, 2019 regarding the T&E Species Study Plan.
- Alabama Power posted the August 27, 2019 HAT 3 meeting summary on the Harris Relicensing website at www.harrisrelicensing.com.
- Alabama Power developed GIS overlays of habitat information and developed maps to determine possible areas in the FERC-approved geographic scope where T&E species may occur.
- Alabama Power is working with USFWS to determine where field verification surveys may be needed. These surveys are tentatively scheduled to be conducted in Fall 2019.
- In accordance with the FERC-approved study plan, Alabama Power will distribute a Draft T&E Study Report to HAT 3 in February 2020.

5.0 HAT 4 – PROJECT LANDS

5.1 PROJECT LANDS EVALUATION STUDY PLAN

- Alabama Power held a HAT 4 meeting on September 11, 2019, to review proposed land use changes, including lands to be added to the Project Boundary, lands to be removed from the Project Boundary, and proposed changes in land use classifications of existing Project lands. Alabama Power presented the proposed changes in GIS overlays.
- Alabama Power posted the September 11, 2019 HAT 4 meeting summary on the Harris Relicensing website at www.harrisrelicensing.com.
- Following the September 11, 2019 HAT 4 meeting, Alabama Power solicited feedback from HAT 4 on the Project Lands proposal. All stakeholder feedback will be considered in developing the final proposal.
- During the spring and fall 2019, Samford University conducted a botanical inventory at Flat Rock Park.
- In the next few months, Alabama Power will evaluate the Skyline property for Bobwhite quail habitat.

6.0 HAT 5 – RECREATION

6.1 RECREATION EVALUATION STUDY PLAN

- Alabama Power began collecting recreation use data on Lake Harris in March 2019 and downstream in the Tallapoosa River in May 2019. Alabama Power will continue collecting recreation use information through October 31 (downstream) and December 2019 (Lake Harris). Data analysis will occur in Q1 2020.
- Alabama Power is estimating the percent of usable shoreline structures at current operations and at each winter pool alternative using light detection and ranging (LiDAR) data of the shoreline and GPS coordinates of each shoreline structure. This information will be presented to HAT 5 in the Draft Recreation Report in June 2020.
- Alabama Power conducted a Project recreation site inventory and condition assessment in October 2019.
- Alabama Power will be conducting a downstream landowner survey in January 2020.
- Alabama Power will host a HAT 5 meeting in March 2020 to provide an update on recreation data collection.

7.0 HAT 6 – CULTURAL RESOURCES

7.1 CULTURAL RESOURCES PROGRAMMATIC AGREEMENT AND HISTORIC PROPERTIES MANAGEMENT PLAN STUDY PLAN

- Alabama Power conducted HAT 6 meetings May 22 and July 9, 2019.
- Alabama Power posted meeting summaries on the Harris relicensing website at www.harrisrelicensing.com
- Alabama Power distributed Archeological Survey Reports and Alabama Historical Commission concurrence letters for surveys in the Harris Project Boundary, Harris Project Boundary shapefiles, and other relevant cultural resources information to participating tribes and the State Historic Preservation Office (SHPO) (May 2019).
- In August 2019, Alabama Power distributed reports and images related to fish weirs in the Harris Project Boundary. Much of this information is sensitive in nature; therefore, Alabama Power limited the distribution to federal agencies and tribes.
- Alabama Power posted July 9, 2019 meeting notes to the Harris Relicensing website at www.harrisrelicensing.com.
- Alabama Power proposed a draft Historic Properties Management Plan outline (HPMP) to HAT 6 members on May 22, 2019.
- Alabama Power is working to define the Area of Potential Effects (APE) and proposes that the APE include lands in the R.L. Harris FERC Project Boundary (Lake Harris and Skyline). In addition, Alabama Power is evaluating the area below Harris Dam through Horseshoe Bend to determine any effects of **Project Operations** on Cultural Resources³.
- The next HAT 6 meeting will be held on November 6, 2019. The information to be discussed in this meeting is sensitive in nature; therefore, Alabama Power is limiting the participation to applicable state and federal agencies, and applicable tribes. At this meeting, Alabama Power plans to confirm the final determination of Lake Harris sites for further evaluation and review and confirm survey methods for additional cultural resources evaluations on Lake Harris and Skyline. In addition, Alabama Power will continue discussions on the HPMP and propose an Inadvertent Discovery Plan and Traditional Cultural Properties (TCP) Identification Plan outline.

³ While not included in the Harris Project APE, the geographic scope of the Cultural Resources Programmatic Agreement and Historic Properties Management Plan Study Plan extends to Horseshoe Bend.

Attachment B
Harris Action Team Distribution Lists

HAT 1 - Project Operations

Name	Company
Damon Abernethy	Alabama Department of Conservation and Natural Resources
Bob Allen	U.S. Army Corps of Engineers
Brian Atkins	Alabama Department of Economic and Community Affairs
Richard Bronson	Stakeholder
Steve Bryant	Alabama Department of Conservation and Natural Resources
Nancy Burnes	Lake Wedowee Property Owners Association
Richard Burnes	Property Owner
Matt and Ann Campbell	Stakeholder
Curt Chaffin	Alabama Rivers Alliance
Kristie Coffman	Auburn University
Stan Cook	Alabama Department of Conservation and Natural Resources
Allan Creamer	Federal Energy Regulatory Commission
Doug & Jan Crisp	Stakeholder
Gene Crouch	Keller Williams Realty Group; Lake Wedowee
Jesse Cunningham	Lake Martin HOBO
Dennis Devries	Auburn University
Mike Dollar	Lake Martin HOBO
Jeff Duncan	U.S. National Park Service
Albert Eiland	Property Owner
Steve Forehand	Lake Martin Resource Association
Sylvia French	Lake Wedowee Property Owners Association
Tom Garland	Lake Wedowee Property Owners Association
Taconya Goar	Alabama Department of Conservation and Natural Resources
Lisa Gordon	U.S. Environmental Protection Agency
Chris Greene	Alabama Department of Conservation and Natural Resources
Jennifer Grunewald	U.S. Fish and Wildlife
Andrew Hall	Property Owner
Randall Harvey	U.S. Army Corps of Engineers
Jennifer Haslbauer	Alabama Department of Environmental Management
James Hathorn	U.S. Army Corps of Engineers
Dave Heinzen	Lake Martin HOBO
Keith Henderson	Alabama Department of Conservation and Natural Resources
Mike Holley	Alabama Department of Conservation and Natural Resources
Dan Holliman	U.S. Environmental Protection Agency
Sonja Holloman	Stakeholder
Elise Irwin	Auburn University
Butch Jackson	Stakeholder
Gerrit Jobsis	American Rivers
Chris Johnson	Alabama Department of Environmental Management
Evan Lawrence	Alabama Department of Conservation and Natural Resources
Michael Len	Alabama Department of Environmental Management
Fred Leslie	Alabama Department of Environmental Management
Tom Littlepage	Alabama Department of Economic and Community Affairs
Cindy Lowry	Alabama Rivers Alliance
Donna Matthews	Stakeholder
Rachel McNamara	Federal Energy Regulatory Commission

HAT 1 - Project Operations

Name	Company
David Moore	Alabama Department of Environmental Management
Barry Morris	Lake Wedowee Property Owners Association
Ginny Oxford	Stakeholder
Mellie Parrish	Stakeholder
Ira Parsons	Lake Wedowee Property Owners Association
Jeff Powell	U.S. Fish and Wildlife
Becky Rainwater	ReMax Lakefront
Mitch Reid	Nature Conservancy
Sarah Salazar	Federal Energy Regulatory Commission
Jerrel Shell	Stakeholder
Barry Smith	Stakeholder
Paul Smith	Stakeholder
David Smith	Stakeholder
Linda Stone	Stakeholder
Chuck Sumner	U.S. Army Corps of Engineers
Monte Terhaar	Federal Energy Regulatory Commission
David Thomas	Stakeholder
John Thompson	Lake Martin Resource Association
David Thompson	Property Owner
George Traylor	Property Owner
Steve Traylor	Stakeholder
Jimmy Traylor	Stakeholder
Jonas White	U.S. Army Corps of Engineers
Russell Wright	Auburn University

HAT 2 - Water Quality and Use

Name	Company
Damon Abernethy	Alabama Department of Conservation and Natural Resources
Steve Bryant	Alabama Department of Conservation and Natural Resources
Nancy Burnes	Lake Wedowee Property Owners Association
Richard Burnes	Property Owner
Matt and Ann Campbell	Stakeholder
Curt Chaffin	Alabama Rivers Alliance
Maria Clark	U.S. Environmental Protection Agency
Kristie Coffman	Auburn University
Stan Cook	Alabama Department of Conservation and Natural Resources
Allan Creamer	Federal Energy Regulatory Commission
Jan and Crisp	Stakeholder
Jesse Cunningham	Lake Martin HOBO
Chris Decker	U.S. Environmental Protection Agency
Chuck Denman	Stakeholder
Jeff Duncan	U.S. National Park Service
Albert Eiland	Property Owner
Steve Forehand	Lake Martin Resource Association
Tom Garland	Lake Wedowee Property Owners Association
Taconya Goar	Alabama Department of Conservation and Natural Resources
Lisa Gordon	U.S. Environmental Protection Agency
Chris Greene	Alabama Department of Conservation and Natural Resources
Evelyn Hamrick	Property Owner
Jennifer Haslbauer	Alabama Department of Environmental Management
Keith Henderson	Alabama Department of Conservation and Natural Resources
Mike Holley	Alabama Department of Conservation and Natural Resources
Dan Holliman	U.S. Environmental Protection Agency
Elise Irwin	Auburn University
Gerrit Jobsis	American Rivers
Chris Johnson	Alabama Department of Environmental Management
Carol Knight	Stakeholder
Michael Len	Alabama Department of Environmental Management
Fred Leslie	Alabama Department of Environmental Management
Cindy Lowry	Alabama Rivers Alliance
Donna Matthews	Stakeholder
Rachel McNamara	Federal Energy Regulatory Commission
Harry Merrill	Stakeholder
David Moore	Alabama Department of Environmental Management
Barry Morris	Lake Wedowee Property Owners Association
Mellie Parrish	Stakeholder
Jerry & Mary Poss	Stakeholder
Mitch Reid	Nature Conservancy
Eric Reutebuch	Auburn University
Sarah Salazar	Federal Energy Regulatory Commission
Amy Silvano	Alabama Department of Conservation and Natural Resources
David Smith	Stakeholder
Monte Terhaar	Federal Energy Regulatory Commission

HAT 2 - Water Quality and Use

Name	Company
John Thompson	Lake Martin Resource Association

HAT 3 - Fish and Wildlife

Name	Company
Damon Abernethy	Alabama Department of Conservation and Natural Resources
Steve Bryant	Alabama Department of Conservation and Natural Resources
Matt and Ann Campbell	Stakeholder
Curt Chaffin	Alabama Rivers Alliance
Kristie Coffman	Auburn University
Evan Collins	U.S. Fish and Wildlife
Stan Cook	Alabama Department of Conservation and Natural Resources
Allan Creamer	Federal Energy Regulatory Commission
Chris Decker	U.S. Environmental Protection Agency
Dennis Devries	Auburn University
Jeff Duncan	U.S. National Park Service
Steve Forehand	Lake Martin Resource Association
Tom Garland	Lake Wedowee Property Owners Association
Taconya Goar	Alabama Department of Conservation and Natural Resources
Chris Greene	Alabama Department of Conservation and Natural Resources
Jennifer Grunewald	U.S. Fish and Wildlife
Keith Henderson	Alabama Department of Conservation and Natural Resources
Mike Holley	Alabama Department of Conservation and Natural Resources
Dan Holliman	U.S. Environmental Protection Agency
Elise Irwin	Auburn University
Gerrit Jobsis	American Rivers
Evan Lawrence	Alabama Department of Conservation and Natural Resources
Cindy Lowry	Alabama Rivers Alliance
Donna Matthews	Stakeholder
Rachel McNamara	Federal Energy Regulatory Commission
Chris Oberholster	Birmingham Audubon
Mellie Parrish	Stakeholder
Bill Pearsons	U.S. Fish and Wildlife
Jeff Powell	U.S. Fish and Wildlife
Mitch Reid	Nature Conservancy
Sarah Salazar	Federal Energy Regulatory Commission
Amy Silvano	Alabama Department of Conservation and Natural Resources
Tricia Stearns	Stakeholder
Monte Terhaar	Federal Energy Regulatory Commission
Steve Traylor	Stakeholder
Jimmy Traylor	Stakeholder
Pace Wilber	National Oceanic and Atmospheric Administration
Ken Wills	Alabama Glade Conservation Coalition
Russell Wright	Auburn University

HAT 4 - Project Lands

Name	Company
Damon Abernethy	Alabama Department of Conservation and Natural Resources
Matt Brooks	Alabama Law Enforcement Agency
Coty Brown	Alabama Law Enforcement Agency
Steve Bryant	Alabama Department of Conservation and Natural Resources
Matt and Ann Campbell	Stakeholder
Curt Chaffin	Alabama Rivers Alliance
Kristie Coffman	Auburn University
Evan Collins	U.S. Fish and Wildlife
Allan Creamer	Federal Energy Regulatory Commission
Gene Crouch	Keller Williams Realty Group; Lake Wedowee
Steve Forehand	Lake Martin Resource Association
Tom Garland	Lake Wedowee Property Owners Association
Keith Gauldin	Alabama Department of Conservation and Natural Resources
Taconya Goar	Alabama Department of Conservation and Natural Resources
Chris Greene	Alabama Department of Conservation and Natural Resources
Jennifer Grunewald	U.S. Fish and Wildlife
Keith Henderson	Alabama Department of Conservation and Natural Resources
Mike Holley	Alabama Department of Conservation and Natural Resources
Elise Irwin	Auburn University
Gerrit Jobsis	American Rivers
Evan Lawrence	Alabama Department of Conservation and Natural Resources
Cindy Lowry	Alabama Rivers Alliance
Diane Lunsford	Lake Wedowee Property Owners Association
Donna Matthews	Stakeholder
Allison McCartney	U.S. Bureau of Land Management
Rachel McNamara	Federal Energy Regulatory Commission
Harry Merrill	Stakeholder
Brad Mitchell	Lake Wedowee Property Owners Association
Stan Nelson	Nelson and Company
Chris Oberholster	Birmingham Audubon
Mellie Parrish	Stakeholder
Jerry & Mary Poss	Stakeholder
Jeff Powell	U.S. Fish and Wildlife
Mark Prestridge	Randolph County Water Authority
Mitch Reid	Nature Conservancy
Sarah Salazar	Federal Energy Regulatory Commission
Amy Silvano	Alabama Department of Conservation and Natural Resources
Chris Smith	Alabama Department of Conservation and Natural Resources
Glenell Smith	Stakeholder
David Smith	Stakeholder
Paul Smith	Stakeholder
John Sullivan	U.S. Bureau of Land Management
Monte Terhaar	Federal Energy Regulatory Commission
John Thompson	Stakeholder
Ken Wills	Alabama Glade Conservation Coalition

HAT 5 - Recreation

Name	Company
Damon Abernethy	Alabama Department of Conservation and Natural Resources
Matt Brooks	Alabama Law Enforcement Agency
Coty Brown	Alabama Law Enforcement Agency
Matt and Ann Campbell	Stakeholder
Curt Chaffin	Alabama Rivers Alliance
Kristie Coffman	Auburn University
Allan Creamer	Federal Energy Regulatory Commission
Jesse Cunningham	Lake Martin HOBO
Mike Dollar	Lake Martin HOBO
Jeff Duncan	U.S. National Park service
Steve Forehand	Lake Martin Resource Association
Sylvia French	Stakeholder
Tom Garland	Stakeholder
Keith Gauldin	Alabama Department of Conservation and Natural Resources
Taconya Goar	Alabama Department of Conservation and Natural Resources
Chris Greene	Alabama Department of Conservation and Natural Resources
Dave Heinzen	Lake Martin HOBO
Keith Henderson	Alabama Department of Conservation and Natural Resources
Mike Holley	Alabama Department of Conservation and Natural Resources
Sonja Hollomon	Stakeholder
Elise Irwin	Auburn University
Butch Jackson	Property Owner
Gerrit Jobsis	American Rivers
Gerry Knight	Stakeholder
Evan Lawrence	Alabama Department of Conservation and Natural Resources
Cindy Lowry	Alabama Rivers Alliance
Donna Matthews	Stakeholder
Rachel McNamara	Federal Energy Regulatory Commission
Harry Merrill	Stakeholder
Brad Mitchell	Lake Wedowee Property Owners Association
Chris Oberholster	Birmingham Audubon
Ginny Oxford	Stakeholder
Mellie Parrish	Stakeholder
Ira Parsons	Lake Wedowee Property Owners Association
Jerry and Mary Poss	Stakeholder
Mitch Reid	Nature Conservancy
Sarah Salazar	Federal Energy Regulatory Commission
Chris Smith	Alabama Department of Conservation and Natural Resources
Paul Smith	Stakeholder
Jim Sparrow	Alabama Bass Federation
Tricia Stearns	Stakeholder
Monte Terhaar	Federal Energy Regulatory Commission
Bryant Whaley	Randolph County Economic / Industrial Development

HAT 6 - Cultural Resources

Name	Company
Steve Bryant	Alabama Department of Conservation and Natural Resources
Nancy Burnes	Lake Wedowee Property Owners Association
RaeLynn Butler	Muscogee (Creek) Nation of Oklahoma
Bryant Celestine	Alabama-Coushatta Tribe of Texas
Kristie Coffman	Auburn University
Allan Creamer	Federal Energy Regulatory Commission
Jeff Duncan	U.S. National Park Service
Taconya Goar	Alabama Department of Conservation and Natural Resources
Larry Haikey	Poarch Band of Creek Indians
Evelyn Hamrick	Property Owner
Mike Holley	Alabama Department of Conservation and Natural Resources
Gerrit Jobsis	American Rivers Alliance
Linda Langley	Coushatta Tribe of Louisiana
Janice Lowe	Alabama Quassarte Tribe
Donna Matthews	Stakeholder
Janet Maylen	Thlopthlocco Tribal Town
Amanda McBride	Alabama Historical Commission
Allison McCartney	U.S. Bureau of Land Management
Rachel McNamara	Federal Energy Regulatory Commission
Karen Pritchett	United Keetoowah Band of Cherokee Indians
Mitch Reid	Nature Conservancy
Sarah Salazar	Federal Energy Regulatory Commission
Eric Sipes	Alabama Historical Commission
Barry Smith	Stakeholder
Robin Soweka	Muscogee (Creek) Nation of Oklahoma
John Sullivan	U.S. Bureau of Land Management
Monte Terhaar	Federal Energy Regulatory Commission
Elizabeth Toombs	Tribal Historic Preservation Office Cherokee Nation
Russ Townsend	Eastern Band of Cherokee Indians

HAT 3 - Downstream Aquatic Habitat conference call

Anderegg, Angela Segars

Thu 11/14/2019 7:53 PM

To: 'harrisrelicensing@southernco.com' <harrisrelicensing@southernco.com>
Bcc: amy.silvano@dcnr.alabama.gov <amy.silvano@dcnr.alabama.gov>; chris.greene@dcnr.alabama.gov <chris.greene@dcnr.alabama.gov>; damon.abernethy@dcnr.alabama.gov <damon.abernethy@dcnr.alabama.gov>; evan.lawrence@dcnr.alabama.gov <evan.lawrence@dcnr.alabama.gov>; keith.henderson@dcnr.alabama.gov <keith.henderson@dcnr.alabama.gov>; mike.holley@dcnr.alabama.gov <mike.holley@dcnr.alabama.gov>; stan.cook@dcnr.alabama.gov <stan.cook@dcnr.alabama.gov>; steve.bryant@dcnr.alabama.gov <steve.bryant@dcnr.alabama.gov>; taconya.goar@dcnr.alabama.gov <taconya.goar@dcnr.alabama.gov>; ken.wills@jcdh.org <ken.wills@jcdh.org>; arsegars@southernco.com <arsegars@southernco.com>; ammcvica@southernco.com <ammcvica@southernco.com>; dkanders@southernco.com <dkanders@southernco.com>; jcarlee@southernco.com <jcarlee@southernco.com>; jefbaker@southernco.com <jefbaker@southernco.com>; kechandl@southernco.com <kechandl@southernco.com>; tlmills@southernco.com <tlmills@southernco.com>; cggoodma@southernco.com <cggoodma@southernco.com>; clowry@alabamarivers.org <clowry@alabamarivers.org>; gjobsis@americanrivers.org <gjobsis@americanrivers.org>; devridr@auburn.edu <devridr@auburn.edu>; irwiner@auburn.edu <irwiner@auburn.edu>; kmo0025@auburn.edu <kmo0025@auburn.edu>; wrighr2@aces.edu <wrighr2@aces.edu>; jhancock@balch.com <jhancock@balch.com>; lgallen@balch.com <lgallen@balch.com>; chrisoberholster@birminghamaudubon.org <chrisoberholster@birminghamaudubon.org>; sarah.salazar@ferc.gov <sarah.salazar@ferc.gov>; allan.creamer@ferc.gov <allan.creamer@ferc.gov>; rachel.mcnamara@ferc.gov <rachel.mcnamara@ferc.gov>; monte.terhaar@ferc.gov <monte.terhaar@ferc.gov>; amanda.fleming@kleinschmidtgroup.com <amanda.fleming@kleinschmidtgroup.com>; colin.dinken@kleinschmidtgroup.com <colin.dinken@kleinschmidtgroup.com>; henry.mealing@kleinschmidtgroup.com <henry.mealing@kleinschmidtgroup.com>; jason.moak@kleinschmidtgroup.com <jason.moak@kleinschmidtgroup.com>; kate.cosnahan@kleinschmidtgroup.com <kate.cosnahan@kleinschmidtgroup.com>; kelly.schaeffer@kleinschmidtgroup.com <kelly.schaeffer@kleinschmidtgroup.com>; sforehand@russelllands.com <sforehand@russelllands.com>; lgarland68@aol.com <lgarland68@aol.com>; pace.wilber@noaa.gov <pace.wilber@noaa.gov>; mitchell.reid@tnc.org <mitchell.reid@tnc.org>; donnamat@aol.com <donnamat@aol.com>; trayjim@bellsouth.net <trayjim@bellsouth.net>; mhpwedowee@gmail.com <mhpwedowee@gmail.com>; straylor426@bellsouth.net <straylor426@bellsouth.net>; triciastearns@gmail.com <triciastearns@gmail.com>; wmcampbell218@gmail.com <wmcampbell218@gmail.com>; holliman.daniel@epa.gov <holliman.daniel@epa.gov>; decker.chris@epa.gov <decker.chris@epa.gov>; bill_pearson@fws.gov <bill_pearson@fws.gov>; evan_collins@fws.gov <evan_collins@fws.gov>; jeff_powell@fws.gov <jeff_powell@fws.gov>; jennifer_grunewald@fws.gov <jennifer_grunewald@fws.gov>; jeff_duncan@nps.gov <jeff_duncan@nps.gov>

HAT 3,

Please join us for a conference call on Wednesday, December 11, from 1:00-2:30 to review the habitat analysis modeling results.

Please use the "Join Skype Meeting" link below to view the presentation on your computer and mute your computer's microphone. Then dial the number below to join the audio portion by phone. This will help avoid technical issues with sound.

.....
[Join Skype Meeting](#)

+1 (205) 257-2663

Conference ID: 3660816

Thanks!

Angie Anderegg

Hydro Services

(205)257-2251

arsegars@southernco.com

From: [Anderegg, Angela Segars](mailto:Anderegg.Angela.Segars)
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Subject: 2019-12-11 HAT 3 meeting notes
Date: Thursday, December 19, 2019 1:14:59 PM

HAT 3,

Meeting notes and the presentation from the December 11 conference call on the Downstream Aquatic Habitat Study can be found at www.harrisrelicensing.com in the HAT 3 folder.

Thanks,

Angie Anderegg

Hydro Services

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arsegars@southernco.com



R. L. Harris Hydroelectric Project

FERC No. 2628

Meeting Summary HAT 3 Meeting December 11, 2019 1:00 pm to 2:00 pm Conference Call

Participants:

Angie Anderegg – Alabama Power
Jeff Baker – Alabama Power
Keith Chandler – Alabama Power
Kate Cosnahan – Kleinschmidt Associates
Allan Creamer – Federal Energy Regulatory Commission (FERC)
Colin Dinken – Kleinschmidt Associates
Amanda Fleming – Kleinschmidt Associates
Henry Hershey – Alabama Rivers Alliance (ARA)
Tina Mills – Alabama Power
Jason Moak – Kleinschmidt Associates
Sarah Salazar – FERC
Kelly Schaeffer – Kleinschmidt Associates

NOTE: A copy of the HAT 3 December 11, 2019 presentation is attached.

Meeting Summary:

Angie Anderegg (Alabama Power) opened the meeting by introducing everyone and stated that the purpose of the meeting was to discuss methods for the habitat analysis using the HEC-RAS model. Jason Moak (Kleinschmidt Associates) summarized the March 20, 2019 HAT 3 meeting and then reviewed the Downstream Aquatic Habitat Study Plan, including the goal, geographic scope, and methods. The study goal is to develop a model that describes the relationship between Green Plan operations and aquatic habitat and the geographic scope is the Tallapoosa River from R. L. Harris Dam (Harris Dam) through Horseshoe Bend.

The study methods include mesohabitat analysis, water level data (and temperature data for other studies) at up to 20 sites, and development of a HEC-RAS model as a tool to determine how operations affect wetted habitat. Jason explained that mesohabitat was analyzed using aerial photography and first-hand observations and then classified as riffles, runs, and pools. Mesohabitat types were summarized by reach: Malone, Wadley, Bibby's Ferry, Germany Ferry, Horseshoe Bend, and Irwin Shoals. There is a consistent mix of habitat types throughout the geographic scope except for the reach between Malone and Wadley, where riffles are more prevalent. Jason noted that the level loggers have been in the river since June 2019 and are recording water level and temperature data every 15 minutes.

Jason then reviewed the development of the HEC-RAS model. The model initially included 200 cross-sections between Harris Dam and Jaybird Landing. Some of these cross-sections in the existing model were interpolated based on surrounding landscape and did not accurately characterize actual channel geometry. Therefore, many of these cross-sections (>100) were surveyed in 2019 to provide better channel geometry for the HEC-RAS model. Jason provided

an example cross-section to compare the difference between the old data (pre-2019) and the new (2019). He explained that water surface elevations were also collected to provide reference points for water level data.

Alabama Power is adding the new channel geometry into the model. Jason provided some example graphs of how outputs from the model will be analyzed, including a graphic of a cross-section of the river with the amount of wetted perimeter at multiple discharge scenarios. He reiterated that this was an example of how the data will be analyzed and did not represent actual results. The analysis will focus on how wetted perimeter changes in relation to discharge in cubic feet per second (cfs). The range in wetted perimeter will be calculated by subtracting the minimum wetted perimeter from the maximum. Jason provided an example of a habitat duration curve that will aid in the comparisons.

Jason reviewed the operating scenarios that will be analyzed: peaking only, the Green Plan, 150 cfs minimum flow with peaking, and a modified Green Plan (different timing of pulses or different frequencies). Allan Creamer (FERC) asked if Alabama Power will analyze different minimum flow scenarios other than 150 cfs. Jason replied that no additional operating scenarios have been proposed by stakeholders to date, and that some stakeholders have wanted to see results of these four scenarios before proposing different scenarios. Allan suggested looking at a wider range of minimum flow scenarios once stakeholders have reviewed initial results.

Angie noted that any impacts of the operating scenarios on temperature will be examined and this is just one data point in the overall relicensing studies. Jason added that, for example, the effect of the operating scenarios on fish will be measured to determine the optimal conditions for fish, and then the effect of those conditions on lake levels will be analyzed. Angie announced that there will be another HAT 3 meeting in March 2020; date to be determined. Henry Hershey (Alabama Rivers Alliance) asked if the cross sections account for islands and side chutes. Jason replied that they do since the model geometry was constructed using LIDAR, which captured objects such as islands that are above the water.

R.L. Harris Project Relicensing

HAT 3 – Downstream Habitat Study

December 11, 2019



Meeting Agenda

- Study Overview
- Mesohabitat Mapping
- Level Logger Deployments
- HEC-RAS Model Development
- Analysis of HEC-RAS Outputs



Downstream Aquatic Habitat Study



Goal

To develop a model that describes the relationship between Green Plan operations and aquatic habitat.

Geographic Scope

Harris Dam through Horseshoe Bend

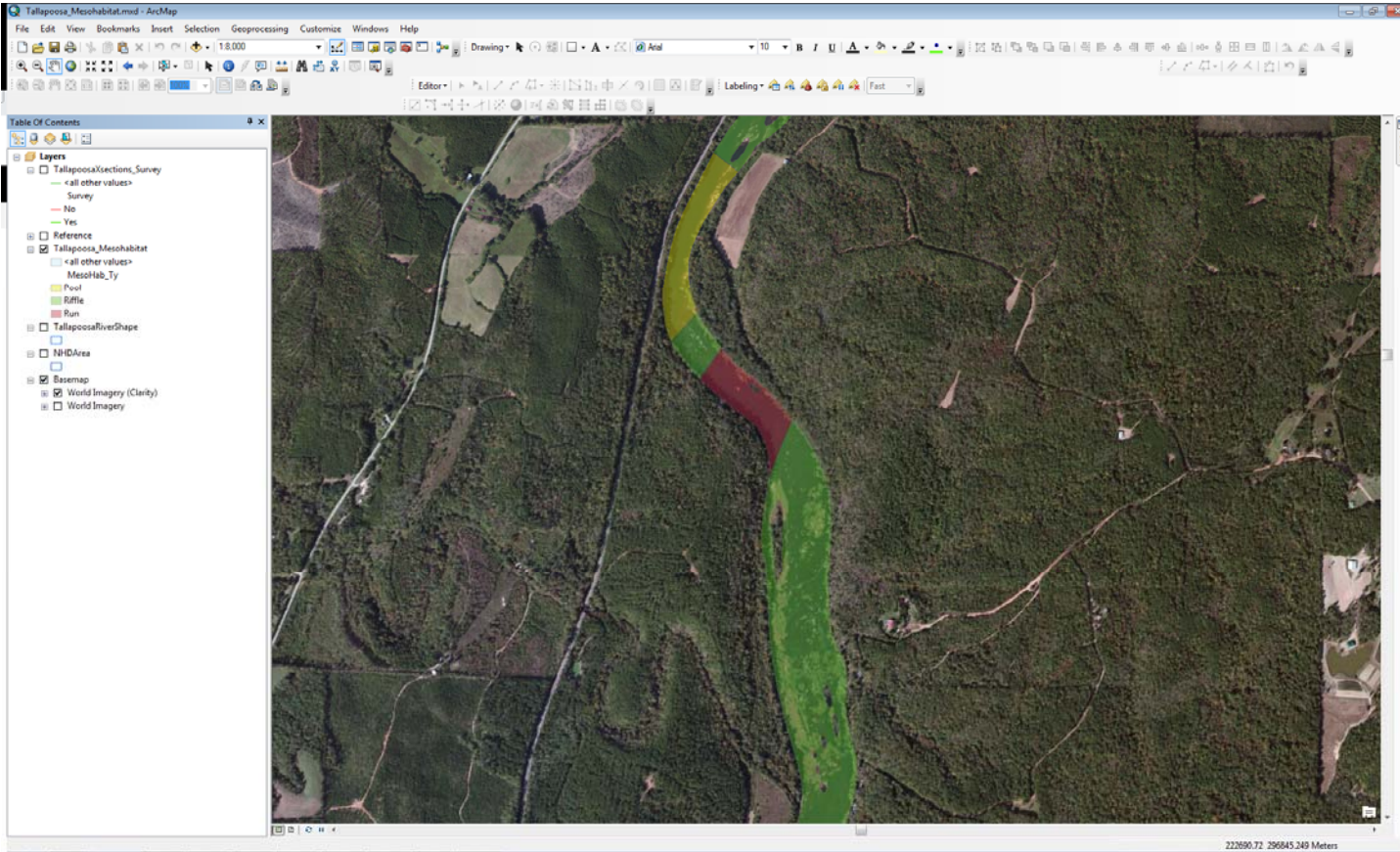
Methods

1. Mesohabitat Analysis: Desktop analysis of the types of available habitat (classified as riffle, run, pool)
2. Install water level loggers at up to 20 sites
3. Use HEC-RAS to evaluate the effect of current operations on the amount and persistence of wetted aquatic habitat, especially shoal/shallow-water habitat.



Mesohabitat Mapping and Analysis

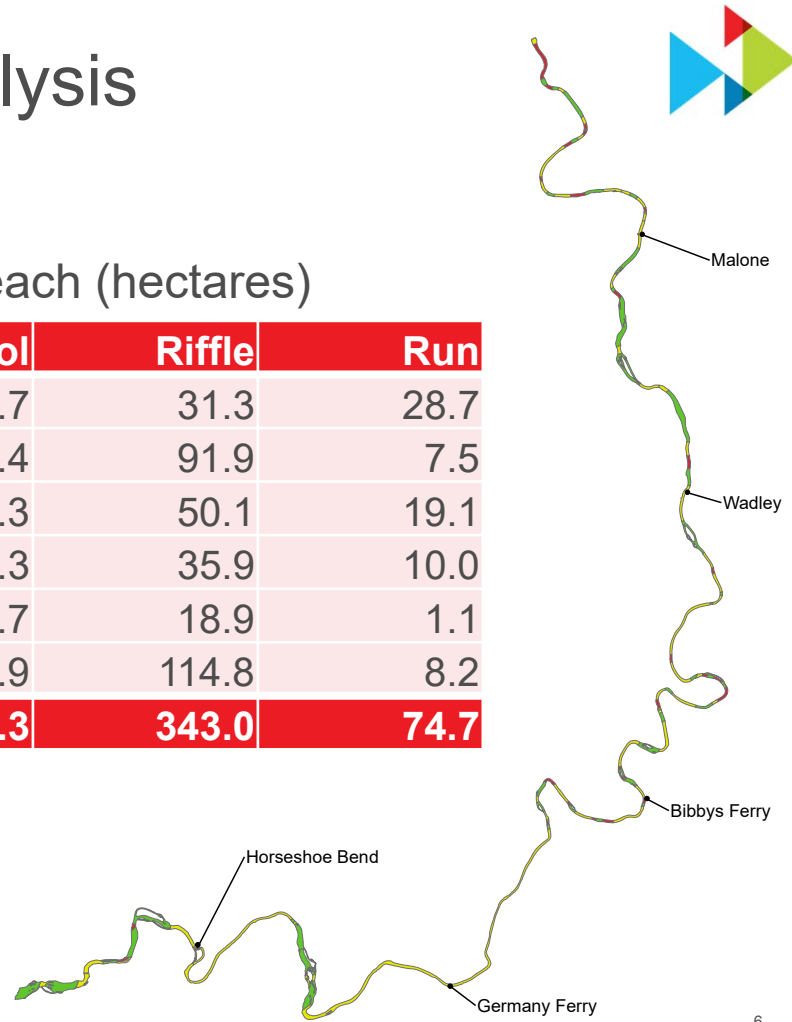
Mesohabitat Mapping



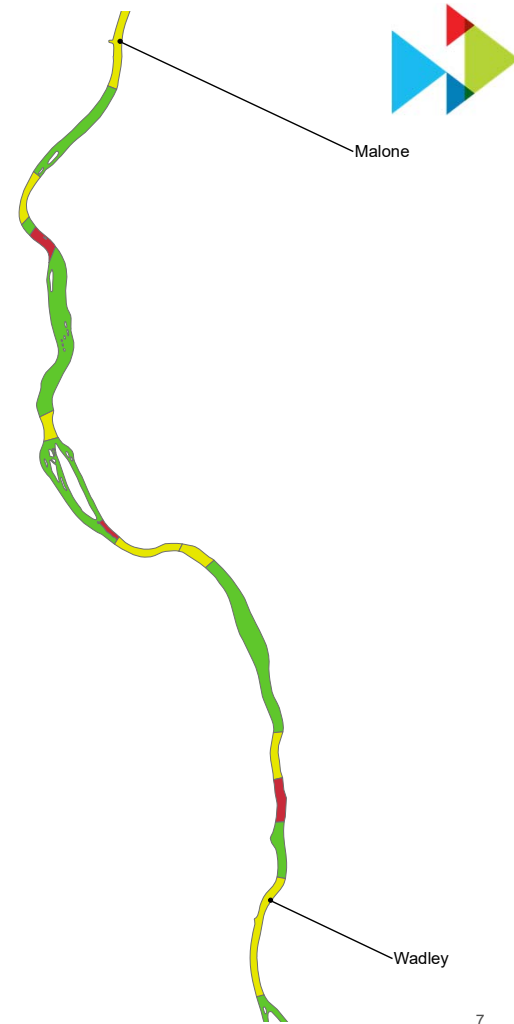
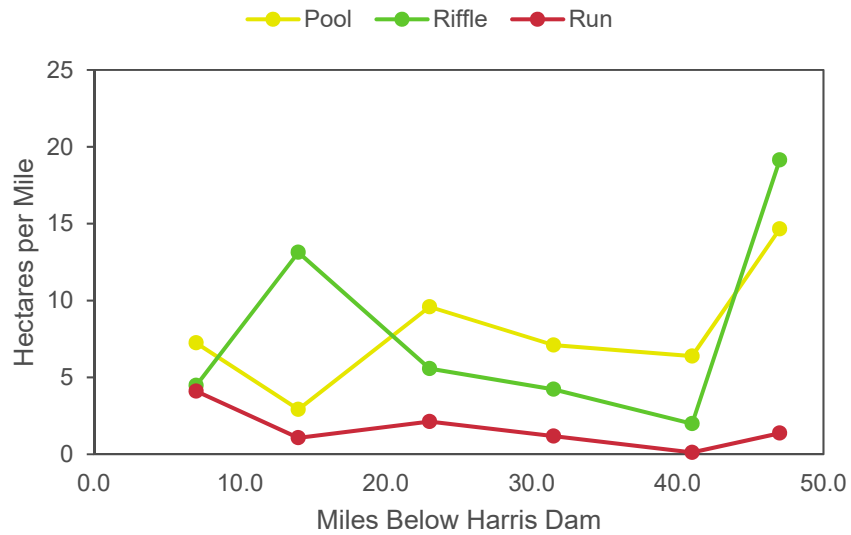
Mesohabitat Analysis

Mesohabitat Type by Reach (hectares)

Reach	Pool	Riffle	Run
Malone	50.7	31.3	28.7
Wadley	20.4	91.9	7.5
Bibbys Ferry	86.3	50.1	19.1
Germany's Ferry	60.3	35.9	10.0
Horseshoe Bend	60.7	18.9	1.1
Irwin Shoals	87.9	114.8	8.2
Grand Total	366.3	343.0	74.7

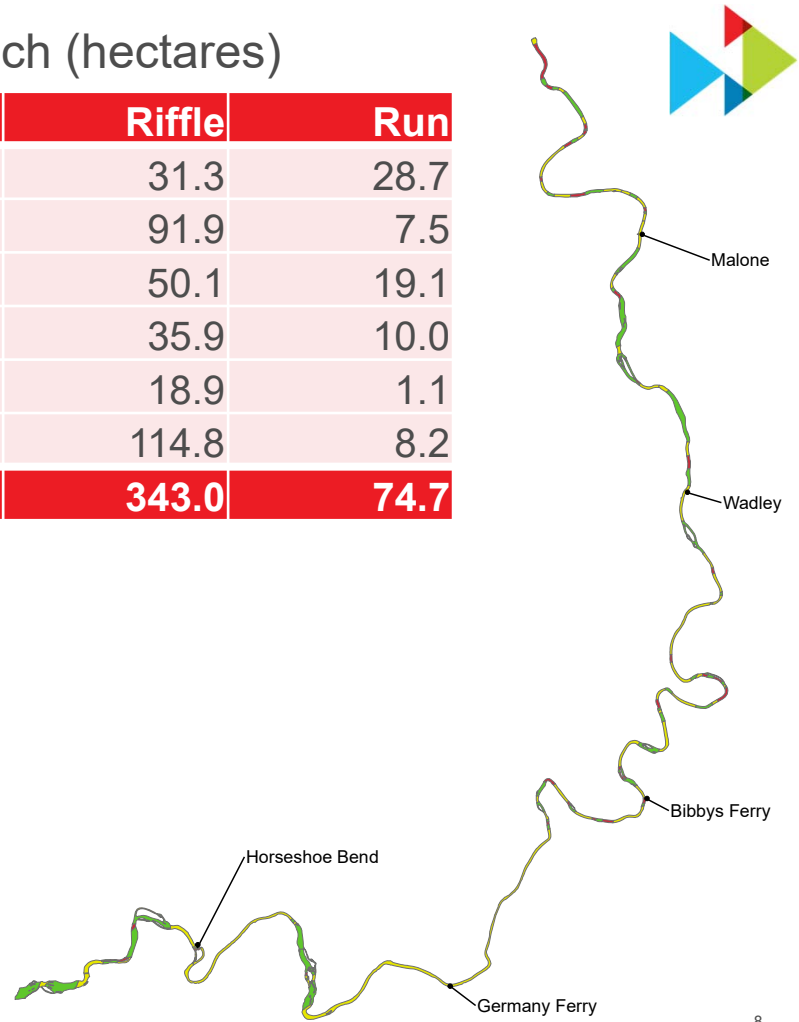


Mesohabitat Analysis

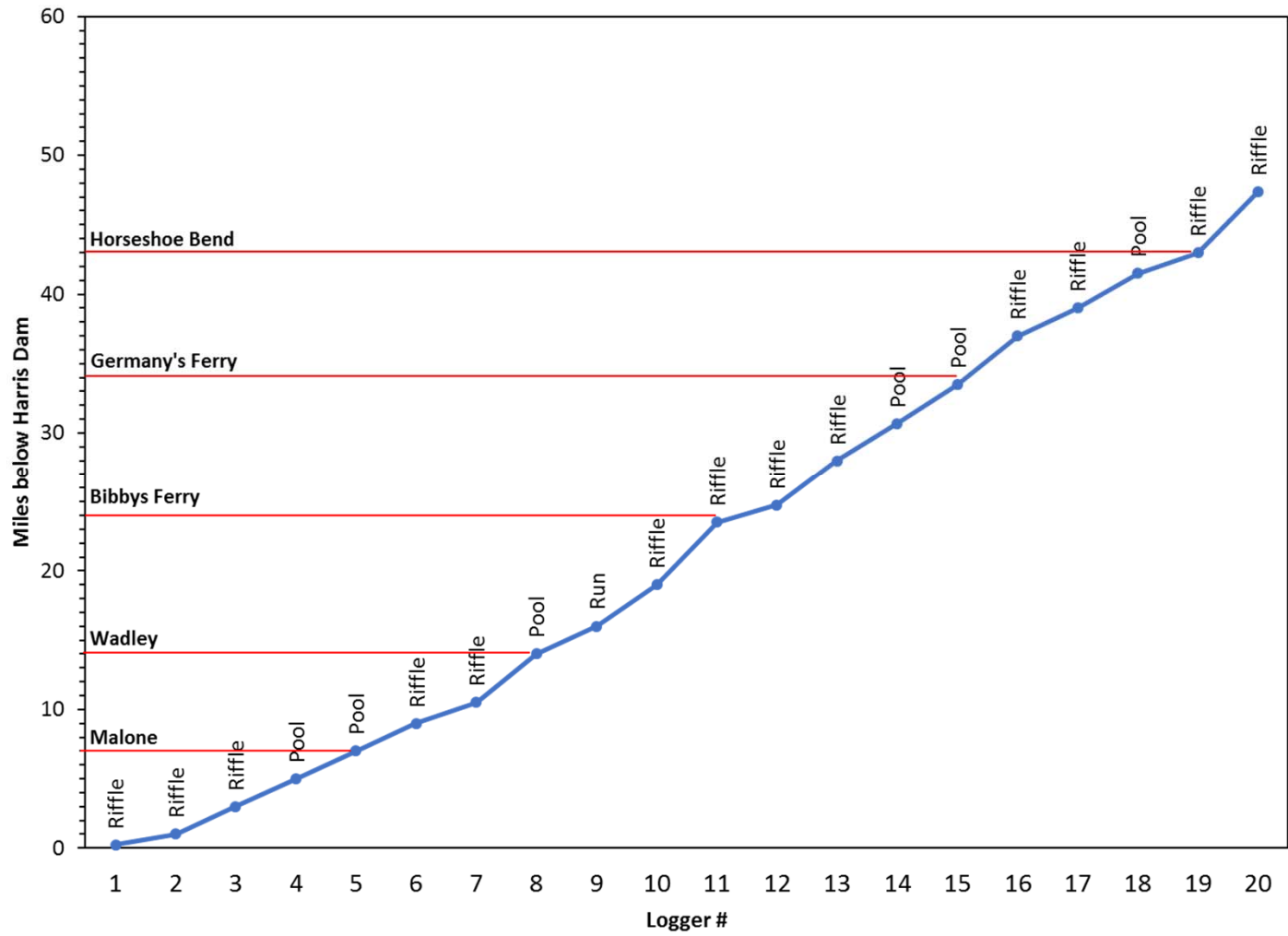


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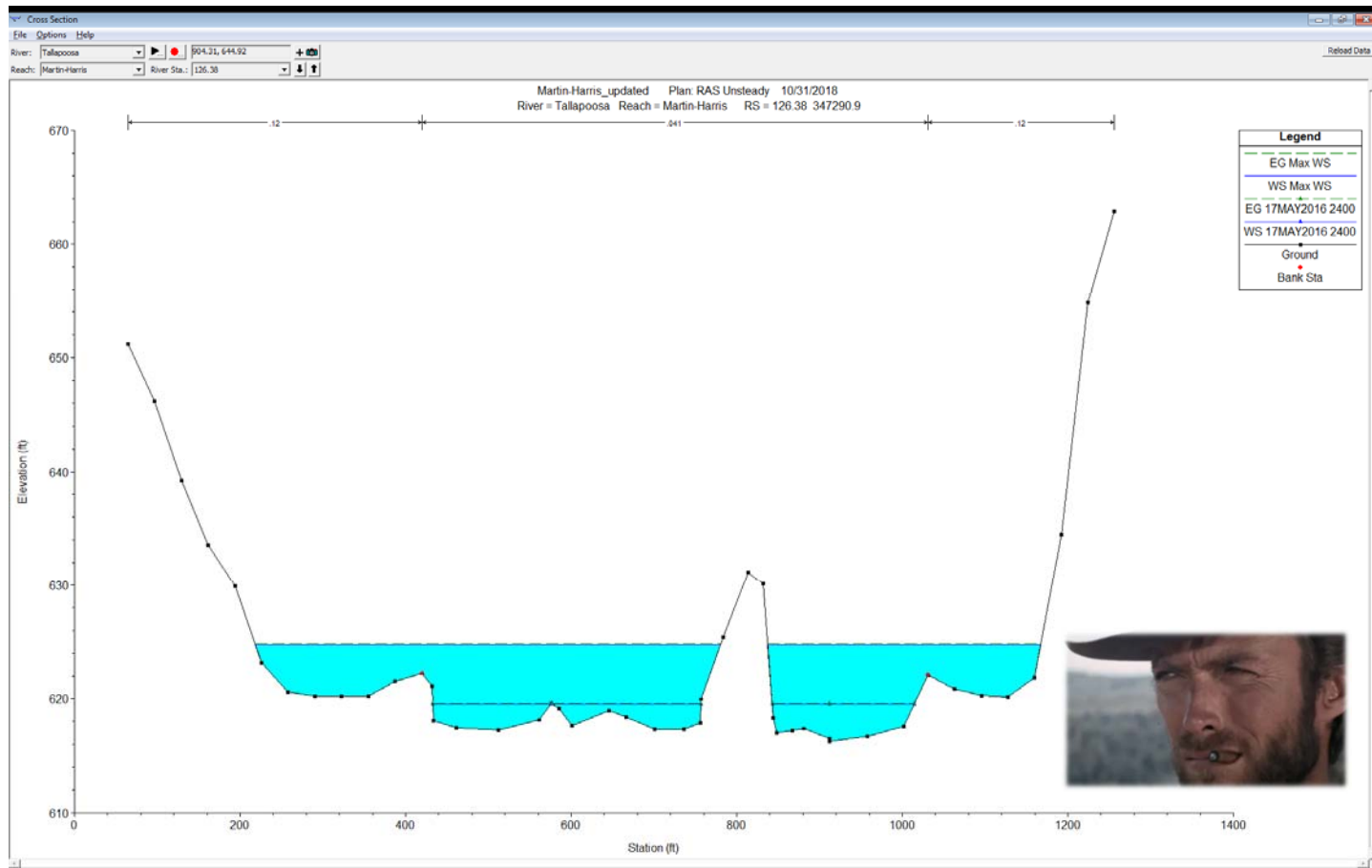


Water Level Logger Deployments

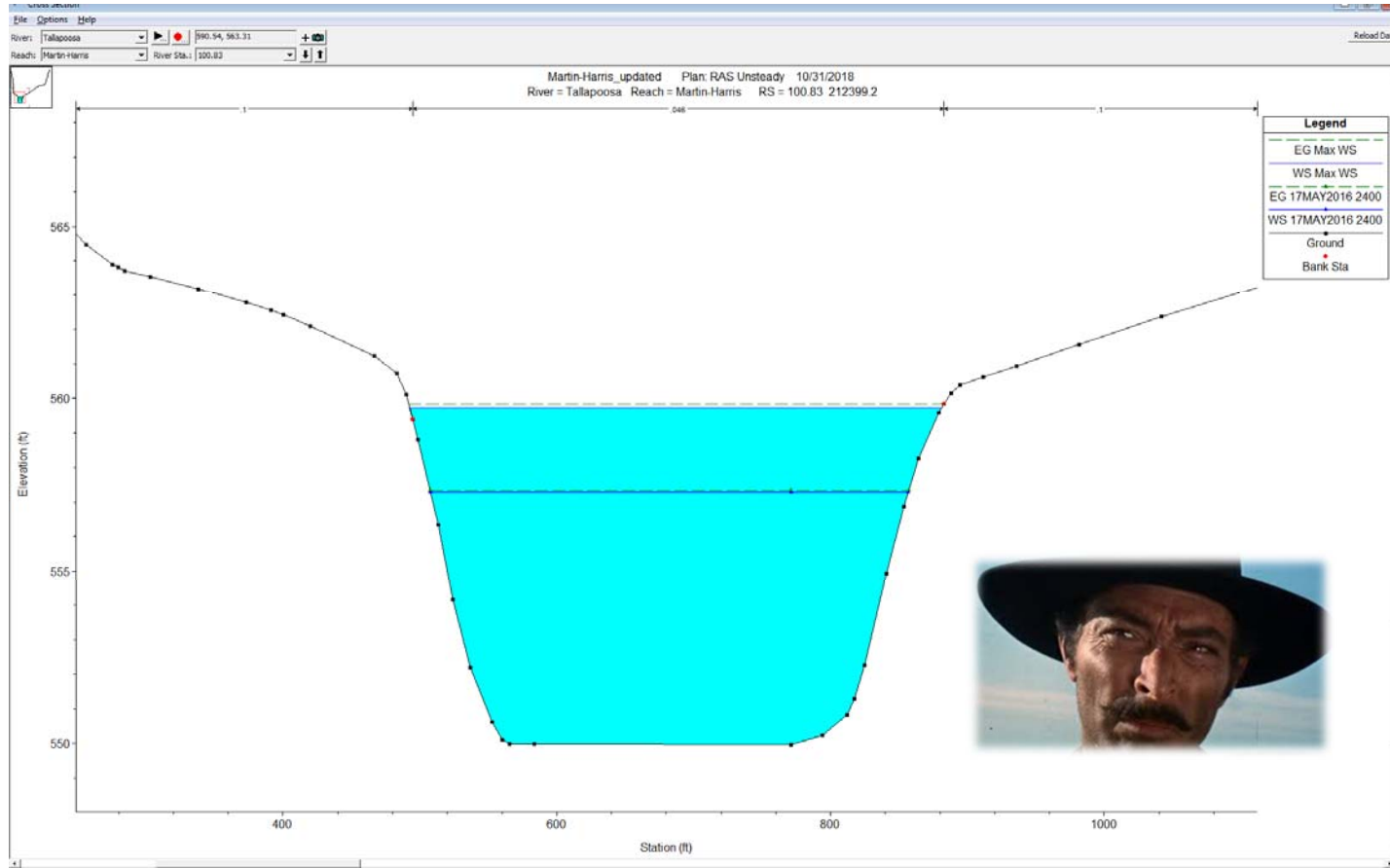


HEC-RAS Model Development

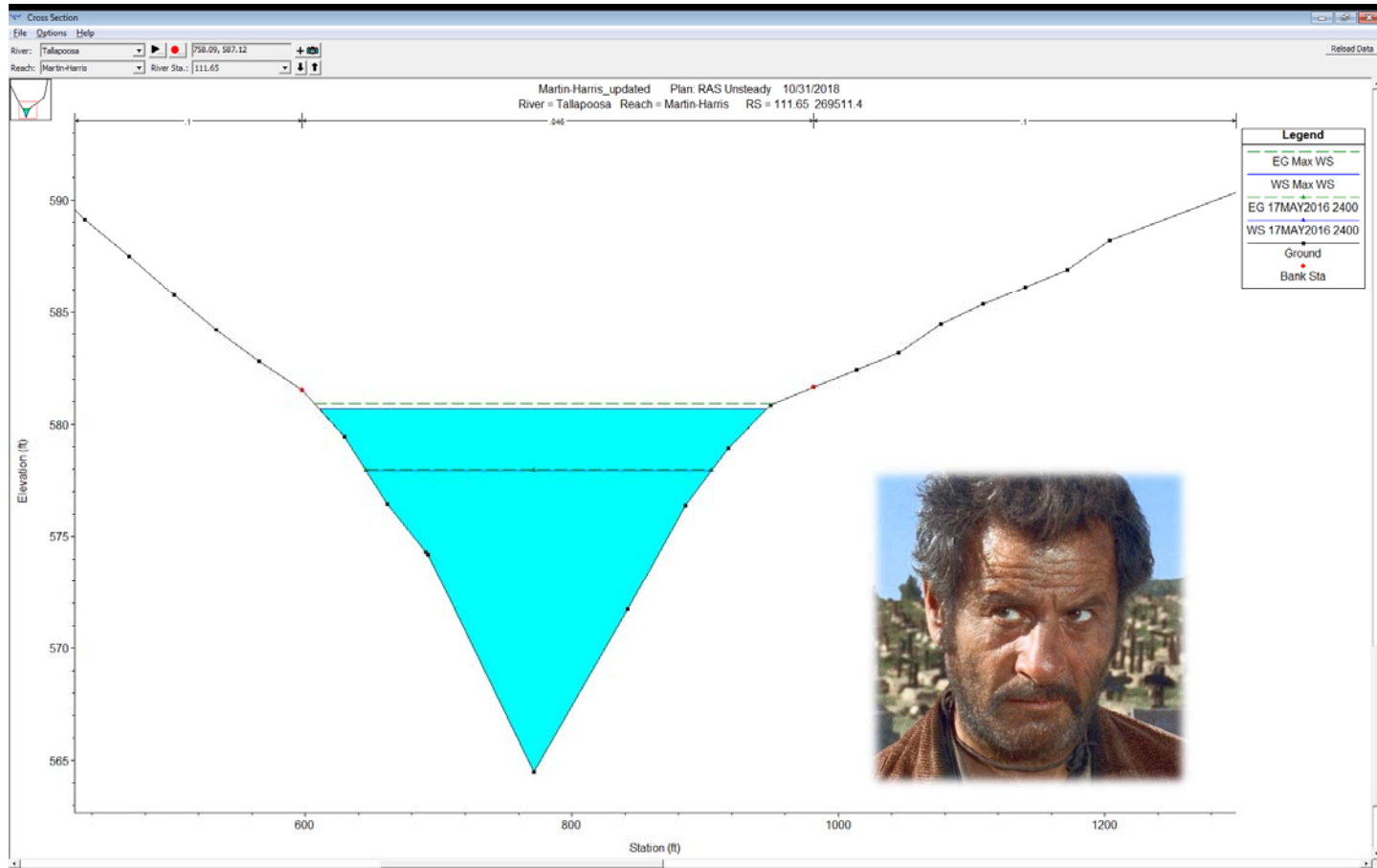
River Cross-Sections – The Good

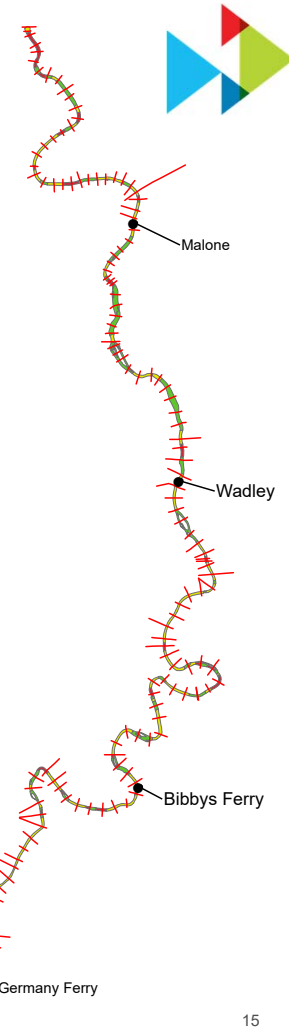
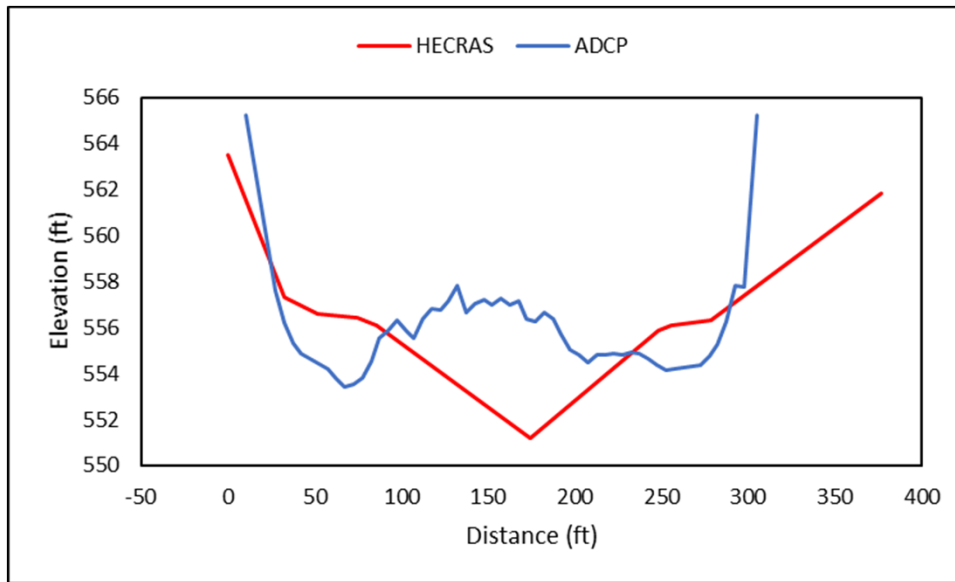


River Cross-Sections – The Bad



River Cross-Sections – and the Ugly

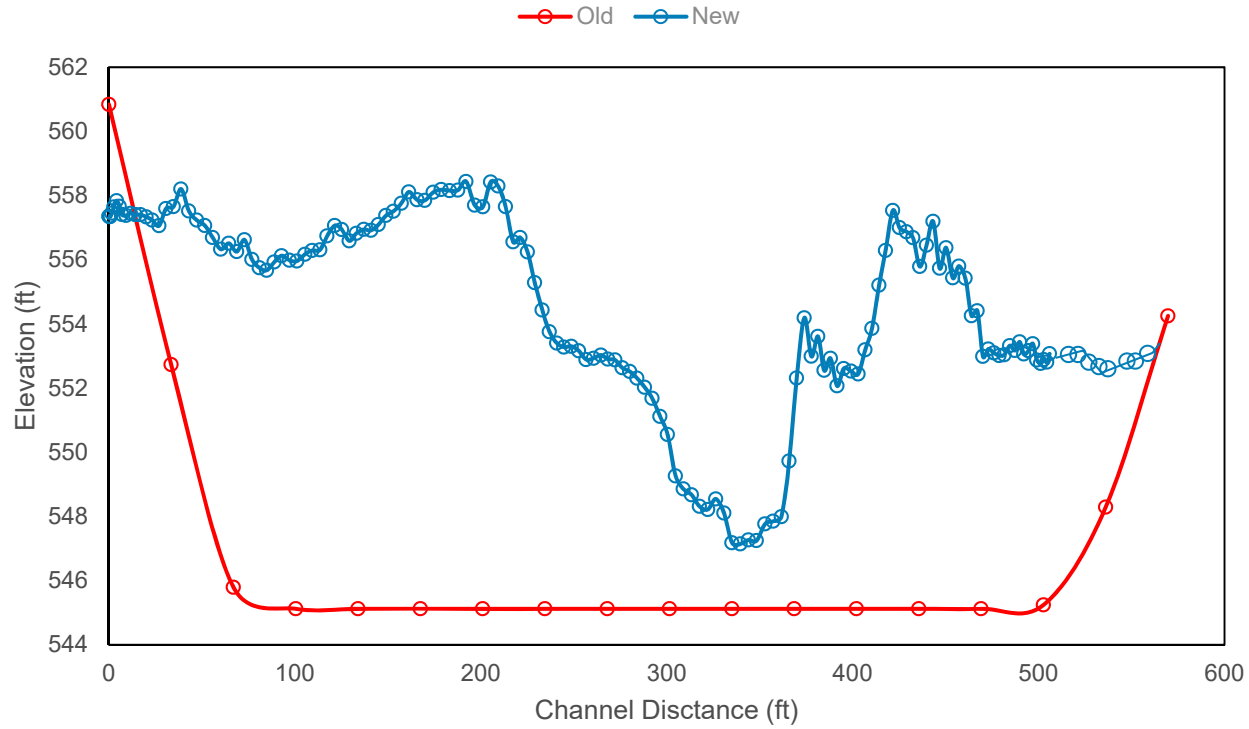




~200 cross-sections

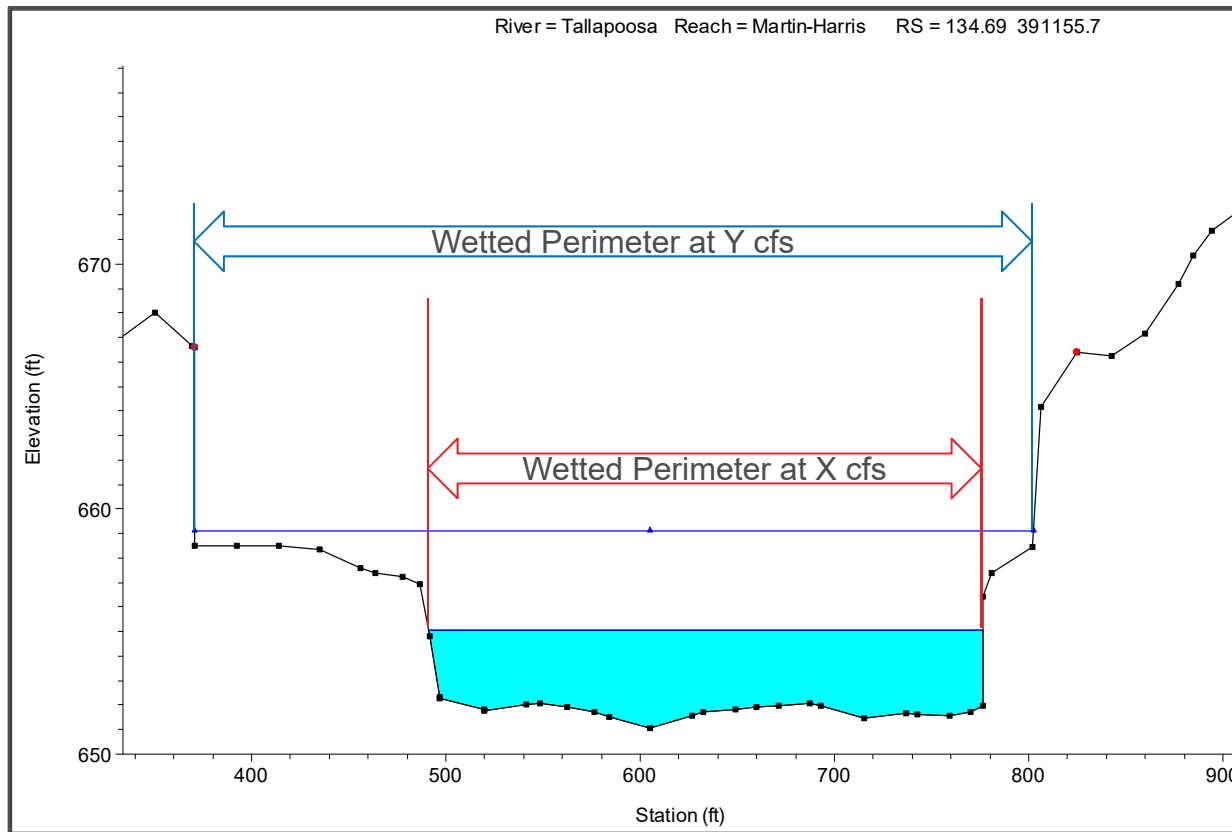
Collect bathymetry data at:

- Poorly interpolated cross-sections
- New cross-sections where gradient is steep



HEC-RAS Results Analysis

HEC-RAS Results Analysis

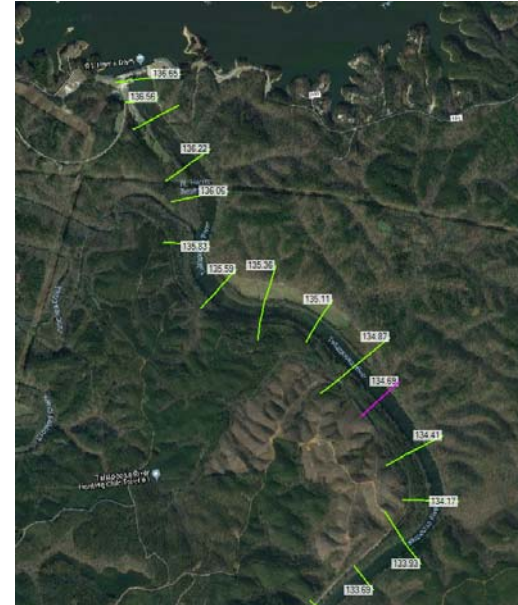
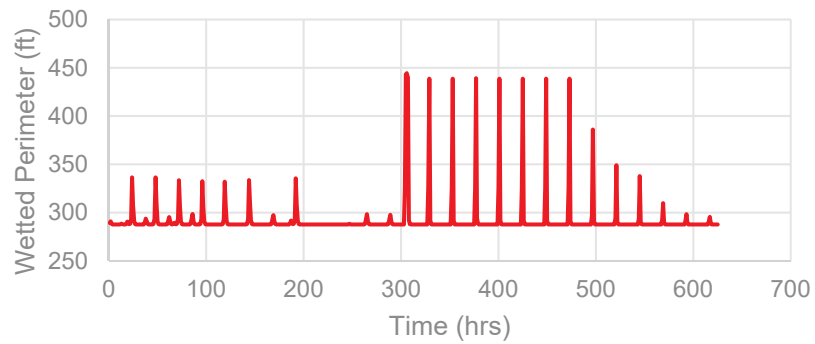
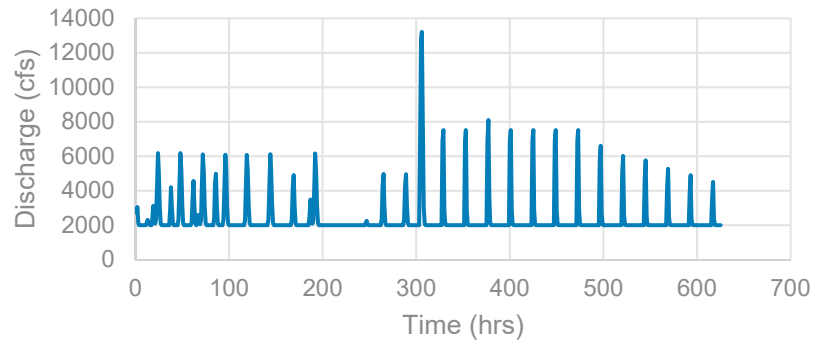


HEC-RAS Results Analysis

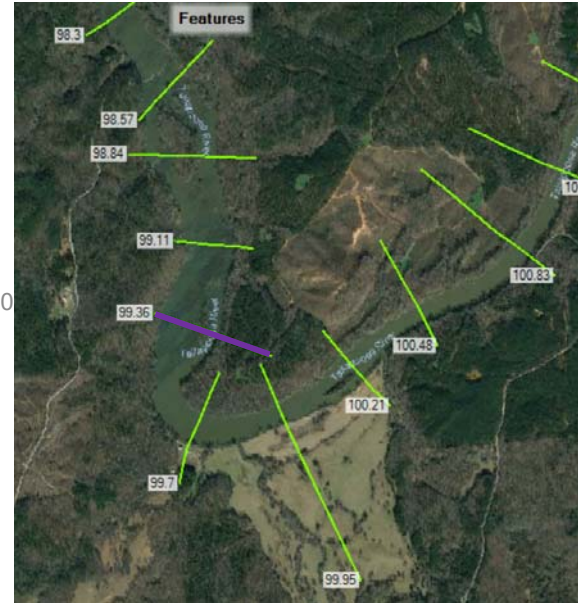
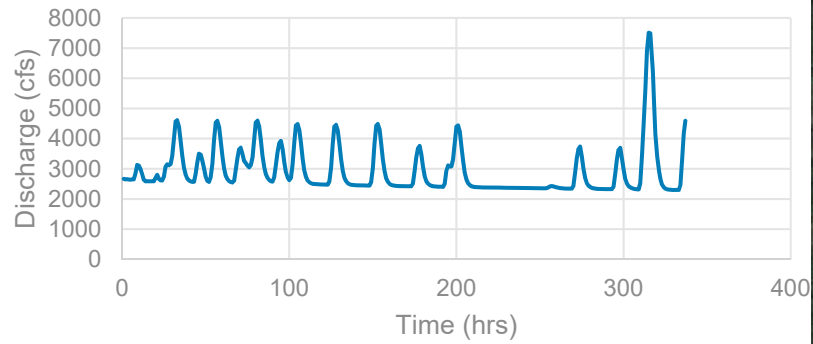


River Station	Discharge (cfs)	Wetted Perimeter (ft)	Water Surface Elevation (ft)
134.69	2001	287.71	654.58
134.69	2001	287.71	654.58
134.69	2000	287.71	654.57
134.69	2312	288.44	654.79
134.69	4240	293.02	656.11
134.69	6112	333.6	657.57
134.69	5227	310.29	657.25
134.69	3231	291.84	655.77
134.69	2134	288.3	654.75
134.69	2005	287.74	654.58
134.69	2000	287.71	654.58
134.69	2000	287.71	654.57
134.69	2000	287.71	654.57
134.69	2000	287.71	654.57
134.69	2000	287.71	654.57
134.69	2000	287.71	654.57
134.69	2000	287.71	654.57
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134.69	2000	287.71	654.57
134.69	2000	287.71	654.57
134.69	2000	287.71	654.57
134.69	2000	287.71	654.57

Tailwater Transect

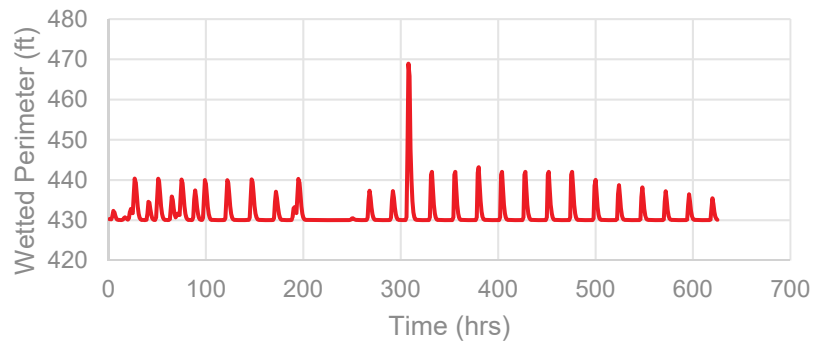
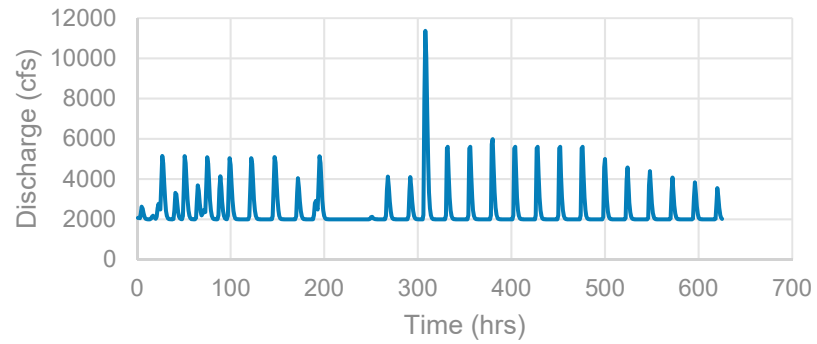


Shoal Transect





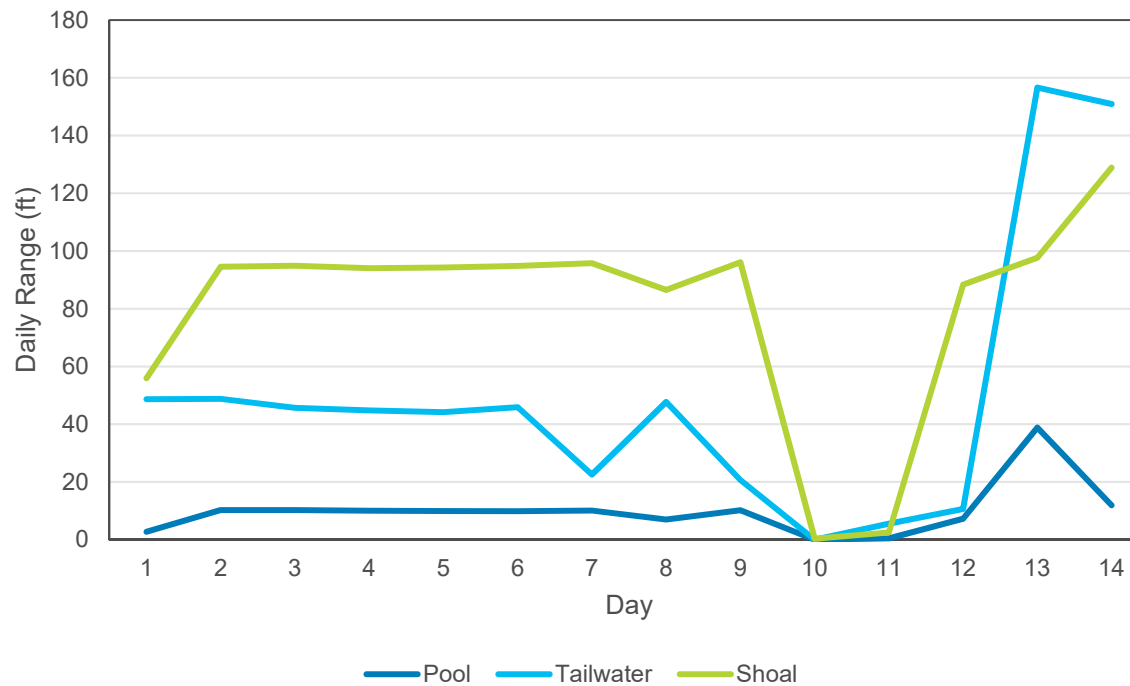
Pool Transect



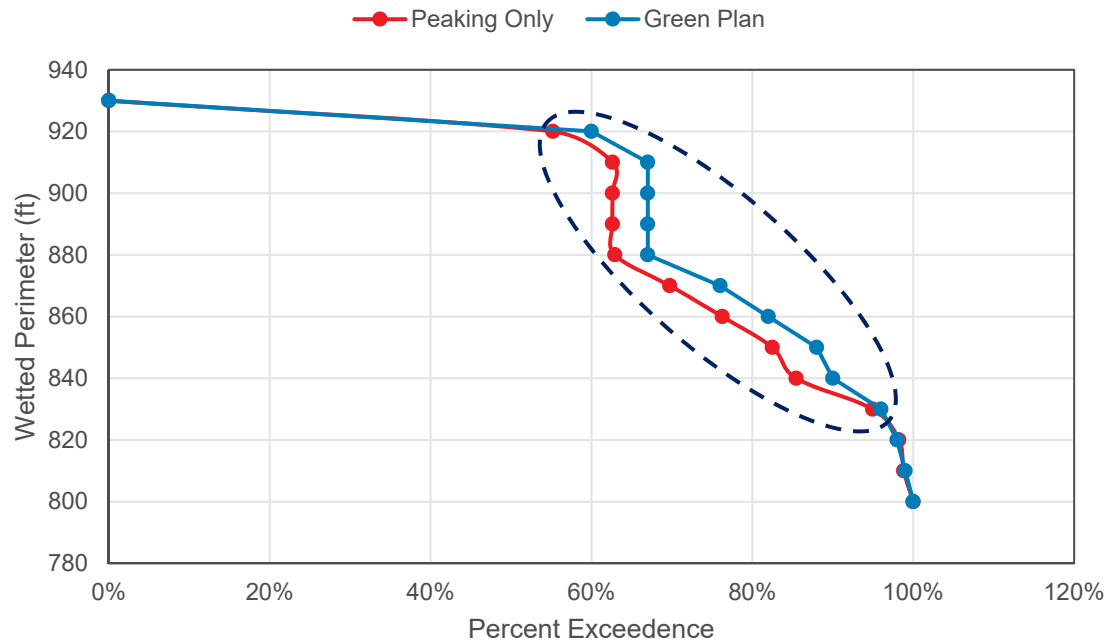
Example Range Comparison



$$WP_{\text{range}} = WP_{\text{max}} - WP_{\text{min}}$$



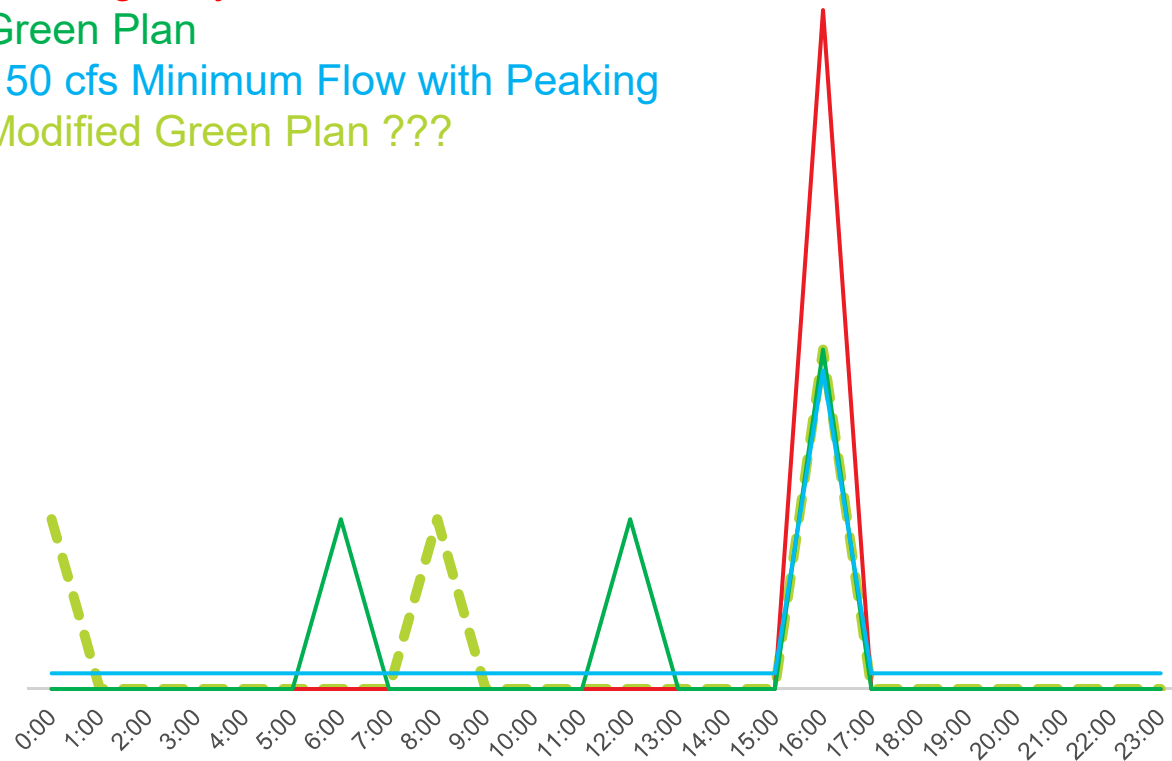
Example Frequency Comparison

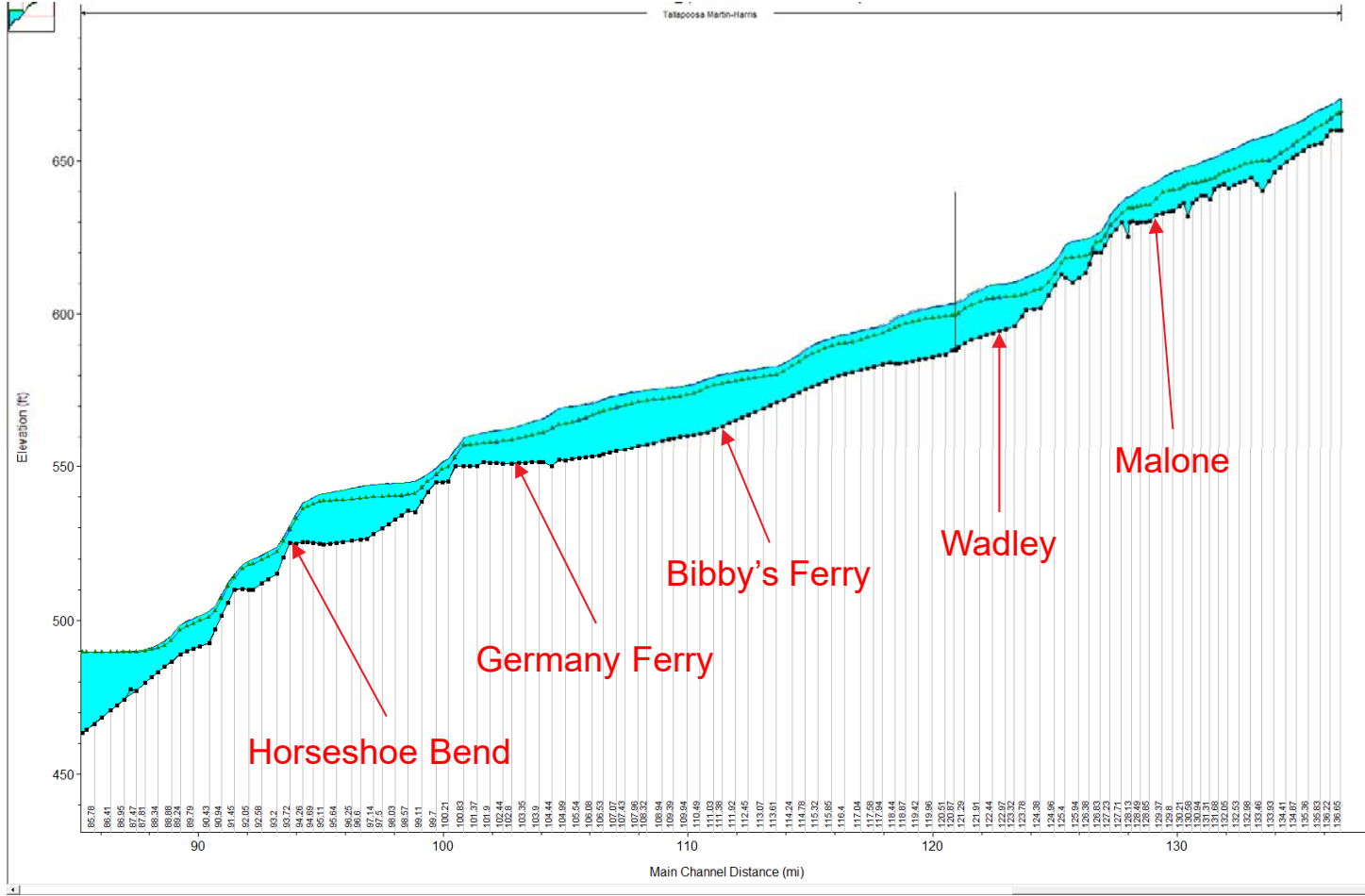


Scenarios to Analyze



- Peaking Only
- Green Plan
- 150 cfs Minimum Flow with Peaking
- Modified Green Plan ???





HAT 3 - Downstream Aquatic Habitat conference call

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Thu 1/23/2020 6:41 PM

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HAT 3,

Please join us for a conference call on February 20th from 1:00-3:00 to discuss the Downstream Aquatic Habitat Study. We will review the methods we are using for this analysis and share preliminary results.

[Join Skype Meeting](#)

Join by phone

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Conference ID: 3660816

Thanks,

Angie Anderegg

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arsegars@southernco.com

From: [Anderegg, Angela Segars](#)
To: [Fobian, Todd](#)
Subject: FW: HAT 3 - Downstream Aquatic Habitat conference call
Date: Wednesday, February 19, 2020 1:25:44 PM

Hi Todd,

I wanted to make sure you have the Skype and call in info for Thursday's HAT 3 meeting. The Downstream Aquatic Habitat Study Plan and meeting notes are on our website: www.harrisrelicensing.com. We have another HAT 3 meeting in Oxford on March 19th. I'll be sending out the details to everyone by the end of this week.

Thanks!

Angie Anderegg

Hydro Services
(205)257-2251
arsegars@southernco.com

From: APC Harris Relicensing
Sent: Thursday, January 23, 2020 12:42 PM
To: 'harrisrelicensing@southernco.com' <harrisrelicensing@southernco.com>
Subject: HAT 3 - Downstream Aquatic Habitat conference call

HAT 3,

Please join us for a conference call on February 20th from 1:00-3:00 to discuss the Downstream Aquatic Habitat Study. We will review the methods we are using for this analysis and share preliminary results.

.....
[Join Skype Meeting](#)

Join by phone

+1 (205) 257-2663
Conference ID: 3660816

Thanks,

Angie Anderegg

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R. L. Harris Hydroelectric Project

FERC No. 2628

Meeting Summary HAT 3 Meeting February 20, 2020 1:00 pm to 1:45 pm Conference Call

Participants:

Angie Anderegg – Alabama Power
Jeff Baker – Alabama Power
Kate Cosnahan – Kleinschmidt Associates
Allan Creamer – Federal Energy Regulatory Commission (FERC)
Colin Dinken – Kleinschmidt Associates
Amanda Fleming – Kleinschmidt Associates
Todd Fobian – Alabama Department of Conservation of Natural Resources (ADCNR)
Donna Matthews – Tallapoosa River Heritage
Tina Mills – Alabama Power
Ashley McVicar – Alabama Power
Jason Moak – Kleinschmidt Associates
Sarah Salazar - FERC

NOTE: A copy of the HAT 3 February 20, 2020 presentation is attached.

Meeting Summary:

Angie Anderegg (Alabama Power) opened the meeting by introducing everyone and recapping the previous HAT 3 conference call from December 2019. In December, the methods for the analysis were presented. The purpose for this conference call was for Jason Moak (Kleinschmidt Associates) to present some preliminary results.

Jason reviewed the purpose and goal of the Downstream Aquatic Habitat Study, which is to develop a model that describes the relationship between Green Plan operations and aquatic habitat. The HEC-RAS model outputs will be used to determine how current operations affect the amount and persistence of wetted habitat. Jason discussed how mesohabitat of the Tallapoosa River downstream of Harris Dam was delineated into riffles, pools, and runs for different reaches (Malone, Wadley, Bibby's, Germany, HOBE, and Irwin Shoals) using GIS. Jason stated that 20 water level loggers have been deployed since June 2019 and they are logging both water level and temperature data every 15 minutes.

Jason discussed how the HEC-RAS model was developed. Previously, the model included roughly 200 cross-sections between Harris Dam and Jaybird Landing. However, some of the data had been interpolated using the surrounding landscape and were not ideal. More than 100 cross-sections were surveyed in 2019 to provide better channel geometry for the HEC-RAS model.

The HEC-RAS model will be used to examine the feasibility of alternative operating modes. For this study, the amount of wetted habitat will be measured under the different operating mode scenarios. Jason presented some examples of the results. Areas closer to the dam show more drastic fluctuations in discharge when compared to more downstream reaches. Jason

demonstrated how shallow-water habitats would be affected more by changes in operating modes than pool habitats, which exhibit a less variable range of responses and smaller changes to wetted perimeter.

Jason explained the daily range comparison calculation: wetted perimeter range = wetted max - wetted min. An example frequency comparison between peaking, Green Plan, and 150 cubic feet per second (cfs), was shown to explain what the results may look like, but no actual data was used for this example. The operating scenarios that will be analyzed are peaking only, Green Plan, 150 cfs minimum flow, and a modified Green Plan. The modified Green Plan has not been determined yet and will likely resemble the current Green Plan but with pulses occurring at different times of day. Jason showed a figure of elevation changes from the dam downstream through Horseshoe Bend.

Sarah Salazar (Federal Energy Regulatory Commission (FERC)) asked if the model could be used to examine change in water levels at the erosion sites described in the Erosion and Sedimentation Study and Jason confirmed that the model will be used to determine how these operation scenarios can affect the erosion areas. He stated that the model will also be used to measure the effects of alternative operation scenarios on the operation curve change of the lake.

Jason and Angie said these notes and presentation will be uploaded to the relicensing website. Jason stated that some of the data is being reviewed and therefore some results were not yet ready to be shown, but more results will be presented in March. Angie will send out information about the March 19 HAT meeting soon.

Todd Fobian (Alabama Department of Conservation of Natural Resources (ADCNR)) asked how long the loggers have been gathering data. Jason replied that some have been out longer than others, but there have been 20 loggers gathering data since June 2019. Donna Matthews (Tallapoosa River Heritage) asked if the whole dataset is derived from an average of different sampling times and asked if any data will describe what is simultaneously happening to the lake level. Jason said that Reservoir Management ensured that none of these proposed operation scenarios will affect the guide curve of the lake. For example, under the hypothetical minimum flow scenario, 150 cfs will consistently be released and any excess water will be used for generation, so all these scenarios should allow the lake to remain on the guide curve. Donna asked if these data are tied to rain events. Jason said extreme conditions occur, but these examples used a year with median conditions (2001). There are still high and low flow events within that dataset, however.

The group discussed the current rain conditions at the Tallapoosa River and throughout the rest of the Southeast. Todd asked about the amount of leakage at Harris Dam. Sarah asked if the model accounts for tributaries, which may contribute to flow. Jason stated these locations were identified and hydrographs for all the tributaries between Harris and the downstream end of the model were developed so the model should account for their contribution to flow.

R.L. Harris Project Relicensing

HAT 3 – Downstream Habitat Study

February 20, 2020



Meeting Agenda



- Study Overview
- Mesohabitat Mapping
- Level Logger Deployments
- HEC-RAS Model Development
- Analysis of HEC-RAS Outputs



Downstream Aquatic Habitat Study



Goal

To develop a model that describes the relationship between Green Plan operations and aquatic habitat.

Geographic Scope

Harris Dam through Horseshoe Bend

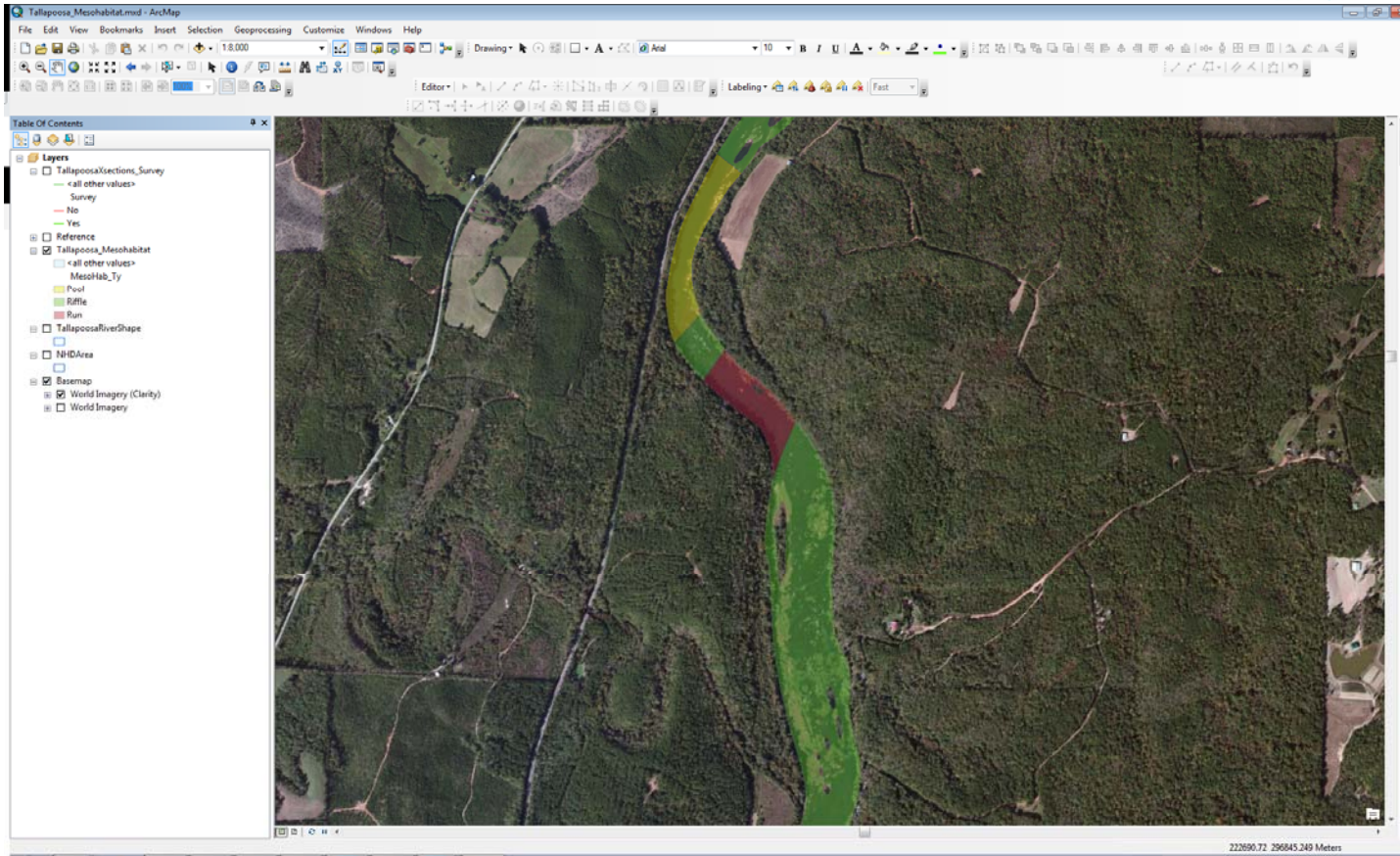
Methods

1. Mesohabitat Analysis: Desktop analysis of the types of available habitat (classified as riffle, run, pool)
2. Install water level loggers at up to 20 sites
3. Use HEC-RAS to evaluate the effect of current operations on the amount and persistence of wetted aquatic habitat, especially shoal/shallow-water habitat.



Mesohabitat Mapping and Analysis

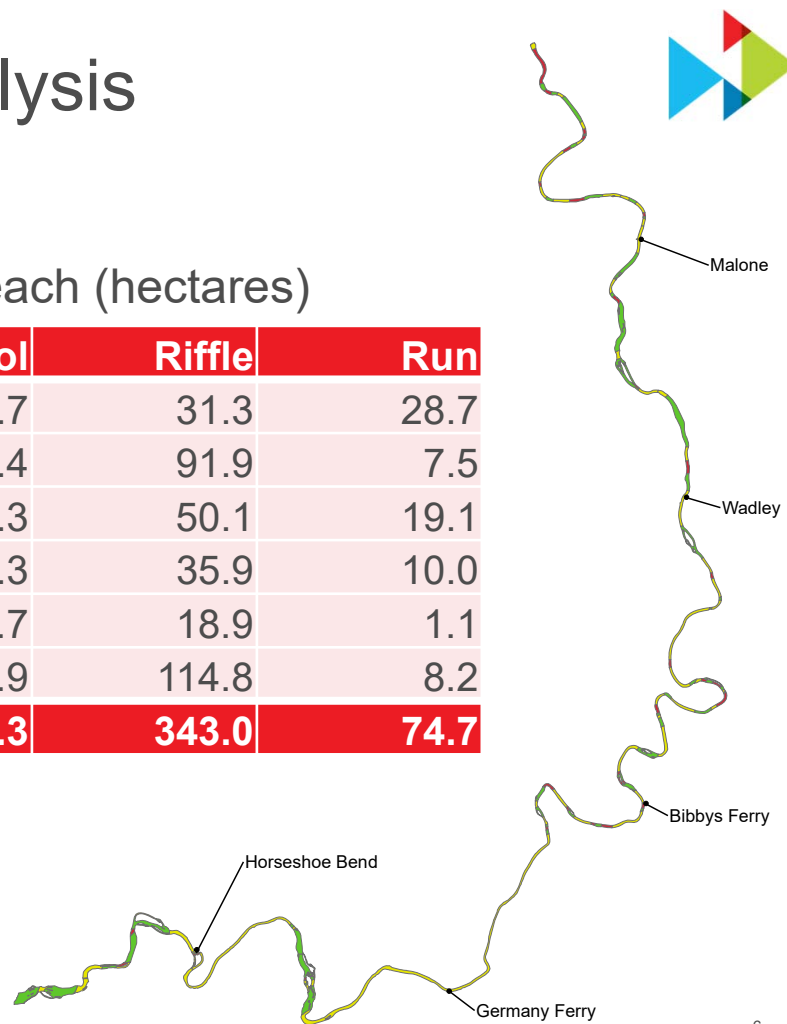
Mesohabitat Mapping



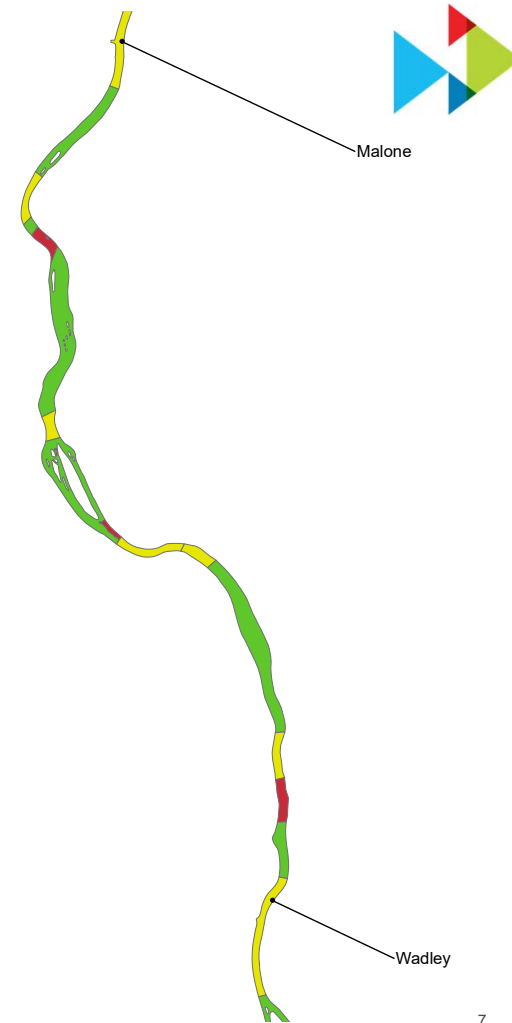
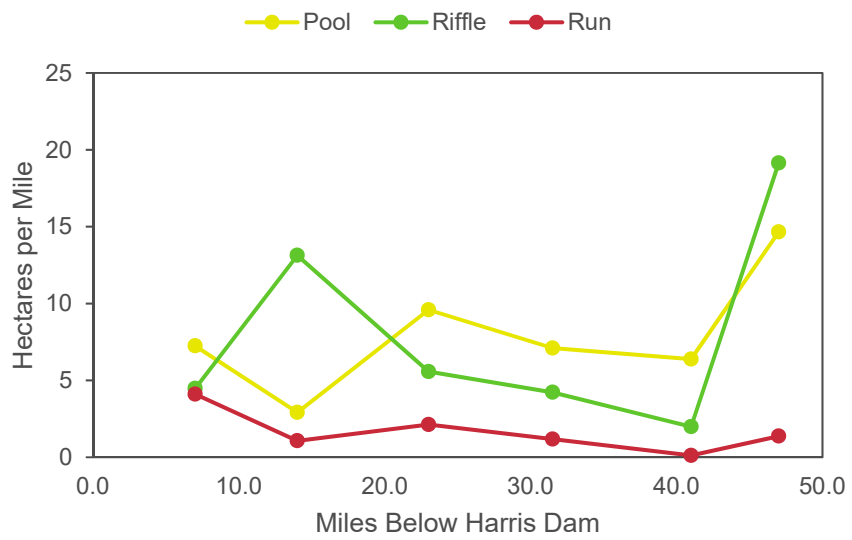
Mesohabitat Analysis

Mesohabitat Type by Reach (hectares)

Reach	Pool	Riffle	Run
Malone	50.7	31.3	28.7
Wadley	20.4	91.9	7.5
Bibbys Ferry	86.3	50.1	19.1
Germany's Ferry	60.3	35.9	10.0
Horseshoe Bend	60.7	18.9	1.1
Irwin Shoals	87.9	114.8	8.2
Grand Total	366.3	343.0	74.7

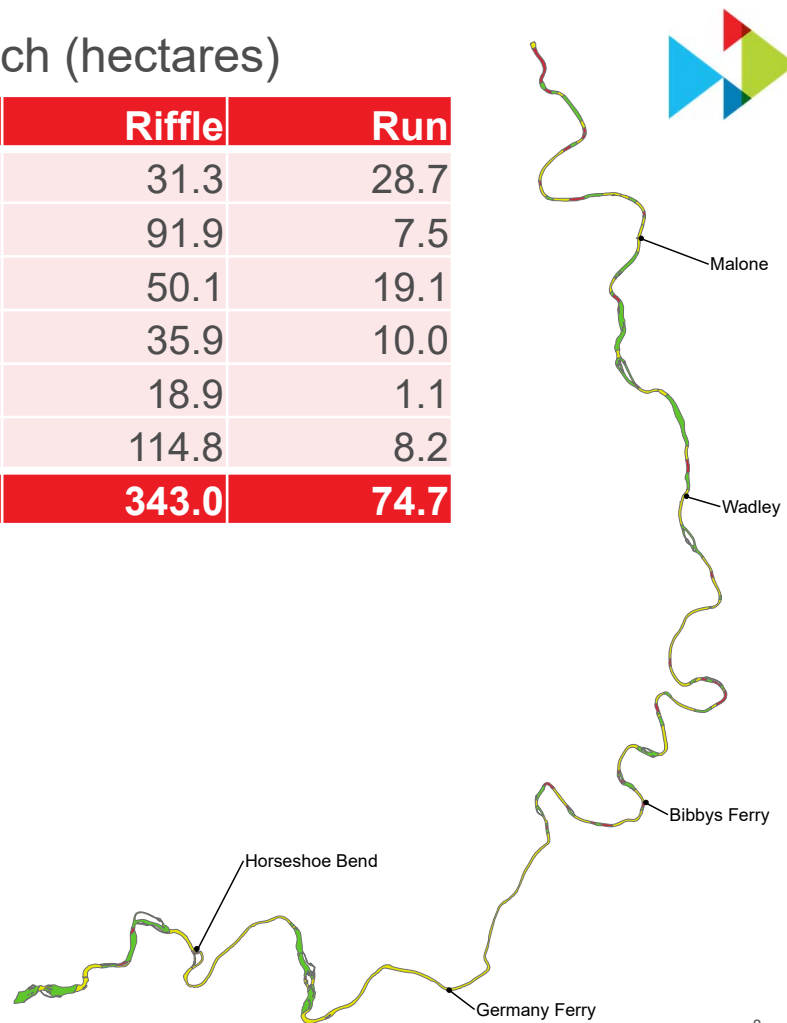


Mesohabitat Analysis



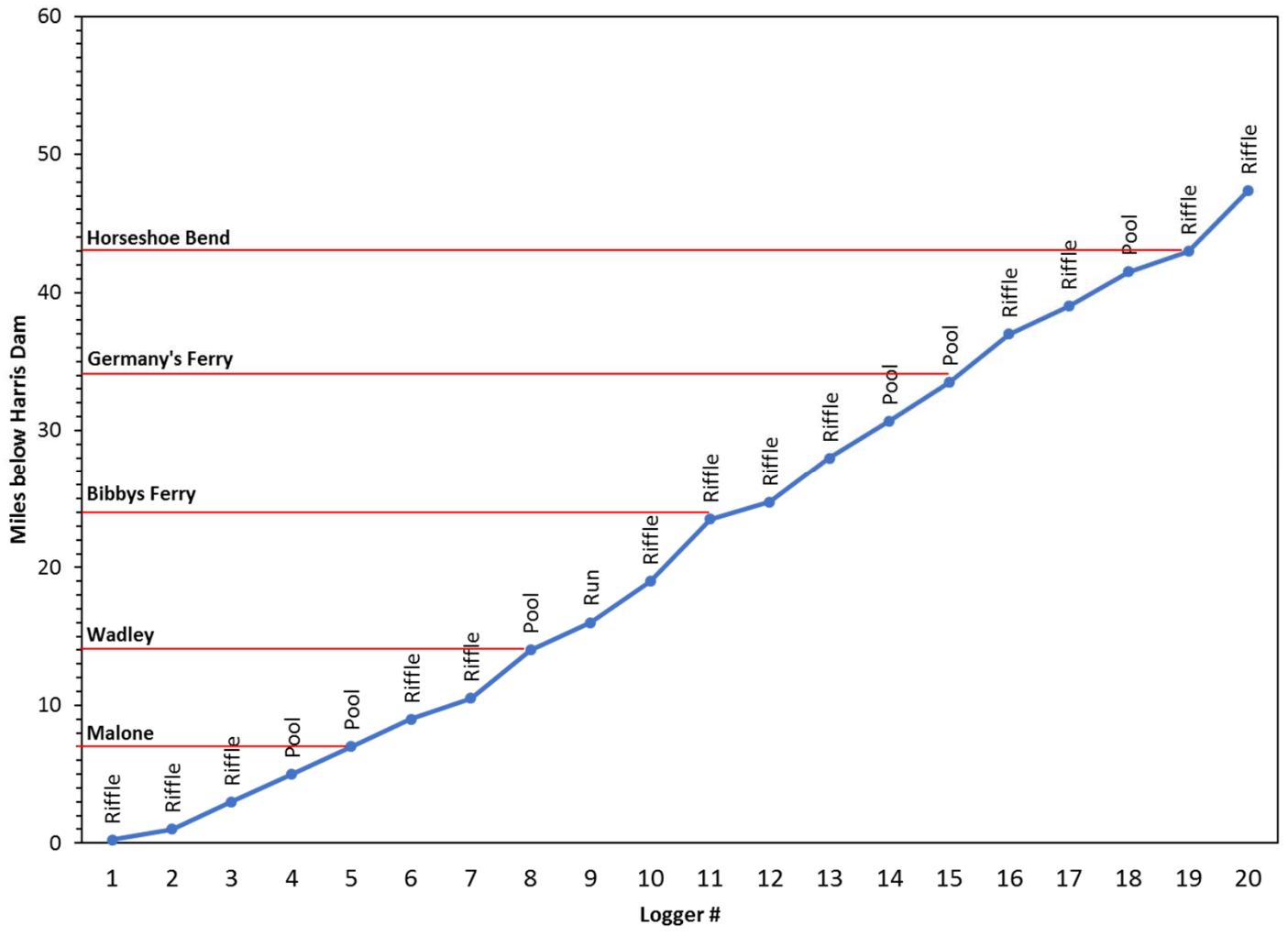
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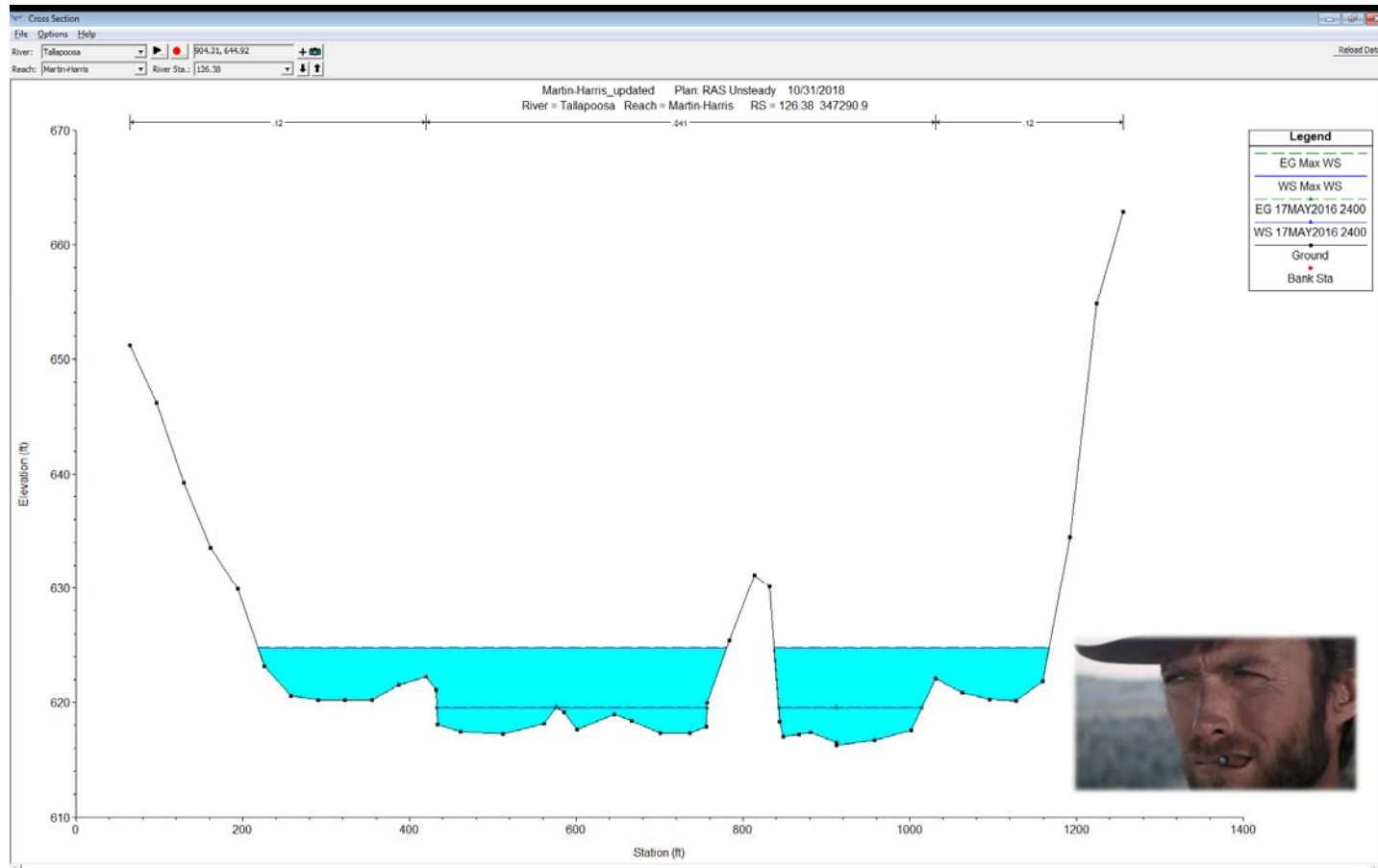
Water Level Logger Deployments



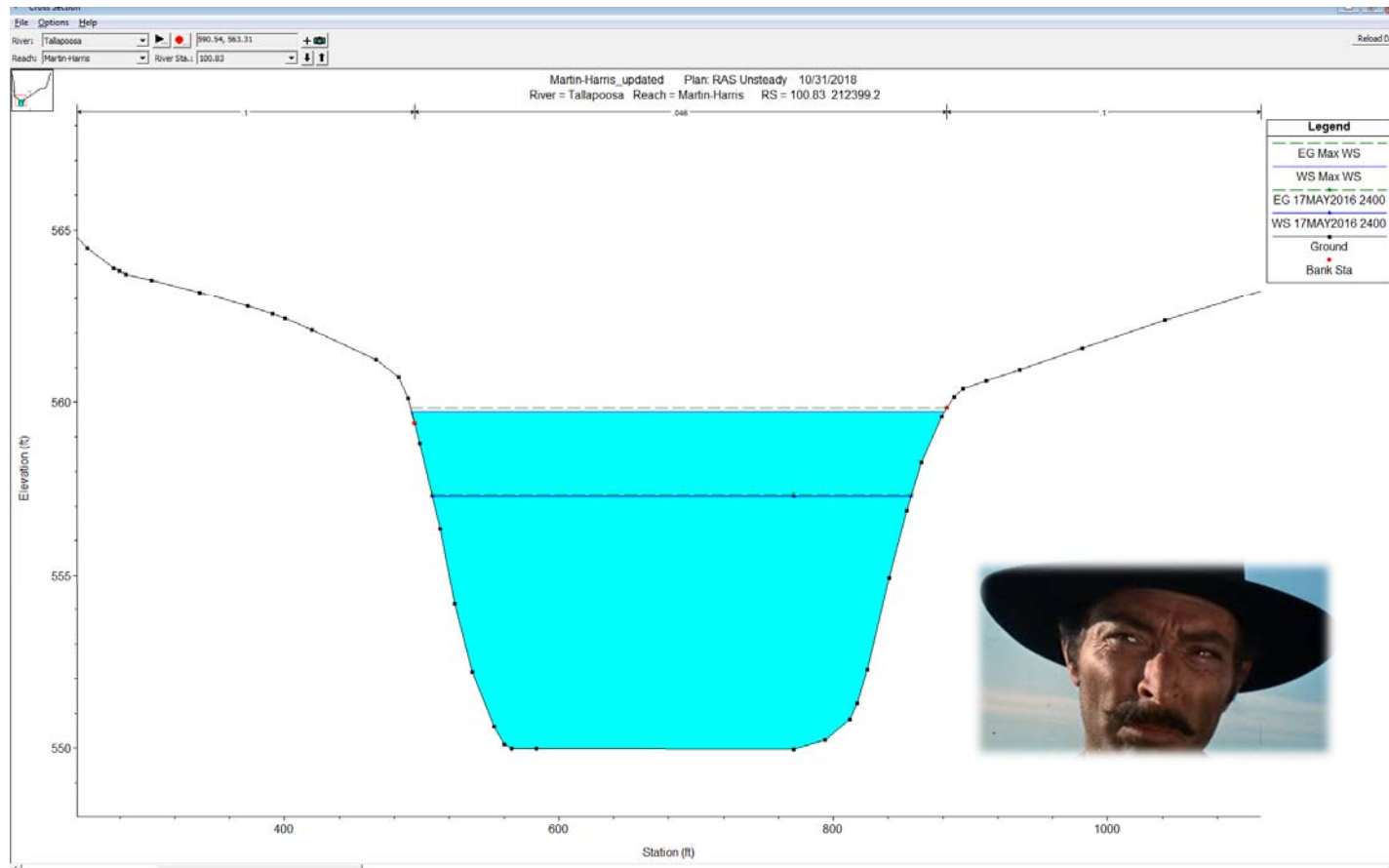
The slide features a background of overlapping geometric shapes in various shades of blue, creating a modern, abstract design. The text is centered in a clean, white, sans-serif font.

HEC-RAS Model Development

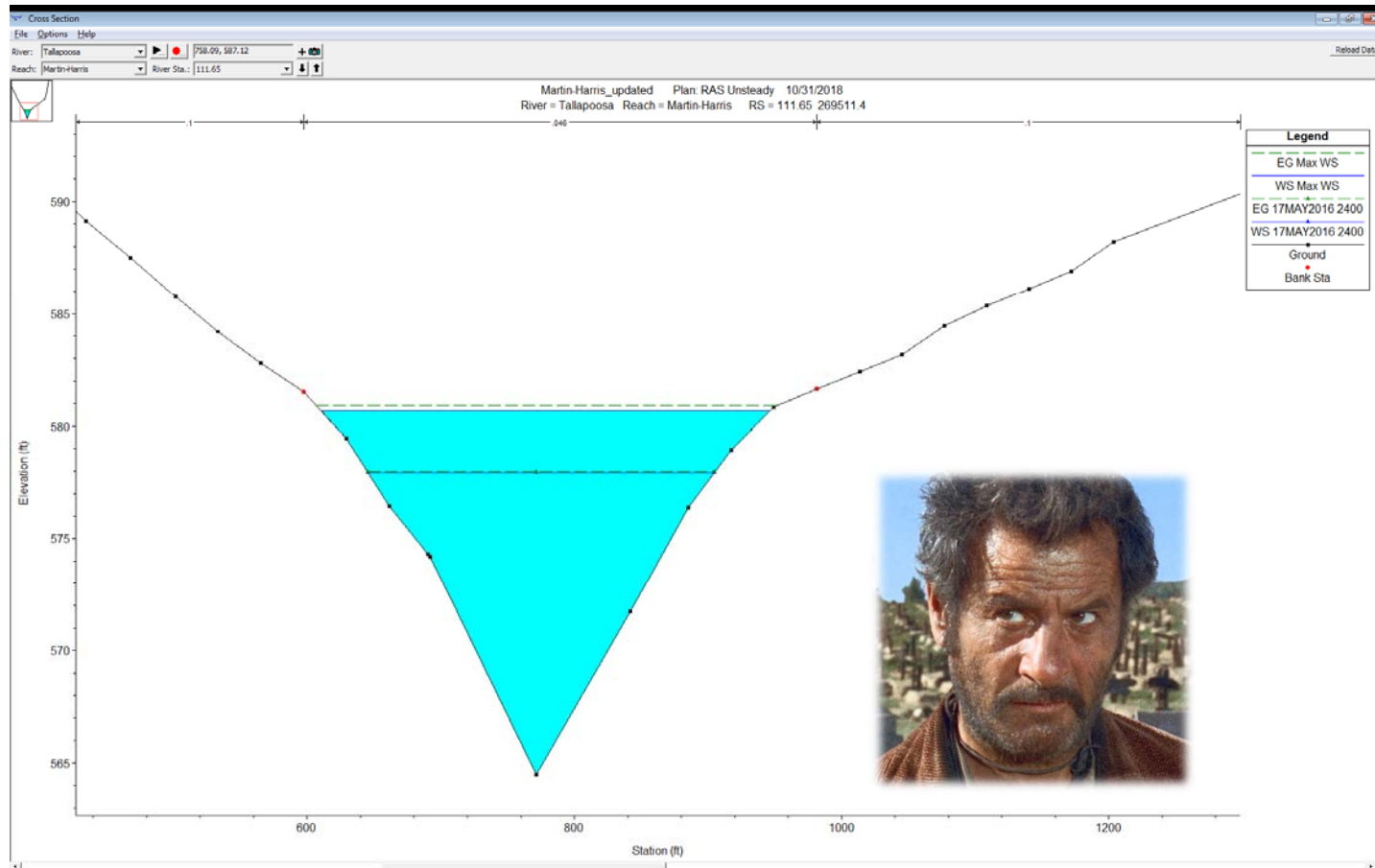
River Cross-Sections – The Good

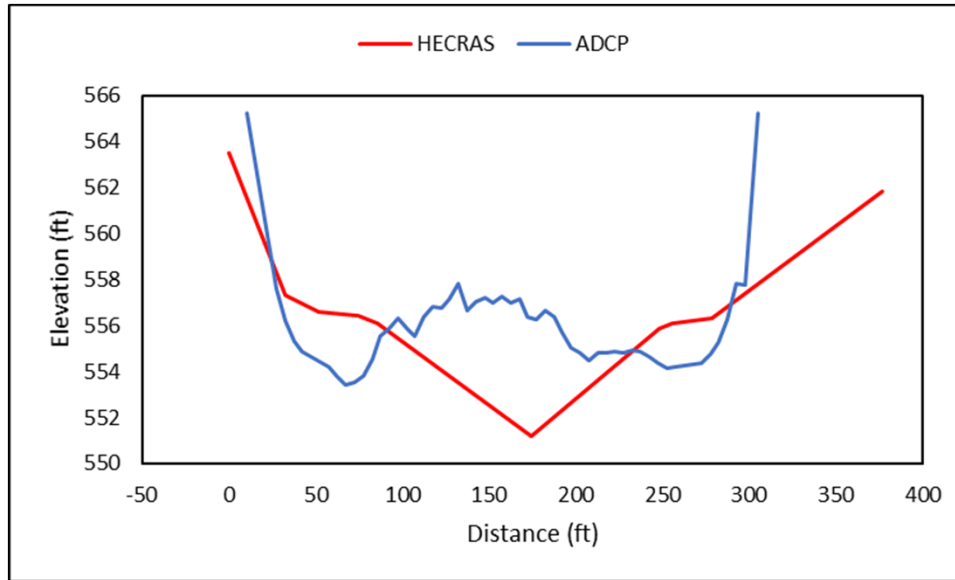


River Cross-Sections – The Bad



River Cross-Sections – and the Ugly

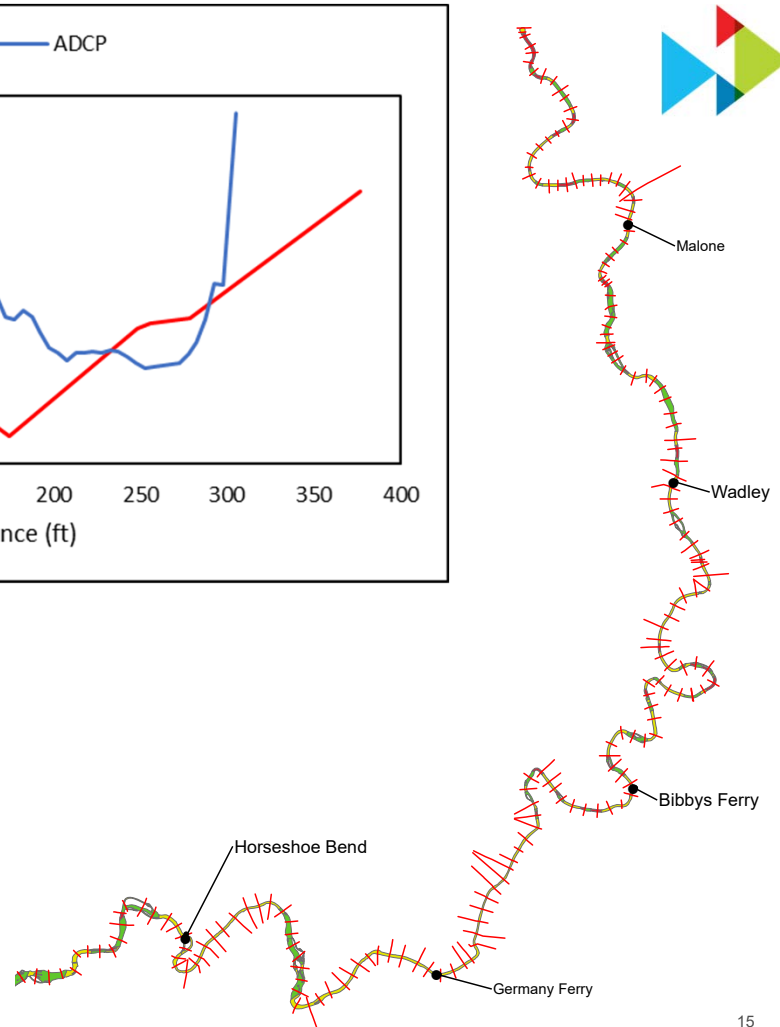


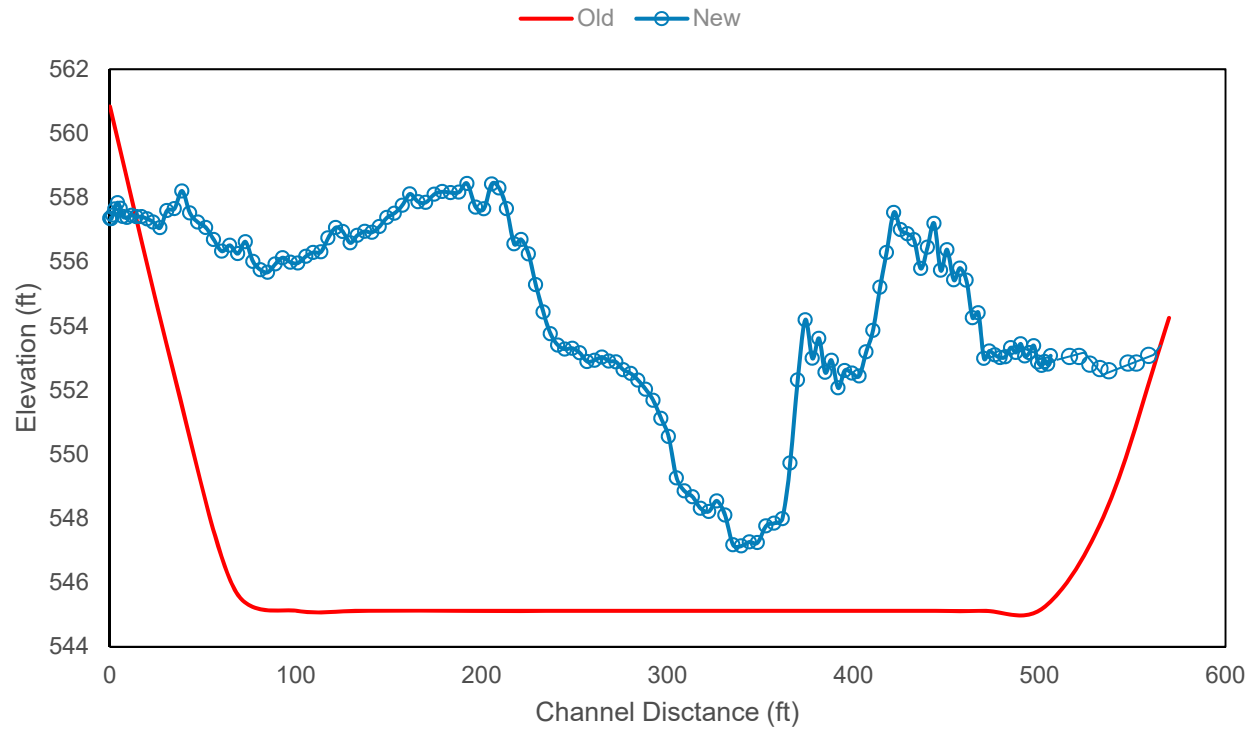


~200 cross-sections

Collect bathymetry data at:

- Poorly interpolated cross-sections
- New cross-sections where gradient is steep

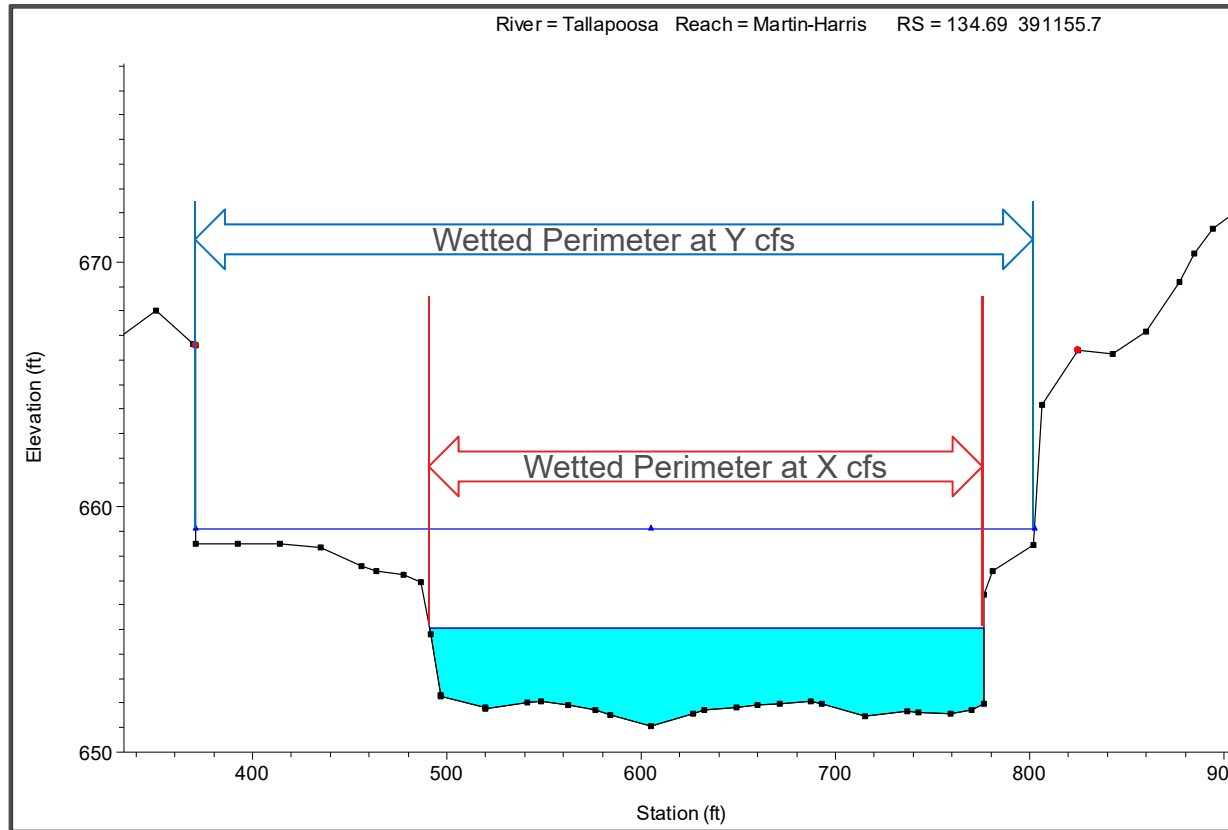




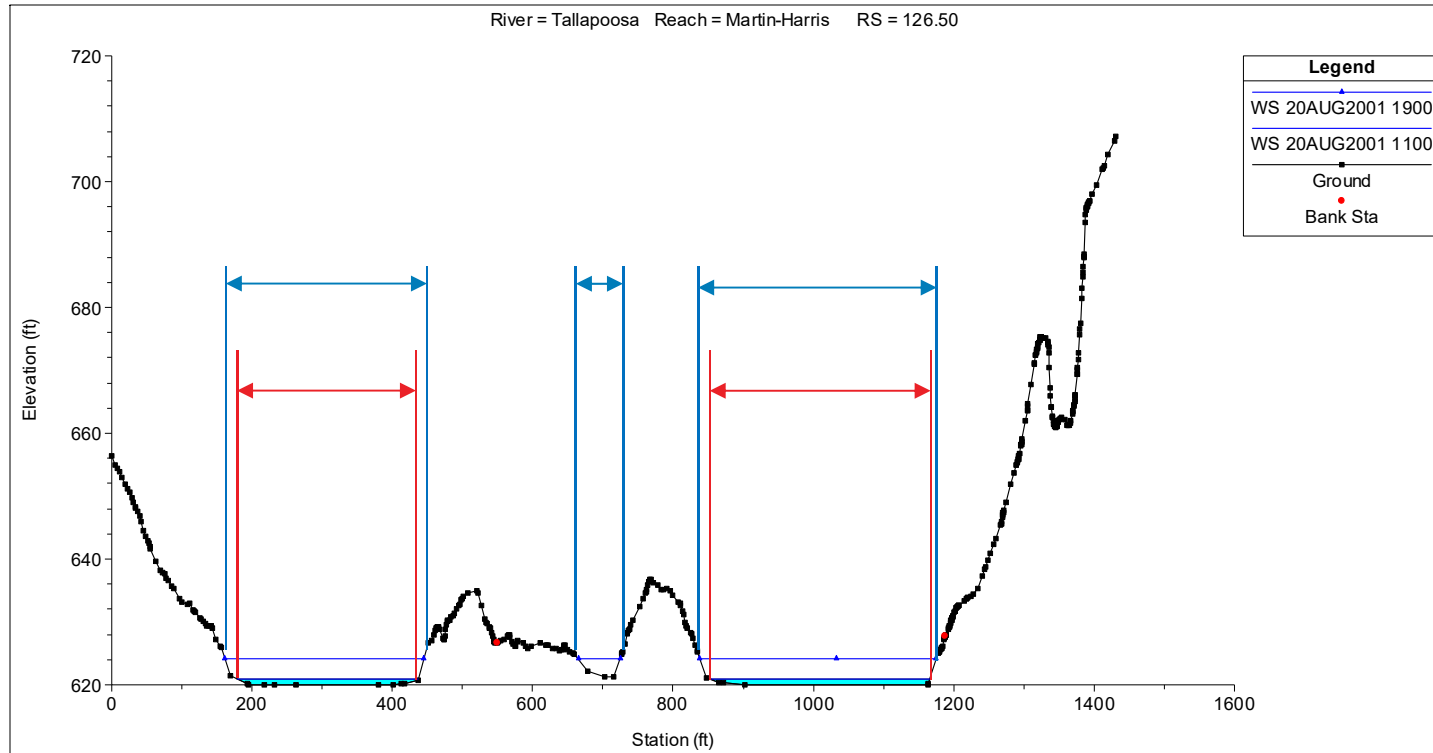


HEC-RAS Results Analysis

HEC-RAS Results Analysis



HEC-RAS Results Analysis

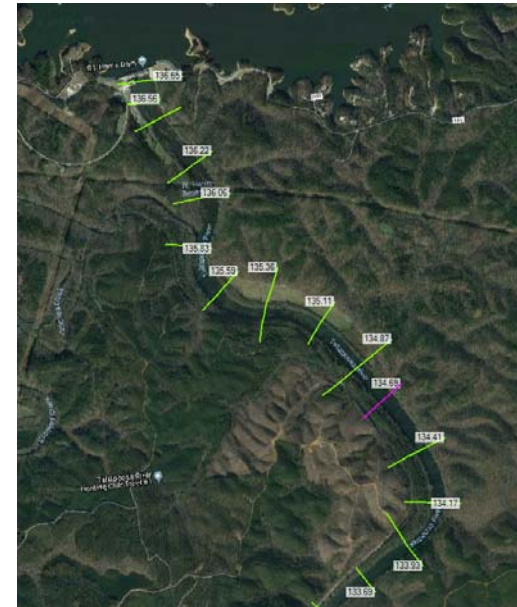
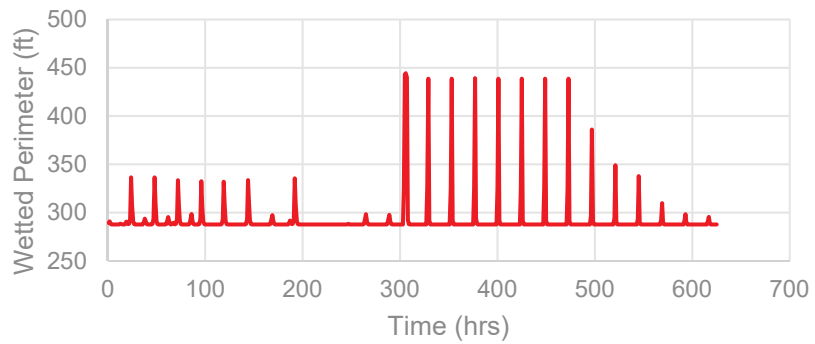
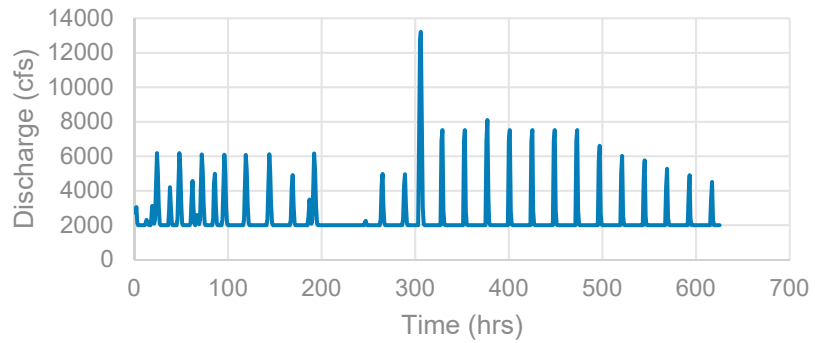


HEC-RAS Results Analysis

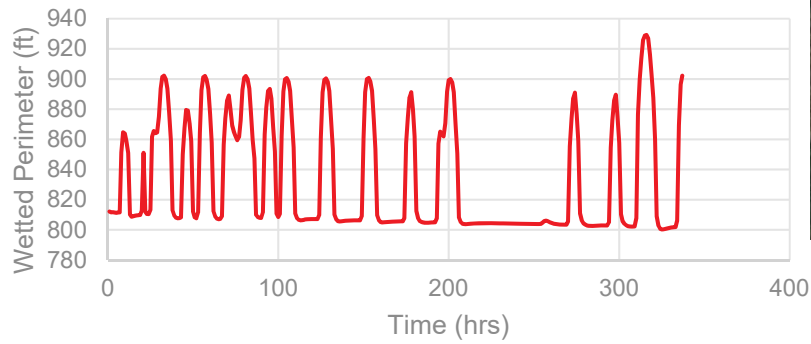
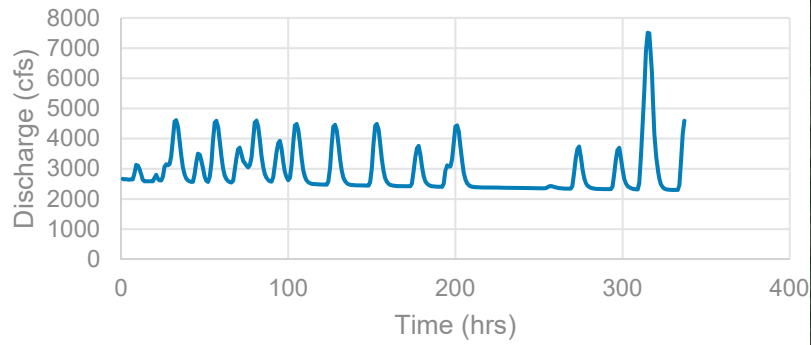


River Station	Discharge (cfs)	Wetted Perimeter (ft)	Water Surface Elevation (ft)
134.69	2001	287.71	654.58
134.69	2001	287.71	654.58
134.69	2000	287.71	654.57
134.69	2312	288.44	654.79
134.69	4240	293.02	656.11
134.69	6112	333.6	657.57
134.69	5227	310.29	657.25
134.69	3231	291.84	655.77
134.69	2134	288.3	654.75
134.69	2005	287.74	654.58
134.69	2000	287.71	654.58
134.69	2000	287.71	654.57
134.69	2000	287.71	654.57
134.69	2000	287.71	654.57
134.69	2000	287.71	654.57
134.69	2000	287.71	654.57
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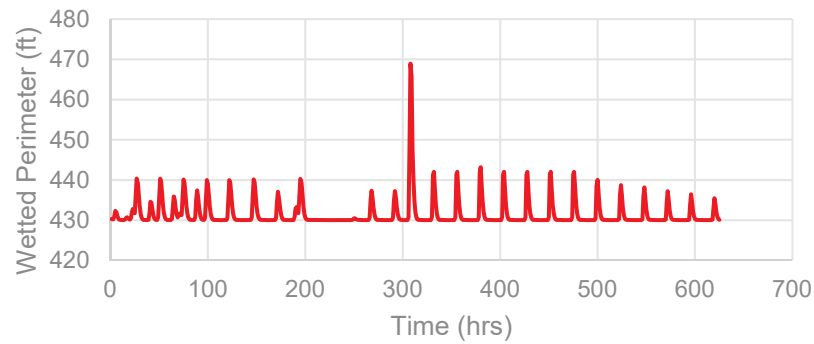
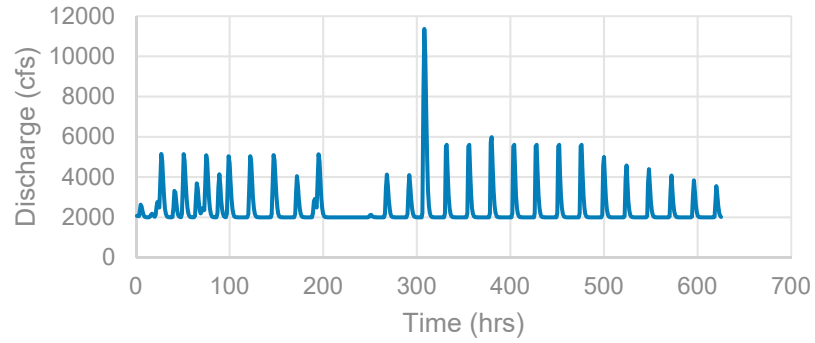
Tailwater Transect



Shoal Transect



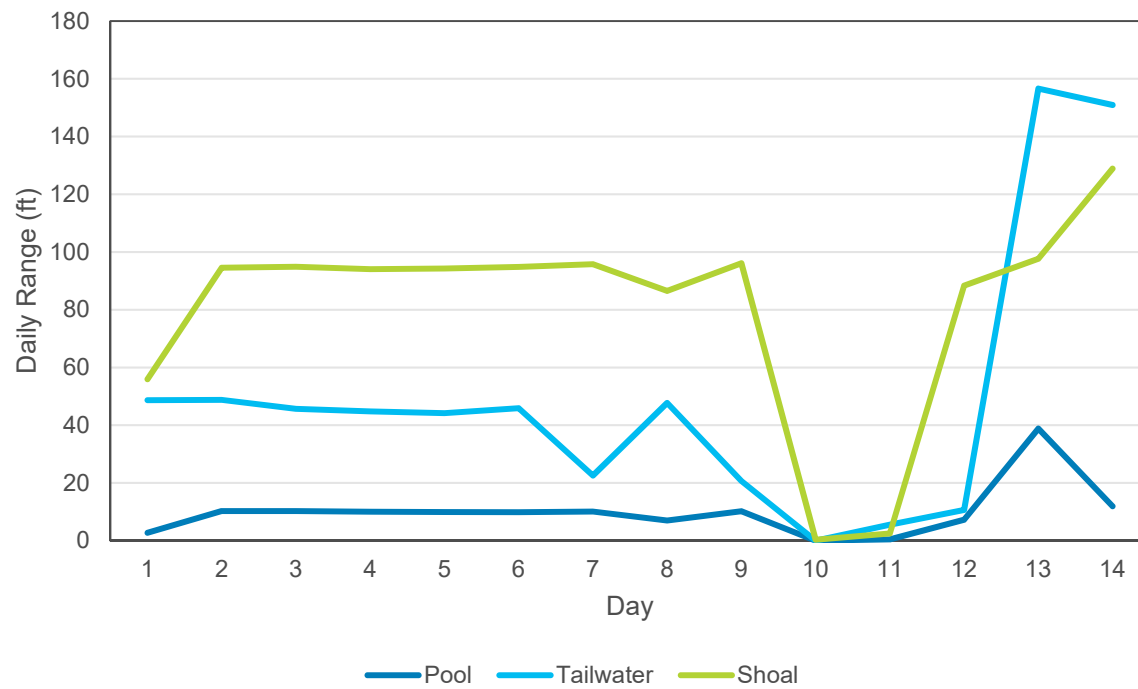
Pool Transect



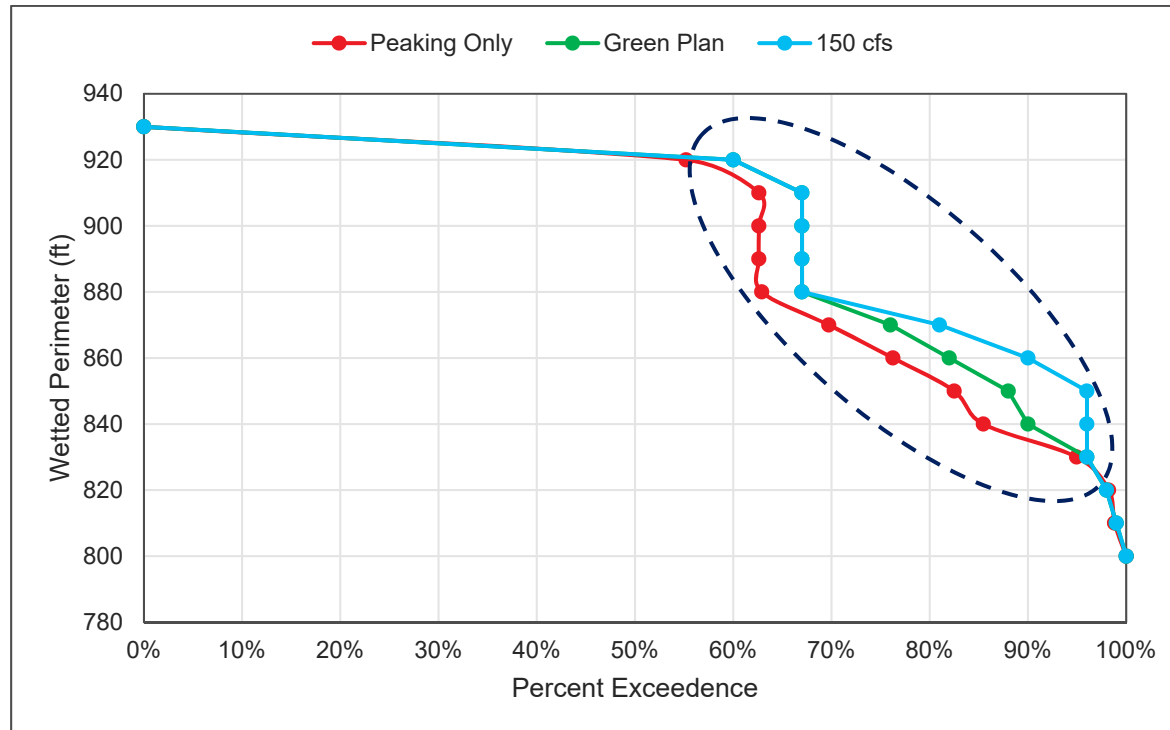
Example Daily Range Comparison



$$WP_{\text{range}} = WP_{\text{max}} - WP_{\text{min}}$$



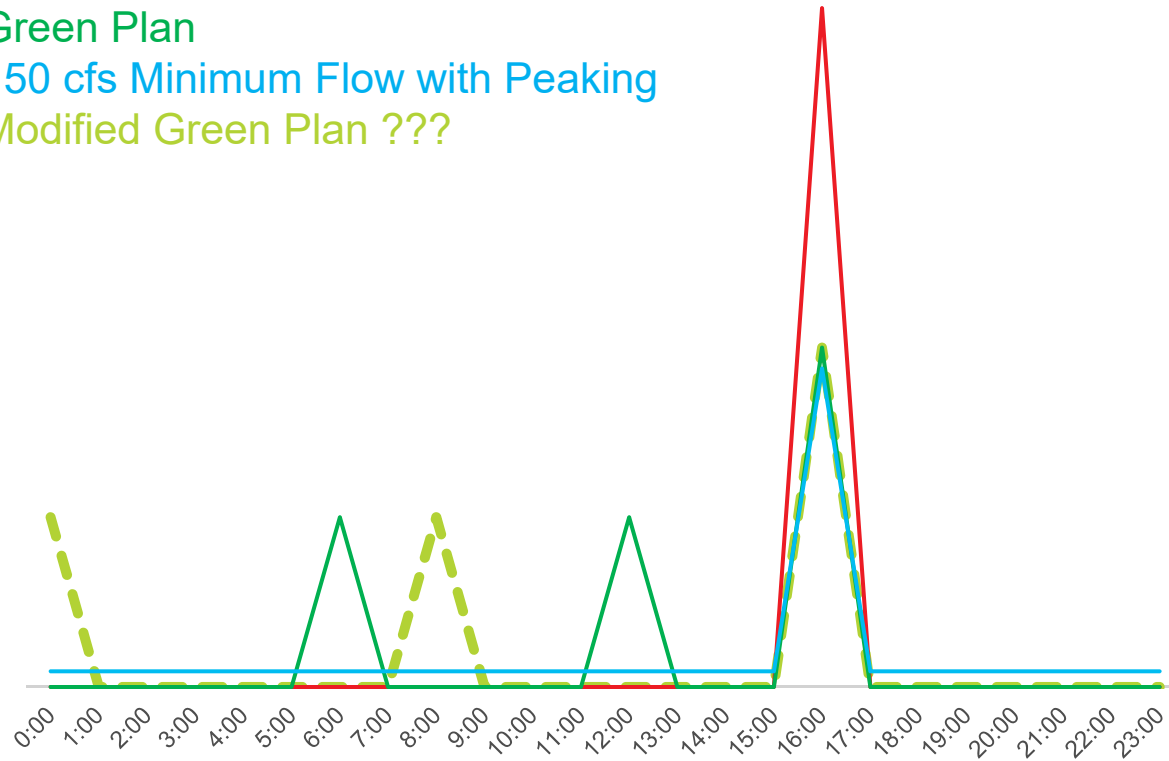
Example Frequency Comparison

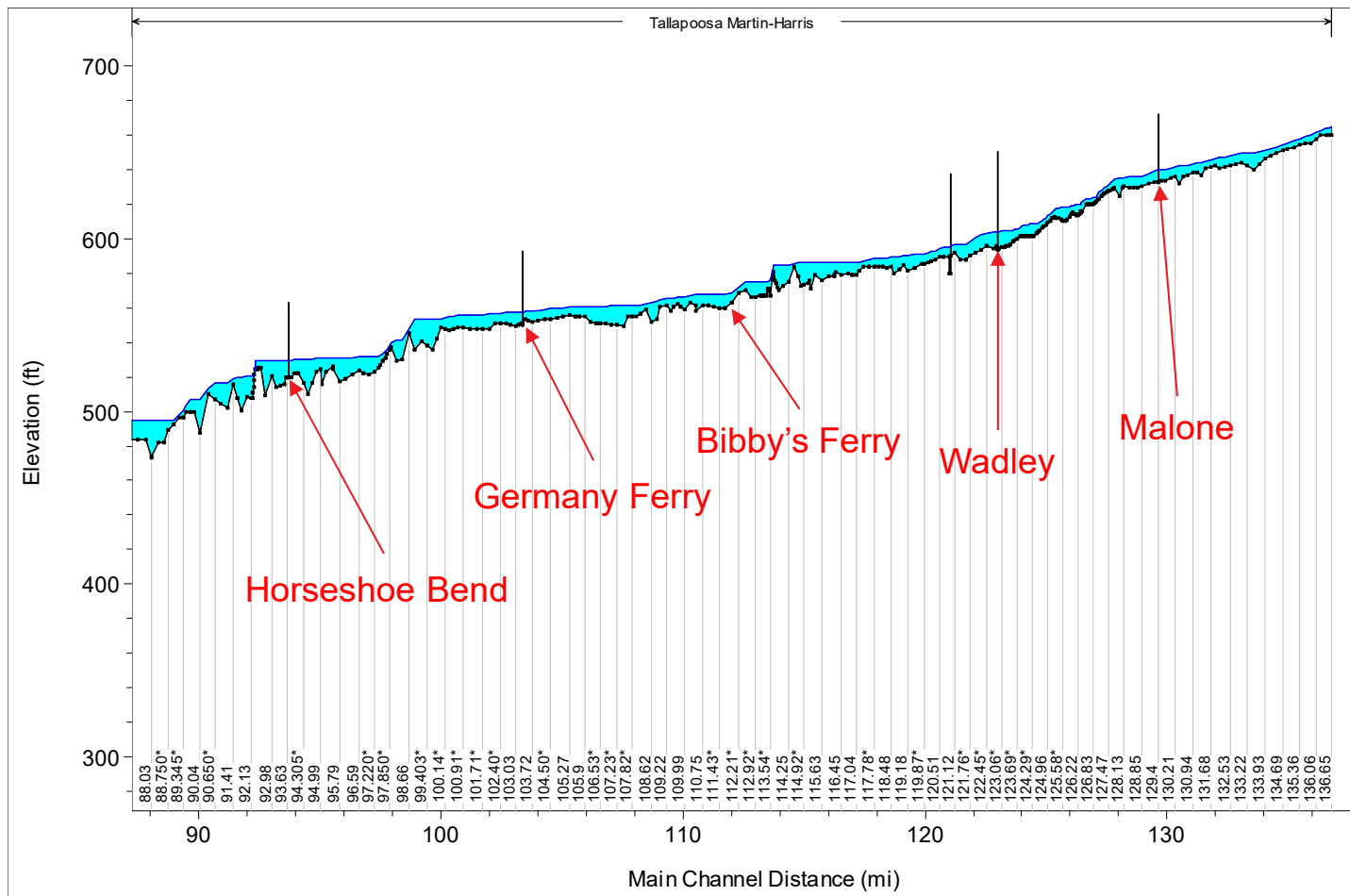


Scenarios to Analyze



- Peaking Only
- Green Plan
- 150 cfs Minimum Flow with Peaking
- Modified Green Plan ???





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Subject: Harris Relicensing - March 19th HAT 3 meeting
Date: Friday, February 21, 2020 12:47:01 PM
Attachments: [2020-03-19 HAT Meeting Agenda.doc](#)

HAT 3,

Alabama Power Company will be hosting a series of HAT meetings on **Thursday, March 19, 2020 at the Oxford Civic Center**, 401 Mccullars Ln, Oxford, AL 36203. The HAT 3 meeting will be from **1:30-3:30** (see attached agenda). The purpose of the HAT 3 meeting is to review progress to date for the Threatened and Endangered Species, Downstream Aquatic Habitat and Aquatic Resources studies.

Please RSVP by Friday, March 13, 2020. Lunch will be provided (~11:15) so please indicate any food allergies or vegetarian preferences on or before March 13, 2020. I encourage everyone to attend in person. If this is not feasible, we are also offering a Skype option (info below). It would be ideal to join on your computer as we will be viewing presentations and maps.

If you have any questions about the agenda or meeting, please email or call me at ARSEGARS@southernco.com or (205) 257-2251.

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Conference ID: 3660816

Angie Anderegg

Hydro Services

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arsegars@southernco.com

From: [APC Harris Relicensing](#)
To: ["harrisrelicensing@southernco.com"](mailto:harrisrelicensing@southernco.com)
Bcc: amy.silvano@dcnr.alabama.gov; chris.greene@dcnr.alabama.gov; damon.abernethy@dcnr.alabama.gov; evan.lawrence@dcnr.alabama.gov; keith.henderson@dcnr.alabama.gov; mike.holley@dcnr.alabama.gov; steve.bryant@dcnr.alabama.gov; matthew.marshall@dcnr.alabama.gov; todd.fobian@dcnr.alabama.gov; nathan.aycock@dcnr.alabama.gov; ken.wills@jcdh.org; arsegars@southernco.com; ammcvica@southernco.com; dkanders@southernco.com; jcarlee@southernco.com; jefbaker@southernco.com; kechandi@southernco.com; tlmills@southernco.com; cgoodma@southernco.com; clowry@alabamarivers.org; mhunter@alabamarivers.org; jwest@alabamarivers.org; gjobsis@americanrivers.org; devridr@auburn.edu; irwiner@auburn.edu; kmo0025@auburn.edu; wrihr2@aces.edu; jhancock@balch.com; lgallen@balch.com; chris@alaudubon.org; sarah.salazar@ferc.gov; allan.creamer@ferc.gov; rachel.mcnamara@ferc.gov; monte.terhaar@ferc.gov; amanda.fleming@kleinschmidtgroup.com; colin.dinken@kleinschmidtgroup.com; henry.mealing@kleinschmidtgroup.com; jason.moak@kleinschmidtgroup.com; kate.cosnahan@kleinschmidtgroup.com; kelly.schaeffer@kleinschmidtgroup.com; sforehand@russellands.com; lgarland68@aol.com; rbmorris222@gmail.com; pace.wilber@noaa.gov; mitchell.reid@tnc.org; donnamat@aol.com; trayjim@bellsouth.net; mhpwedowee@gmail.com; straylor426@bellsouth.net; triciastearns@gmail.com; wmcampbell218@gmail.com; holliman.daniel@epa.gov; decker.chris@epa.gov; bill_pearson@fws.gov; evan_collins@fws.gov; jeff_powell@fws.gov; jennifer_grunewald@fws.gov; jeff_duncan@nps.gov
Subject: UPDATE - Harris Relicensing March 19th HAT 3 meeting
Date: Friday, March 13, 2020 1:00:35 PM
Attachments: [2020-03-19 HAT Meeting Agenda.doc](#)

HAT 3,

Due to the ongoing situation with the spread of COVID-19 (the “coronavirus”), Southern Company has directed its employees to use virtual meetings, when possible. Therefore, the HAT 3 meeting scheduled for Thursday, March 19th will **only be held via the Skype link below and call-in number below**. If you are able to join via Skype, we will be sharing the presentation. If you are not, we will provide the presentation in a PDF document the morning of the meeting and the presenter will help you follow along with the slides.

The Skype link will be available all day. I suggest you join early to make sure that your computer is capable of joining (has all the necessary software). We will be muting and unmuting the phones from the control center, so please don’t worry about announcing that you joined. **At 1:30 am, the meeting will begin**, and we will conduct a roll call to make sure we have a record of who attended the meeting. Also, if you use your computer’s microphone and speaker to join the call, there is no need to use the phone number.

If you have any questions, please let me know.

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Subject: CANCELLED - Harris relicensing - HAT 3 meeting
Date: Monday, March 16, 2020 12:53:05 PM

HAT 3,

First, I apologize for the multiple emails regarding this week's meeting and I appreciate you bearing with us. Because we are all in such a state of flux with schools closing and more and more of us being asked to telecommute, and the uncertainty of how well our technology is going to work when we're all trying to use it at once, we have decided to cancel this Thursday's stakeholder meeting. The information we were going to cover will be included in the Initial Study Report filing, along with several draft reports, in April.

Again, thank you for bearing with us. Stay well!

Angie Anderegg

Hydro Services

(205)257-2251

arsegars@southernco.com

From: [APC Harris Relicensing](#)
To: ["harrisrelicensing@southernco.com"](mailto:harrisrelicensing@southernco.com)
Bcc: [Robin Crockett](#); ["Lydia Mayo"](#); 1942jthompson420@gmail.com; 9sling@charter.net; alcondir@aol.com; allan.creamer@ferc.gov; alpeople@southernco.com; amanda.fleming@kleinschmidtgroup.com; amanda.mcbride@ahc.alabama.gov; amccartn@blm.gov; ammcvica@southernco.com; amy.silvano@dcnr.alabama.gov; andrew.nix@dcnr.alabama.gov; arsegars@southernco.com; athall@fujifilm.com; aubie84@yahoo.com; awhorton@corblu.com; bart_robby@msn.com; baxterchip@yahoo.com; bboozier6@gmail.com; bdavis081942@gmail.com; beckyrainwater1@yahoo.com; bill_pearson@fws.gov; blacklake20@gmail.com; blm_es_inquiries@blm.gov; bob.stone@smimail.net; bradandsue795@gmail.com; bradfordt71@gmail.com; brian.atkins@adeca.alabama.gov; bruce.bradford@forestry.alabama.gov; bsmith0253@gmail.com; butchjackson60@gmail.com; bwhaley@randolphcountyyeda.com; carolbuggknight@hotmail.com; celestine.bryant@atcrite.org; cegstrom@centurytel.net; ceo@jcchamber.com; cggoodma@southernco.com; cgnav@uscg.mil; chad@cleburnecountychamber.com; chandlermary937@gmail.com; chiefknight2002@yahoo.com; chimnecove@gmail.com; chris.goodell@kleinschmidtgroup.com; chris.greene@dcnr.alabama.gov; chris.smith@dcnr.alabama.gov; chris@alaudubon.org; chuckdenman@hotmail.com; clark.maria@epa.gov; claychamber@gmail.com; clint.lloyd@auburn.edu; cjohnson@adem.alabama.gov; clowry@alabamarivers.org; cmnix@southernco.com; coetim@aol.com; colin.dinken@kleinschmidtgroup.com; cooper.jamal@epa.gov; coty.brown@alea.gov; craig.litteken@usace.army.mil; crystal.davis@adeca.alabama.gov; crystal.lakewedowedocks@gmail.com; crystal@hunterbend.com; dalerose120@yahoo.com; damon.abernethy@dcnr.alabama.gov; dbronson@charter.net; dcnr.wffdirector@dcnr.alabama.gov; decker.chris@epa.gov; devridr@auburn.edu; dfarr@randolphcountyalabama.gov; dhayba@usgs.gov; djmoore@adem.alabama.gov; dkanders@southernco.com; dolmoore@southernco.com; donnamat@aol.com; doug.deaton@dcnr.alabama.gov; dpreston@southernco.com; drheinzen@charter.net; ebt.drt@numail.org; eilandfarm@aol.com; el.brannon@yahoo.com; elizabeth-toombs@cherokee.org; emathews@aces.edu; eric.sipes@ahc.alabama.gov; evan.lawrence@dcnr.alabama.gov; evan_collins@fws.gov; eveham75@gmail.com; fal@adem.alabama.gov; fredcanoes@aol.com; gardenergirl04@yahoo.com; garyprice@centurytel.net; gene@wedoweelakehomes.com; georgettraylor@centurylink.net; gerryknight77@gmail.com; gfhorn@southernco.com; gjobsis@americanrivers.org; gld@adem.alabama.gov; glea@wgsarrell.com; gordon.lisa-perras@epa.gov; goxford@centurylink.net; granddadth@windstream.net; harry.merrill47@gmail.com; helen.greer@att.net; henry.mealing@kleinschmidtgroup.com; holliman.daniel@epa.gov; info@aeconline.com; info@tunica.org; inspector_003@yahoo.com; irapar@centurytel.net; irwiner@auburn.edu; j35sullivan@blm.gov; james.e.hathorn.jr@sam.usace.army.mil; jason.moak@kleinschmidtgroup.com; jcandler7@yahoo.com; jcarlee@southernco.com; jec22641@aol.com; jeddins@achp.gov; jefbaker@southernco.com; jeff_duncan@nps.gov; jeff_powell@fws.gov; jennifer.l.jacobson@usace.army.mil; jennifer_grunewald@fws.gov; jerrelshell@gmail.com; jesse cunningham@msn.com; jfcrew@southernco.com; jhancock@balch.com; jharjo@alabama-quassarte.org; jhaslbauer@adem.alabama.gov; jhouser@osiny.org; jkwrdurham@gmail.com; jlowe@alabama-quassarte.org; jnyerby@southernco.com; joan.e.zehrt@usace.army.mil; john.free@psc.alabama.gov; johndiane@sbcglobal.net; jonas.white@usace.army.mil; josh.benefield@forestry.alabama.gov; jpsparrow@att.net; jrsasber@southernco.com; jthacker@southernco.com; jthronberry@tnc.org; judy mcreator@gmail.com; jwest@alabamarivers.org; kajumba.ntale@epa.gov; karen.brunso@chickasaw.net; kate.cosnahan@kleinschmidtgroup.com; kcarleton@choctaw.org; kechandl@southernco.com; keith.gauldin@dcnr.alabama.gov; keith.henderson@dcnr.alabama.gov; kelly.schaeffer@kleinschmidtgroup.com; ken.wills@jcdh.org; kenbarnes01@yahoo.com; kenneth.boswell@adeca.alabama.gov; kmhunt@maxxsouth.net; kmo0025@auburn.edu; kodom@southernco.com; kpritchett@ukb-nsn.gov; kristina.mullins@usace.army.mil; lakewedowedocks@gmail.com; leeanne.wofford@ahc.alabama.gov; leon.m.cromartie@usace.army.mil; leopoldo_miranda@fws.gov; lewis.c.sumner@usace.army.mil; lgallen@balch.com; lgarland68@aol.com; lindastone2012@gmail.com; llangley@coushattatribela.org; lovvorn@randolphcountyalabama.gov; lswinsto@southernco.com; lth0002@auburn.edu; mark@americanwhitewater.org; matt.brooks@alea.gov; matthew_marshall@dcnr.alabama.gov; mayo.lydia@epa.gov; mcoker@southernco.com; mew0061@aces.edu; mdollar48@gmail.com; meredith.h.ladart@usace.army.mil; mhpwedowe@gmail.com; mhunter@alabamarivers.org; michael.w.creswell@usace.army.mil; midwaytreasures@bellsouth.net; mike.holley@dcnr.alabama.gov; mitchell.reid@tnc.org; mten@adem.alabama.gov; mnedd@blm.gov; monte.terhaar@ferc.gov; mooretn@auburn.edu; mprandolph@gmail.com; nancyburnes@centurylink.net; nanferebee@juno.com; nathan.aycock@dcnr.alabama.gov; orr.chauncey@epa.gov; pace.wilber@noaa.gov; partnersinfo@wwfus.org; patti.powell@dcnr.alabama.gov; patty@ten-o.com; paul.trudine@gmail.com; ptrammell@reddyice.com; publicaffairs@doc.gov; rachel.mcnamara@ferc.gov; raebutler@mcn-nsn.gov; rancococ@teleclipse.net; randall.b.harvey@usace.army.mil; randy@randyrogerslaw.com; randy@wedoweemarine.com; rbmorris222@gmail.com; rcodydeal@hotmail.com; reuteem@auburn.edu; richardburnes3@gmail.com; rick.oates@forestry.alabama.gov; rickenwhorter723@icloud.com; rifraft2@aol.com; rjdavis8346@gmail.com; robert.a.allen@usace.army.mil; roger.mcneil@noaa.gov; ron@lakewedowe.org; rosoweka@mcn-nsn.gov; rustown@nc-chokeee.com; ryan.prince@forestry.alabama.gov; sabrinawood@live.com; sandnfrench@gmail.com; sarah.salazar@ferc.gov; sbryan@pci-nsn.gov; scsmith@southernco.com; section106@mcn-nsn.gov; sforehand@russellands.com; sgraham@southernco.com; sherry.bradley@adph.state.al.us; sidney.hare@gmail.com; simsthe@aces.edu; snelson@nelsonandco.com; sonjahollomon@gmail.com; steve.bryant@dcnr.alabama.gov; stewartjack12@bellsouth.net; straylor426@bellsouth.net; sueagnew52@yahoo.com; taconya.goar@dcnr.alabama.gov; tdadunaway@gmail.com; thpo@pci-nsn.gov; thpo@tttown.org; timguffey@jcch.net; tlamberth@russellands.com; tmills@southernco.com; todd.fobian@dcnr.alabama.gov; tom.diggs@ung.edu; tom.lettieri47@gmail.com; tom.littlepage@adeca.alabama.gov; tpfreema@southernco.com; trayjim@bellsouth.net; triciastearns@gmail.com; twstjohn@southernco.com; variscom506@gmail.com; walker.mary@epa.gov; william.puckett@swcc.alabama.gov; wmcampbell218@gmail.com; wright2@aces.edu; wsgardne@southernco.com; wtanders@southernco.com

Subject: UPDATE - Harris Relicensing - Initial Study Report meeting
Date: Friday, March 20, 2020 2:11:32 PM

Harris relicensing stakeholders,

Due to concerns with COVID-19, Alabama Power has asked employees to not have public meetings through the end of April. Therefore, our Initial Study Report meeting will need to be held via conference call. We will share presentations beforehand in order for everyone to be able to follow along during the call. Also, in order to give stakeholders more time to review the Initial Study Report, we are moving the meeting to **April 27th**. Please hold this date from 9:00 am to 4:00 pm central time. I will also send out call in information and an agenda ahead of time.

Thank you,

Angie Anderegg

Hydro Services
(205)257-2251
arsegars@southernco.com

From: APC Harris Relicensing <g2apchr@southernco.com>
Sent: Friday, February 21, 2020 1:00 PM
To: APC Harris Relicensing <g2apchr@southernco.com>
Subject: Harris Relicensing - Initial Study Report meeting

Harris relicensing stakeholders,

Please save-the-date for the Initial Study Report meeting on **April 21, 2020 from 9:00 am to 4:00 pm at the Oxford Civic Center**, 401 McCullars Lane, Oxford, AL 36203. I will send additional details, including call-in information for those who need it, closer to date (although I do encourage attendance in person). Because this is one of the Integrated Licensing Process milestones and we will be covering a lot that day, I wanted to go ahead and get it on your radar.

If you have any questions, please email or call me at ARSEGARS@southernco.com or (205) 257-2251.

Thanks,

Angie Anderegg

Hydro Services
(205)257-2251
arsegars@southernco.com

From: [Anderegg, Angela Segars](#)
To: [APC Harris Relicensing](#)
Bcc: [Robin Crockett](#); ["Lydia Mayo"](#); [1942jthompson420@gmail.com](#); [9sling@charter.net](#); [alcondir@aol.com](#); [allan.creamer@ferc.gov](#); [alpeople@southernco.com](#); [amanda.fleming@kleinschmidtgroup.com](#); [amanda.mcbride@ahc.alabama.gov](#); [amccartn@blm.gov](#); [ammcvica@southernco.com](#); [amy.silvano@dcnr.alabama.gov](#); [andrew.nix@dcnr.alabama.gov](#); [arsegars@southernco.com](#); [athall@fujifilm.com](#); [aubie84@yahoo.com](#); [awhorton@corblu.com](#); [bart_robby@msn.com](#); [baxterchip@yahoo.com](#); [bboozier6@gmail.com](#); [bdavis081942@gmail.com](#); [beckyrainwater1@yahoo.com](#); [bill_pearson@fws.gov](#); [blacklake20@gmail.com](#); [blm_es_inquiries@blm.gov](#); [bob.stone@smimail.net](#); [bradandsue795@gmail.com](#); [bradfordt71@gmail.com](#); [brian.atkins@adeca.alabama.gov](#); [bruce.bradford@forestry.alabama.gov](#); [bsmith0253@gmail.com](#); [butchjackson60@gmail.com](#); [bwhaley@randolphcountyyeda.com](#); [carolbuggknight@hotmail.com](#); [celestine.bryant@atcrite.org](#); [cengstrom@centurytel.net](#); [ceo@jccchamber.com](#); [cggoodma@southernco.com](#); [cgnav@uscg.mil](#); [chad@cleburnecountychamber.com](#); [chandlermary937@gmail.com](#); [chiefknight2002@yahoo.com](#); [chimnecove@gmail.com](#); [chris.goodell@kleinschmidtgroup.com](#); [chris.greene@dcnr.alabama.gov](#); [chris.smith@dcnr.alabama.gov](#); [chris@alaudubon.org](#); [chuckdenman@hotmail.com](#); [clark.maria@epa.gov](#); [claychamber@gmail.com](#); [clint.lloyd@auburn.edu](#); [cljohnson@adem.alabama.gov](#); [clowry@alabamarivers.org](#); [cmnix@southernco.com](#); [coetim@aol.com](#); [colin.dinken@kleinschmidtgroup.com](#); [cooper.jamal@epa.gov](#); [coty.brown@alea.gov](#); [craig.litteken@usace.army.mil](#); [crystal.davis@adeca.alabama.gov](#); [crystal.lakewedowedocks@gmail.com](#); [crystal@hunterbend.com](#); [dalerose120@yahoo.com](#); [damon.abernethy@dcnr.alabama.gov](#); [dbronson@charter.net](#); [dcnr.wffdirector@dcnr.alabama.gov](#); 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[helen.greer@att.net](#); [henry.mealing@kleinschmidtgroup.com](#); [holliman.daniel@epa.gov](#); [info@aeconline.com](#); [info@tunica.org](#); [inspector_003@yahoo.com](#); [irapar@centurytel.net](#); [irwiner@auburn.edu](#); [j35sullivan@blm.gov](#); [james.e.hathorn.jr@sam.usace.army.mil](#); [jason.moak@kleinschmidtgroup.com](#); [jcandler7@yahoo.com](#); [jcarlee@southernco.com](#); [jec22641@aol.com](#); [jeddings@achp.gov](#); [jefbaker@southernco.com](#); [jeff_duncan@nps.gov](#); [jeff_powell@fws.gov](#); [jennifer.l.jacobson@usace.army.mil](#); [jennifer_grunewald@fws.gov](#); [jerrelshell@gmail.com](#); [jessecunningham@msn.com](#); [jfcrow@southernco.com](#); [jhancock@balch.com](#); [jharjo@alabama-quassarte.org](#); [jhaslbauer@adem.alabama.gov](#); [jhouser@osiny.org](#); [jkwdurham@gmail.com](#); [jlowe@alabama-quassarte.org](#); [jnyerby@southernco.com](#); [joan.e.zehrt@usace.army.mil](#); [john.free@psc.alabama.gov](#); [johndiane@sbcglobal.net](#); [jonas.white@usace.army.mil](#); [josh.benefield@forestry.alabama.gov](#); [jpsparrow@att.net](#); [jsrasber@southernco.com](#); [jthacker@southernco.com](#); [jthronberry@tnc.org](#); [judymcreator@gmail.com](#); [jwest@alabamarivers.org](#); [kajumba.ntale@epa.gov](#); [karen.brunso@chickasaw.net](#); [kate.cosnahan@kleinschmidtgroup.com](#); [kcarleton@choctaw.org](#); [kechandl@southernco.com](#); [keith.gauldin@dcnr.alabama.gov](#); [keith.henderson@dcnr.alabama.gov](#); [kelly.schaeffer@kleinschmidtgroup.com](#); [ken.wills@jcdh.org](#); [kenbarnes01@yahoo.com](#); [keneth.boswell@adeca.alabama.gov](#); [kmhunt@maxxsouth.net](#); [kmo0025@auburn.edu](#); [kodom@southernco.com](#); [kpritchett@ukb-nsn.gov](#); [kristina.mullins@usace.army.mil](#); [lakewedowedocks@gmail.com](#); [leeanne.wofford@ahc.alabama.gov](#); [leon.m.cromartie@usace.army.mil](#); [leopoldo_miranda@fws.gov](#); [lewis.c.sumner@usace.army.mil](#); [lgallen@balch.com](#); [lgarland68@aol.com](#); [lindastone2012@gmail.com](#); [llangley@coushattatribela.org](#); [lovvorn@randolphcountyalabama.gov](#); [lswinsto@southernco.com](#); [lth0002@auburn.edu](#); [mark@americanwhitewater.org](#); [matt.brooks@alea.gov](#); [matthew_marshall@dcnr.alabama.gov](#); [mayo.lydia@epa.gov](#); [mcoker@southernco.com](#); [mcw0061@aces.edu](#); [mdollar48@gmail.com](#); [meredith.h.ladart@usace.army.mil](#); [mhpwedowe@gmail.com](#); [mhunter@alabamarivers.org](#); [michael.w.creswell@usace.army.mil](#); [midwaytreasures@bellsouth.net](#); [mike.holley@dcnr.alabama.gov](#); [mitchell.reid@tnc.org](#); [mlen@adem.alabama.gov](#); [mnedd@blm.gov](#); [monte.terhaar@ferc.gov](#); [mooretn@auburn.edu](#); [mprandolph@gmail.com](#); [nancyburnes@centurylink.net](#); [nanferebee@juno.com](#); [nathan.aycock@dcnr.alabama.gov](#); [orr.chauncey@epa.gov](#); [pace.wilber@noaa.gov](#); [partnersinfo@wwfus.org](#); [patti.powell@dcnr.alabama.gov](#); [patty@ten-o.com](#); [paul.trudine@gmail.com](#); [ptrammell@reddyice.com](#); [publicaffairs@doc.gov](#); [rachel.mcnamara@ferc.gov](#); [raebutler@mcn-nsn.gov](#); [rancococ@teleclipse.net](#); [randall.b.harvey@usace.army.mil](#); [randy@randyrogerslaw.com](#); [randy@wedoweemarine.com](#); [rbmorris222@gmail.com](#); [rcodydeal@hotmail.com](#); [reuteem@auburn.edu](#); [richardburnes3@gmail.com](#); [rick.oates@forestry.alabama.gov](#); [rickmcwhorter723@icloud.com](#); [rifraft2@aol.com](#); [rjdavis8346@gmail.com](#); [robert.a.allen@usace.army.mil](#); [roger.mcneil@noaa.gov](#); [ron@lakewedowe.org](#); [rosoweka@mcn-nsn.gov](#); [rustown@nc-chokeee.com](#); [ryan.prince@forestry.alabama.gov](#); [sabinawood@live.com](#); [sandrnfrench@gmail.com](#); [sarah.salazar@ferc.gov](#); [sbryan@pci-nsn.gov](#); [scsmith@southernco.com](#); [section106@mcn-nsn.gov](#); [sforehand@russelllands.com](#); [sgraham@southernco.com](#); [sherry.bradley@adph.state.al.us](#); [sidney.hare@gmail.com](#); [simsthe@aces.edu](#); [snelson@nelsonandco.com](#); [sonjahollomon@gmail.com](#); [steve.bryant@dcnr.alabama.gov](#); [stewartjack12@bellsouth.net](#); [straylor426@bellsouth.net](#); [sueagnew52@yahoo.com](#); [tdadunaway@gmail.com](#); [thpo@pci-nsn.gov](#); [thpo@tttown.org](#); [timguffey@jcc.net](#); [tlamberth@russelllands.com](#); [tlmills@southernco.com](#); [todd.fobian@dcnr.alabama.gov](#); [tom.diggs@ung.edu](#); [tom.lettieri47@gmail.com](#); [tom.littlepage@adeca.alabama.gov](#); [tpfreema@southernco.com](#); [trayjim@bellsouth.net](#); [triciastearns@gmail.com](#); [twstjohn@southernco.com](#); [variscom506@gmail.com](#); [walker.mary@epa.gov](#); [william.puckett@swcc.alabama.gov](#); [wmcampbell218@gmail.com](#); [wrihr2@aces.edu](#); [wsgardne@southernco.com](#); [wtanders@southernco.com](#)

Subject: NEW UPDATE - Harris Relicensing - Initial Study Report meeting
Date: Thursday, March 26, 2020 1:42:38 PM
Importance: High

Harris relicensing stakeholders,

It has been brought to our attention that April 27th is a state holiday and several of our state agency offices will be closed. Therefore, in order to ensure state agencies can participate in the Initial Study Report meeting and to provide adequate time for your review and preparation, the Initial Study Report meeting will be held on **April 28th**. Please hold this date from 9:00 am to 4:00 pm central time. I will send out call in information and an agenda ahead of time.

Thank you for your understanding,

Angie

Angie Anderegg

Hydro Services
(205)257-2251
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From: APC Harris Relicensing <g2apchr@southernco.com>
Sent: Friday, March 20, 2020 2:13 PM
To: APC Harris Relicensing <g2apchr@southernco.com>
Subject: UPDATE - Harris Relicensing - Initial Study Report meeting

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From: APC Harris Relicensing <g2apchr@southernco.com>

Sent: Friday, February 21, 2020 1:00 PM

To: APC Harris Relicensing <g2apchr@southernco.com>

Subject: Harris Relicensing - Initial Study Report meeting

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If you have any questions, please email or call me at ARSEGARS@southernco.com or (205) 257-2251.

Thanks,

Angie Anderegg

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arsegars@southernco.com

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Subject: Harris Relicensing - Initial Study Report
Date: Friday, April 10, 2020 2:59:07 PM

Harris relicensing stakeholders,

Pursuant to FERC's Integrated Licensing Process, Alabama Power filed its Harris Project Initial Study Report (ISR) today. Concurrent with the ISR filing, Alabama Power filed six draft study reports and two cultural resources documents, including consultation records for each. Stakeholders may access the ISR and the draft study reports on FERC's website (<http://www.ferc.gov>) by going to the "eLibrary" link and entering the docket number (P-2628). The ISR and study reports are also available on the Project relicensing website at <https://harrisrelicensing.com>.

The Initial Study Report meeting will be held on **April 28, 2020**. Please hold this date from 9:00 am to 4:00 pm central time. A few days before the meeting I will send final call-in information and instructions, the agenda, and the presentations we will be reviewing during the meeting.

Alabama Power will file a summary of the ISR meeting by **May 12, 2020**. Comments on the ISR and ISR meeting summary should be submitted to FERC by **June 11, 2020**.

Comments on the draft study reports should be submitted to Alabama Power at harrisrelicensing@southernco.com by **June 11, 2020**.

Thanks,

Angie Anderegg

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April 10, 2020

VIA ELECTRONIC FILING

Project No. 2628-065
R.L. Harris Hydroelectric Project
Transmittal of the Initial Study Report

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

Dear Secretary Bose,

Alabama Power Company (Alabama Power) is the Federal Energy Regulatory Commission (FERC or Commission) licensee for the R.L. Harris Hydroelectric Project (Harris Project) (FERC No. 2628-065). On April 12, 2019, FERC issued its Study Plan Determination (SPD)¹ for the Harris Project, approving Alabama Power's ten relicensing studies with FERC modifications. On May 13, 2019, Alabama Power filed Final Study Plans to incorporate FERC's modifications and posted the Final Study Plans on the Harris relicensing website at www.harrisrelicensing.com. In the Final Study Plans, Alabama Power proposed a schedule for each study that included filing a voluntary Progress Update in October 2019 and October 2020. Alabama Power filed the first of two Progress Updates on October 31, 2019.²

Pursuant to the Commission's Integrated Licensing Process (ILP) and 18 CFR § 5.15(c), Alabama Power is filing herein the Harris Project Initial Study Report (ISR) (Attachment). The enclosed ISR describes Alabama Power's overall progress to-date in implementing the study plan and schedule, a summary of the data, and any variances from the study plan and schedule. The ISR also includes modifications, if applicable, to ongoing studies. Alabama Power is not proposing any new studies.

Concurrent with this ISR filing, Alabama Power is filing six study reports and two cultural resources documents, including the consultation record for each of these six reports, which includes correspondence from May 2019 through March 2020. Table 1 outlines each study, the respective Harris Action Team (HAT), and the status of the study report. For those studies where a Draft Study Report is not due at the time of filing this ISR, the draft study report due date is noted.

¹ Accession Number 20190412-3000

² Accession Number 20191030-5053

Table 1 – Summary of the Harris Studies and Study Reports Filed with FERC Concurrent with the ISR

Study Name	Harris Action Team (HAT)	Draft Study Report Filed Concurrent with ISR (YES/NO)
Operating Curve Change Feasibility Analysis	HAT 1	YES – Draft Report with consultation filed with FERC
Downstream Release Alternatives Study	HAT 1	YES – Draft Report with consultation filed with FERC
Erosion and Sedimentation Study	HAT 2	YES – Draft Report with consultation filed with FERC
Water Quality Study	HAT 2	YES – Draft Report with consultation filed with FERC
Aquatic Resources Study	HAT 3	NO – Draft Report due July 2020
Downstream Aquatic Habitat Study	HAT 3	NO – Draft Report due June 2020
Threatened and Endangered Species Study	HAT 3	YES – Draft Desktop Assessment with consultation filed with FERC
Project Lands Evaluation	HAT 4	YES – Draft Phase 1 Study Report with consultation filed with FERC
Recreation Evaluation Study	HAT 5	NO – Draft Report due June 2020 (requesting variance to August 2020)
Cultural Resources Programmatic Agreement and Historic Properties Management Plan Study	HAT 6	YES – Inadvertent Discovery Plan; Traditional Cultural Properties Identification Plan; consultation filed with FERC; No – Area of Potential Effect (due April 2020; requesting variance to June 2020)

The SPD schedule for the HAT 1, HAT 3, and HAT 5 studies included hosting HAT meetings in March 2020. Due to COVID-19 and related travel and public gathering restrictions, and statewide office closures, Alabama Power did not host these HAT meetings.

Alabama Power is requesting a schedule variance for the following studies:

1) Water Quality Study – Alabama Power stated that it would submit a Section 401 Water Quality Certification (WQC) to ADEM in 2020; however, following discussions with ADEM, Alabama Power intends to submit the 401 WQC application to ADEM in April 2021.

2) Draft Recreation Evaluation Study Report - Alabama Power added the Tallapoosa River Downstream Landowner Survey and the Tallapoosa River Recreation User Survey in 2020³. Due to the additional study elements and extended deadline for landowners and the public to participate in the surveys, Alabama Power will file the Draft Recreation Evaluation Study Report in August 2020 rather than June

³ Accession Number 20191219-5186

2020. Alabama Power is not requesting a schedule variance for the Final Recreation Evaluation Study Report due November 2020.

3) The Area of Potential Effect (APE) – Alabama Power is continuing consultation with the Alabama Historical Commission to finalize the APE as part of the Cultural Resources Study; therefore, Alabama Power will file the APE and associated consultation in June 2020.

Pursuant to 18 CFR §5.15(c)(2), Alabama Power will host the Initial Study Report Meeting (Meeting) with stakeholders and FERC on April 28, 2020 by conference call ([205] 257-2663 or [404] 460-0605, conference ID 489472). Note that Alabama Power consulted with FERC staff on hosting this Meeting one day later than the date required by the ILP schedule due to a state holiday on April 27, 2020, and to provide stakeholders adequate time to review the ISR prior to the Meeting. The Meeting will begin at 9:00 AM and conclude by 4:00 PM. The purpose of the Meeting is to provide an opportunity to review the contents of the ISR and to discuss the study results and proposals to modify the study plan, if any, in light of the progress of the studies and data collected.

Alabama Power will file the Initial Study Report Meeting Summary by May 12, 2020. Stakeholders will have until June 11, 2020, to file comments on the ISR and Meeting Summary with FERC.

Stakeholders may access the ISR and the individual study reports on FERC's website (<http://www.ferc.gov>) by going to the "eLibrary" link and entering the docket number (P-2628). The ISR and study reports are also available on the Project relicensing website at <https://harrisrelicensing.com>.

If there are any questions concerning this filing, please contact me at arsegars@southernco.com or 205-257-2251.

Sincerely,



Angie Anderegg
Harris Relicensing Project Manager

Attachment – Initial Study Report

cc: Harris Stakeholder List

**Attachment
Initial Study Report**



INITIAL STUDY REPORT

R. L. HARRIS PROJECT

FERC NO. 2628

Prepared by:

**ALABAMA POWER COMPANY
BIRMINGHAM, ALABAMA**



APRIL 2020

INITIAL STUDY REPORT

R. L. HARRIS PROJECT FERC NO. 2628

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	HARRIS STUDY PLAN OVERVIEW	5
3.0	OPERATING CURVE CHANGE FEASIBILITY ANALYSIS STUDY	8
3.1	STUDY PURPOSE AND SUMMARY OF METHODS	8
3.2	STUDY PROGRESS	9
3.3	VARIANCE FROM THE STUDY PLAN AND SCHEDULE	10
3.4	REMAINING ACTIVITIES/MODIFICATIONS OR OTHER PROPOSED STUDIES	10
4.0	DOWNSTREAM RELEASE ALTERNATIVES STUDY	11
4.1	STUDY PURPOSE AND SUMMARY OF METHODS	11
4.2	STUDY PROGRESS	12
4.3	VARIANCE FROM THE STUDY PLAN AND SCHEDULE	12
4.4	REMAINING ACTIVITIES/MODIFICATIONS OR OTHER PROPOSED STUDIES	13
5.0	WATER QUALITY STUDY	14
5.1	STUDY PURPOSE AND SUMMARY OF METHODS	14
5.2	STUDY PROGRESS	15
5.3	VARIANCE FROM THE STUDY PLAN AND SCHEDULE	16
5.4	REMAINING ACTIVITIES/MODIFICATIONS OR OTHER PROPOSED STUDIES	16
6.0	EROSION AND SEDIMENTATION STUDY	17
6.1	STUDY PURPOSE AND SUMMARY OF METHODS	17
6.2	STUDY PROGRESS	17
6.2.1	LAKE HARRIS	18
6.2.2	TALLAPOOSA RIVER DOWNSTREAM OF HARRIS DAM	19
6.2.3	SKYLINE	19
6.3	VARIANCE FROM THE STUDY PLAN AND SCHEDULE	19
6.4	REMAINING ACTIVITIES/MODIFICATIONS OR OTHER PROPOSED STUDIES	19
7.0	AQUATIC RESOURCES STUDY	21
7.1	STUDY PURPOSE AND SUMMARY OF METHODS	21
7.2	STUDY PROGRESS	22
7.3	VARIANCE FROM THE STUDY PLAN AND SCHEDULE	23
7.4	REMAINING ACTIVITIES/MODIFICATIONS OR OTHER PROPOSED STUDIES	23
8.0	DOWNSTREAM AQUATIC HABITAT STUDY	25
8.1	STUDY PURPOSE AND SUMMARY OF METHODS	25
8.2	STUDY PROGRESS	25

TABLE OF CONTENTS (CONT'D)

8.3	VARIANCE FROM THE STUDY PLAN AND SCHEDULE	26
8.4	REMAINING ACTIVITIES/MODIFICATIONS OR OTHER PROPOSED STUDIES	26
9.0	THREATENED AND ENDANGERED SPECIES STUDY	27
9.1	STUDY PURPOSE AND SUMMARY OF METHODS	27
9.2	STUDY PROGRESS	27
9.3	VARIANCE FROM THE STUDY PLAN AND SCHEDULE	28
9.4	REMAINING ACTIVITIES/MODIFICATIONS OR OTHER PROPOSED STUDIES	29
10.0	PROJECT LANDS EVALUATION STUDY	30
10.1	STUDY PURPOSE AND SUMMARY OF METHODS	30
10.2	STUDY PROGRESS	30
10.3	VARIANCE FROM THE STUDY PLAN AND SCHEDULE	31
10.4	REMAINING ACTIVITIES/MODIFICATIONS OR OTHER PROPOSED STUDIES	31
11.0	RECREATION EVALUATION STUDY	32
11.1	STUDY PURPOSE AND SUMMARY OF METHODS	32
11.2	STUDY PROGRESS	33
11.3	VARIANCE FROM THE STUDY PLAN AND SCHEDULE	34
11.4	REMAINING ACTIVITIES/MODIFICATIONS OR OTHER PROPOSED STUDIES	35
12.0	CULTURAL RESOURCES STUDY	36
12.1	STUDY PURPOSE AND SUMMARY OF METHODS	36
12.2	STUDY PROGRESS	36
12.3	VARIANCE FROM THE STUDY PLAN AND SCHEDULE	38
12.4	REMAINING ACTIVITIES/MODIFICATIONS OR OTHER PROPOSED STUDIES	38

LIST OF FIGURES

FIGURE 1	LAKE HARRIS PROJECT BOUNDARY.....	3
FIGURE 2	SKYLINE PROJECT BOUNDARY.....	ERROR! BOOKMARK NOT DEFINED.

LIST OF APPENDICES

APPENDIX A	ACRONYMS AND ABBREVIATIONS
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INITIAL STUDY REPORT

R. L. HARRIS PROJECT FERC No. 2628

1.0 INTRODUCTION

Alabama Power Company (Alabama Power) owns and operates the R.L. Harris Project (FERC Project No. 2628) (Harris Project), licensed by the Federal Energy Regulatory Commission (FERC or Commission). Alabama Power is relicensing of the 135-megawatt Harris Project, and the existing license expires in 2023. The Harris Project consists of a dam, spillway, powerhouse, and those lands and waters necessary for the operation of the hydroelectric project and enhancement and protection of environmental resources. These structures, lands, and water are enclosed within the FERC Project Boundary. Under the existing Harris Project license, the FERC Project Boundary encloses two distinct geographic areas, described below.

Harris Reservoir is the 9,870-acre reservoir (Harris Reservoir) created by the R.L. Harris Dam (Harris Dam). Harris Reservoir is located on the Tallapoosa River, near Lineville, Alabama. The lands adjoining the reservoir total approximately 7,392 acres and are included in the FERC Project Boundary. This includes land to 795-foot mean sea level (msl)¹, as well as natural undeveloped areas, hunting lands, prohibited access areas, recreational areas, and all islands.



The Harris Project also contains 15,063 acres of land within the James D. Martin-Skyline Wildlife Management Area (Skyline WMA) located in Jackson County, Alabama. These lands are located approximately 110 miles north of Harris Reservoir and were acquired and incorporated into the FERC Project Boundary as part of the FERC-approved Harris Project Wildlife Mitigative Plan and Wildlife Management Plan. These lands are leased to, and managed

¹ Also includes a scenic easement (to 800-foot msl or 50-horizontal-feet from 793-foot msl, whichever is less, but never less than 795-foot msl).

by, the State of Alabama for wildlife management and public hunting and are part of the Skyline WMA.

For the purposes of this report, “Lake Harris” refers to the 9,870-acre reservoir, the adjacent 7,392 acres of Project land, and the dam, spillway, and powerhouse. “Skyline” refers to the 15,063 acres of Project land within the Skyline WMA in Jackson County. “Harris Project” refers to all the lands, waters, and structures enclosed within the FERC Project Boundary, which includes both Lake Harris and Skyline. Harris Reservoir refers to the 9,870-acre reservoir only; Harris Dam refers to the dam, spillway, and powerhouse. The Project Area refers to the land and water in the Project Boundary and immediate geographic area adjacent to the Project Boundary.

Commonly used acronyms and abbreviations that may appear in this Initial Study Report (ISR) are included in Appendix A.

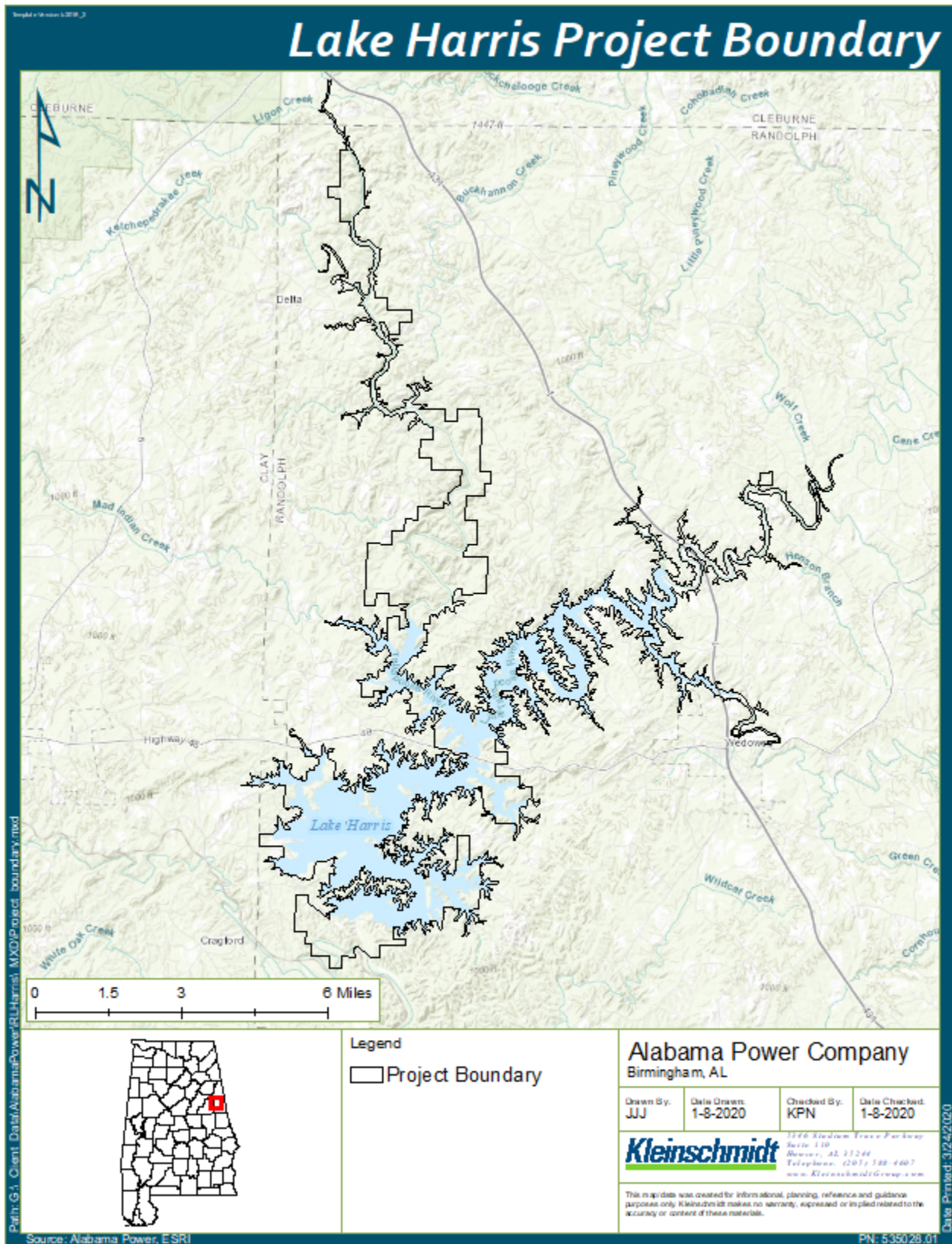


FIGURE 1 LAKE HARRIS PROJECT BOUNDARY

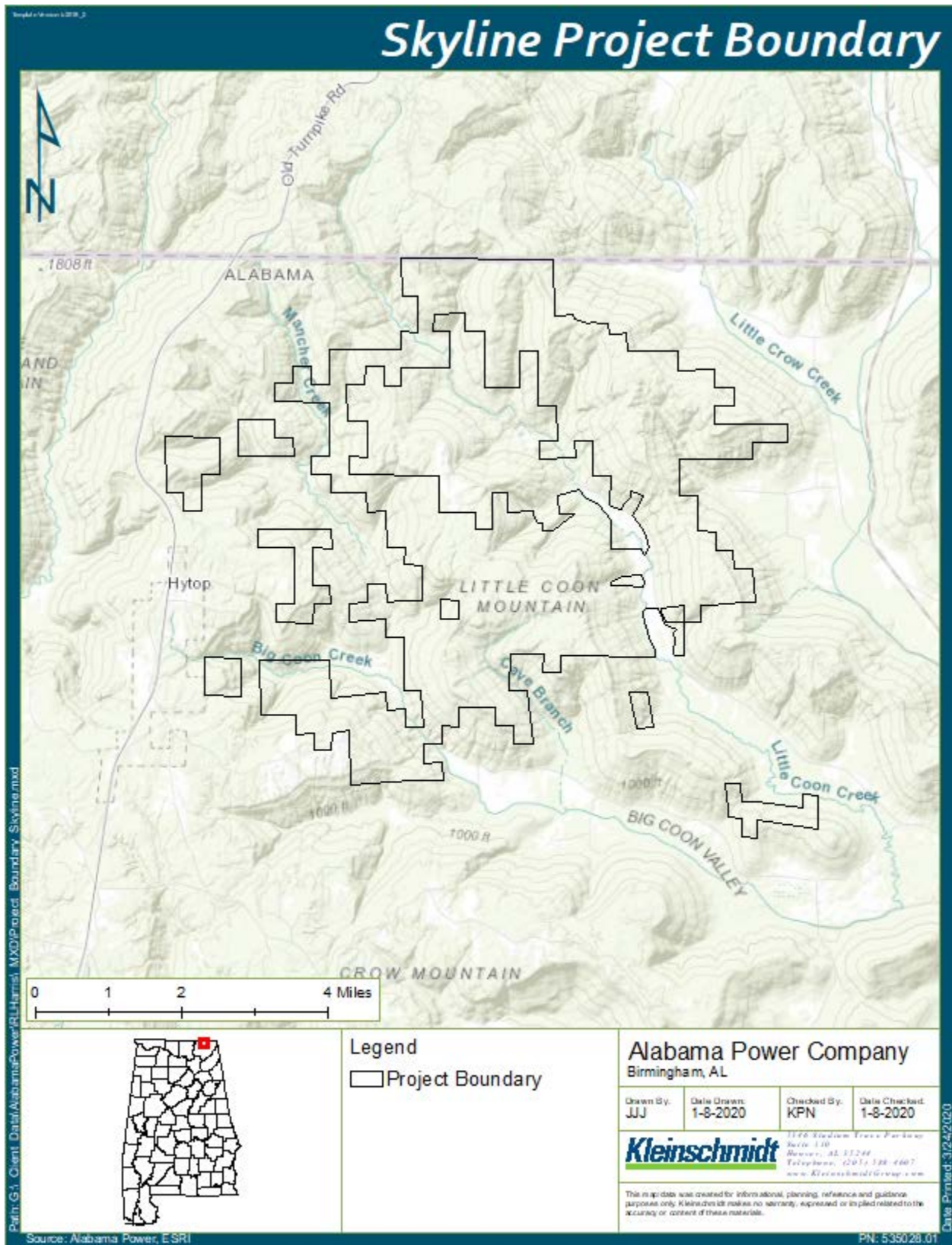


FIGURE 2 SKYLINE PROJECT BOUNDARY

2.0 HARRIS STUDY PLAN OVERVIEW

During the October 19, 2017 Issue Identification Workshop, stakeholders provided information on resources that may be affected by the Harris Project. On August 28 and 29, 2018, FERC held Harris Project Scoping Meetings² to provide additional opportunities for stakeholders and the public to present and discuss any issues related to the Harris Project relicensing. On November 13, 2018, Alabama Power filed the following 10 proposed study plans for the Harris Project.

- Operating Curve Change Feasibility Analysis Study
- Downstream Release Alternatives Study
- Erosion and Sedimentation Study
- Water Quality Study
- Aquatic Resources Study
- Downstream Aquatic Habitat Study
- Threatened and Endangered (T&E) Species Study
- Project Lands Evaluation Study
- Recreation Evaluation Study
- Cultural Resources Programmatic Agreement and Historic Properties Management Plan Study

Based on comments filed by stakeholders, Alabama Power filed revised study plans on March 13, 2019. FERC issued a Study Plan Determination (SPD)³ on April 12, 2019, which approved Alabama Power's study plans and included FERC staff recommendations. Alabama Power incorporated FERC's recommendations and filed the Final Study Plans with FERC on May 13, 2019⁴. According to the FERC's process plan and schedule for the Harris Project, Alabama Power's ISR is due to FERC on or before April 12, 2020.

Alabama Power formed the Harris Action Teams (HATs) to provide stakeholders an opportunity to work on the issues of most importance to them and, in the case of federal and state agencies, those issues where it has regulatory or statutory responsibility. The HATs include:

- HAT 1 – Project Operations
- HAT 2 – Water Quality and Use

² Accession Nos. 20181010-4002 and 20181010-4003

³ Accession No. 20190412-3000

⁴ Accession No. 20190513-5093

- HAT 3 – Fish and Wildlife
- HAT 4 – Project Lands
- HAT 5 – Recreation
- HAT 6 – Cultural Resources

The HATs met throughout 2019 and into 2020 to discuss the various studies and to provide input regarding the study process.

Pursuant to FERC's SPD, Alabama Power is filing six draft study reports and two cultural resources documents concurrently with the ISR filing. These include:

- Draft Operating Curve Change Feasibility Analysis Phase 1 Report
- Draft Downstream Release Alternatives Phase 1 Report
- Draft Erosion and Sedimentation Study Report
- Draft Water Quality Report
- Draft Threatened and Endangered Species Desktop Assessment
- Draft Phase 1 Project Lands Evaluation Study Report
- Inadvertent Discovery Plan (IDP)
- Traditional Cultural Properties (TCP) Identification Plan

The filings containing the draft study reports and the cultural resources documents include HAT meeting summaries and presentations, and documentation of consultation between May 2019 through March 2020. Alabama Power will file with FERC the study reports for the Aquatic Resources and Downstream Aquatic Habitat studies according to the due date in the FERC SPD. Alabama Power will file the Draft Recreation Evaluation study report in August 2020⁵. The filing containing these draft study reports will include documentation of consultation from May 2019 to the date the respective study reports are filed with FERC.

Sections 3 through 12 of this ISR summarize the 10 FERC-approved studies in accordance with 18 Code of Federal Regulations (CFR), Section 5.15, including 1) the purpose of the study and summary of methods; 2) the study progress, including data collected; 3) any variance from the

⁵ This is a variance in the schedule from the June 2020 date in the FERC SPD.

FERC SPD and schedule; and 4) remaining activities and any modifications to the existing study or new studies proposed by Alabama Power.

3.0 OPERATING CURVE CHANGE FEASIBILITY ANALYSIS STUDY

3.1 STUDY PURPOSE AND SUMMARY OF METHODS

The Operating Curve Change Feasibility Analysis Study evaluates, in increments of 1 foot from 786 feet msl to 789 feet msl (i.e., 786, 787, 788, and 789 feet msl; collectively “winter pool alternatives” or “alternatives”), Alabama Power’s ability to increase the winter pool elevation and continue to meet Project purposes. Any changes to the Harris Project operating curve could have the potential to impact downstream communities and, therefore, downstream impacts must be identified in the analysis.

This study is divided into two phases: During Phase 1, Alabama Power performed extensive modeling and analysis of the hydrologic record and baseline information for the Project to identify potential impacts of a winter operating curve change on hydropower generation, flood control, navigation, drought operations, Green Plan flows,⁶ and downstream release alternatives. In Phase 2, Alabama Power will conduct qualitative and quantitative evaluations of potential resource impacts (water quality; water use; erosion and sedimentation, including invasive species; aquatic resources; wildlife, threatened and endangered species; terrestrial wetlands; recreation; and cultural resources).

Phase 1 study methods included using existing data (hydrologic record and baseline information) to develop the appropriate simulation models to evaluate, in increments of 1 foot from 786 feet msl to 789 feet msl, Alabama Power’s ability to increase the winter pool elevation and continue to meet Project purposes. The simulation models developed as part of this study provided the tools needed to identify impacts to operational parameters and resources.

The study methods also included calibrating the models and defining the model boundaries. These methods and models are described in detail in Sections 1 through 4 of the Draft Operating Curve Change Feasibility Phase 1 Report.

⁶ See Section 4.2.1.1 of the Draft Operating Curve Change Feasibility Analysis Phase 1 Report for discussion of the Green Plan.

3.2 STUDY PROGRESS

Alabama Power formed HAT 1 to provide stakeholders an opportunity to participate in issues related to Project operations. Alabama Power presented the models and assumptions to HAT 1 on September 11, 2019. As noted in Section 2.0, the Draft Operating Curve Change Feasibility Analysis Phase 1 Report is being filed concurrently with the ISR and the filing contains the relevant HAT 1 meeting summaries, presentations, and documentation of consultation. The Phase 1 draft report presents results for seven operational parameters: hydropower generation, flood control, navigation, drought operations, Green Plan flows, Harris Reservoir levels, and downstream release alternatives.

The Phase 1 Hydrologic Engineering Center-River Analysis System (HEC-RAS) modeling using the Hydrologic Engineering Center-Reservoir System Simulation (HEC-ResSim) model output indicates that any increase in the winter pool elevation at the Harris Dam will result in increased area, depth, and duration of flooding at points downstream of Harris Dam. Due to the natural channel geometry, for long stretches of the Tallapoosa River there is not significantly more area affected by increases in the winter pool; however, there are increases in the areas affected by flooding where tributary streams with low lying floodplains enter the Tallapoosa River. The proposed operating curve changes not only increase inundation areas but also increase the depth of flooding.

The Green Plan minimum releases from Harris were met or exceeded for the period of record for all alternatives. No changes were found in the ability to pass Green Plan flows from Harris Dam due to an increase in the winter pool. With the discharge target based on flows upstream of the reservoir at Heflin, the required releases were the same for all alternatives.

Using the HydroBudget model, Alabama Power determined that each of the four operating curve alternatives resulted in a loss in hydropower generation. While the greatest annual economic loss occurs in the + 4-foot (789-feet msl) winter pool alternative, this loss represents a relatively small decrease in hydropower generation for the Alabama Power hydroelectric system as a whole.

The four alternatives had no effect, compared to baseline, on Alabama Power's ability to maintain the Harris Reservoir levels, implement drought operations, or support navigation

downstream. Finally, the four alternatives did not affect Alabama Power's ability to release the downstream release alternatives being evaluated in the Downstream Release Alternatives Study Plan.

3.3 VARIANCE FROM THE STUDY PLAN AND SCHEDULE

Alabama Power conducted the Operating Curve Change Feasibility Analysis Phase 1 Study in full conformance with FERC's SPD; however, Alabama Power's schedule included hosting a HAT 1 meeting in March 2020. Due to COVID-19 and related travel and public gathering restrictions, and statewide office closures, Alabama Power did not host this meeting.

3.4 REMAINING ACTIVITIES/MODIFICATIONS OR OTHER PROPOSED STUDIES

Alabama Power does not propose any additional studies beyond those in the FERC SPD.

Remaining activities include:

- Review comments on the Draft Operating Curve Change Feasibility Analysis Phase 1 Report and modify the Final Report, as appropriate. For any comments not addressed in the Final Report, Alabama Power will provide an explanation of why these comments were not incorporated.
- Alabama Power will use the information in the Phase 1 Final Report along with FERC-approved relicensing study results and existing information to conduct the Phase 2 analysis to determine potential resource impacts on water quality, water use, erosion and sedimentation (including invasive species), aquatic resources, wildlife, T&E species, terrestrial wetlands, recreation resources, and cultural resources.
- In Phase 2, Alabama Power will analyze how the proposed operating curve alternatives could potentially affect existing structures (houses, barns, sheds, etc.) downstream of Harris Dam during flood events. Analysis will include identifying structures inundated under the various alternatives, including depth of inundation and duration.
- The modeling results combined with other environmental study analyses will result in a final recommendation from Alabama Power on any change in the operating curve at Harris.

4.0 DOWNSTREAM RELEASE ALTERNATIVES STUDY

4.1 STUDY PURPOSE AND SUMMARY OF METHODS

The Downstream Release Alternatives Study evaluates the effects of pre- and post-implementation of the Green Plan operations, a continuous minimum flow of 150 cfs (which is roughly the equivalent daily volume of three ten-minute pulses), and an alternative/modified Green Plan operation⁷ (i.e., changing the time of day in which Green Plan pulses are released) on Project resources.

This study is being conducted in two phases. In Phase 1, Alabama Power used models developed in other Harris Project FERC-approved studies and conducted modeling simulations using specific methods, tools, and processes (as described in the FERC-approved Study Plan) to evaluate impacts to existing operational parameters, including reservoir levels, hydropower generation, flood control, navigation, and drought operations. In Phase 2, Alabama Power will analyze the effects of the downstream release alternatives on other resources, including water quality, water use, erosion and sedimentation (including invasive species), downstream aquatic resources (temperature and habitat), wildlife and terrestrial resources, T&E species, recreation, and cultural resources.

Study methods included using existing data (hydrologic record and baseline information) to develop the appropriate simulation models to conduct the analysis of the downstream release alternatives. The primary tool for this study is HEC-RAS; however, Alabama Power used other HEC models to address the effects of downstream release alternatives. Tools included: 1) Alabama-Coosa-Tallapoosa (ACT) unimpaired flow database and other U.S. Geological Survey (USGS), U.S. Army Corps of Engineers (USACE), and Alabama Power records; 2) HEC-RAS; HEC-ResSim; Hydrologic Engineering Center- Data Storage System and Viewer (HEC-DSSVue); and Alabama Power's HydroBudget. These models are described in detail in Section 4 of the Draft Downstream Release Alternatives Phase 1 Report.

Impacts to the Harris Project were evaluated by modeling the current operations combined with each downstream release alternative through the daily HEC Res-Sim for the ACT Basin. During

⁷ The alternative/modified Green Plan operation downstream release alternative will be evaluated as part of Phase 2. Results from the other three scenarios as well as from the Aquatic Resources Study are needed to design the alternative to be studied.

Phase 2 of this study, the outflow hydrographs from HEC-ResSim will be routed downstream using HEC-RAS to assess effects on alternative release scenarios on Project resources.

4.2 STUDY PROGRESS

Alabama Power formed HAT 1 to provide stakeholders an opportunity to participate in issues related to Project operations. Alabama Power presented the Phase 1 Downstream Release Alternatives models and assumptions to HAT 1 on September 11, 2019. As noted in Section 2.0, the Draft Downstream Release Alternatives Study Phase 1 Report is being filed concurrently with the ISR and the filing contains the relevant HAT 1 meeting summaries, presentations, and documentation of consultation.

The Phase 1 HEC-RAS modeling using the HEC-ResSim output indicates that Pre-Green Plan, Green Plan, and 150 cfs continuous minimum flow have no effect on Harris Reservoir levels, flood control, navigation, or drought operations. Comparing the Pre-Green Plan and Green Plan using HydroBudget shows that returning to Pre-Green Plan operations would result in an annual economic gain to Alabama Power customers from a hydropower generation perspective because all hydropower generation would occur during peak times rather than a portion of generation occurring during off-peak pulsing operations. In evaluating the 150 cfs minimum flow alternative, there are too many unknowns at this time to generate reliable/accurate HydroBudget results; however, if the 150 cfs minimum flow is provided through a non-generation mechanism, the impact to hydropower generation will be the same or slightly worse than the impact from Green Plan operations. The capital and operation and maintenance costs associated with a generating or non-generating mechanism for providing a 150 cfs minimum flow will be considered in other economic analyses required by the relicensing process if it is part of Alabama Power's proposal.

4.3 VARIANCE FROM THE STUDY PLAN AND SCHEDULE

Alabama Power conducted the Downstream Release Alternatives Study in full conformance with FERC's SPD; however, Alabama Power's schedule included hosting a HAT 1 meeting in March 2020. Due to COVID-19 and related travel and public gathering restrictions, and statewide office closures, Alabama Power did not host this meeting.

4.4 REMAINING ACTIVITIES/MODIFICATIONS OR OTHER PROPOSED STUDIES

Alabama Power does not propose any additional studies beyond those in the FERC SPD.

Remaining Activities include:

- Review comments on the Draft Downstream Release Alternatives Study Phase 1 Report and modify the Final Report, as applicable. For any comments not addressed in the Final Report, Alabama Power will provide an explanation why these comments were not incorporated.
- Alabama Power will use the information in the Phase 1 Final Report along with FERC-approved relicensing study results and existing information to conduct the Phase 2 analysis to determine potential resource impacts on water quality, water use, downstream erosion, aquatic resources, wildlife, terrestrial, and T&E resources, recreation, and cultural resources.
- The modeling results combined with other environmental study analyses will result in a final recommendation from Alabama Power on any downstream release at Harris.

5.0 WATER QUALITY STUDY

5.1 STUDY PURPOSE AND SUMMARY OF METHODS

The Draft Water Quality Study Report supplements information included in the 2016 Baseline Water Quality Report. Data sources include Alabama Power, Alabama Department of Environmental Management (ADEM), and Alabama Water Watch (AWW). AWW data was not available to Alabama Power to include in the 2016 Baseline Water Quality Report. Therefore, this study report summarizes data collected from 2017 through 2019 with the exception of AWW data which also includes years prior to 2017. No additional data than what was included in the 2016 Baseline Water Quality Report were available for streams at Skyline. Because the current 303(d) list includes a section of Little Coon Creek at Skyline as impaired due to siltation, it is addressed in the Draft Erosion and Sedimentation Report.

In an effort to support obtaining the required 401 Water Quality Certification (WQC), Alabama Power conducted dissolved oxygen and temperature monitoring in the tailrace at a location previously approved by ADEM, approximately 800-feet-downstream of the Harris Dam on the west bank of the river, from June 1 through October 31 (2017 through 2019). Measurements of dissolved oxygen and temperature were recorded continuously at 15-minute intervals during generation. Alabama Power also collected monthly vertical profiles of temperature and dissolved oxygen in the Harris Reservoir forebay between March and October of 2018 and 2019 for comparison to historic profiles.

In addition to the monitoring to support the 401 WQC, Alabama Power monitored dissolved oxygen and temperature approximately 0.5 mile downstream of Harris Dam. Data were recorded continuously at 15-minute intervals beginning March 1 through October 31, 2019. Alabama Power provided discharge data during the March 1 through October 31 monitoring period to allow for data comparison.

Additionally, Alabama Power worked with HAT 2 participants to identify areas of water quality concern (areas believed to have degraded water quality conditions) and determined if identified areas warrant further examination as well as compiled available water quality information for those areas.

5.2 STUDY PROGRESS

Alabama Power developed HAT 2 to provide stakeholders an opportunity to participate in issues related to water quality. Alabama Power held a HAT 2 meeting on September 11, 2019 and distributed the Draft Water Quality Study Report to HAT 2 participants on March 9, 2020. The Draft Water Quality Report presented results on water quality parameters in the Harris Reservoir as well as in the Tallapoosa River downstream of the Harris Dam. As noted in Section 2.0, the Draft Water Quality Study Report is being filed concurrently with the ISR and the filing contains the relevant HAT 2 meeting summaries, presentations, and documentation of consultation.

Alabama Power collected dissolved oxygen and temperature data as described in the study methods at two locations downstream of the dam, in addition to the monthly vertical profiles collected in the Harris Reservoir forebay.

HAT 2 stakeholders identified one location, the Foster's Bridge area at Lake Harris, as an area of water quality concern with regard to potential nutrient enrichment and associated impacts. Alabama Power used existing and historical data to assess the Foster's Bridge area.

Data collected during generation immediately downstream of Harris Dam in 2018 and 2019 indicated dissolved oxygen was greater than 5 milligrams per liter (mg/L) for 94 percent of all measurements (91 percent in 2018 and 99.6 percent in 2019). Data from the continuous monitoring station that recorded data during both generation and non-generation in 2019 indicated dissolved oxygen levels were greater than 5 mg/L for 99.9 percent of all measurements. Monitoring data collected by Alabama Power in 2017 showed numerous events where dissolved oxygen was less than 5 mg/L. The low dissolved oxygen events in 2017 may be attributed to conditions in the Harris Reservoir that were impacted by severe drought in the summer and fall of 2016, where inflows to the lake were at historic lows. A variance that allowed for the lake to be filled two feet above the normal rule curve earlier in the year was likely another contributing factor. Harris Reservoir became more strongly stratified earlier in the year compared to other years. Dissolved oxygen levels at depths below 20 feet in the lake were hypoxic/anoxic from June through October 2017.

Data collected by ADEM on the Tallapoosa River at Harris Dam, Wadley, and Horseshoe Bend showed dissolved oxygen levels were well above 5 mg/L during each of their sampling events.

Data from the recently installed continuous monitor at Malone indicated that dissolved oxygen levels were greater than 5 mg/L for 99 percent of the monitoring period.

5.3 VARIANCE FROM THE STUDY PLAN AND SCHEDULE

Alabama Power conducted the Water Quality Study in full conformance with FERC's SPD; however, following discussions with ADEM, Alabama Power intends to submit an application to ADEM for the 401 WQC in April 2021, not in April 2020 as noted in the FERC SPD.

5.4 REMAINING ACTIVITIES/MODIFICATIONS OR OTHER PROPOSED STUDIES

Alabama Power does not propose any additional studies beyond that in FERC's SPD.

Remaining Activities include:

- Review comments on the Draft Water Quality Study Report and modify the Final Report, as applicable. For any comments not addressed in the Final Report, Alabama Power will provide an explanation why these comments were not incorporated.
- Alabama Power will prepare the 401 WQC application and submit to ADEM in April 2021.

6.0 EROSION AND SEDIMENTATION STUDY

6.1 STUDY PURPOSE AND SUMMARY OF METHODS

The Erosion and Sedimentation Study identified problematic erosion sites and sedimentation areas at the Harris Project and downstream of Harris Dam to Horseshoe Bend and determined the likely causes. Erosion and sedimentation sites were solicited from HAT 2 participants.

Methods for evaluating erosion sites on Lake Harris and the Tallapoosa River downstream of Harris Dam included photographing, georeferencing, and examining each site identified by HAT 2 participants, either in the field or via aerial imagery analysis, to determine the cause of the erosion (i.e., Harris Project operations, land disturbance [development], or natural processes). Additionally, a High Definition Stream Survey (HDSS) was conducted to evaluate streambank conditions on the Tallapoosa River downstream of Harris Dam to Horseshoe Bend. Regarding sedimentation areas, light, detection and ranging (LIDAR) and available satellite imagery/aerial photography were used to examine identified areas. The analysis of both erosion and sedimentation areas was supported by field observations. The identified sedimentation areas will be surveyed for nuisance aquatic vegetation.

Little Coon Creek, which flows through portions of the Project Boundary at Skyline, is currently listed as impaired by ADEM due to siltation. The sources of this impairment include non-irrigated crop production and pasture grazing. Study methods included a GIS analysis of land use classifications within the Project Boundary at Skyline to assess the impact of agriculture on Little Coon Creek. Land use data was provided by the multi-resolution land characteristics (MRLC) consortium.

6.2 STUDY PROGRESS

Alabama Power developed HAT 2 to provide stakeholders an opportunity to participate in issues related to erosion and sedimentation. During the October 19, 2017 issue identification workshop, several stakeholders noted the location of possible erosion and sedimentation areas. Alabama Power distributed an email on May 1, 2019 to HAT 2 participants providing maps of erosion and sedimentation areas previously identified for evaluation and requesting identification of additional areas of erosion and sedimentation concerns. Alabama Power held a HAT 2 meeting on September 11, 2019 where it presented geographic information system (GIS) overlays and

maps of erosion and sedimentation sites that would be included in the field assessment. Following the September 11, 2019 HAT 2 meeting, a stakeholder requested, and Alabama Power agreed, to include an additional erosion site in the field assessment. On March 17, 2020, Alabama Power distributed the Draft Erosion and Sedimentation Study Report to HAT 2. As noted in Section 2.0, the Draft Erosion and Sedimentation Study Report is being filed concurrently with the ISR and the filing contains the relevant HAT 2 meeting summaries, presentations, and documentation of consultation.

6.2.1 LAKE HARRIS

Twenty-four erosion sites were identified for field assessment; field assessments were conducted in December 2019 during the winter drawdown when the sites were dewatered and could be fully assessed. Each site was photographed and examined to determine the cause of erosion. No significant signs of active erosion were present at 8 of the 24 sites.

Nine sedimentation areas were identified by stakeholders and by examining available satellite imagery/aerial photography and LIDAR data using GIS. The identified sedimentation areas were limited to areas exposed during the winter pool drawdown due to limitations of LIDAR in measuring below water surfaces. Therefore, approximate surface area for each identified sedimentation area was measured using contours established in a 2015 LIDAR survey of the lake during the drawdown. Limited aerial imagery of the lake during winter draw down and historic LIDAR data for the reservoir did not allow for a comparison to historic conditions. On December 4, 2019, Alabama Power visited all sedimentation areas that were accessible via boat to conduct field verification.

Sedimentation areas on Lake Harris are primarily concentrated in the Little Tallapoosa arm where riverine flows enter the impoundment zone created by Lake Harris. To assess potential causes for sediment introduction to the system, land use classifications were analyzed for the Little Tallapoosa River Basin in 2001 and compared to 2016. Twenty-five percent of the Little Tallapoosa River Basin has been converted to hay/pasture fields. Land clearing and conversion to agricultural fields is a significant contributing factor of sedimentation in the Little Tallapoosa arm of Lake Harris.

6.2.2 TALLAPOOSA RIVER DOWNSTREAM OF HARRIS DAM

Streambank condition point data collected during the downstream HDSS was averaged into 0.1-mile segments to help facilitate finding any failing streambank areas. Using these data, a ranking system was developed to understand specific areas of failing streambanks on the Tallapoosa River and to identify any significantly impaired areas. Notably, only one area scored as impaired to non-functional (located on the right bank between river mile [RM] 16.3 to 16.9).

The downstream HDSS results were also used to assess the condition of identified erosion sites 22 and 23. These sites were assessed using the same criteria as the erosion sites located within Lake Harris. Both sites were confirmed to have areas of erosion primarily caused by adjacent land use/clearing and natural riverine processes.

6.2.3 SKYLINE

A GIS analysis of land use classifications within the Project Boundary at Skyline was used to assess the impact of agriculture on Little Coon Creek. A comparison of land use within the watershed boundary of Little Coon Creek was conducted using the earliest available MRLC landcover dataset (2001) and the most recent (2016). This analysis indicated that 8.8 percent of the land within the watershed is used for agriculture (i.e. cultivated crops and hay/pasture), increasing from 2001 to 2016. The proximity of these areas to Little Coon Creek more easily allows for soils loosened due to tilling or other agricultural practices to be washed into Little Coon Creek, resulting in sedimentation of the creek bottom.

6.3 VARIANCE FROM THE STUDY PLAN AND SCHEDULE

There are no variances from the study plan or schedule.

Alabama Power conducted the Erosion and Sedimentation Study in full conformance with FERC's SPD.

6.4 REMAINING ACTIVITIES/MODIFICATIONS OR OTHER PROPOSED STUDIES

Alabama Power does not propose any additional studies beyond that in FERC's SPD.

Remaining Activities include:

- Alabama Power will perform additional reconnaissance at identified sedimentation sites on Lake Harris during full (summer) pool conditions to determine if any nuisance aquatic vegetation is present and provide the results of that assessment to HAT 2 in the form of a technical memorandum.
- Review comments on the Draft Erosion and Sedimentation Study Report and modify the Final Report, as applicable. For any comments not addressed in the Final Report, Alabama Power will provide an explanation why these comments were not incorporated.

7.0 AQUATIC RESOURCES STUDY

7.1 STUDY PURPOSE AND SUMMARY OF METHODS

The Aquatic Resources Study evaluates the effects of the Harris Project on aquatic resources. Monitoring conducted since the initiation of the Green Plan⁸ indicated a positive fish community response and increased shoal habitat availability; however, little information exists characterizing the extent that the Green Plan enhanced the aquatic habitat from Harris Dam downstream through Horseshoe Bend. Furthermore, the Alabama Department of Conservation and Natural Resources (ADCNR) noted the abundance of some species is below expected levels, which could be due to several factors including sampling methodologies, thermal regime, flow regime, and/or nutrient availability.

Stakeholders noted that stream temperatures in the Tallapoosa River downstream of Harris Dam are generally cooler than other unregulated streams in the same geographic area, and this portion of the Tallapoosa River experiences temperature fluctuations due to peaking operations at Harris Dam. There is concern that the lower stream temperatures and temperature fluctuations are impacting the aquatic resources (especially fish) downstream of Harris Dam. ADCNR recommended use of a bioenergetics model to evaluate the potential effects of temperature fluctuations due to current Project operations on fish downstream of Harris Dam.

Questions have also been raised regarding potential effects the Harris Project may have on other aquatic fauna within the Project Area, including macroinvertebrates such as mollusks and crayfish. Alabama Power is investigating the effects of the Harris Project on these aquatic species and is performing an assessment of the Harris Project's potential effects on species mobility and population health.

These study tasks are being accomplished through desktop assessments, field studies, and laboratory studies. Alabama Power has been compiling and summarizing data from existing information sources to provide a comprehensive characterization of aquatic resources within the Project Area. Alabama Power is also working with Auburn University to conduct field and

⁸ Generally, the Green Plan specifies short (10 to 30 minute) pulses from Harris Dam, with the pulse duration determined by conditions at a gage on an unregulated section of the Tallapoosa River upstream of Harris Reservoir. The purpose of the Green Plan was to reduce the effects of peaking operations on the aquatic community downstream.

laboratory studies of the fish populations in the Tallapoosa River downstream of Harris Dam through Horseshoe Bend to determine how Harris Dam may be affecting the fish community in this reach.

7.2 STUDY PROGRESS

Alabama Power developed HAT 3 to provide stakeholders an opportunity to participate in issues related to fish and wildlife resources. Alabama Power is performing a desktop assessment summarizing relevant current and historic information characterizing aquatic resources at the Harris Project. Sources of information include reservoir fisheries management reports, scientific literature from aquatic resource studies conducted in the Study Area, ADCNR Natural Heritage Database data, Alabama Power faunal survey data, and state and federal faunal survey data.

Currently, Alabama Power is finalizing this desktop assessment and will include it in the Draft Aquatic Study Report to be filed with FERC in July 2020.

A literature review of temperature requirements of target species (Redbreast Sunfish, Channel Catfish, Tallapoosa Bass, and Alabama Bass) is being conducted by Auburn University. Because the Alabama Bass is recently described, there is little information on its temperature requirements; therefore, temperature data for the spotted bass, a closely related species, is being used. Alabama Power and USGS have provided Auburn University with historic temperature data to incorporate into its analysis.

Auburn University has been sampling the fish community at four sites: Horseshoe Bend, Wadley, Lee's Bridge (control site), and the Harris Dam tailrace. Sampling was conducted in April, May, July, September, November 2019, and January 2020, with six, 10-minute sampling transects occurring each sampling day. Individual fish were weighed, measured, sexed, had gonads removed and weighed, had diets removed from stomachs and preserved, and had otoliths removed and stored to be evaluated. To date, all diets have been quantified, all prey items identified, and a subsample measured, and all diet data have been entered into a databank for evaluation.

Representative specimens of the target fish collected at the four sites are being used in intermittent flow static respirometry tests to assess their baseline, or resting, metabolic rates under multiple temperatures. The metabolic rates will be used in bioenergetics models for each

target species at each of the four sites. Swimming respirometry is also being used to quantify both performance capabilities of fish and their active metabolic rates. Diet, size distributions, and growth rates are currently being estimated for bioenergetics model simulations.

As noted in Section 2.0, Alabama Power will file the Draft Aquatic Resources Study Report with consultation documentation in July 2020.

7.3 VARIANCE FROM THE STUDY PLAN AND SCHEDULE

To date, Alabama Power has conducted the Aquatic Resources Study in full conformance with FERC's SPD; however, Alabama Power's schedule included hosting a HAT 3 meeting in March 2020. Due to COVID-19 and related travel and public gathering restrictions, and statewide office closures, Alabama Power did not host this meeting.

Auburn University is exploring alternatives to electromyogram radio tags because of their limited ability to quantify fish swimming energetic costs and the relatively large size of these tags. Acoustic/radio (CART) tags are being considered, and the study plan will be revised if needed, to track the activity of individual fish from small watercraft and to detect their position.

7.4 REMAINING ACTIVITIES/MODIFICATIONS OR OTHER PROPOSED STUDIES

Alabama Power does not propose any additional studies beyond that in FERC's SPD.

Remaining tasks include:

- Incorporate the Aquatic Resources Desktop Assessment into the Draft Aquatic Resources Study Report.
- Obtain temperature data at the USGS and Alabama Power monitors and the 20 temperature and level loggers stationed downstream of Harris Dam (recording through July 2020 or later). Temperatures recorded from 2019 and 2020 will be consolidated with historical data.
- Gather and review literature and any available information on temperature tolerances, preferences, or optima for target species.
- Continue fish sampling at each site every other month, conditions permitting, through November 2020.
- Consider an alternative "control" site upstream of the reservoir because the flow regime at the current upstream site (Lee's Bridge) appears to be more closely affected by dam operations than expected.

- Tag and track fish with CART tags during summer of 2020.
- Continue static respirometry tests and complete at both 10 degrees Centigrade (10°C) and 21°C in 2020.
- Continue to measure active metabolic rates using a combination of increasing water velocity and decreasing water temperature.
- Incorporate the necessary physiological parameters into the bioenergetics model to conduct simulations needed to test potential influence of water temperature and flow on growth rates of fishes below Harris Dam. Auburn University will estimate annual growth of the target fish species using temperature regimes and diets observed in upstream control sites compared to downstream treatment sites along more impacted sections of the Tallapoosa River.
- Alabama Power will distribute the Draft Aquatic Resources Study Report and file with FERC in July 2020. Alabama Power will review comments on the Draft Aquatic Resources Study Report and modify the Final Report, as applicable. For any comments not addressed in the Final Report, Alabama Power will provide an explanation why these comments were not incorporated.

8.0 DOWNSTREAM AQUATIC HABITAT STUDY

8.1 STUDY PURPOSE AND SUMMARY OF METHODS

The Downstream Aquatic Habitat Study describes the relationship between Project operations and aquatic habitat in the Tallapoosa River from Harris Dam through Horseshoe Bend. This study includes the following:

- **Mesohabitat Analysis** - A desktop analysis of the types of available habitat in the Tallapoosa River using GIS, aerial imagery, and visual observations.
- **Hydrologic Data Collection and Analysis** – Collection and analysis of water level, river channel, and water temperature data.
- **Modeling** – Development of a HEC-RAS model to evaluate the effect of current operations on the amount and persistence of wetted aquatic habitat, especially shoal/shallow-water habitat.

8.2 STUDY PROGRESS

Alabama Power developed HAT 3 to provide stakeholders an opportunity to participate in issues related to fish and wildlife resources. Alabama Power held a HAT 3 meeting on December 11, 2019, to review methods for calculating the habitat types using HEC-RAS. Due to low attendance in December 2019, Alabama Power held an additional HAT 3 meeting on February 20, 2020. Alabama Power will file the Draft Downstream Aquatic Habitat Study Report, along with the relevant documentation of consultation, with FERC in June 2020.

The desktop mesohabitat analysis concluded that the 47-mile reach of the Tallapoosa River below Harris Dam is comprised of approximately 46 percent pool habitat, 44 percent riffle habitat, and 10 percent run habitat with current operations. The analysis indicated these habitat types are relatively evenly distributed along the reach, except for a reach between 7 miles and 14 miles downstream of Harris Dam where the amount of riffle habitat per mile is nearly twice that of other reaches.

Water level loggers installed at twenty locations in the Tallapoosa River below Harris Dam began recording water level and water temperature at 15-minute intervals in April 2019 and will continue through June 2020. During deployment and subsequent visits to perform maintenance

and download logger data, technicians performed bathymetric surveys at approximately 200 cross-sections to acquire accurate riverbed elevation data for use in the hydraulic model.

The existing HEC-RAS model⁹ terrain was updated using newly collected riverbed elevation and LIDAR data. Based on the USACE's unimpaired flow data set for the Tallapoosa River, 2001 was selected as an "average" water year for modeling purposes. Alabama Power ran simulations using hydrographs created with Harris Dam operations data for 2001. Alabama Power is currently analyzing the results to determine the effects on downstream aquatic habitat.

8.3 VARIANCE FROM THE STUDY PLAN AND SCHEDULE

To date, Alabama Power has conducted the Downstream Aquatic Habitat Study in full conformance with FERC's SPD; however, Alabama Power's schedule included hosting a HAT 3 meeting in March 2020. Due to COVID-19 and related travel and public gathering restrictions, and statewide office closures, Alabama Power did not host this meeting.

8.4 REMAINING ACTIVITIES/MODIFICATIONS OR OTHER PROPOSED STUDIES

Alabama Power does not propose any additional studies beyond that in FERC's SPD.

Remaining activities include:

- Continue analyzing the results of Green Plan model simulations based on input and recommendations. Note that effects on downstream aquatic habitat from modifications to current operations are addressed in the Phase 2 of the Downstream Release Alternatives Study.
- Continue collecting level logger data through June 2020.
- Alabama Power will distribute a Draft Downstream Aquatic Habitat Report in June 2020. Alabama Power will review comments on the Draft Aquatic Resources Study Report and modify the Final Report, as applicable. For any comments not addressed in the Final Report, Alabama Power will provide an explanation why these comments were not incorporated.

⁹ The HEC-RAS model developed for the Operating Curve Change Feasibility Analysis and the Downstream Release Alternatives Study was used for this downstream aquatic habitat study.

9.0 THREATENED AND ENDANGERED SPECIES STUDY

9.1 STUDY PURPOSE AND SUMMARY OF METHODS

The Threatened and Endangered Species Study assesses the probability of populations of currently listed federal and/or state protected species and/or their critical habitat occurring within the Harris Project Boundary or Project Area and determine if there are Project related impacts.

The study methods include conducting a desktop analysis of habitat information and maps, compiling a list of federally and state protected T&E species, and identifying critical habitats that occur within the Harris Project Vicinity and the downstream reach of the Tallapoosa River from the Harris Dam through Horseshoe Bend. This study includes reviewing habitat requirements and range of existing and extirpated species and identifying environmental factors potentially affecting each species.

9.2 STUDY PROGRESS

Alabama Power developed HAT 3 to provide stakeholders an opportunity to participate in issues related to fish and wildlife resources. Alabama Power held a HAT 3 meeting on August 27, 2019 to discuss the T&E Species Study Plan and methods. Alabama Power and the USFWS met on November 21, 2019 to survey for fine-lined pocketbook on an approximate 3.75-mile stretch of the Tallapoosa River starting from the County 36 bridge and extending to the shoal below the Highway 431 bridge. The USFWS and Alabama Power agreed to conduct additional surveys on the fine-lined pocketbook in Spring 2020.¹⁰

Alabama Power distributed the Draft Threatened and Endangered Species Desktop Assessment to stakeholders on February 21, 2020. As noted in Section 2.0, the Draft Threatened and Endangered Species Desktop Assessment is being filed concurrently with the ISR and the filing contains the relevant HAT 3 meeting summaries, presentations, and consultation records.

The draft desktop assessment determined the probability of populations of currently listed T&E species and/or their critical habitat occurring within the Harris Project Boundary or Project Area. A list of species potentially occurring in Alabama counties in the Project Vicinity was compiled

¹⁰ The date of survey may be modified due to COVID-19 restrictions. Alabama Power will consult with the USFWS on survey dates.

from the T&E species list using ADCNR, USFWS, and Alabama Natural Heritage Program databases.

Results and maps were obtained and summarized from USFWS Recovery Plans and 5-Year Reviews, the Federal Register Listings and Critical Habitat Designations, and USFWS Environmental Conservation Online System (ECOS). Maps depicting current species ranges and critical habitats were developed using GIS data available on the USFWS' ECOS online system. This information was used to determine whether further assessments of identified species and habitat are necessary.

The Alabama counties in the vicinity of the Harris Project overlap with the habitat range, critical habitat, and extant populations of 20 federal and state protected T&E species. Nine of these species have habitat ranges intersecting with the Project Boundaries, five of which have a range occurring in the Project Boundary at Skyline, and six of which have a range occurring in the Project Boundary at Lake Harris. Additionally, the USFWS has designated critical habitat for 6 of the 20 total species identified (finlined pocketbook, Indiana bat, rabbitsfoot, slabside pearl mussel, southern pigtoe, and spotfin chub). In addition to critical habitat ranges, specific extant populations were identified for ten species. Seven of the ten listed mussels (Alabama lamp mussel, fine-rayed pigtoe, pale lilliput, rabbitsfoot, snuffbox, shiny pigtoe, and slabside pearl mussel), and one of the two listed fish (palezone shiner) have extant populations in the Paint Rock River, which is located 3.9 linear miles from the closest Project Boundary at Skyline. The desktop review of federally listed species and their habitats identified potential habitat for three bat species, two mussel species, two plant species, and a bird that may have habitat within the Project Boundary at Lake Harris and Skyline.

9.3 VARIANCE FROM THE STUDY PLAN AND SCHEDULE

To date, Alabama Power has conducted the Threatened & Endangered Species Study in full conformance with FERC's SPD; however, Alabama Power's schedule included hosting a HAT 3 meeting in March 2020. Due to COVID-19 and related travel and public gathering restrictions, and statewide office closures, Alabama Power did not host this meeting.

9.4 REMAINING ACTIVITIES/MODIFICATIONS OR OTHER PROPOSED STUDIES

Alabama Power does not propose any additional studies beyond that in FERC's SPD.

Remaining Activities include:

- Review comments on the Draft Threatened and Endangered Species Desktop Assessment and modify the Final Assessment, as applicable. For any comments not included in the Final Assessment, Alabama Power will provide an explanation why these comments were not incorporated.
- Alabama Power will continue working with USFWS to complete field surveys at Harris and Skyline WMA to determine if T&E species are located within the Harris Project Boundary. Species to be surveyed in Spring/Summer 2020¹¹ include: the palezone shiner at Skyline WMA and the fine-lined pocketbook mussel upstream of Harris Dam.
- The Final T&E Species Study Report will include the Desktop Assessment, the results of all field investigations, and other tasks described in the FERC SPD T&E Species Study Plan.

¹¹ The date of survey may be modified due to COVID-19 restrictions. Alabama Power will consult with the USFWS on survey dates.

10.0 PROJECT LANDS EVALUATION STUDY

10.1 STUDY PURPOSE AND SUMMARY OF METHODS

The Harris Project Lands Evaluation identifies lands around Lake Harris and at Skyline that are needed for Harris Project purposes and classifies these lands based upon use. Alabama Power evaluated the land use classifications for the Harris Project and determined changes needed to conform to Alabama Power's current land classification system and other Alabama Power FERC-approved Shoreline Management Plans (SMP). This Phase 1 portion of the study identified lands to be added to, or removed from, the current Harris Project Boundary and/or be reclassified. Phase 2 will use the results of Phase 1 and other Harris relicensing studies to develop a Wildlife Management Program (WMP) and a SMP.

The process and methods for Phase 1 included: meeting with HAT 4 members to discuss potential changes to the Harris Project lands (add, delete, or reclassify); a desktop analysis utilizing GIS data such as T&E species, wetlands, and cultural resources (i.e., "Sensitive Areas"), timber management tracts and current practices, and ADEM's data on impaired waters; and developing a draft map using GIS to show all proposed changes to Harris Project lands.

Phase 2 includes development of a SMP (Phase 2A) and a WMP (Phase 2B) to file with the final license application. In addition to the results from the Phase 1 Project Lands Evaluation, Alabama Power will incorporate information collected during other relicensing studies (e.g., T&E, water quality, and recreation studies), as appropriate, to the SMP and WMP. Specific activities for developing the SMP and WMP are included in FERC's SPD.

10.2 STUDY PROGRESS

Alabama Power developed HAT 4 to provide stakeholders an opportunity to participate in issues related to Project lands, the WMP, and SMP. Alabama Power held a HAT 4 meeting on September 11, 2019, to review proposed land use changes, including lands to be added to the Project Boundary, lands to be removed from the Project Boundary, and proposed changes in land use classifications of existing Project lands. Alabama Power presented the proposed changes in GIS overlays. Following the September 11, 2019 HAT 4 meeting, Alabama Power solicited feedback from HAT 4 regarding the Project Lands proposal. As noted in Section 2.0, the Draft Phase 1 Project Lands Evaluation Study Report is being filed concurrently with the ISR and the

filing contains the relevant HAT 4 meeting summaries, presentations, and documentation of consultation.

Alabama Power identified lands around Lake Harris and at Skyline that are needed for Harris Project purposes and classified these lands based upon use. In addition, Alabama Power evaluated acreage at Skyline to determine availability of suitable bobwhite quail habitat and prepared the Draft Phase 1 Project Lands Evaluation Study Report. Finally, Samford University conducted a botanical inventory of a 20-acre parcel at Flat Rock Park.

10.3 VARIANCE FROM THE STUDY PLAN AND SCHEDULE

There are no variances from the study plan or schedule.

Alabama Power conducted the Project Lands Evaluation in full conformance with FERC's SPD.

10.4 REMAINING ACTIVITIES/MODIFICATIONS OR OTHER PROPOSED STUDIES

Alabama Power does not propose any additional studies beyond that in FERC's SPD.

Remaining activities include:

- Alabama Power will review comments on the Draft Phase 1 Project Lands Evaluation Study Report and modify the Final Report, as applicable. For any comments not addressed in the Final Report, Alabama Power will provide an explanation of why these comments were not incorporated.
- Samford University will conduct a botanical survey on an additional 21 acres of land adjacent to the previously surveyed area.
- Complete the Project Lands Evaluation Study Plan methods for Phase 2 SMP and WMP.

11.0 RECREATION EVALUATION STUDY

11.1 STUDY PURPOSE AND SUMMARY OF METHODS

The Harris Recreation Evaluation Study Plan and subsequent relevant FERC filings contain several components to determine potential recreational impact of the Harris Project: 1) recreational use of the Harris Project (Lake Harris Public Access); 2) recreational use of the Tallapoosa River below Harris Dam (Tallapoosa River User); and, 3) as introduced in the December 19, 2019 FERC filing, the Tallapoosa River Landowner Survey Research Plan¹².

The Lake Harris Public Access component includes gathering baseline information on existing Project recreation facilities, existing Project recreational use and capacity, and estimated future demand and needs at the Harris Project. For this component, Alabama Power has completed the following:

- Reviewed existing information and inventoried and mapped (using GIS) existing Project recreation sites and access areas within the Project Boundary;
- Summarized who owns, operates, and maintains each Project recreation site;
- Evaluated the condition of the Harris Project recreation sites and facilities within the Project Boundary; and
- Estimated current recreation use and the current and projected use capacity at Harris Project recreation sites¹³.

To determine how flows in the Tallapoosa River downstream of Harris Dam affect recreational users and their activity, Alabama Power has completed the following:

- Calculated total visitation (effort) and daily effort levels by user groups during the study period (May 1, 2019 to October 31, 2019);
- Measured user attitudes/perceptions about instream flow and trip satisfaction on the day they were intercepted during this period;
- Obtained catch information from anglers intercepted during this period; and

¹² Accession No. 20191219-5186.

¹³ Alabama Power worked with Southwick Associates on this component of the study and as of April 2020, this information is still preliminary and will be presented to stakeholders in the Draft Recreation Evaluation Report.

- Determined how instream flow affected a) overall effort, b) daily effort by each user group, c) perception of instream flow and trip satisfaction by user group, and d) species of fish targeted, caught, and retained¹⁴.

Alabama Power is also surveying landowners downstream of Harris Dam¹⁵ as well as recreational users of the Tallapoosa River regarding their recreation use of the Tallapoosa River.

Alabama Power:

- Reviewed county tax records to identify residential, vacation, forestry, agricultural, or vacant land adjacent to the Tallapoosa River in Randolph, Chambers, or Tallapoosa Counties that could be used for river-related recreation and obtained their mailing address;
- Developed a survey instrument to collect information from downstream landowners on their recreational use of the Tallapoosa River, use by others they may provide access to on their property, landowner perception of instream flow, and their attitudes about recreation and other resource issues on the Tallapoosa River downstream of Harris Dam to Jaybird Landing Boat Ramp; and
- Sent landowners an introductory pre-survey letter via first-class mail informing them of the study, followed one week later with a first-class mailing with a request to participate in study. This mailing included a paper copy of the survey, including a self-addressed stamped envelope for return, and also provided directions to fill out the survey online.

11.2 STUDY PROGRESS

Alabama Power developed HAT 5 to provide stakeholders an opportunity to participate in issues related to recreation. Alabama Power held a HAT 5 meeting on December 11, 2019, to discuss the Tallapoosa River Landowner Survey Research Plan. Alabama Power will file the Draft Downstream Recreation Evaluation Study Report, along with the relevant documentation of consultation, with FERC in August 2020.

Alabama Power conducted Lake Harris Public Access questionnaires and counts from March to December 2019 (counts were conducted almost daily and employed nine recreation clerks who conducted 1,357 questionnaires)¹⁶. Alabama Power also conducted Tallapoosa River User Surveys and counts from May to October 2019 (40 count days with approximately 200 surveys).

¹⁴ Alabama Power worked with Dr. Kevin Hunt on this component of the survey and as of April 2020, this information is still preliminary and will be presented to stakeholders in the Draft Recreation Evaluation Report.

¹⁵ As described in the December 19, 2019 Tallapoosa River Landowner Survey Research Plan.

¹⁶ The start date for the counts was March 11, 2019. The survey questionnaire started on May 10, 2019. The last date for both was December 15, 2019.

Additionally, ADCNR provided data on recreation use at the Skyline WMA (man-days hunted and harvest estimates were conveyed in August 2019). In October 2019, Alabama Power inventoried recreation facilities at the Lake Harris Public Access sites (12 Harris Project Recreation sites¹⁷, Lakeside Marina, and Wedowee Marine).

At the conclusion of the Tallapoosa River User Survey, researchers noted a lack of information from downstream landowners. To supplement data collected at public recreation sites on the Tallapoosa River downstream of the Project, Alabama Power developed a survey for downstream landowners regarding river-related recreation. Alabama Power facilitated a HAT 5 meeting on December 11, 2019, to provide stakeholders the opportunity to comment on the proposed Tallapoosa River Downstream Landowner Survey. Alabama Power incorporated several comments from HAT 5 members into the Tallapoosa River Landowner Survey Research Plan (including distributing a paper copy of the survey and delaying the start of the survey). Per stakeholder suggestions at the December 2019 HAT meeting, Alabama Power added an anonymous internet survey (Tallapoosa River Recreation User Survey) for river users to express opinions regarding their recreation experience on the Tallapoosa River. Initially, Alabama Power was only assessing landowners who owned residential, vacation, agricultural land that may be used as a residence, or non-industrial vacant land that was tied to an individual landowner. Alabama Power expanded the landowner categories to include forest landowners (known businesses in this category were removed so that only private individuals remained) and extended the response deadline for the Tallapoosa River Downstream Landowner Survey to April 15, 2020 (original deadline was March 31, 2020).

11.3 VARIANCE FROM THE STUDY PLAN AND SCHEDULE

To date, Alabama Power conducted the Recreation Evaluation Study in full accordance with the methods and schedule described in the FERC SPD with the exception of the following variances:

- Alabama Power added the Tallapoosa River Downstream Landowner Survey and Tallapoosa River Recreation User Survey described above.
- Alabama Power will file the Draft Harris Project Recreation Evaluation report in August 2020 (rather than June 2020) due to the additional study elements and extended

¹⁷ Lee's Bridge Boat Ramp; Foster's Bridge Boat Ramp; Swagg Boat Ramp; Lonnie White Boat Ramp; Crescent Crest Boat Ramp; Highway 48 Bridge Boat Ramp; Wedowee Marine South Marina; Little Fox Creek Boat Ramp; Big Fox Creek Boat Ramp; Flat Rock Park Day Use Park; R. L. Harris Management Area; and Harris Tailrace Fishing Platform.

participation deadlines. Alabama Power will keep with the schedule and file the Final Harris Project Recreation Evaluation report in November 2020.

Alabama Power's schedule included hosting a HAT 5 meeting in March 2020. Due to COVID-19 and related travel and public gathering restrictions, and statewide office closures, Alabama Power did not host this meeting.

11.4 REMAINING ACTIVITIES/MODIFICATIONS OR OTHER PROPOSED STUDIES

Alabama Power does not propose any additional studies beyond that in FERC's SPD.

Due to the additional surveys and subsequent processing and analysis of the data, Alabama Power will file the Draft Recreation Evaluation Study Report in August 2020 rather than in June 2020. Alabama Power is not proposing to change the Final Report due date in November 2020.

Remaining activities include:

- Use information collected from the Tallapoosa River Downstream Landowner Survey and Tallapoosa River Recreation User Survey to characterize use of the Tallapoosa River downstream of Harris Dam to Jaybird Landing Boat Ramp.
- Use information on river flow to determine how instream flow affects landowner recreational use and satisfaction on the Tallapoosa River downstream of Harris Dam.
- Combine Tallapoosa River Downstream Landowner Survey and Tallapoosa River Recreation User Survey with data gathered at public recreation sites in 2019.
- In August 2020, Alabama Power will distribute a Draft Recreation Evaluation Study Report. Alabama Power will review comments on the Draft Recreation Evaluation Study Report and modify the Final Report, as applicable. For any comments not addressed in the Final Report, Alabama Power will provide an explanation why these comments were not incorporated.

12.0 CULTURAL RESOURCES STUDY

12.1 STUDY PURPOSE AND SUMMARY OF METHODS

The Harris Project Cultural Resources¹⁸ Programmatic Agreement and Historic Properties Management Plan Study Plan involves collecting and summarizing existing cultural resources baseline information and developing a plan to assess cultural resources identified in the Harris Project Area of Potential Effect (APE).

Alabama Power will develop a Historic Properties Management Plan (HPMP) for the Harris Project. The HPMP will describe the Harris Project, APE, anticipated effects, and Alabama Power's proposed measures to protect historic properties.

As part of this study, Alabama Power will determine the need for, and if required, develop a draft Programmatic Agreement (PA) (among FERC, the State Historic Preservation Office [SHPO], Alabama Power, and applicable federally recognized tribes¹⁹) for managing historic properties that may be affected by a new license issued to Alabama Power for the continued operation of the Harris Project. FERC will issue the draft PA with any draft National Environmental Policy Act (NEPA) documents (Environmental Assessment or Environmental Impact Statement) and then issue the final PA with the final NEPA analysis.

12.2 STUDY PROGRESS

Alabama Power formed HAT 6 to provide stakeholders an opportunity to participate in issues related to cultural resources. Alabama Power has conducted several HAT 6 meetings in 2019 and 2020. These meetings covered numerous topics, summarized below:

- May 22, 2019 - Sites Selected for Further Evaluation, TCP Identification Plan, APE, HPMP outline
- July 9, 2019 - Sites Selected for Further Evaluation

¹⁸ FERC has the responsibility to consult with the Advisory Council on Historic Preservation (Advisory Council) and the Alabama Historical Commission (AHC or State Historic Preservation Office [SHPO]) pursuant to the Advisory Council's regulations (36 U.S. Code of Federal Regulation [C.F.R.] part 800) implementing the National Historic Preservation Act (NHPA) (54 U.S. States Code [U.S.C.] 306108; hereinafter, "Section 106").

¹⁹ Applicable tribes as of March 2019- Cherokee Nation, Eastern Band of Cherokee Indians, United Keetoowah Band of Cherokee Indians in Oklahoma, Alabama-Coushatta Tribe of Texas, Alabama-Quassarte Tribal Town, Coushatta Tribe of Louisiana, Kialegee Tribal Town, Muscogee (Creek) Nation, Poarch Band of Creek Indians, and Thlopthlocco Tribal Town.

- November 6, 2019 - Muscogee August 19, 2019 Letter, Fish Weir Information, Final Determination of Lake Harris Sites for Further Evaluation, Lake Harris Survey Schedule, Lake Harris Site Evaluation Methods, Skyline Site Selection and Evaluation Methods, HPMP, IDP, and TCP Identification Plan outline discussion
- March 2, 2020 - Draft IDP, Draft TCP Identification Plan, Proposed APE

Alabama Power and the Office of Archeological Research (OAR) reviewed existing information on the 330 previously recorded archeological sites and identified sites for further evaluation. Of the 96 sites identified for preliminary archeological assessments, 79 were identified through OAR research and 17 additional sites were requested by the Muscogee (Creek) Nation²⁰. Per the OAR, the preliminary archaeological assessment was intended to determine the general disposition of previously recorded archaeological sites selected in concert with consulting parties that were considered potentially significant cultural resources. The preliminary archeological assessment was conducted to determine the location, setting, and general condition of the sites. It involved both a literature/records search and, if needed, an on-site field reconnaissance. In addition, Alabama Power and OAR performed cultural resources assessments²¹ at several sites at Skyline (previous surveys identified 141 sites as Undetermined in regard to their National Register of Historic Places [National Register] status in the Alabama State Site File). Finally, Alabama Power and OAR evaluated a sample of the 236 known caves recorded in Skyline (13 caves were investigated by using digital photography, mapping rock art locations, and documenting other utilization)²².

The FERC SPD specified that “Alabama Power should also include both a written description of the APE, a map clearly identifying the APE and its relationship to the Harris Project Boundary, and concurrence from, the Alabama SHPO on the APE prior to conducting fieldwork (5.9(b)(6).” Beginning in May 2019, Alabama Power consulted with stakeholders to establish the Harris Project APE and Alabama Power is continuing to work with Alabama SHPO to finalize the APE.

²⁰ Filed on August 16, 2019.

²¹ Cultural Resource Assessments conducted at Skyline and those to be conducted around Lake Harris comply with the Alabama SHPO guidelines. Methods for both the preliminary archeological assessments and cultural resources assessments were shared with appropriate HAT 6 members following the November 6, 2019 meeting.

²² These investigations were led by Scott Shaw. Scott did the initial assessment of the caves and bat populations prior to field crews entering to conduct documentation. Scott made efforts to avoid large hibernating populations and record any bat species encountered within each visited cave. This information was shared with Alabama Power for dissemination as appropriate to USFWS and ADCNR.

In addition, Alabama Power worked with HAT 6 to develop the IDP and the TCP Identification Plan.

Per section 304 of the National Historic Preservation Act (NHPA), as amended, and 36 CFR 800.11(c), Alabama Power will “withhold any information about the location, character, or ownership of a historic property from public disclosure when disclosure may cause a significant invasion of privacy, risk harm to the historic property, or impede the use of a traditional religious site by practitioners.” Alabama Power will file all such information collected to date as “privileged.”

As noted in Section 2.0, the cultural documents filed concurrently with this ISR contain HAT 6 meeting summaries, presentations, and documentation of consultation.

12.3 VARIANCE FROM THE STUDY PLAN AND SCHEDULE

Alabama Power conducted the Cultural Resources Programmatic Agreement and Historic Properties Management Plan Study in full conformance with FERC’s SPD.

Alabama Power continues to work with the Alabama SHPO for concurrence regarding the Harris APE and plans to file the final APE (with maps) by June 30, 2020.

12.4 REMAINING ACTIVITIES/MODIFICATIONS OR OTHER PROPOSED STUDIES

Alabama Power does not propose any additional studies beyond that in FERC’s SPD.

Remaining Activities include:

- Alabama Power will complete consultation and determine the final Harris APE.
- Alabama Power will complete survey work and TCP identification by February 2021 and complete eligibility assessments for known cultural resources by July 2021.
- Alabama Power will conduct a cultural resources assessment for the sites identified during the Lake Harris preliminary archeological assessment.
- Alabama Power will begin drafting an HPMP, which will include provisions for future National Register eligibility evaluation of the Harris Project facilities in 2033, when the Project would reach an age of 50 years.
- Alabama Power will continue to determine and document the presence of cultural resources within the Project’s APE; evaluate any known cultural resources for National Register eligibility (including the piers at Miller Covered Bridge); and determine if

authorized use of the Harris Project, including any proposed changes in Project operation proposed under a new license, would cause changes in the character or use of historic properties, if such properties exist.

APPENDIX A
ACRONYMS AND ABBREVIATIONS



R. L. Harris Hydroelectric Project

FERC No. 2628

ACRONYMS AND ABBREVIATIONS

A

A&I	Agricultural and Industrial
ACFWRU	Alabama Cooperative Fish and Wildlife Research Unit
ACF	Apalachicola-Chattahoochee-Flint (River Basin)
ACT	Alabama-Coosa-Tallapoosa (River Basin)
ADCNR	Alabama Department of Conservation and Natural Resources
ADECA	Alabama Department of Economic and Community Affairs
ADEM	Alabama Department of Environmental Management
ADROP	Alabama-ACT Drought Response Operations Plan
AHC	Alabama Historical Commission
Alabama Power	Alabama Power Company
AMP	Adaptive Management Plan
ALNHP	Alabama Natural Heritage Program
APE	Area of Potential Effects
ARA	Alabama Rivers Alliance
ASSF	Alabama State Site File
ATV	All-Terrain Vehicle
AWIC	Alabama Water Improvement Commission
AWW	Alabama Water Watch

B

BA	Biological Assessment
B.A.S.S.	Bass Anglers Sportsmen Society
BCC	Birds of Conservation Concern
BLM	U.S. Bureau of Land Management
BOD	Biological Oxygen Demand

C

°C	Degrees Celsius or Centigrade
CEII	Critical Energy Infrastructure Information
CFR	Code of Federal Regulation
cfs	Cubic Feet per Second
cfu	Colony Forming Unit
CLEAR	Community Livability for the East Alabama Region
CPUE	Catch-per-unit-effort
CWA	Clean Water Act

D

DEM	Digital Elevation Model
DIL	Drought Intensity Level
DO	Dissolved Oxygen
dsf	day-second-feet

E

EAP	Emergency Action Plan
ECOS	Environmental Conservation Online System
EFDC	Environmental Fluid Dynamics Code
EFH	Essential Fish Habitat
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act

F

°F	Degrees Fahrenheit
ft	Feet
F&W	Fish and Wildlife
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FNU	Formazin Nephelometric Unit
FOIA	Freedom of Information Act
FPA	Federal Power Act

G

GCN	Greatest Conservation Need
GIS	Geographic Information System
GNSS	Global Navigation Satellite System
GPS	Global Positioning Systems
GSA	Geological Survey of Alabama

H

Harris Project	R.L. Harris Hydroelectric Project
HAT	Harris Action Team
HEC	Hydrologic Engineering Center
HEC-DSSVue	HEC-Data Storage System and Viewer
HEC-FFA	HEC-Flood Frequency Analysis
HEC-RAS	HEC-River Analysis System
HEC-ResSim	HEC-Reservoir System Simulation Model
HEC-SSP	HEC-Statistical Software Package

HDSS	High Definition Stream Survey
hp	Horsepower
HPMP	Historic Properties Management Plan
HPUE	Harvest-per-unit-effort
HSB	Horseshoe Bend National Military Park

I

IBI	Index of Biological Integrity
IDP	Inadvertent Discovery Plan
IIC	Intercompany Interchange Contract
IVM	Integrated Vegetation Management
ILP	Integrated Licensing Process
IPaC	Information Planning and Conservation
ISR	Initial Study Report

J

JTU	Jackson Turbidity Units
-----	-------------------------

K

kV	Kilovolt
kva	Kilovolt-amp
kHz	Kilohertz

L

LIDAR	Light Detection and Ranging
LWF	Limited Warm-water Fishery
LWPOA	Lake Wedowee Property Owners' Association

M

m	Meter
m ³	Cubic Meter
M&I	Municipal and Industrial
mg/L	Milligrams per liter
ml	Milliliter
mgd	Million Gallons per Day
µg/L	Microgram per liter
µs/cm	Microsiemens per centimeter
mi ²	Square Miles
MOU	Memorandum of Understanding

MPN	Most Probable Number
MRLC	Multi-Resolution Land Characteristics
msl	Mean Sea Level
MW	Megawatt
MWh	Megawatt Hour

N

n	Number of Samples
NEPA	National Environmental Policy Act
NGO	Non-governmental Organization
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanographic and Atmospheric Administration
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NTU	Nephelometric Turbidity Unit
NWI	National Wetlands Inventory

O

OAR	Office of Archaeological Resources
OAW	Outstanding Alabama Water
ORV	Off-road Vehicle
OWR	Office of Water Resources

P

PA	Programmatic Agreement
PAD	Pre-Application Document
PDF	Portable Document Format
pH	Potential of Hydrogen
PID	Preliminary Information Document
PLP	Preliminary Licensing Proposal
Project	R.L. Harris Hydroelectric Project
PUB	Palustrine Unconsolidated Bottom
PURPA	Public Utility Regulatory Policies Act
PWC	Personal Watercraft
PWS	Public Water Supply

Q

QA/QC Quality Assurance/Quality Control

R

RM River Mile
 RTE Rare, Threatened and Endangered
 RV Recreational Vehicle

S

S Swimming
 SCORP State Comprehensive Outdoor Recreation Plan
 SCP Shoreline Compliance Program
 SD1 Scoping Document 1
 SH Shellfish Harvesting
 SHPO State Historic Preservation Office
 Skyline WMA James D. Martin-Skyline Wildlife Management Area
 SMP Shoreline Management Plan
 SU Standard Units

T

T&E Threatened and Endangered
 TCP Traditional Cultural Properties
 TMDL Total Maximum Daily Load
 TNC The Nature Conservancy
 TRB Tallapoosa River Basin
 TSI Trophic State Index
 TSS Total Suspended Solids
 TVA Tennessee Valley Authority

U

USDA U.S. Department of Agriculture
 USGS U.S. Geological Survey
 USACE U.S. Army Corps of Engineers
 USFWS U.S. Fish and Wildlife Service

W

WCM

Water Control Manual

WMA

Wildlife Management Area

WMP

Wildlife Management Plan

WQC

Water Quality Certification

From: APC Harris Relicensing
To: "harrisrelicensing@southernco.com"
Bcc: 1942jthompson420@gmail.com; 9sling@charter.net; alcondir@aol.com; allan.creamer@ferc.gov; alpeeples@southernco.com; amanda.fleming@kleinschmidtgroup.com; amanda.mcbride@ahc.alabama.gov; amccartn@blm.gov; ammccvica@southernco.com; amy.silvano@dcnr.alabama.gov; andrew.nix@dcnr.alabama.gov; arsegars@southernco.com; athall@fujifilm.com; aubie84@yahoo.com; awhorton@corblu.com; bart_robby@msn.com; baxterchip@yahoo.com; bbooz6@gmail.com; bdavis081942@gmail.com; beckyrainwater1@yahoo.com; bill_pearson@fws.gov; blacklake20@gmail.com; blm_es_inquiries@blm.gov; bob.stone@smimail.net; bradandsue795@gmail.com; bradfordt71@gmail.com; brian.atkins@adeca.alabama.gov; bruce.bradford@forestry.alabama.gov; bsmith0253@gmail.com; butchjackson60@gmail.com; bwahaley@randolphcountyyeda.com; carolbuggknight@hotmail.com; celestine.bryant@actribe.org; cengstrom@centurytel.net; ceo@jcchamber.com; cggoodma@southernco.com; cgnav@uscg.mil; chad@cleburnecountychamber.com; chandlermary937@gmail.com; chiefknight2002@yahoo.com; chimneycove@gmail.com; chris.goodell@kleinschmidtgroup.com; chris.greene@dcnr.alabama.gov; chris.smith@dcnr.alabama.gov; chris@aladubon.org; chuckdenman@hotmail.com; clark.maria@epa.gov; claychamber@gmail.com; clint.loyd@auburn.edu; cljohnson@adem.alabama.gov; clowry@alabamarivers.org; cmnix@southernco.com; coetim@aol.com; colin.dinken@kleinschmidtgroup.com; cooper.jamal@epa.gov; coty.brown@alea.gov; craig.litteken@usace.army.mil; crystal.davis@adeca.alabama.gov; crystal.lakewedowedocks@gmail.com; crystal@hunterbend.com; dalerose120@yahoo.com; damon.abernethy@dcnr.alabama.gov; dbronson@charter.net; dcnr.wffdirector@dcnr.alabama.gov; decker.chris@epa.gov; devridr@auburn.edu; dfarr@randolphcountyalabama.gov; dhayba@usgs.gov; djmoore@adem.alabama.gov; dkanders@southernco.com; dolmoore@southernco.com; donnamat@aol.com; doug.deaton@dcnr.alabama.gov; dpreston@southernco.com; drheinzen@charter.net; ebt.drt@numail.org; eilandfarm@aol.com; el.brannon@yahoo.com; elizabeth-toombs@cherokee.org; emathews@aces.edu; eric.sipes@ahc.alabama.gov; evan.lawrence@dcnr.alabama.gov; evan.collins@fws.gov; eveham75@gmail.com; fal@adem.alabama.gov; fredcanoes@aol.com; gardenergirl04@yahoo.com; garyprice@centurytel.net; gene@wedoweelakehomes.com; georgettraylor@centurylink.net; gerryknight77@gmail.com; gfhorn@southernco.com; gjobis@americanrivers.org; gld@adem.alabama.gov; glea@wgsarrell.com; gordon.lisa-perras@epa.gov; goxford@centurylink.net; granddadth@windstream.net; harry.merrill47@gmail.com; helen.greer@att.net; henry.mealing@kleinschmidtgroup.com; holliman.daniel@epa.gov; info@aeconline.com; info@tunica.org; inspector_003@yahoo.com; irapar@centurytel.net; irwiner@auburn.edu; j35sullivan@blm.gov; james.e.hathorn.jr@sam.usace.army.mil; jason.moak@kleinschmidtgroup.com; jcandler7@yahoo.com; jcarlee@southernco.com; jec22641@aol.com; jeddins@achp.gov; jefbaker@southernco.com; jeff_duncan@nps.gov; jeff_powell@fws.gov; jennifer.l.jacobson@usace.army.mil; jennifer_grunewald@fws.gov; jerrelshell@gmail.com; jesse cunningham@msn.com; jfcrew@southernco.com; jhancock@balch.com; jharjo@alabama-quassarte.org; jhaslbauer@adem.alabama.gov; jhouser@osiny.org; jkwdurham@gmail.com; jlowe@alabama-quassarte.org; jnyerby@southernco.com; joan.e.zehrt@usace.army.mil; john.free@psc.alabama.gov; johndiane@sbcglobal.net; jonas.white@usace.army.mil; josh.benefield@forestry.alabama.gov; jpsparrow@att.net; jsrasber@southernco.com; jthacker@southernco.com; jthronberry@tnc.org; judymcreator@gmail.com; jwest@alabamarivers.org; kajumba.ntale@epa.gov; karen.brunso@chickasaw.net; kate.cosnahan@kleinschmidtgroup.com; kcarleton@choctaw.org; kechandl@southernco.com; keith.gauldin@dcnr.alabama.gov; keith.henderson@dcnr.alabama.gov; kelly.schaeffer@kleinschmidtgroup.com; ken.wills@jcdh.org; kenbarnes01@yahoo.com; kenneth.boswell@adeca.alabama.gov; kmhunt@maxxsouth.net; kmo0025@auburn.edu; kodom@southernco.com; kpritchett@ukb-nsn.gov; kristina.mullins@usace.army.mil; lakewedowedocks@gmail.com; leeanne.wofford@ahc.alabama.gov; leon.m.cromartie@usace.army.mil; leopoldo_miranda@fws.gov; lewis.c.sumner@usace.army.mil; lgallen@balch.com; lgarland68@aol.com; lindastone2012@gmail.com; llangley@coushattatribela.org; lovvornt@randolphcountyalabama.gov; lswinsto@southernco.com; lth0002@auburn.edu; mark@americanwhitewater.org; matt.brooks@alea.gov; matthew_marshall@dcnr.alabama.gov; mayo.lydia@epa.gov; mcoker@southernco.com; mcw0061@aces.edu; mdollar48@gmail.com; meredith.h.ladart@usace.army.mil; mhpwedowe@gmail.com; mhunter@alabamarivers.org; michael.w.creswell@usace.army.mil; midwaytreasures@bellsouth.net; mike.holley@dcnr.alabama.gov; mitchell.reid@tnc.org; mlen@adem.alabama.gov; mnedd@blm.gov; monte.terhaar@ferc.gov; mooretn@auburn.edu; mprandolphwater@gmail.com; nancyburnes@centurylink.net; nanferabee@juno.com; nathan.aycock@dcnr.alabama.gov; orr.chauncey@epa.gov; pace.wilber@noaa.gov; partnersinfo@wwfus.org; patti.powell@dcnr.alabama.gov; patty@ten-o.com; paul.trudine@gmail.com; ptrammell@reddyice.com; publicaffairs@doc.gov; rachel.mcnamara@ferc.gov; raebutler@mcn-nsn.gov; rancococ@teleclipse.net; randall.b.harvey@usace.army.mil; randy@randyrogerslaw.com; randy@wedoweemarine.com; rbmorriss222@gmail.com; rcodydeal@hotmail.com; reuteem@auburn.edu; richardburnes3@gmail.com; rick.oates@forestry.alabama.gov; rickmcwhorter723@icloud.com; rifaft2@aol.com; rjdavis8346@gmail.com; robert.a.allen@usace.army.mil; robinwaldrep@yahoo.com; roger.mcneil@noaa.gov; ron@lakewedowe.org; rosoweka@mcn-nsn.gov; russtown@nc-chokeee.com; ryan.prince@forestry.alabama.gov; sabrinawood@live.com; sandnfrench@gmail.com; sarah.salazar@ferc.gov; sbunter@pci-nsn.gov; scsmith@southernco.com; section106@mcn-nsn.gov; sforehand@russellands.com; sgraham@southernco.com; sherry.bradley@adph.state.al.us; sidney.hare@gmail.com; simsthe@aces.edu; snelson@nelsonandco.com; sonjahollomon@gmail.com; steve.bryant@dcnr.alabama.gov; stewartjack12@bellsouth.net; straylor426@bellsouth.net; sueagnew52@yahoo.com; tdadunaway@gmail.com; thpo@pci-nsn.gov; thpo@ttown.org; timguffey@jcch.net; 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Subject: Harris Relicensing - Initial Study Report meeting agenda and call-in details
Date: Friday, April 24, 2020 10:23:13 AM
Attachments: [2020-04-28 ISR Meeting Agenda.doc](#)

Good morning

Please join us for the Initial Study Report (ISR) meeting on **April 28, 2020, starting at 9 am central time**. The agenda for the meeting is attached. On Monday April 27th, the presentation will be made available on our website (www.harrisrelicensing.com [harrisrelicensing.com]) and distributed to stakeholders as a pdf.

If you have questions regarding the ISR that you would like Alabama Power to address during the meeting, please send your questions to harrisrelicensing@southernco.com by 4 pm on April 27th. There will also be an opportunity to ask questions during the meeting.

Below is the Skype link and call in instructions. Participating via the Skype link is preferred in order to reduce audio issues. However, if you don't have access to Skype, you can call the number below and follow along with the presentation we'll send out on April 27th.

[Join Skype Meeting](#)

To join the ISR Meeting via phone, please call (205) 257-2663 OR (404) 460-0605. At the prompt, enter conference ID 489472 followed by the pound (#) sign.

When you join the call, you will be in the virtual lobby and directed that you are waiting on the leader to admit you. As you are admitted, you will be instructed that you are now joining the meeting and that the meeting has been locked. As soon as everyone has joined, we will conduct a roll call of attendees by organization (for example, I will ask who is on the call from the Alabama Department of Conservation and Natural Resources, etc.). If you do not belong to an organization, you will be given a chance at the end of the roll call to state your name and affiliation. Once the roll call is over, your phone will be muted and the first presentation will begin. As noted above, Alabama Power will take questions following each study review and will unmute participants during that time. Once the phones are unmuted, you will have to press star 6 (*6) in order to be heard.

Please let me know if you have any questions.

Angie Anderegg

Hydro Services

(205)257-2251

arsegars@southernco.com



R. L. Harris Hydroelectric Project

FERC No. 2628

Meeting Agenda
April 28, 2020
9:00 AM
Skype Meeting

Meeting Purpose: Review the information presented in the Initial Study Report (ISR) filed with FERC on April 10, 2020.

Welcome, Roll Call, Safety, and Agenda

HAT 6: Cultural Resources

HAT 5: Recreation Evaluation

HAT 4: Project Lands

HAT 1: Project Operations

Operating Curve Feasibility Analysis

Downstream Release Alternatives

HAT 2: Water Quality and Use

Water Quality

Erosion and Sedimentation

HAT 3: Fish and Wildlife

Threatened and Endangered Species

Downstream Aquatic Habitat

Aquatic Resources

Next Steps and Questions

From: APC Harris Relicensing
To: "harrisrelicensing@southernco.com"
Bcc: 1942jthompson420@gmail.com; 9sling@charter.net; alcondir@aol.com; allan.creamer@ferc.gov; alpeeples@southernco.com; amanda.fleming@kleinschmidtgroup.com; amanda.mcbride@ahc.alabama.gov; amccartn@blm.gov; ammccica@southernco.com; amy.silvano@dcnr.alabama.gov; andrew.nix@dcnr.alabama.gov; arsegars@southernco.com; athall@fujifilm.com; aubie84@yahoo.com; awhorton@corblu.com; bart_robby@msn.com; baxterchip@yahoo.com; bbooz6@gmail.com; bdavis081942@gmail.com; beckyrainwater1@yahoo.com; bill_pearson@fws.gov; blacklake20@gmail.com; blm_es_inquiries@blm.gov; bob.stone@smimail.net; bradandsue795@gmail.com; bradfordt71@gmail.com; brian.atkins@adeca.alabama.gov; bruce.bradford@forestry.alabama.gov; bsmith0253@gmail.com; butchjackson60@gmail.com; bwahaley@randolphcountyyeda.com; carolbuggknight@hotmail.com; celestine.bryant@actribe.org; cengstrom@centurytel.net; ceo@jcchamber.com; cggoodma@southernco.com; cgnav@uscg.mil; chad@cleburnecountychamber.com; chandlermary937@gmail.com; chiefknight2002@yahoo.com; chimneycove@gmail.com; chris.goodell@kleinschmidtgroup.com; chris.greene@dcnr.alabama.gov; chris.smith@dcnr.alabama.gov; chris@aladubon.org; chuckdenman@hotmail.com; clark.maria@epa.gov; claychamber@gmail.com; clint.loyd@auburn.edu; cljohnson@adem.alabama.gov; clowry@alabamarivers.org; cmnix@southernco.com; coetim@aol.com; colin.dinken@kleinschmidtgroup.com; cooper.jamal@epa.gov; coty.brown@alea.gov; craig.litteken@usace.army.mil; crystal.davis@adeca.alabama.gov; crystal.lakewedowedocks@gmail.com; crystal@hunterbend.com; dalerose120@yahoo.com; damon.abernethy@dcnr.alabama.gov; dbronson@charter.net; dcnr.wffdirector@dcnr.alabama.gov; decker.chris@epa.gov; devridr@auburn.edu; dfarr@randolphcountyalabama.gov; dhayba@usgs.gov; djmoore@adem.alabama.gov; dkanders@southernco.com; dolmoore@southernco.com; donnamat@aol.com; doug.deaton@dcnr.alabama.gov; dpreston@southernco.com; drheinzen@charter.net; ebt.drt@numail.org; eilandfarm@aol.com; el.brannon@yahoo.com; elizabeth-toombs@cherokee.org; emathews@aces.edu; 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tlamberth@russellands.com; tl mills@southernco.com; todd.fobian@dcnr.alabama.gov; tom.diggs@ung.edu; tom.lettieri47@gmail.com; tom.littlepage@adeca.alabama.gov; tpfreema@southernco.com; trayjim@bellsouth.net; triciastearns@gmail.com; twstjohn@southernco.com; variscom506@gmail.com; walker.mary@epa.gov; william.puckett@swcc.alabama.gov; wmcampbell218@gmail.com; wrighr2@aces.edu; wsgardne@southernco.com; wtanders@southernco.com

Subject: FW: Harris Relicensing - Initial Study Report meeting agenda and call-in details
Date: Monday, April 27, 2020 9:50:21 AM
Attachments: [2020-04-28 ISR Meeting Agenda.doc](#)
[2020-4-28 Harris Relicensing - Initial Study Report Meeting presentation.pdf](#)

Good morning,

Attached is the presentation for tomorrow's Initial Study Report meeting. This presentation can also be found on the relicensing website: www.harrisrelicensing.com.

Thanks,

Angie Anderegg

Hydro Services
(205)257-2251
arsegars@southernco.com

From: APC Harris Relicensing
Sent: Friday, April 24, 2020 10:24 AM
To: 'harrisrelicensing@southernco.com' <harrisrelicensing@southernco.com>
Subject: Harris Relicensing - Initial Study Report meeting agenda and call-in details

Good morning

Please join us for the Initial Study Report (ISR) meeting on **April 28, 2020, starting at 9 am central time**. The agenda for the meeting is attached. On Monday April 27th, the presentation will be made available on our website (www.harrisrelicensing.com [harrisrelicensing.com]) and distributed to stakeholders as a pdf.

If you have questions regarding the ISR that you would like Alabama Power to address during the meeting, please send your questions to harrisrelicensing@southernco.com by 4 pm on April 27th. There will also be an opportunity to ask questions during the meeting.

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roll call of attendees by organization (for example, I will ask who is on the call from the Alabama Department of Conservation and Natural Resources, etc.). If you do not belong to an organization, you will be given a chance at the end of the roll call to state your name and affiliation. Once the roll call is over, your phone will be muted and the first presentation will begin. As noted above, Alabama Power will take questions following each study review and will unmute participants during that time. Once the phones are unmuted, you will have to press star 6 (*6) in order to be heard.

Please let me know if you have any questions.

Angie Anderegg

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May 12, 2020

VIA ELECTRONIC FILING

Project No. 2628-065
R.L. Harris Hydroelectric Project
Initial Study Report Meeting Summary

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

Dear Secretary Bose,

Alabama Power Company (Alabama Power) is utilizing the Federal Energy Regulatory Commission's (FERC) Integrated Licensing Process (ILP) to complete the relicensing process for the Harris Hydroelectric Project (FERC No. 2628-065). On April 28, 2020, Alabama Power held an Initial Study Report Meeting pursuant to 18 C.F.R. Section 5.15 (c) of the ILP. Due to concerns with COVID-19, Alabama Power held the Initial Study Report meeting via conference call.

The meeting summary, including a list of attendees and the meeting presentation, is attached.

If there are any questions concerning this filing, please contact me at arsegars@southernco.com or 205-257-2251.

Sincerely,

A handwritten signature in blue ink that reads "Angie Anderegg".

Angie Anderegg
Harris Relicensing Project Manager

Attachment - Initial Study Report Meeting Summary

cc: Harris Stakeholder List



R. L. Harris Hydroelectric Project

Meeting Summary

Initial Study Report Meeting via Conference Call

April 28, 2020 ~ 9:00 AM to 4 PM

TABLE OF CONTENTS

- 1 Overview 3
 - 1.1 FERC’s Questions submitted in advance of the meeting 3
- 2 Cultural Resources Programmatic Agreement and Historic Properties Management Plan Study 5
 - 2.1 FERC’s Questions submitted in advance of the meeting 5
 - 2.2 Carol Knight’s Questions submitted in advance of the meeting 5
 - 2.3 Participant Questions 6
- 3 Recreation Evaluation Study 7
 - 3.1 Donna Matthews’ Questions submitted in advance of the meeting 7
 - 3.2 Participant Questions 7
- 4 Project Lands Evaluation Study 9
 - 4.1 FERC’s Questions submitted in advance of the meeting 9
 - 4.2 Participant Questions 12
- 5 Operating Curve Change Feasibility Analysis Study 13
 - 5.1 FERC’s Questions submitted in advance of the meeting 13
 - 5.2 Participant Questions 14
- 6 Downstream Release Alternatives Study 19
 - 6.1 FERC’s Questions submitted in advance of the meeting 19
 - 6.2 Alabama Rivers Alliance’s Questions submitted in advance of the meeting 19
 - 6.3 Participant Questions 20
- 7 Water Quality Study 24
 - 7.1 FERC’s Questions submitted in advance of the meeting 24
 - 7.2 Alabama Rivers Alliance’s Questions submitted in advance of the meeting 25
 - 7.3 Participant Questions 26

8	Erosion and Sedimentation Study.....	28
8.1	FERC’s Questions submitted in advance of the meeting.....	28
8.2	Alabama Rivers Alliance’s Questions submitted in advance of the meeting	30
8.3	Donna Matthews’ Questions submitted in advance of the meeting.....	31
8.4	Participant Questions.....	31
9	Threatened and Endangered Species Study.....	34
9.1	FERC’s questions submitted in advance of the meeting.....	34
9.2	Alabama Rivers Alliance’s Questions submitted in advance of the meeting	38
9.3	Participant Questions.....	38
10	Downstream Aquatic Habitat Study	40
10.1	Participant Questions	40
11	Aquatic Resources Study.....	41
11.1	Participant Questions.....	41
12	Next Steps In the ILP.....	42

APPENDICES

Appendix A ISR Meeting Participants

Appendix B ISR Meeting Presentation

1 OVERVIEW

Angie Anderegg (Alabama Power) opened the Harris Project (FERC No. 2628) (Project) Initial Study Report (ISR) meeting and reviewed the ISR meeting purpose. Angie conducted a roll call, reviewed phone etiquette, and presented a safety moment. A list of participants is included in Appendix A¹. Alabama Power presented information on the progress of each study, which included applicable study results, requested variances, and any additional studies or requested study modifications. The ISR presentation was made available to all participants on the Harris Relicensing website (www.harrisrelicensing.com) prior to the meeting and is included in this report as Appendix B.

In this ISR Meeting Summary, Alabama Power presents the questions and comments that were provided prior to and during the ISR meeting². Each question or comment is followed by Alabama Power's responses and discussion in **bold** text. FERC staff as well as three stakeholders submitted written questions/comments in advance of the ISR meeting via email. Where appropriate, Alabama Power provides a full response. However, many responses to the questions will be addressed in the applicable Final Study Reports and in additional analyses (Phase 2) to be conducted in 2020/2021.

FERC staff raised three general questions in its April 27, 2020 email to Alabama Power. Alabama Power's responses to FERC's general questions are provided below.

1.1 FERC's Questions submitted in advance of the meeting

- Q1 - Comments on all the studies should be filed with the Commission by 6/11/20, as stated in the cover letter of the ISR, and not (solely) sent directly to Alabama Power via email, as stated in the cover letters of the Draft Downstream Release Alternatives Phase 1 Report, Draft Operating Curve Change Feasibility Analysis Phase 1 Report, Draft Erosion and Sedimentation Study Report, Draft Water Quality Study Report, Draft T&E Species Assessment, Draft Phase 1 Project Lands Evaluation Study Report, and the Traditional Cultural Properties Identification Plan and Inadvertent Discovery Plan.

Alabama Power emphasized that all stakeholders should file comments with FERC on the Harris Project (P-2628-065) on or before June 11, 2020. Alabama Power also noted that if any stakeholder has a question about filing comments with FERC, they could email those questions to harrisrelicensing@southernco.com.

- Q2 - Several of the studies reference the use of Geographic Information System (GIS) data. To facilitate stakeholder review and analysis of the study results it would be helpful if all GIS data collected or developed as part of the studies is filed with the study reports.

¹ Because this meeting was conducted over Skype, there may be participants who joined after the roll call and are not listed in Appendix A.

² These notes summarize the major items discussed during the meeting and are not intended to be a transcript or analysis of the meeting.

Alabama Power will file GIS data, as applicable, with the Final Study reports.

- Q3 - Please describe whether you have experienced or anticipate any delays to studies as a result of COVID-19 related closures or social distancing measures.

Alabama Power has experienced delays conducting field work and meeting with the Harris Action Teams (HATs) due to COVID-19 closures and restrictions. Alabama Power anticipates that it may be months before HATs can meet in person. However, meetings can still occur using teleconferencing.

2 CULTURAL RESOURCES PROGRAMMATIC AGREEMENT AND HISTORIC PROPERTIES MANAGEMENT PLAN STUDY

Amanda Fleming (Kleinschmidt) presented the Cultural Resources documents that were filed with the ISR: the Inadvertent Discovery Plan (IDP) and the Traditional Cultural Properties (TCP) Identification Plan. Amanda reviewed the study purpose, data collection to date, initial results, and a variance request to file the Area of Potential Effects (APE) in June 2020.

2.1 FERC's Questions submitted in advance of the meeting

- Q1 - Staff recommend changing the term “historic properties” to “cultural resources” because at the time a previously-undocumented resource is discovered, it has not been assessed for eligibility for the National Register of Historic Places, and cannot, by definition, be considered a “historic property” until its eligibility is determined.

Alabama Power will make adjustments to the term “historic properties” and will include both the Inadvertent Discovery Plan (IDP) and Traditional Cultural Properties (TCP) Identification Plan as appendices to the Historic Properties Management Plan (HPMP).

- Q2 - Item 2.3.1(b) seems to indicate that at some point after discovery, an evaluation of eligibility for a newly discovered cultural resource will occur. The process for determining National Register-eligibility should be outlined in the plan.

Alabama Power will add this process to the IDP. The National Register-eligibility process will also be addressed in the Historic Properties Management Plan (HPMP) being developed by Alabama Power.

- Q3 - Rachel McNamara asked about defining the area of potential effects (APE) and the possibility of extending the APE downstream. Rachel stated there is a need for more discussion.

Alabama Power noted that it intends to schedule a Harris Action Team (HAT) 6 meeting in May to further discuss the APE.

2.2 Carol Knight's Questions submitted in advance of the meeting

- Q4 - How far down river from the dam does Alabama Power have responsibility for the river?

Alabama Power's responsibility downstream of Harris dam is the Harris Project Boundary below the dam.

- Q5 - How far up each side of the bank does Alabama Power have below the dam?

The State of Alabama owns the river channel, and the riverbanks are private property.

- Q6 - How do they (Alabama Power) enforce their responsibilities?

Alabama Power follows all guidelines and regulations for lands and waters within the Harris Project Boundary.

- Q7 - Are they [Alabama Power] aware of archaeological sites that are endangered below the dam? That each time they open the flood gates, erosion occurs washing away cultural remains?

Alabama Power is reviewing potential effects of Harris Project operations on cultural resources downstream of the dam in the Tallapoosa River. However, Alabama Power cannot enforce preservation policies on private lands. If a landowner encounters a burial site, they should report it immediately to the State Historic Preservation Officer (SHPO)/Alabama Historical Commission (AHC). The SHPO or AHC can provide additional details on regulations and authority regarding archaeological properties or cultural remains.

- Q8 - Are they [Alabama Power] aware of the destruction of the fish weirs down river?

Alabama Power is reviewing potential effects of Harris Project operations on cultural resources downstream of the dam in the Tallapoosa River. In addition, Alabama Power may work with stakeholders to develop best management practices related to cultural resources.

2.3 Participant Questions

- Q9 - Elizabeth Toombs (Cherokee Nation) – Do the HPMP, TCP Identification Plan, and IDP documents apply to the Skyline portion of the Project or is this limited to the reservoir?

Yes, all of the cultural resources documents and procedures apply to all lands within the Harris Project Boundary.

3 RECREATION EVALUATION STUDY

Amanda Fleming (Kleinschmidt) presented the Recreation Evaluation Study progress. Amanda reviewed the study purpose, data collection to date, initial results, and a variance request to file the draft Recreation Evaluation Study Report in August 2020 instead of June 2020.

3.1 Donna Matthews' Questions submitted in advance of the meeting

- Q1 - Increased downstream, Alabama Power managed, public access. An impediment to public use of the river to swim, fish or float is lack of access. What plans are underway to correct this omission?

Alabama Power is evaluating downstream use as part of the recreation study, and any additional access needs will be discussed with HAT 5 and addressed in the licensing proposal.

- Q2 - Safety from Rapid Water Level Rises. Over the last 40 years, even locals have been dissuaded from using their river because of erratic and dramatic variations in water levels. Completely aside from the issue of how unnaturally the river is distended from pre-dam normals on an hour by hour basis remains the unaddressed danger to humans recreating in/on the river during episodes of rapid water level rise. The potential threat is created by water release at the dam. APC must alert downstream subscribers of planned and imminent water release. Current cell phone technology is well suited to send safety alerts.

Alabama Power is evaluating downstream flows and recreation use as part of the recreation evaluation study as well as gathering information/input from public access sites, downstream landowners, and Tallapoosa River users.

Alabama Power uses the Smart Lakes App and the Alabama Power website to inform stakeholders of water releases. There are times, however, that system demands require a change in the generation schedule. Prior to any generation releases, Alabama Power sounds a notification siren. The generating units will not load unless the siren activates.

3.2 Participant Questions

- Q3 - Ken Wills (Alabama Glade Conservation Coalition) - Why was the operating schedule reduced for Flat Rock and will the operating schedule be modified in 2020 due to COVID-19?

The operating schedule in August 2019 was condensed based on low attendance. Last year's schedule is not indicative of the 2020 summer schedule. Currently, no changes from the normal operating schedule are proposed, and the goal is to open

by Memorial Day. Alabama Power will follow all state and federal guidelines related to COVID-19.

- Q4 - Several questions and comments were raised by participants about flood control operations and water releases downstream.

Alabama Power addresses operational questions in Section 6 of this meeting summary.

- Q5 - Keith Henderson, Alabama Department of Conservation and Natural Resources (ADCNR) - Why did the Lake Harris questionnaires start in May 2019 (rather than March 2019) and what were the four survey questions?

In its April 2019 Study Plan Determination, FERC requested that Alabama Power add the Lake Harris questionnaire. Therefore, Alabama Power started those surveys in May 2019. The study questions are listed in Appendix C to the Recreation Evaluation Study Plan, which can be found at www.harrisrelicensing.com.

4 PROJECT LANDS EVALUATION STUDY

Kelly Schaeffer (Kleinschmidt) presented the Project Lands Phase 1 Evaluation Study Report progress. Kelly reviewed the study purpose and data collection to date, which included the development of maps showing Alabama Power's proposal to add, remove, or modify lands in the Project Boundary. Kelly also reviewed the remaining activities in this study, which include the use of other relicensing studies to develop the Phase 2 Wildlife Management Program (WMP) and the Shoreline Management Plan (SMP). Kelly noted that no variances to this study plan are requested. Alabama Power distributed the Draft Phase 1 Project Lands Evaluation Report to stakeholders in April 2020, concurrently with filing the ISR.

4.1 FERC's Questions submitted in advance of the meeting

- Q1 - On page 9, the proposed definition for the "Recreation" classification includes a reference to permitting processes for various types of recreations activities. Will the permitting processes be updated as part of the revised Shoreline Management Plan (SMP)?

Alabama Power will review the existing permitting processes during development of the SMP and determine if any updates are needed.

- Q2 - On page 9, the proposed definition of the "Hunting" classification includes a reference to the existing Harris Project Wildlife Mitigation Plan. How do you envision the existing Project Wildlife Mitigation Plan relating to the proposed Wildlife Management Plan that is to be developed as part of Phase 2 of the Lands Evaluation?

Any existing information (i.e., the existing Wildlife Mitigation Plan) will be reviewed to determine if any portion of the plan might apply to the new WMP, which would be implemented in the next license term.

- Q3 - On page 9, the proposed definition of the "Natural/Undeveloped" classification mentions that one of the allowable uses would be "normal forestry management practices." Please clarify what these practices would include.

All forestry practices that would be allowable in the Natural/Undeveloped land use classification will be included in the WMP, which will be filed with the final license proposal.

- Q4 - Rachel McNamara (FERC) - Some lands classified as "Recreation" are proposed to be changed to "Natural/Undeveloped". She noted that it may be helpful in the final report for Alabama Power to be very clear about the project purpose in retaining those lands rather than removing from the project boundary.

Alabama Power intends to clearly state the project purpose of all lands proposed to be reclassified in the Final Licensing Proposal.

- Q5 - On page 10, there are descriptions of two new proposed land use classifications, including "Flood Storage" which would include lands between the 793 ft and 795 ft msl

contours, and “Scenic Buffer Zone” which would include lands between the 795 ft and 800 ft msl contours. Would these classifications overlap with other land use classifications? Also, are there any buildings/structures currently within these elevation bands around Lake Harris?

The land use classifications will not overlap. In areas where the lands above the 800 ft msl contour (i.e. “back acreage”) are project lands, the project lands below the 800 ft msl contour would be classified to match the back acreage. In areas where the lands above the 800 ft msl contour are non-project lands, the lands below the 800 ft msl contour would consist of these two classifications. However, the classifications would not overlap but would be adjacent (one band in front of the other). Alabama Power could not confirm at the meeting whether any buildings or structures currently exist within those contours, but current permitting practices allow property owners to build piers, etc. in these bands.

- Q6 - Page 11 discusses the results of the desktop evaluation and site visit to identify any suitable bobwhite quail habitat within the project boundary at Skyline WMA. Could you elaborate on the methods for evaluating the availability of bobwhite quail habitat and how it was determined that no suitable habitat occurred within the project boundary at Skyline WMA? Also, could the report include a figure showing a map of the 7 locations in the Skyline WMA where Alabama DCNR conducts spring/fall quail call surveys, and has documented quail, relative to the project boundary at Skyline WMA?

The Final Phase 1 Project Lands Evaluation Report will contain detailed methods for the evaluation of suitable bobwhite quail habitat at Skyline. Alabama Power will also include a figure showing the ADCNR’s quail call survey locations.

- Q7 - Appendix B provides maps and general descriptions of proposed changes in land use classifications at Lake Harris that were also discussed during the 9/11/19 HAT 4 meeting. It would be helpful if the maps of the proposed changes in land use classifications included legends to identify the various classifications, as well as north arrows and scale bars to facilitate orientation and review.

Alabama Power will add a legend, north arrows, and a scale bar to the final maps in the Final Phase 1 Project Lands Evaluation Report.

- Q8 - In addition, during the 9/11/19 HAT 4 meeting, we (FERC staff) asked if terrestrial and cultural resource surveys were being conducted on lands proposed for removal from the project boundary and Alabama Power staff responded that they were. Could you provide descriptions of the terrestrial and riparian habitat types for areas that you are proposing to remove from the project boundary. Could you also describe the terrestrial and riparian habitat types for area “RC4” that you propose to reclassify from “Recreation” to “Commercial Recreation”? Do these areas contain suitable habitat for any of the T&E species that may occur at the Harris Lake portion of the project? What were the results of the cultural resource surveys for areas proposed to be removed from the project boundary?

Many other resource studies are being conducted concurrently with the development of the Project lands proposal. Alabama Power intends to use information from other relicensing studies to inform the final decision on the Project lands proposal, which will be included in the final licensing proposal. Additionally, Alabama Power will include within its final licensing proposal descriptions of the terrestrial and riparian habitat types for all areas proposed to be removed from the Project as well as the area “RC4” proposed to be reclassified to “Commercial Recreation”.

- Q9 - Sarah Salazar (FERC) - Alabama Power needs to be sure to get information on the record so that FERC can use that information to inform their decision on the project related effects. The Final Phase 1 Project Lands Evaluation should explain the rationale for adding, removing or reclassifying lands in the Project Boundary. Also, it would be helpful if the map of area A6 included the existing birding trail and the proposed extension of the trail.

The project purpose for the lands to be removed, added, or reclassified will be included in the final licensing proposal. Alabama Power will also add the birding trail and trail extension on the respective map as included in the Final Phase 1 Project Lands Evaluation Report.

- Q10 - Appendix C provides the Anniston Museum of Natural History’s Flat Rock Botanical Inventory (inventory) report and the consultation record includes the Anniston Museum of Natural History’s letter transmitting the report, Ken Wills’ (Coordinator of the Alabama Glade Conservation Coalition) emails, along with several additional observations and recommendations from them.

Approximately 365 plant species, including some rare species were documented at the site during the botanical inventory. The surveyors, Ken Wills, and FERC staff observed damages caused by vehicles traversing the site (SUV observed by surveyors; ATVs tire marks on granite outcrops observed by Ken Wills and FERC staff during scoping/environmental site review). The consultation record for this study includes recommendations from Anniston Museum of Natural History and Ken Wills’ to manage/preserve/restore the site. The proposed definition of the “Natural/Undeveloped” classification, proposed for the rare plant site, does not indicate what types of recreation activities/vehicle access would be prohibited or how Alabama Power would manage such a site. Considering all of this, do you think that Alabama Power’s proposed definition of “Natural/Undeveloped” would be effective in protecting this site? Could the definition of this classification be expanded/more detailed, or would you consider another, more protective land use classification type/designation for this site?

Also, what has Alabama Power done to protect the rare plants that were identified during the inventory and were subsequently damaged by ongoing ATV use observed by Ken Wills? Can vehicles be excluded from these sensitive areas to protect rare plants while the relicensing process proceeds?

Alabama Power noted that that it has SMPs for its other projects that contain different classifications because of unique areas and circumstances. Therefore, the Natural/Undeveloped land use classification may need to be modified to address the rare plants at Flat Rock Park. Alabama Power will work with the HAT on reviewing the classifications and their definitions.

Sheila Smith (Alabama Power) noted that Alabama Power has been working with a contractor to barricade the area to prevent vehicle traffic. The barricade work has been completed. Alabama Power plans to continue monitoring the site to discourage vehicle and all-terrain vehicle (ATV) access.

- Q11 - Sarah Salazar (FERC) asked if the area also gets a lot of mountain bike use?

Ken Wills (AGCA) noted that vehicles are the primary issue in that area and that mountain biking would not likely cause the effects they are seeing. He also noted that in the rural areas, ATVs were much more common.

- Q12 - Has the request from Randolph County regarding the proposed water treatment intake/plant been resolved/processed?

Alabama Power is working with Randolph County to find an acceptable site that is similar to their original request. Alabama Power intends to file a land use variance request with FERC's Division of Hydropower Administration and Compliance, and, therefore, this request would not be a part of the relicensing process.

4.2 Participant Questions

- Q13 - Maria Clarke (EPA): It was my understanding there was a court case that involved Skyline Property. What happened? Why was the Skyline property reduced? Is this case closed?

Alabama Power filed an application with FERC to amend its current Harris Project Boundary at Skyline (Accession No. 20200302-5424), which would add 13.1 acres of land and remove 62.2 acres of land, all within the approximately 15,063 acres of the Harris Project Boundary at Skyline.

5 OPERATING CURVE CHANGE FEASIBILITY ANALYSIS STUDY

Kelly Schaeffer (Kleinschmidt) presented the Operating Curve Change Feasibility Analysis Phase 1 Report progress. Kelly reviewed the study purpose and data collected to date, which included the development of models and the initial modeling results. Kelly also reviewed the remaining activities for this study, including the use of other relicensing studies to conduct the Phase 2 analyses. Kelly noted that no variances to this study plan are requested. Alabama Power distributed the Draft Operating Curve Change Feasibility Analysis Phase 1 Report to stakeholders in April 2020, concurrently with filing the ISR.

5.1 FERC's Questions submitted in advance of the meeting

- Q1 - As we understand it, downstream effects with regard to flooding were assessed for a 100-year design flood. However, the relationship between the downstream flow alternative analysis and the Harris Reservoir winter flood pool analysis is not clear under alternative flood scenarios. What would happen in a scenario other than a 100-year flood? Would operations at Harris Dam under the alternative flood scenario, including different flow release scenarios, have any impact on the Harris Reservoir winter pool analysis, or vice versa?

The “100-year flood” scenario used for modeling is based on an actual local storm event in the Tallapoosa River basin that is scaled up to equal a 100-year flood event. Other flood flow scenarios would likely have downstream flooding effects but at a smaller amount and duration. Alabama Power evaluated the effects of the 100-year flood, because FEMA uses the 100-year flood for its analysis and is the “gold standard”. This is also consistent with modeling efforts that Alabama Power has conducted in previous relicensing processes. Kenneth Odom (Alabama Power) explained that if a 50-year flood scenario is used, there will still be downstream flooding. It will just result in less of an impact than the 100-year scenario. If Alabama Power used a 25-year flood, there would be fewer impacts than the 50-year flood scenario. Ultimately, reducing the flood frequency interval reduces the total amount of flow. However, there is no way to determine the differences in the total amount of flow downstream without modeling.

- Q2 - Table 5-2, page 51 of the report...What is it about RM 115.7 that appears to create a hydraulic control, such that the maximum increase in depth under any winter pool elevation scenario occur about mid-way down the Tallapoosa River?

The surveyed bathymetric transects of the river indicate that the channel bottom rises at RM 113.63 and RM 114.5, constricting the channel area and creating a hydraulic control. Examination of aerial imagery shows what appears to be a shoal across the river at RM 114.5 and a shoal and island complex at RM 113.63.

- Q3 - Figures 5-20 and 5-21 appear incomplete, as they only show the results for one alternative...baseline (? based on color). Please address this apparent omission.

These figures are complete. However, Alabama Power will review them to determine if the information can be presented with more clarity. The Y axis shows the different winter curve change alternative elevations (+1 is 786 ft, +2 is 787 ft, etc.). For example, at the 786 ft msl winter pool elevation, there are 12 additional days of spill over baseline. Figure 5-21 is similar but includes the additional days of capacity operations for each alternative.

5.2 Participant Questions

- Q4 - Jimmy Traylor, Donna Matthews, and Albert Eiland (Downstream Landowners) expressed concern regarding how Alabama Power is operating the Harris Project, particularly during high flow events. All expressed that flood control has been worse since the dam has been in place. There were specific comments regarding various dates where flow conditions were a concern including February 6, 11, and 13, 2020. There were also questions regarding operations and use of flood gates on April 9, 2020. This discussion on operations during high flow events transitioned to comments and questions on the efficiency of the turbines at Harris and whether Alabama Power ever evaluated the efficiency of the turbines. Does raising the winter pool help with the generation efficiency, or are there any studies ongoing to improve the efficiency of generation for the dam? What about the dam turbines or equipment upgrades?

Alabama Power operates Harris in accordance with U.S. Army Corps of Engineers flood control procedures provided in the Harris Reservoir Regulation Manual. Alabama Power follows these procedures and cannot evacuate water in anticipation of a high flow event. Kenneth Odom (Alabama Power) explained that raising the winter pool to the levels being evaluated in this study does not appreciably affect the efficiency of generation. Turbine or powerhouse equipment upgrades have a much greater impact on efficiency. However, the order of magnitude for total generation capacity for Harris would remain the same regardless of any equipment upgrades. Kenneth noted that the efficiency of the turbines is addressed during a turbine upgrade, which typically occurs at the end of the useful life of the turbine. There are no planned turbine upgrades during this relicensing.

Additionally, Kenneth Odom reviewed the reservoir levels that were raised by a stakeholder earlier in the meeting. He noted that on February 6, 2020, the reservoir level was 785 ft msl. A large rain event had occurred, and both units were generating at best gate. The reservoir's elevation rose to 790 ft msl (5 feet above winter curve) on February 11, 2020 and both units began operating at full gate. The reservoir continued to rise. On February 13, 2020, the Harris reservoir was 6.5 feet above the winter curve elevation of 785 ft msl. In accordance with Harris flood control procedures, Alabama Power opened flood gates. Kenneth further confirmed that Alabama Power was not using any flood gates to pass water downstream of Harris Dam on April 9, 2020.

- Q5 - Donna Matthews (Downstream Landowner): Is the public ever involved in discussions regarding turbine or equipment upgrades; why not consider using the HEC-RAS modeling to redesign the turbines? Could you find the optimal solution to turbine

design and flow scenarios to solve those issues? How do we know what to ask for if all the possible solutions aren't offered for us to consider?

Angie Anderegg (Alabama Power) stated that the public is not usually involved with discussions on equipment upgrades. She noted that there seemed to be confusion between the turbine design/efficiency versus the downstream flow scenarios. The two existing turbines have a specific capacity and generate a finite number of megawatts with the amount of water that passes through them, which is inherent in the design of the turbines. When it is time to upgrade, Alabama Power desires to achieve more power with less water, creating an increase in efficiency. It is not possible to completely redesign the turbines, because the Harris Project was originally designed to generate a certain number of megawatts using a certain amount of water at specific times (i.e., peak) to support system operations. Angie gave an example of the system peak that happens during a hot summer afternoon and how hydropower is used to meet the system demand. As part of the downstream release alternatives study, the benefit or impact of providing a continuous minimum flow are being analyzed (a continuous minimum flow would also ideally produce power). Angie reiterated that the results from this study, as well as the other studies, will be analyzed together to develop the best proposal.

Kenneth Odom (Alabama Power) added that a redesign of the turbines or new "runners" would focus on improving the efficiency but deliver the same general number of megawatts.

FERC staff stated that, if a licensee determines that upgrades are necessary, it must file a license amendment application with FERC. She explained that license amendment applications are subject to the NEPA process, and depending on the potential for environmental effects, FERC would issue a public notice and solicit public input.

- Q6 - Donna Matthews: Who controls the amount of number of megawatts generated? What if the number of megawatts is too much for the river? Why can't you change it?

The number of megawatts that a project is authorized to generate is set by FERC, as described in the original license order. Changing the generating capacity would affect the energy grid beyond Harris, because Alabama Power is required to supply a certain amount of power across the entire system. There is a reliability factor from the Harris Project that supports the entire power grid.

- Q7 - Question from Instant Messenger, Martha Hunter (Alabama Rivers Alliance): Wasn't there a turbine upgrade a few years ago?

No, a turbine upgrade has not been completed at the Harris Project.

- Q8 - James Hathorn (USACE): How were the intervening flows considered in the Harris model?

The intervening flow hydrograph for the contributions to the Tallapoosa River from the drainage area between Harris and Wadley was calculated by Alabama Power, as described in Section 4.4 of the study report. The hydrograph was included in the model as a uniform lateral hydrograph entering the river between RM 136.6 and 122.97. Kleinschmidt developed an intervening flow hydrograph for the contributions to the river from the drainage area between Wadley and Horseshoe Bend by comparing the daily flood hydrographs from the Wadley and Horseshoe Bend gages for the March 1990 event. A comparison of the daily average flow hydrographs gages showed a similar shape for both gages. The hourly hydrograph for the Wadley intervening flow, calculated by Alabama Power, was adjusted by multiplying each hourly ordinate of the hydrograph by a ratio of the Horseshoe Bend to Wadley gages. The data was then adjusted to subtract out the flow from the Wadley gage so that the lateral inflow was only equal to the flow intervening between the two gages. The hydrograph was included as a uniform lateral inflow between RM 122.97 and RM 93.66. The development of the hydrograph is described in Section 4.5.3 of the report.

- Q9 - James Hathorn: What types of structures will be analyzed in the phase 2 structure study? Will there be any crop/farmland analysis?

Alabama Power has not conducted a full economic analysis of each structure, land type, or property type. Crop or farmland analysis is not currently in the FERC-approved methodology.

- Q10- James Hathorn: For the HEC-RAS modeling, it only uses a 100-year design flood, or different types of storms?

Alabama Power has not proposed to model other storm events. However, if FERC needs this information for its analysis, Alabama Power can model other storm events.

Angie Anderegg (Alabama Power) explained that the 100-year flood has been used as the standard by FEMA. To move forward with other flood scenarios, Alabama Power will need to know exactly which additional floods need to be modeled.

Sarah Salazar (FERC) reiterated that the process is in the information gathering stage, and no decisions are being made right now. However, we do want to know all of the alternatives that are possible moving forward in order to make the best decision later. She encouraged all stakeholders to file comments on or before June 11, 2020.

- Q11 - Alan Creamer (FERC) - Regarding the flood design, what would the downstream flows look like using a 50-year or 25-year flood scenario? I know the worst-case scenario is the 100-year flood. I'm wondering if it would present as a straight line, or a curve in terms of how it presents downstream? Maybe the 100-year flood isn't the end-all.

Kelly Schaeffer (Kleinschmidt) asked if FERC was requesting that Alabama Power add specific flood events other than the 100-year flood to the study plan (the 25 and 50-year flood scenarios).

Alan Creamer (FERC) answered that he thought it would be helpful to see how the flows would work under different scenarios.

Kelly Schaeffer responded that if there are additional modeling requests, Alabama Power would need to know those scenarios as soon as possible to avoid getting to December 2020 (after completing the majority of the Phase 2 analysis) and have to re-run the model for additional flood events and revisit the Phase 2 analyses.

Kenneth Odom (Alabama Power) explained that the “100-year flood” scenario that Alabama Power uses for modeling is based on a local storm event in the Tallapoosa River basin, but it is scaled up to equal a 100-year flood event. If it is a 50-year flood scenario, downstream flooding will still occur. It is just less impact than the 100-year scenario. If Alabama Power used a 25-year flood, there would be fewer impacts than the 50-year flood scenario. FEMA bases its flood maps on the 100-year flood. Other storms can be examined, but ultimately, reducing the flood frequency interval reduces the total amount of flow. However, there is no way to determine what the differences would be in the total amount of flow downstream without modeling.

Angie Anderegg (Alabama Power) commented that Alabama Power’s intent is to use the 100-year flood to determine whether it will propose a lake level change.

- Q12 - Regarding the 100-year flood, are they taking climate change into account when they’re looking at these scenarios? Martha Hunter also added that along with additional rains we are seeing we need to anticipate the different droughts that are coming and wants that to be part of the decision for how the river is operated in the next 50 years.

Alan Creamer (FERC) stated that he did not recall that climate change was part of the study design or approved study plan.

- Q13 - Maria Clark (EPA) noted that that the EPA, U.S. Geological Survey, and FEMA have been working together to address data shortfalls on climate information. She noted that the 100-year event may not be appropriate at this point or if Alabama Power does use the 100-year, they should also supplement with local events. Maria plans to pass along this information from EPA.

Kelly Schaeffer (Kleinschmidt) asked if Maria could include that information or provide a reference in its comments on the ISR. Kenneth Odom (Alabama Power) also noted that the 100-year design flood used in the Harris modeling was based on an actual storm event that was scaled up to equal a 100-year event.

- Q14 – Charles Denman via email following the meeting: I believe a comparison of historical (pre-dam) and recent flooding downstream of the dam would help stakeholders understand the effectiveness of the Dam for flood control. Also include a model with

same parameters (land use, storm intensity and duration, etc.) but without the dam attenuation. This would help downstream stakeholders understand what effects the Dam has on flooding downstream. Are the original studies and permitting materials available for stakeholders to review?

The Harris Project, as it exists today, is considered baseline with regard to FERC analyses and is used in FERC's decision whether to issue a new operating license and under what conditions. Alabama Power structured this study to review and analyze flood conditions with the Harris Dam in place, consistent with FERC's guidance on existing projects and the evaluation of pre-project conditions. FERC approved this study plan in April 2019. All Harris Relicensing study plans, meeting documentation, and other permitting materials are available to stakeholders at www.harrisrelicensing.com. These documents may also be provided upon request if needed.

6 DOWNSTREAM RELEASE ALTERNATIVES STUDY

Kelly Schaeffer (Kleinschmidt) presented the Draft Downstream Release Alternatives Phase 1 Study Report progress. Kelly reviewed the study purpose and the data collected to date, which included the development of models and initial modeling results. Kelly also reviewed the remaining activities for this study, including the use of other relicensing studies to conduct the Phase 2 analyses. Kelly noted that no variances to this study plan are requested. Alabama Power distributed the Draft Downstream Release Alternatives Phase 1 Report to stakeholders in April 2020, concurrently with filing the ISR.

6.1 FERC's Questions submitted in advance of the meeting

- Q1 - Modeling scenarios...as it stands now, the report presents the results for three downstream release alternatives: Pre-Green Plan operation, Green Plan operation, and Pre-Green Plan operation with a 150 cfs continuous minimum flow. Why was modelling of minimum flow limited to 150 cfs? Also, have you considered modeling Green Plan releases with continuous minimum flow scenarios? On what basis did you choose not to do so?

Alabama Power proposed these three modeling scenarios for downstream releases in the study plan. These scenarios have been discussed for at least 18 months with stakeholders and were developed in the study plan process and approved by FERC in its April 12, 2019 Study Plan Determination.

6.2 Alabama Rivers Alliance's Questions submitted in advance of the meeting

- Q2 - Why is the only continuous minimum flow regime being studied a 150 cfs flow? Why was this particular value chosen? Previous commenters have encouraged the study of a wide variety of flow conditions and operational scenarios. Does Alabama Power plan to study a broader range of continuous minimum flows?

As noted above, the various flow scenarios were determined in the development of the study plan. The 150 cfs minimum flow is equal to the same daily volume as three 10-minute Green Plan pulses. If stakeholders desire additional flow conditions and operational scenarios, they need to request additional modeling per the FERC study plan modification process. Kelly Schaeffer (Kleinschmidt) explained that the modeling is resource intensive and while the HEC-RAS model is built and functioning, the process to review other flow scenarios is resource intensive.

- Q3 - The study report states that with full power storage available, Harris is programmed to generate 3.84 hours per day. Is all of that peaking generation, or is some percentage of the programmed operation for non-peaking generation?

Yes, that number is in the daily Res-SIM model. It is really an average of all the plants in Alabama Power's system at full pool. That number is not connected to peaking operations.

- Q4 - In the Green Plan Release Criteria attached as Exhibit B, item 4 concerns Spawning Windows and states that “Spring and Fall spawning windows will be scheduled as conditions permit. The operational criteria during spawning windows will supersede the above criteria.” Can you elaborate on when “conditions permit” for scheduling spawning windows?

It is dependent on where the reservoir elevation is in relation to its rule curve and what flows are coming into the reservoir to provide stable operations. Keith Chandler (Alabama Power) gave an example: Alabama Power tried to hold a spawning window and only ran 10-minute pulses to see what it would do downstream. By going by the criteria (three 10-minute pulses) Alabama Power wanted to see if it would create a spawning window for the downstream fishery.

- Q5 - Jack West (Alabama Rivers Alliance) asked if Alabama Power had data that permitted for the spawning windows.

There is some data. Alabama Power’s Reservoir Management group has summaries of each year, and the effort in the most recent year is summarized in the baseline report included with the Pre-Application Document (PAD). A portion of this analysis is being done as part of the aquatic resources study and will be detailed in the Draft Aquatic Resources Report.

6.3 Participant Questions

- Q6 - Lisa Gordon (EPA) asked if she could be directed to the 3 downstream release alternative scenarios to find the document where the analysis occurred to model 150 cfs continuous minimum flow. So continuous minimum flow means there is no pulsing?

Correct; there will not be pulsing with a continuous minimum flow. The flow scenarios are documented in the meeting summaries from December 2018, as well as meetings and filings in 2019 prior to the FERC Study Plan Determination (April 12, 2019). Angie Anderegg (Alabama Power) noted that all the meeting summaries and presentations (from PAD to present) are available on the Harris relicensing website.

- Q7 - Lisa Gordon asked if flows would be adaptively managed. Would these be set, locked in flows, or would there be modified flows when needed?

Alabama Power is evaluating a continuous minimum flow with no variations or modifications; however, Alabama Power is currently in the data gathering and analysis phase. With this information, a decision about flows can be made. What Alabama Power has been doing in the years leading up to relicensing is an adaptive management process. Alabama Power also has another project that flows are being adaptively managed in a bypassed reach.

- Q8 - Sarah Salazar recalls during the study plan meeting that we discussed alternatives and the stakeholders generally didn’t feel comfortable proposing alternatives at that point but said they would once they saw results from the three modeled scenarios included in

Alabama Power's study plan. The information gathering stage does not last forever so now is the time to propose other flow scenarios for modeling. Alabama Power needs those flow scenarios now.

- Q9 - Alan Creamer (FERC) said he agreed with Sarah's summary. Alan would like to see an operating scenario that includes the Green Plan with minimum flows. Alan acknowledged that the fisheries studies have not been completed, so stakeholders do not currently have that information. Once all the studies are complete and reports are available, Alan noted that there should be another opportunity for stakeholders to revisit phase 1 in terms of modeling and not simply go to phase 2 once all the information is presented to stakeholders. Also, what does the 150 cfs represent in terms of percentage of average annual flow? Where does it fall on flow duration curve?

Alabama Power is in the process of getting that additional information by conducting the FERC approved studies. However, Alabama Power needs to hear from stakeholders now—based on the extensive amount of data currently available on the project—regarding alternative flow scenarios. Any additional scenarios are needed now. Once the phase 2 portions of the operations studies begin, any need to come back to modeling various flow scenarios may result in delays and an incomplete application, which is not acceptable to Alabama Power. There is a lot of data on the Harris Project that has been compiled and presented, and Alabama Power wants stakeholders to meet halfway with regard to putting forward additional flow alternatives to analyze.

- Q10 - Alan Creamer agreed but also reiterated that he doesn't believe we have complete information and that stakeholders should have the opportunity to modify the study plan after receiving and reviewing the study results. Alan noted that there are three studies that are not complete, and FERC and Alabama Power will have to work through this issue so that there is an additional opportunity. Normally at an ISR, Alan stated that all the first-year studies are done. In this case, there are still outstanding studies. He indicated that he doesn't think there is adequate information for stakeholders to make suggestions on alternative flow scenarios.

The due dates in the studies were approved by FERC. Alabama Power and FERC discussed the draft study reports that were not scheduled to be included in the ISR and discussed the two studies for which Alabama Power is requesting a variance. Angie Anderegg (Alabama Power) noted that the Recreation Evaluation Draft Report is delayed, because Alabama Power incorporated a stakeholder request for an additional survey, which was just completed in April. However, the original due date approved by FERC for the Draft Recreation Evaluation Report was June 2020. Alabama Power stated that there are some reports that were not scheduled to be filed as part of the ISR. The ILP may anticipate that studies will be completed in one year and reports filed as part of the ISR, but that is not a requirement of the ILP or the ISR.

- Q11 - Sarah said that in Alabama Power's proposed and revised study plan that the schedule listed the ISR as a milestone and FERC interpreted that to mean that all the first

phases of the study would be complete by then. Any other milestone that went beyond that phase would be a follow up of that report. FERC sets up the study seasons for one year. There are usually two study seasons in each ILP, and she noted that perhaps this accounts for the disparity between FERC and Alabama Power's understanding of where we should be at this moment. Maybe we need to have another discussion.

Six study reports are available for review and comment. If there is disagreement after stakeholder review and comment of the remaining three reports and cultural documents, Alabama Power would enlist FERC for a dispute resolution. Alabama Power desires that everyone has the opportunity to comment on these study reports. Angie Anderegg (Alabama Power) referred to the study schedule and noted that Alabama Power has met the ILP obligations and, where necessary, Alabama Power has asked for a variance on two studies (Recreation and Cultural APE document).

- Q12 - Rachel McNamara agreed with Alabama Power's characterization of the Recreation Evaluation and understood the rationale for modifying the schedule. For the Recreation Evaluation Draft Report, Rachel emphasized that there's need for adequate time for stakeholders to comment on the draft report and that all comments be filed with FERC. There are ways we [FERC] can handle the comment period and I think FERC staff needs to discuss that and figure out the best strategy to address comments and study plan modifications.

Angie Anderegg (Alabama Power) assured the participants that they would have ample time to comment on the remaining draft study reports (Recreation, Aquatic Resources, Downstream Aquatic Habitat, and the Cultural APE document).

- Q13 - Jimmy Traylor raised the issue of the downstream temperature and the relationship with the minimum flow. He noted that the Tallapoosa River below Harris Dam is not supposed to be a cold-water fishery. If Alabama Power is going to release a 150 cfs continuous minimum flow, it has to be at a temperature that more like that of a warm water fishery.

Angie Anderegg (Alabama Power) indicated that temperature would be addressed in the aquatic resources' studies (HAT 3) and requested that this question be addressed later in the meeting.

- Q14 - Barry Morris (LWPOA) asked if he was right in assuming these alternative releases would have no impacts on the lake level. Barry asked if 150 cfs was equivalent to the Green Plan flow, would it be twice as much water?

Based on the model, a 150 cfs minimum flow would not affect the lake level. However, a larger continuous minimum flow could impact lake levels. Regarding the amount of water, Kenneth Odom (Alabama Power) stated that in response to Barry's second question, no, it is not twice as much water. Kenneth stated that the part of generation that is now used solely for Green Plan flows would be replaced by 150 cfs continuous flow. Alabama Power would not pass a continuous minimum flow and continue to pulse.

- Q15 - Rachel asked if you are generating with minimum flow.

Yes, ideally the minimum flow would be generating, not spill. Chris Goodman (Alabama Power) said that a 150 cfs minimum flow would not affect lake levels but would constrain Alabama Power's ability to peak with the same flexibility as they currently have.

- Q16 - Maria Clark (EPA) encouraged Alabama Power to review their March 2019 comments on this issue. She asked why 2001 was selected as an average year.

2001 was an average or normal water year determined by the Flood Frequency Analysis study for the Tallapoosa. Additionally, 2001 was pre-Green Plan, which provided pre-Green Plan operations and hourly data to run through HEC-RAS model.

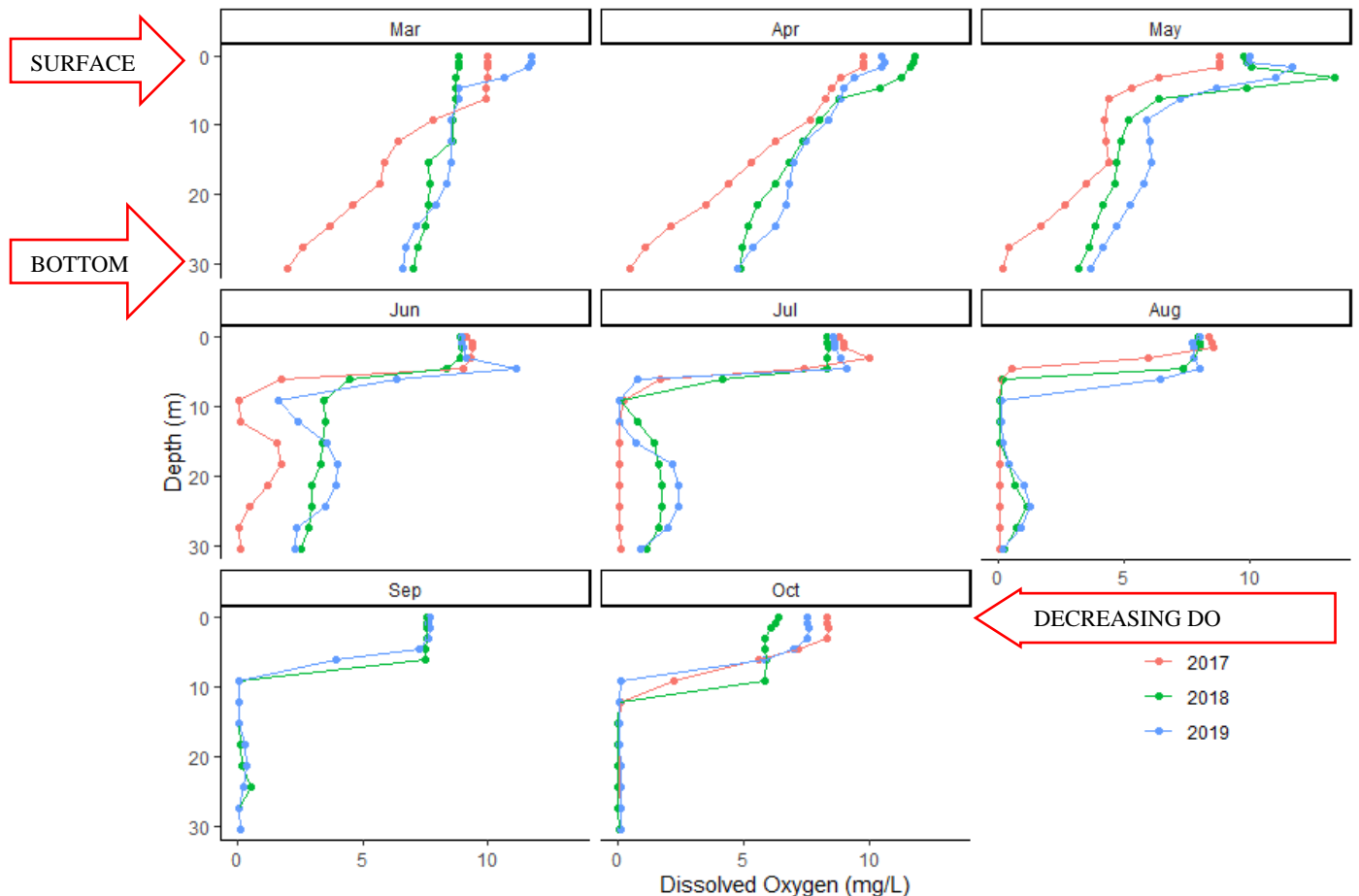
7 WATER QUALITY STUDY

Jason Moak (Kleinschmidt) presented the progress on the Draft Water Quality Study, which included the study purpose, data and activities collected to date, and remaining activities. Jason noted that no variances to this study plan are requested. However, the schedule has been updated to reflect Alabama Power’s plan to file the 401 Water Quality Certification application in April 2021. Alabama Power distributed the Draft Water Quality Study report to stakeholders on March 9, 2020, and also in April 2020, concurrently with filing the ISR.

7.1 FERC’s Questions submitted in advance of the meeting

- Q1 - Page 18...figure 3-8...please explain what is happening with the vertical DO profiles where DO increases in May, June, July, and August, where otherwise the DO should be declining.

Jason Moak (Kleinschmidt) said it could be how the graphs are interpreted. The data shows the reservoir stratifying as expected in a reservoir during the warmer months of the year. Jason recommended an offline discussion but stated that Alabama Power will also try to clarify in the Final Water Quality Study Report.



- Q2 - Page 23 discusses Alabama DEM monitoring data for the Harris Dam tailrace (i.e., immediately downstream from Harris Dam). Was this data collected during generation, or does it also reflect non-generation periods?

These were events when ADEM went out monthly and took a grab sample. All samples were completed during non-generation. Alabama Power will clarify this in the Final Water Quality Study Report.

- Q3 - Pages 39-41 present DO and temperature data for downstream continuous water quality monitoring station. On page 16 of the ISR, Alabama Power is not proposing any additional monitoring beyond what was approved in the Commission's SPD. Why is there not a second year of monitoring for the downstream continuous monitoring station? How confident are Alabama Power and the HAT 2 members that 1 year of monitoring at the downstream station includes a worst-case scenario?

A second year of monitoring was not included in the FERC-approved study plan. Alabama Power is confident in the data collected thus far. Regarding a worst-case scenario, Alabama Power could monitor for 5 years and may not see a worst-case scenario. Although 2017 may have been a bad year, Alabama Power missed that opportunity to collect a continuous data set at the approved location in the study plan.

7.2 Alabama Rivers Alliance's Questions submitted in advance of the meeting

- Q4 - Previous data from 2017-2019 mentioned in Table 1-1 is not continuous, year-round data. Is Alabama Power now collecting continuous, year-round data at multiple locations?

No. The study plan approved collecting continuous data at the downstream monitor during 2019.

- Q5 - The Alabama Power data listed on Table 1-1 shows monitoring during generation only. Is data during non-generation periods available prior to 2019?

No.

- Q6 - The report states that a continuous monitor was "recently installed" at Malone. Was it installed on March 12, 2019 corresponding to the "Downstream Monitor 2019" tab of the WQ data excel spreadsheet?

The monitor at Malone is owned and operated by ADEM. Data from the Malone monitor was not included in the spreadsheet. However, Alabama Power can add it to the Final Water Quality Report.

- Q7 - Is there only the one continuous monitoring station downstream from Harris Dam at Malone?

Yes.

- Q8 - The Draft Water Quality Study Report contains significant water temperature data, but the discussion and conclusions focus almost exclusively on dissolved oxygen levels, and do not discuss temperature. Will the effects of temperature be discussed in the final report or reported on in the Aquatic Habitat or Aquatic Resources study reports?

The effects of temperature on aquatic resources will be addressed in the Aquatic Resources Report.

- Q9 - Is Alabama Power studying, or planning to study, methods to account for low water temperatures, including using an alternative intake structure that would allow for mixing of warmer and cooler water to raise average temperatures or withdrawing water from a higher depth in the reservoir to allow for warmer releases?

Alabama Power intends to study technologies that can address temperature, as needed, once a temperature issue has been determined and defined through on-going study and data analyses.

7.3 Participant Questions

- Q10 - Alan Creamer (FERC) noted that there was only one year of continuous monitoring data. How confident is Alabama Power that the data represents what could be a worst-case drought or is truly reflective of the worst water quality could be? Also, Alan asked why Alabama Power couldn't get more than one year of continuous data? If stakeholders want to look at this and want to know how confident Alabama Power is in this data and that it truly represents a drought period.

Jason Moak (Kleinschmidt) said he does not think 2019 was a worst-case scenario and that it is not known if 2020 would be either. Angie Anderegg (Alabama Power) said that Alabama Power proposed one year of monitoring in the study plan, which was approved. Angie also noted that it is time consuming and expensive to service the continuous monitor but that will not prevent further monitoring should it be required.

Alan stated that when FERC approved the Water Quality Study Plan, it was with the intent that collectively, we would use year one data to determine if additional data were needed. Angie Anderegg (Alabama Power) asked if FERC sees a need for an additional year. Alan said there are instances where we drop below what we are trying to achieve, so if this is not the worst-case scenario, you could have more years where the DO drops below that criteria. Alan further stated that it is hard to make decisions on just one year. Alan also pointed out that the one year included in the report was not one that could be considered a drought, so in a drought Alabama Power may only meet water quality criteria 90% of the time. Angie noted that because Alabama Power is filing the 401 application in 2021, Alabama Power is collecting data at the tailrace monitor in 2020, resulting in an additional year of data. Alan Creamer noted that the tailrace monitor is only capturing generation. He indicated that FERC wants to know what happens to water quality during both generation and non-generation.

Keith Chandler (Alabama Power) noted that 2019 was not a drought year, but it was a hot year and that ADEM is continuing to collect data downstream. Keith further said Alabama Power ran only green plan flows a lot of the time during the monitoring season.

Alan Creamer said the most important part of this is what is happening right below Harris Dam or less than half a mile downstream. The other gages further downstream are also accounting for other influence. In reading this report Alabama Power met the criteria near 100% of the time but that may not be reflective of what's happening closer to the dam.

- Q11 - Jimmy Traylor (Downstream Landowner) asked if anyone has identified the sulfur smell in released water? Jimmy said he noticed it in the summer especially during the first 45 minutes or so of generation. Near Malone you get a foul smell. Seems to go hand-in-hand with drought conditions. As you get further into the summer months, it worsens.

Alabama Power is not aware of a sulfur smell in the water. Jason Moak (Kleinschmidt) asked if there was a time of year that the smell is worse. Jason said he has noticed that smell at other hydro projects and said it probably had something to do with natural lake stratification and biological processes that occur on the lake bottom.

- Q12 - Sarah Salazar (FERC) asked if the Draft Water Quality Report covered where in the water column that Alabama Power is drawing water from in Lake Harris? This would be helpful to include in the report.

The intake at Harris has a movable sill. Alabama Power will add this information to the Final Water Quality Report.

- Q13 - Albert Eiland (Downstream Landowner) asked to please summarize the conversation between him and Jason Moak about mercury. Has the content changed in the reservoir? How bad is it in the lake?

Jason Moak (Kleinschmidt) said he was not sure. It could be coming from atmospheric deposition in the lake. Jason noted it is a widespread issue among reservoirs all over the country and an issue with large bodies of water and fish.

- Q14 - Maria Clark mentioned a Georgia Project where they do maintenance in the intake because a lot of debris accumulates, and they let the water run which causes the debris to mix into the water that is being released. Clearing that helped alleviate the smell. This was a smaller dam.

Jason Moak (Kleinschmidt) said there is not much of a debris issue due to the size of the Harris Dam.

8 EROSION AND SEDIMENTATION STUDY

Jason Moak (Kleinschmidt) presented the progress on the Draft Erosion and Sedimentation Study, which included the study purpose, data and activities collected to date, and remaining activities. Jason noted that no variances to this study plan are requested. Alabama Power distributed the Draft Study report to stakeholders on March 17, 2020, and also in April 2020, concurrently with filing the ISR.

8.1 FERC's Questions submitted in advance of the meeting

- Q1 - Section 5.0, Discussion and Conclusions states that at some sites, "land clearing and landscaping, and other construction activities affecting runoff towards the reservoir" cause erosion. Is it possible to provide areal images showing the areas of active erosion in relation to the project boundary as part of the final study report?

Yes. Alabama Power will add aerial photos showing the project boundary, winter pool, and summer pool contours.

- Q2 - Appendix D – photos...it would be helpful if the captions for the photos included better location descriptors (e.g., Harris Reservoir, Harris Reservoir-?? Embayment, Harris Reservoir-?? River Arm, Tallapoosa River, etc.). For the Harris Reservoir sites, it would be helpful if the contours within which peaking operations occur (lake fluctuation zone) could be identified.

Alabama Power will add captions with location descriptors to the photos in Appendix D. Because Harris is a storage reservoir, there are no daily fluctuations in reservoir level, only seasonal fluctuations in accordance with the operating curve.

- Q3 - Could you make the video footage that was collected as part of this study available for stakeholders to view?

Yes, Alabama Power is investigating how to make the video footage available.

- Q4 - Will the nuisance aquatic vegetation surveys still be possible to conduct in Lake Harris this summer?

Yes, the nuisance aquatic vegetation surveys are scheduled for summer 2020.

- Q5 - On page 24, in section 3.2, the report includes the following statement: "A total of 20 sites, rather than 15 sites, were provided for the left bank segments as many segments were tied with a score of (slightly impaired)." Please explain what is meant by many of the streambank segments being "tied with a score of slightly impaired" and clarify the relationship between the number of streambank segments/sites and the bank condition score.

Alabama Power will edit the text to make this section clearer. All assessed streambank segments (each 0.1 mi of the study reach) were sorted based on their condition score, from lowest to highest. Sites with the 15 worst scores (i.e., ranked 1 through 15) were presented in Table 3-2. Since 14 of the left bank segments in the list had the same score for condition (3.0), they were included in the list.

- Q6 - On page 25, in Table 3-2, shouldn't the heading/label of the first column of the table be "Site Number" instead of "Rank" given that the rank options are only 1 through 5 (according to Table 3-1) and there appear to be 20 sites?

Please see the response to Q5 above. Alabama Power understands that this table is confusing and will rework it to make the results clearer in the Final Erosion and Sedimentation Study Report.

- Q7 - On page 11, of the Tallapoosa River High Definition Stream Survey Final Report (Appendix E of the Erosion and Sedimentation Study Report), it states that prior to the survey, flows were monitored to ensure relatively normal flow conditions during the survey. For clarity, what were the "relatively normal flow conditions" during the survey? Were they slightly higher or lower than average?

As seen in the graphs of discharge on page 12 of Appendix E, flows during the study were very close to the long-term median value.

- Q8 - In Figures 13 and 16 of the Tallapoosa River High Definition Stream Survey Final Report, the scale is small and so it appears that most of the riverbanks are unmodified and the modified banks identified on the individual site surveys are not visible. It would be helpful if the figures in the report showed labeled points for the erosion/sedimentation sites that are identified in the report.

Alabama Power will provide figures with a larger scale and with labeled erosion sites in the Final Report.

- Q9 - Page 20 of Tallapoosa River High Definition Stream Survey Final Report states that a confidence rating was used to indicate the clarity of the streambanks in the video and figures 14 and 17 of that report show areas where the video clarity was impaired and therefore the confidence in the accuracy of the streambank conditions/classifications is lower. As stated above, it would be helpful if the figures in the report showed labeled points for the erosion/sedimentation sites that are identified in the report. Do any of the areas with impaired video clarity coincide with areas that stakeholders identified as erosion/sedimentation sites or other sites that Alabama Power identified as part of this study? Do you intend to take any steps to deal with the impaired clarity data? Is so, how?

Alabama Power will reexamine these areas to determine if sites with lower confidence coincided with identified erosion sites. If so, we will perform targeted surveys of these areas and update the Final Report accordingly.

- Q10 - In Figure 18 of the Tallapoosa River High Definition Stream Survey Final Report, there appears to be a missing ranking at river mile 37 for the right streambank. Could you explain this gap in the ranking?

Alabama Power is reexamining this area and will include rankings in the Final Report.

- Q11 - For Figures 20 through 23 of the Tallapoosa River High Definition Stream Survey Final Report, please label the river mile ranges on the maps to help reviewers understand the starting and ending points of the study area and which segments of river are included.

In Figure 26 of the Tallapoosa River High Definition Stream Survey Final Report, please move the scale bar and sources so that they are not covering the river segment and bank conditions at the bottom of the map.

Alabama Power will revise this figure accordingly.

- Q12 - Can you identify where peaking pulses are attenuated downstream from Harris Dam under the current operating regime and volume of typical downstream releases? If so, are there any patterns in the downstream streambank conditions and observed levels of erosion along the segments of streambanks within the attenuation zone? Where are the identified erosion sites in relation to the length of the attenuation zone?

Alabama Power will incorporate a discussion of water level fluctuations and any potential correlations with streambank erosion into the discussion section of the Final Report.

8.2 Alabama Rivers Alliance's Questions submitted in advance of the meeting

- Q13 - Will we have access to the High Definition Stream Survey video created by Trutta Environmental Solution as part of the Downstream Bank Stability Report?

Yes, Alabama Power is investigating how to make the video footage available.

- Q14 - Table 3-2 shows streambank scored for the 15 most impaired areas downstream of Harris Dam. How was the Average Combination Bank Condition score (final column) computed? It does not appear to be an average of the "Average Left Bank Condition" and "Average Right Bank Condition" scores, which would yield a lower average scored. The averages showing for the left and right banks are mostly 3.0 or higher while the average combined bank condition scores are mostly below 3.0.

Jason Moak (Kleinschmidt) noted that one column looks only at left bank and the other the only right bank. Every tenth mile those scores were averaged and ranked. Jack West (Alabama Rivers Alliance) said it still doesn't make sense why you have larger averages on both sides, and they are reduced in combination. Sarah Salazar (FERC) said that part of the table was confusing as well, and she is not certain that last column is informative. Jason said he agrees and was thinking that it may only make sense when there are impacts on both sides, like a transmission line crossing.

- Q15 - The report concludes in Section 5.0 that “None of the erosion sites surveyed were the result of fluctuations due to project operations.” This conclusion seems in conflict with the assessment in the HDSS that impairment areas “were due to the fluctuating flows eroding the streambank within a few feet of the water surface and streambank interface.” (Pg. 43 of Trutta Report).

This statement refers to the reservoir. Because Harris is a storage reservoir, most of the erosion occurring in the reservoir is due to wave action from boats or winds.

- Q16 - Is Alabama Power completing a total suspended sediment analysis during the pre-pulse, pulse, and post-pulse time periods to see what sediment is getting moved from and to various locations?

No, Alabama Power is not completing a total suspended sediment analysis.

- Q17 - Is Alabama Power conducting a historical, cumulative effects study of erosion since the dam’s construction?

Alabama Power is not performing a cumulative effects study.

- Q18 - Is Alabama Power assessing whether having a continuous minimum flow downstream may help with erosion and sedimentation problems?

Yes. Alabama Power will use the model outputs to assess the difference in water level fluctuations.

- Q19 - Jack West asked why it seems that none of the erosion sites are due to operations.

Most of the erosion issues downstream are not due exclusively to operations. For example, areas where trees and vegetation are being cleared are not due exclusively to operations, but water fluctuations could exacerbate erosion.

8.3 Donna Matthews’ Questions submitted in advance of the meeting

- Q20 - Better Visualization of Erosion over the Past 50 Years: Do the erosion studies conducted during this permitting period compare pre-dam (baseline) river shape/contour with the current status of the river? Pre-dam analog photographs exist for comparison to current satellite imagery.

Alabama Power has not compared pre-dam conditions to current conditions. Historical photographs may provide useful information for the cumulative impacts section of the license application and for FERC’s use.

8.4 Participant Questions

- Q21 - Jimmy Traylor (Downstream Landowner) said he has no trees on the bank at his property and has little bank remaining. He asked Jason what he would consider that? Mr. Traylor noted that his trees have been falling in and steps that his grandfather built are disappearing since the dam was built and operation.

Jason Moak said he would locate Mr. Traylor's property on the data file to see how that area was scored. Jimmy Traylor responded that the Draft Erosion and Sedimentation Report says, "not much erosion" at his property. Mr. Traylor also noted that there is significant sedimentation in areas like Cornhouse Creek and No Business Creek where the water backs up during generation. He characterized it as "a mud pit" and this has significantly affected these tributaries. He believes Alabama Power is missing the mark on erosion. Mr. Traylor also noted that since the inception of the Green Plan, erosion has decreased. He noted that a continuous minimum flow would also help reduce erosion. Jack West (ARA) asked about data Alabama Power may have regarding bank conditions and erosion from the 1980s (pre-project and just after project was constructed), 1990s, and in the 2000s to do a cumulative effects study. If there is data, he asked that Alabama Power make it available so we can assess the impacts on a larger scale.

Carol Knight concurs with Jimmy Traylor and Albert Eiland can give anecdotal evidence of how the banks have eroded. Carol indicated that she has old maps from 40s and 50s of conditions during that time to compare what it is now. Those trees weren't necessarily clear cut. People downstream know what it used to be, and they know what it is now. She noted that they are having a hard time reconciling these things. There is significant erosion. It is not just because somebody is cutting trees or that they are letting cows access the river.

Jason Moak (Kleinschmidt) explained that he was not suggesting that where erosion occurs it is the landowners' fault. Jason emphasized that it is very important for downstream property owners to comment on any areas that downstream property owners believe the Draft Erosion and Sedimentation Report has mischaracterized the erosion and source of the erosion.

Maria Clark wanted to know why not do a GIS study. We have a lot of data, including the areas that are impaired. We have pictures. What I can see by following the data you have looks like the erosion is mostly in the river bends. With other projects, we have seen landowners have a lot to do with it by cutting trees for their river view. If we analyze with GIS what happened when the dam was built and 50 years later, we will be able to see the development. It is important to bring this information out for Alabama Power to show more clearly these project impacts using GIS.

Donna Matthews said she's been playing with maps and someone took old aerial photos and coordinates from landowners when they came to a meeting and shared erosion hot spots. One set is from 1964 and one set is from the 1940s. Donna indicated that if anyone is interested, they can overlay the google earth pictures. There are certain markers that local people have put together.

Jimmy Traylor said that his land is undeveloped except for maybe 200 yards and said they have never cut the timber, one of the last virgin hardwood bottoms around. Losing trees and losing bank. That is erosion.

Albert Eiland noted he lives about 2 miles below Jimmy Traylor and is on the outside of a natural curve, which will experience more damage than an inside curve. Mr. Eiland noted that historically there were 7-8 islands in the Tallapoosa River. Those old maps will show that. There is only one island left. Jimmy asked if it's Hodge's island. Albert said the island is on an inside curve, that's why it's still there. In spring of 2017 we experienced a lot of flooding. I lost 2 big trees. Has been losing trees and the bank. We have hauled a lot of rocks in there to keep it from washing away. Would be eroded away without the rocks.

Relevant to this discussion, Carol Knight submitted a comment via IM from a participant that had to drop off the meeting conference call. Her issue is that there are serious erosion issue and has gotten worse this year with all the rain and the river fluctuating up and down. Several places have large holes in the banks and many of the trees have washed away. She indicated that the water is extremely high even if there isn't a scheduled release.

- Q29 - Lake Watch: Has there been assessment/consideration of sedimentation in the Tallapoosa where it enters Lake Martin, where the bulk of the sediment settles out as the river current declines, as seen by large sediment bars that have formed below where Hillabee Creek enters the river?

An assessment has not been done in that area. The Study Area extends through Horseshoe Bend. It is likely that bedload sediment naturally transported down Hillabee Creek settles out as it enters the upper reaches of Lake Martin, similar to what happens in the Little Tallapoosa River at the headwaters of Lake Harris.

- Q30 - Rachel asked about erosion areas on the lake that are anthropogenically attributed: She recommended that Alabama Power include in the Final Study Report the shoreline management classifications in the area where it appears erosion is occurring. Rachel noted that FERC identified erosion and sedimentation as something they would analyze for cumulative effects. There is a sense that the license application will need information on cumulative effects. Some of this will be anecdotal and this information may go into the analysis. FERC does look at cumulative effects, but it may not be something addressed directly by study report.

Summer and winter pool contours would also be helpful for cumulative effects analysis, and Alabama Power will add the suggested information to the Final Report.

- Q31 – Charles Denman via email following the meeting: I agree with other participants that a comparison of historical photos with current conditions of the river would help to understand the flushing effects operations of the dam have on downstream erosion.

9 THREATENED AND ENDANGERED SPECIES STUDY

Jason Moak (Kleinschmidt) presented the progress on the Draft Threatened and Endangered Species study, which included the study purpose, data and activities collected to date, and remaining activities. Additional fieldwork is planned for summer 2020 for this study. Jason noted that no variances to this study plan are requested. Alabama Power distributed the Draft Desktop Assessment Report to stakeholders in April 2020, concurrently with filing the ISR.

9.1 FERC's questions submitted in advance of the meeting

- Q1 - Have the GIS overlays of T&E species habitat information and maps been completed (i.e., the map figures in Appendix B of the draft T&E species study report)? Or are there still steps to complete this component of the study? We suggest including project features, recreation areas, and other managed areas (e.g., timber harvest areas, wildlife management areas, etc.) on the T&E species maps in order to help determine the proximity of species ranges/habitats to project-related activities and identify the need for species-specific field surveys.

Those maps are completed. Alabama Power will consider making the suggested additions.

- Q2 - While the draft T&E species study report indicates that additional field surveys for the fine-lined pocketbook freshwater mussel are planned for May 2020, the report does not include a description of the criteria used to determine which of the species on USFWS's official (IPaC) list of T&E species would be surveyed in the field. Please describe which species will be surveyed in the field and explain how and why they were selected. In addition, please describe any correspondence Alabama Power has had with FWS and state agencies regarding the T&E species selected for additional field surveys.

Alabama Power is consulting with USFWS to determine which species have known historical occurrences or critical habitat intersecting the Project boundary or could reasonably be found within the Project boundary. Surveys will be performed for the palezone shiner due to information from USFWS regarding the possibility of existence in some tributaries within Skyline. Surveys of fine-lined pocketbook are being performed due to existing critical habitat in the upper Tallapoosa River above Lake Harris. Correspondence between Alabama Power and USFWS and state agencies as of the ISR filing is included as Attachment 2 of the Draft Threatened and Endangered Species Desktop Assessment.

- Q3 - Page 7 lists the sources for the ESA species information. The sources included USFWS's Environmental Conservation Online System (ECOS) but did not include IPaC. The official list is obtained through the IPaC report. Has an IPaC report been downloaded or are you using the IPaC report filed to the record by FERC staff?

The ECOS website was used as a source for life history, habitat, and range information in preparation of the desktop assessment. The IPaC list was used to identify species to include in the desktop assessment and potential field surveys.

- Q4 - Page 8 states that the existing land use data is not specific enough to determine if the 3,068 acres of coniferous forest within the Project Boundary at Lake Harris would be suitable for red-cockaded woodpecker. How do you propose to assess the suitability for red-cockaded woodpecker?

Field observation at these coniferous forests could determine whether these areas contain suitable habitat. Specifically, Alabama Power would look for areas with little or no hardwood mid-story and over-story trees. Alabama Power would also look for larger, older longleaf pines, which make ideal cavity trees for this species in areas that were lacking hardwood mid-story and over-story. Alabama Power will perform this field observation if USFWS deems it necessary.

- Q5 - On pages 3, 10, and 26 there is mention of additional fieldwork planned for two mussel species (i.e., fine-lined pocketbook and Southern pigtoe) for May 2020. Please elaborate on the details of the additional survey work (e.g., survey location(s), sampling protocols and methodologies employed, and clarify which species will be included in the May 2020 assessment, etc.).

In November 2019, surveys were conducted for fine-lined pocketbook on a 3.75 mile stretch of the Tallapoosa River where critical habitat is known to occur from the County 36 bridge to a shoal below the Highway 431 bridge. This endpoint was chosen, because only pool habitat was available another half mile downstream of this bridge. Six surveyors including USFWS, Alabama Power, and Kleinschmidt searched for the target species in 20-minute to one-hour segments at areas containing critical habitat and searched for additional areas with suitable habitat. Silty areas and piles of shells left by muskrats and raccoons were also searched. The introduced *Corbicula fluminea* (Asian clam) was the only bi-valve species observed in these piles. Because high water impeded the search in some areas and the cold weather may have caused mussels to burrow out of site, USFWS suggested another effort be made in the spring. Surveyors will search for fine-lined pocketbook and suitable habitat again in late spring/summer 2020, pending any COVID-19 restrictions. Southern pigtoe is not a species that we would reasonably expect to find in the Project boundary. It is known to occur in Cleburne County, which overlaps the Project boundary. However, documented historical range in that county exists exclusively in the Coosa River drainage basin. The Lake Harris Project Area does not contain any critical habitat areas for Southern pigtoe identified by the USFWS.

- Q6 - The descriptions of Alabama lampmussel and rabbitsfoot mussel on pages 11, 13, and 14 do not provide these species' host fish species. Are the host fish species currently unknown, or was this an inadvertent omission?

The host fish species are currently unknown. Suitable hosts for rabbitsfoot populations west of the Mississippi River are shiner species such as blacktail shiner, cardinal shiner, red shiner, spotfin shiner, and bluntface shiner. There is not much

available information about rabbitsfoot host fishes east of the Mississippi River. Research has shown that lampmussels can successfully utilize rock bass, green sunfish, bluegill, smallmouth bass, spotted bass, largemouth bass, and redeye bass as host fish. It has also been reported that banded sculpin are potential host fish for lampmussels.

- Q7 - There appears to be a typo on page 16, in the description of Southern pigtoe mussel. The middle of the first paragraph refers to the glochidia of the finelined pocketbook mussel. Is this sentence misplaced, or does the information pertain to the southern pigtoe mussel (the subject of section 3.12)? Please clarify.

This is a typo, and the information refers to the Southern pigtoe. The host fishes are accurate.

- Q8 - On page 19, in the first paragraph about the northern long-eared bat (NLEB), it is unclear why the discussion includes the statement about a low occurrence of this species in the "...southwestern region of Alabama" given that the project areas are located in the northeastern and mid-eastern portions of Alabama. Please clarify or correct this statement.

This information is correct. The sentence is intended to describe the general distribution of the species in Alabama.

- Q9 - The draft T&E species study report states that there are no known NLEB hibernacula or maternity roost trees *within the Project Boundary*. However, it does not include information on known NLEB hibernacula *within 0.25 mile of the Project Boundary* and known NLEB maternity roosts *within 150 feet of the Project Boundary* (i.e., at Harris Lake and Skyline). In addition, the report mentions a couple of best management practices (BMPs), protective of some bat species, that Alabama Power implements during timber harvest activities and states that the BMPs have been expanded but not incorporated in the existing license. However, the report does not include the locations of Alabama Power's timber harvesting and other tree removal activities, or detailed descriptions of timber harvesting protocols and BMPs currently implemented within the Project Boundary. This information is important to understanding the affected environment for Indiana bat, NLEB, and/or other T&E species. This information could also be used for the streamlined consultation option for analyzing the potential project effects on NLEB (including within the buffer areas for hibernacula and maternity roost trees).

Please complete the USFWS's NLEB streamlined consultation form and include it in the final T&E species study report. This form can be found at:

<https://www.fws.gov/southeast/pdf/guidelines/northern-long-eared-bat-streamlined-checklist.pdf>. We recommend using FWS's definition of "tree removal" to guide your responses on the form (i.e., "cutting down, harvesting, destroying, trimming, or

manipulating in any other way the trees, saplings, snags, or any other form of woody vegetation likely to be used by northern long-eared bats”).³

Also, please update figures 3.14-1, 3.14-2, 3.14-3, 3.15-1, 3.15-2, and 3.15-3 which currently show “forested area” or “karst landscape” in relation to NLEB and Indiana bat habitats, to show Alabama Power’s timber management areas within the Project Boundary, and other proposed managed areas (e.g., new/improved recreation areas, new quail management areas). This type of information is needed to meet another component of this study (i.e., “determine if [T&E species habitat at the project] are potentially impacted by Harris Project operations”, as described on slide 5 of the Aug. 27, 2019, HAT 3 meeting).

Alabama Power will complete the NLEB streamlined consultation form to be included in the Final T&E Species Report and update the requested figures.

- Q10 - On page 21 and 22, in section 3.17, the discussion mentions an occurrence of little amphianthus within the Project Boundary at Lake Harris (Flat Rock Park) that was documented in 1995 and may be extirpated. Did the botanical surveys in that area of the project target that species? The top of page 22, states that “Vernal pools were not identified due to a lack of available data.” Did the botanical surveys identify vernal pools in this area?

The botanical inventory targeted all plant species existing within the Inventory Area, which is defined as the Blake’s Ferry Pluton and is located adjacent to Flat Rock Park. Of the 365 plant species documented in the Inventory Area. Vernal pools were observed during surveys performed in 2019, however little amphianthus was not found in any of the pools.

- Q11 - On page 22, in section 3.18, the report states that the National Wetland Inventory data is not detailed enough to identify wetlands within the project area that contain white fringeless orchid’s unique wetland habitat characteristics. Do you propose collecting more data on this subject?

Alabama Power is consulting with USFWS and Alabama Natural Heritage Program experts to determine if these habitats are present within the Project Boundary.

- Q12 - On page 23, in section 3.19, the report states that the 16 extant populations of Prices’ potato bean in Jackson County, occur on Sauta Cave National Wildlife Refuge, and near Little Coon Creek in the Skyline WMA. Please clarify whether or not any of the 16 populations occur within the Project Boundary at Skyline WMA.

One extant population intersects the Project Boundary at Skyline and comprises 11 percent of the extant population occurring at Little Coon Creek. However, 89 percent of this single population occurs outside of the Project Boundary.

³ 81 Fed. Reg. 1902 (January 14, 2016).

- Q13 - In Appendix B, figure 3.19, showing Price's potato bean habitat range, there is a 100-foot Stream Buffer within the Limestone Landscape layer shown on the map and legend. Please explain the significance of this buffer, including any regulatory requirements associated with this buffer. Please include this information in the Final T&E Species Study Report.

Price's potato bean is known to exist in Little Coon Creek. This species seems to prefer low areas along near or along the banks of streams and rivers. The buffer indicated on the figure is not regulatory. It is meant to depict areas where this species could potentially occur based on known habitat preferences. We will include this information in the final report.

- Q14 - In the August 27, 2019, HAT 3 meeting summary, please clarify the following: How does Alabama Power define terms such as "sensitive time periods" in the context of timber harvesting? Evan Collins, of FWS, stated that the palezone shiner may be present in some of the lower reaches of the Tennessee River tributaries. Please clarify where these tributaries are located in relation to the Project Boundary.

Alabama Power will include its timber harvesting BMPs as an appendix to the Final T&E species study report. Alabama Power is consulting with USFWS to perform an assessment to determine if palezone shiner are present in Little Coon Creek, which flows through portions of the Project Boundary at Skyline.

9.2 Alabama Rivers Alliance's Questions submitted in advance of the meeting

- Q15 - Is the additional fieldwork to identify mussels scheduled for May being pushed back or proceeding on schedule?

The mussel identification fieldwork is proceeding on schedule; however, fieldwork dates are subject to change due to COVID-19 restrictions. Alabama Power will proceed with fieldwork at the earliest possible date during the spring/summer 2020.

9.3 Participant Questions

- Q16 - Ken Wills (Alabama Glade Conservation Association) - Are the 138.4 acres of granite geology west of the Project Boundary on Alabama Power land, other private land, or public land? How much is public and private land and how much is Flat Rock?

There are private property outcroppings in that area. The Flat Rock Park itself is approximately 25 acres.

- Q17 - Jimmy Traylor asked why there are no [Threatened and Endangered Species] studies below the dam and how Skyline effects water below the dam.

Based on consultation with USFWS, no threatened or endangered species have been identified below the dam. Skyline does not affect the water below the dam.

- Q18 - Sarah Salazar (Federal Energy Regulatory Commission (FERC) asked if Alabama Power could elaborate on how they decided which species to perform field surveys for. How was the list of species being surveyed narrowed down with USFWS?

Determining which species to search for in the field is an ongoing process. The consultation details will be in the final report. This desktop assessment is being used as an initial step toward determining which species to focus on in the field.

- Q19 - Sarah asked if IPaC was being used to determine which threatened or endangered species were in the Project Boundary. If USFWS makes any changes to the inventory of listed species in the Project Boundary, that needs to be considered.

The ECOS website was used as a source for life history, habitat, and range information in preparation of the desktop assessment. The IPaC list was used to identify species to include in the desktop assessment and potential field surveys.

- Q20 - Sarah said that additional information is needed for a streamlined consultation on the Northern long-eared bat. The buffer zones, which are within 0.25 miles of a hibernaculum at any time or within 150 feet of a known occupied maternity roost tree from June through July, were not included in the report. The report seems to be focused on what has been reported in the Project Boundary, but the effects of tree removal need to be analyzed.

Consultation on the Northern long-eared bat is ongoing.

- Q21 - Evan Collins (USFWS) said he does not have a copy of the best management practices for consultation on bats and that information would be beneficial to mapping the buffer zone.

Alabama Power has this information and will provide it to Evan Collins.

- Q22 - Jimmy Traylor asked why no federally listed species below the dam are being studied.

No listed species have been documented in the Tallapoosa River below the Harris Dam.

10 DOWNSTREAM AQUATIC HABITAT STUDY

Jason Moak (Kleinschmidt) presented the progress on the Downstream Aquatic Habitat Study, which included the study purpose, data and activities collected to date, and remaining activities. Jason noted that no variances to this study plan are requested, and the Draft Study Report will be distributed to stakeholders in June 2020.

10.1 Participant Questions

- Q1 - Jimmy Traylor (Downstream Landowner) asked if the temperature component would be included in the draft report? Jimmy commented that 3 months of data will not provide enough information.

Depending upon the timeframe for data processing, Alabama Power may be able to include the temperature component in the draft report. Jason Moak (Kleinschmidt) clarified that the level loggers have been operational since June 2019 and will continue to gather data through June 2020.

- Q2 - Alan Creamer (FERC) stated that only a limited number of alternatives are being tested and that there may be additional scenarios that stakeholders would like to see modeled based on the outcomes of these studies. Alan suggested that FERC may need to meet with Alabama Power to decide how best to approach this study and decide whether a modified study plan is needed.

Jason Moak (Kleinschmidt) indicated that once the model is complete, it would be possible to run different operational scenarios.

- Q3 - Donna Matthews asked if the completed model could analyze optimal conditions, or what would be needed to achieve optimal conditions. Could the model be adjusted to see the effects of change on the outputs?

Alan Creamer (FERC) suggested that FERC may need to meet with Alabama Power to decide how best to approach this study and decide whether a modified study plan is needed.

- Q4 - Jimmy Traylor (Downstream Landowner) asked if Elise Irwin's studies are being considered.

The previous studies conducted by Elise Irwin are being used in the Aquatic Resources study and in the desktop assessment.

11 AQUATIC RESOURCES STUDY

Jason Moak (Kleinschmidt) presented the progress on the Aquatic Resources Study, which included the study purpose, data and activities collected to date, and remaining activities. Auburn University has a primary role in conducting this study, which includes fieldwork and laboratory testing (i.e., bioenergetics). Jason noted that no variances to this study plan are requested, and the Draft Study Report will be distributed to stakeholders in July 2020.

11.1 Participant Questions

- Q1 - Ken Wills asked if there were any dates set for our next electronic meeting.

Angie Anderegg said meetings have not been scheduled to-date, but Alabama Power will let the HAT participants know as soon as dates are selected.

12 NEXT STEPS IN THE ILP

Kelly Schaeffer reviewed the next steps in the ILP. She noted that participants should file their comments on the ISR meeting summary and the draft study reports with FERC no later than June 11, 2020.

- Q1 - Maria Clark asked if the questions or comments would be posted on the website?

Alabama Power will file the ISR meeting summary with FERC on May 12, 2020, and the document will also be posted on the Harris relicensing website (www.harrisrelicensing.com).

APPENDIX A

ISR Meeting Participants

Harris Relicensing Initial Study Report Meeting April 28, 2020

Attendees:

Alabama Department of Conservation and Natural Resources

Damon Abernethy
Todd Fobian
Keith Gauldin
Keith Henderson
Matt Marshall
Amy Silvano
Chris Smith

Alabama Department of Economic and Community Affairs, Office of Water Resources

Brian Atkins
Dow Johnston

Alabama Department of Environmental Management

Jennifer Haslbauer
Fred Leslie
David Moore

Alabama Glade Conservation Coalition

Ken Wills

Alabama Historical Commission

Amanda McBride
Eric Sipes

Alabama Power

Angie Anderegg
Dave Anderson
Wes Anderson
Jeff Baker
Jason Carlee
Keith Chandler
Jim Crew
William Gardner
Mike Godfrey
Chris Goodman
Stacey Graham
Rodger Jennings
Ashley McVicar
Tina Mills

Alabama Power (continued)

Kenneth Odom
Courtenay O'Mara (Georgia Power)
Alan Peeples
Jennifer Rasberry
Shelia Smith
Thomas St. John

Alabama Rivers Alliance

Martha Hunter
Jack West

Auburn University

Dennis Devries
Ehlana Stell
Rusty Wright

Cherokee Nation

Elizabeth Toombs

Downstream Property Owners

David Chandler, Historian
Albert Eiland, Wadley
Carol Knight, Wadley
Donna Matthews, Wedowee
Jimmy Traylor, Malone
Melissa Willis, Clay County Extension

Environmental Protection Agency

Maria Clark
Lisa Perras Gordon
Lydia Mayo

Federal Energy Regulatory Commission

Allan Creamer
Danielle Elefritz
Rachel McNamara
Sarah Salazar
Monte Terhaar

General Stakeholders

Charles Denman
Matthew Stryker

Kleinschmidt

Kate Cosnahan

Colin Dinken

Amanda Fleming

Mike Hross

Jason Moak

Kevin Nebiolo

Kelly Schaeffer

Dr. Kevin Hunt - Recreation Subconsultant

Lake Martin Resource Association

Steve Forehand

John Thompson

Lake Wedowee Property Owners Association

Barry Morris

Muscogee (Creek) Nation

RaeLynn Butler

Turner Hunt

LeeAnn Wendt

National Park Service

Jeff Duncan

U.S. Army Corps of Engineers

Cindy Donald

James Hathorn

U.S. Fish and Wildlife Service

Evan Collins

U.S. Geological Survey

Elise Irwin

APPENDIX B

ISR Meeting Presentation

R.L. Harris Dam Relicensing FERC No. 2628

**Initial Study Report Meeting
April 28, 2020**



Welcome and Roll Call

Roll Call by Organization





Phone Etiquette

- Be patient with any technology issues
- Follow the facilitator's instructions
- Phones will be muted during presentations
- Follow along with PDF of presentations
- Write down any questions you have for the designated question section
- Clearly state name and organization when asking questions
- Facilitator will ask for participant questions following each section of the presentation



Agenda



- ☐ 9 AM Introduction/Roll Call/Safety Moment
- ☐ Initial Study Report Overview
 - Cultural Resources (HAT 6)
 - Recreation Evaluation (HAT 5)
 - Project Lands Evaluation (HAT 4)
 - Operating Curve Feasibility Analysis and Downstream Release Alternatives (HAT 1)
 - Water Quality and Erosion and Sedimentation (HAT 2)
 - Threatened and Endangered Species; Downstream Aquatic Habitat; Aquatic Resources (HAT 3)
- ☐ Next Steps in the FERC Process



HAT 6 Cultural Resources



CULTURAL RESOURCES PROGRAMMATIC AGREEMENT AND HISTORIC PROPERTIES MANAGEMENT PLAN



Study Purpose and Methods Summary

- Develop Historic Properties Management Plan and Programmatic Agreement.

Study Progress

- Identify Sites for Further Evaluation and Initial Evaluation Methods
- Propose Historic Properties Management Plan Outline
- Five HAT Meetings, including one Site Visit
- Inadvertent Discovery Plan, Traditional Cultural Properties Identification Plan Filed in April 2020

CULTURAL RESOURCES PROGRAMMATIC AGREEMENT AND HISTORIC PROPERTIES MANAGEMENT PLAN



Variance from Study Plan and Schedule

- Alabama Power continues to work with the Alabama SHPO for concurrence regarding the Harris APE
- File the final APE (with maps) by June 30, 2020

Remaining Activities /Modifications/Other Proposed Studies

- Survey of Sites Identified for Further Evaluation (96 sites)
- Finalize Area of Potential Effects (June 2020)
- Continue developing Historic Properties Management Plan
- Complete survey work and TCP identification (February 2021)
- Complete eligibility assessments for known cultural resources (July 2021)
- Issue determination of effect on historic properties (July 2021)
- Draft HPMP (July 2021)
- No additional studies have been proposed beyond that in FERC's SPD

QUESTIONS?



HAT 5 Recreation Evaluation



RECREATION EVALUATION



Study Purpose and Summary of Methods

- Evaluate baseline recreation at the Harris Project and downstream
 - Gather baseline information on existing Project recreation facilities, existing Project recreational use and capacity, and estimated future demand and needs at the Harris Project
 - Determine how flows in the Tallapoosa River downstream of Harris Dam affect recreational users and their activity

Study Progress

- Lake Harris Public Access User Counts – March to December 2019
- Lake Harris Public Access Questionnaires – May to December 2019
- Tallapoosa River User and Surveys – May to October 2019
- Skyline Use Data from ADCNR – August 2019
- Recreation Facilities Inventory – October 2019
- HAT 5 Meeting to discuss Tallapoosa River Landowner Survey Research Plan (Research Plan) - December 11, 2019
- Downstream Landowner and Anonymous User Surveys – February – April 2020



RECREATION EVALUATION –DETAILS OF LAKE HARRIS PUBLIC ACCESS, USER COUNTS



- 1,368 Shifts
- Paper Forms Vehicle and Activity Counts
- “Instantaneous Count”
- Reduced Flat Rock Park Schedule
- Daylight Savings Time
- Data Cleaning
- Data Analysis



RECREATION EVALUATION –DETAILS OF LAKE HARRIS PUBLIC ACCESS, QUESTIONNAIRES



- 1,357 Completed
- Majority Collected at Highway 48, Flat Rock Park, and Big Fox Creek
- Four Questions
- Intercept Technique
- Paper Forms



RECREATION EVALUATION – TALLAPOOSA RIVER

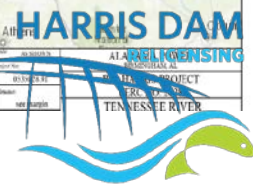
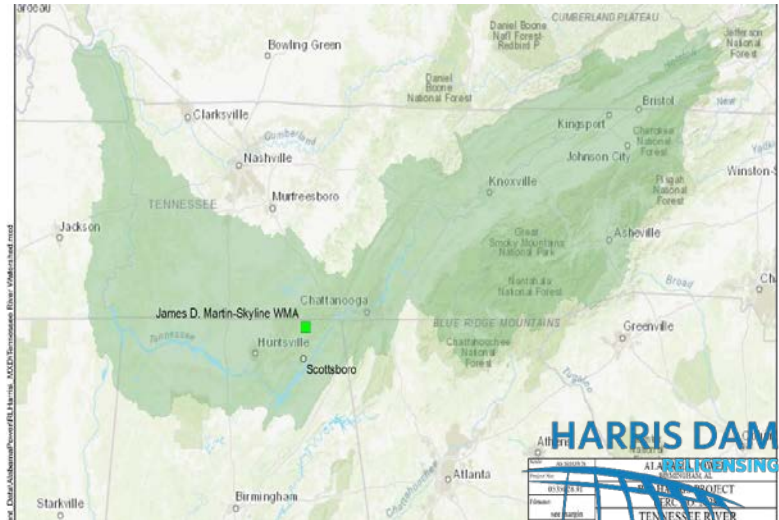
USER, METHODS



- ❑ Calculated Total Visitation (Effort) and Daily Use
- ❑ Measured User Attitudes/Perceptions About Instream Flow and Trip Satisfaction
- ❑ Obtained Catch Information from Anglers
- ❑ Determined How Instream Flow Affected Effort, Perception of Instream Flow and Trip Satisfaction, and Species of Fish Targeted, Caught, and Retained



Recreation Evaluation- Skyline Use Data (ADCNR)



RECREATION EVALUATION –DETAILS OF LAKE HARRIS PUBLIC ACCESS, INVENTORY



- ❑ Inventoried and Mapped
- ❑ Summarized Who Owns, Operates, and Manages
- ❑ Evaluated the Condition of the Recreation Sites and Facilities
 - Opportunities for Persons with Disabilities to Participate in Recreation, Where Feasible
 - Public Safety Features



HARRIS DAM
RELICENSING



RECREATION EVALUATION – TALLAPOOSA RIVER LANDOWNERS SURVEY RESEARCH PLAN



- Downstream Landowners
- Recreational Users
- December 11, 2019 HAT 5 Meeting
- December 19, 2019 Tallapoosa River Landowner Survey Research Plan



PREVIEW- DRAFT RECREATION EVALUATION REPORT



- ⌘ Introduction
- ⌘ Background
- ⌘ Methods
 - ⚡ Data Collection
 - ⚡ Analysis
- ⌘ Results
 - ⚡ Existing Use
 - ⚡ Future Use
 - ⚡ Needs
- ⌘ Conclusions
- ⌘ References
- ⌘ Appendices



RECREATION EVALUATION



Variance from the Study Plan and Schedule

- Added the Tallapoosa River Downstream Landowner Survey and Tallapoosa River Recreation User Survey
- File the Draft Harris Project Recreation Evaluation report in August 2020 (rather than June 2020)
- March 2020 HAT 1 meeting cancelled due to COVID-19

Remaining Activities/Modifications/Other Proposed Studies

- Recreation Data Reports from Subcontractors
- Draft Recreation Evaluation Study Report
- No additional studies have been proposed beyond that in FERC's SPD

QUESTIONS?



HAT 4 Project Lands Evaluation





PROJECT LANDS EVALUATION

Study Purpose and Methods Summary

- ❑ **Phase I:** Identified lands to be added to, removed from, or reclassified within the current Harris Project Boundary.
 - HAT 4 meeting, desktop analysis, draft map of changes
- ❑ **Phase II:** develop a Wildlife Management Program (WMP) and a Shoreline Management Plan (SMP) to be filed with License Application.
 - Utilizes results from Phase I evaluation, incorporation of study data

Study Progress

- ❑ Presented proposed land changes, including tract by tract description and maps
- ❑ HAT 4 meeting to discuss proposed changes (09/11/2019)
- ❑ Requested feedback from HAT 4 regarding the Project Lands proposal
- ❑ Evaluated acreage at Skyline to determine suitability for bobwhite quail habitat
- ❑ Prepared Draft Phase 1 Project Lands Evaluation Study Report
- ❑ Conducted a botanical inventory of a 20-acre parcel at Flat Rock (field work & final report complete)



PROJECT LANDS EVALUATION



Variance from the Study Plan and Schedule

- No variance from the study plan or schedule.

Remaining Activities/Modification/Other Proposed Studies

- Review comments on Draft Phase 1 Project Lands Study Report and modify Final Report, as applicable
- Conduct the botanical inventory survey on additional 21 acres adjacent to previously surveyed area at Flat Rock Park (Spring and Fall 2020; report in January 2021)
- Complete Phase 2 methods and develop draft Wildlife Management Plan and Shoreline Management Plan
- No additional studies have been proposed beyond that in FERC's SPD

QUESTIONS?



HAT 1 Project Operations

- ❑ Operating Curve Change Feasibility Analysis
- ❑ Downstream Release Alternatives



OPERATING CURVE CHANGE FEASIBILITY ANALYSIS



Study Purpose and Methods Summary

- To evaluate, in increments of 1 foot, from 786 feet msl to 789 feet msl, Alabama Power's ability to increase the winter pool elevation and continue to meet Project purposes

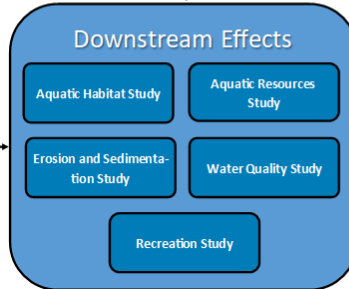
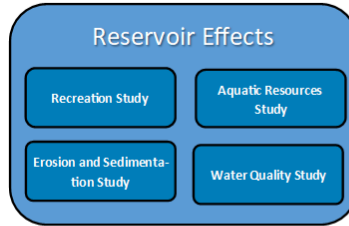
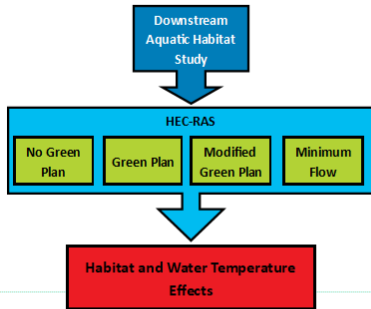
Study Progress

- RES-Sim outflow hydrographs developed
- HEC-RAS model complete; all four winter curve changes have been modeled with design flood
- Navigation, ADROP and Hydrobudget analyses
- Flood frequency analysis
- Draft report distributed to stakeholders

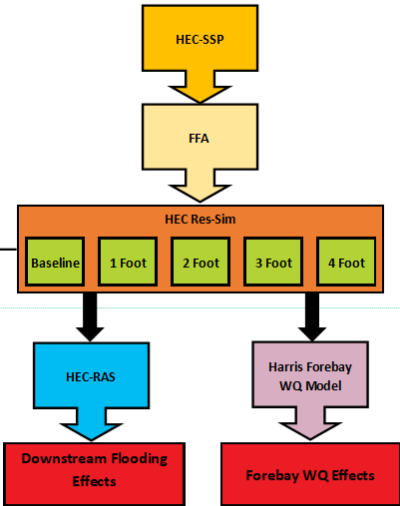




Downstream Release Alternatives Study

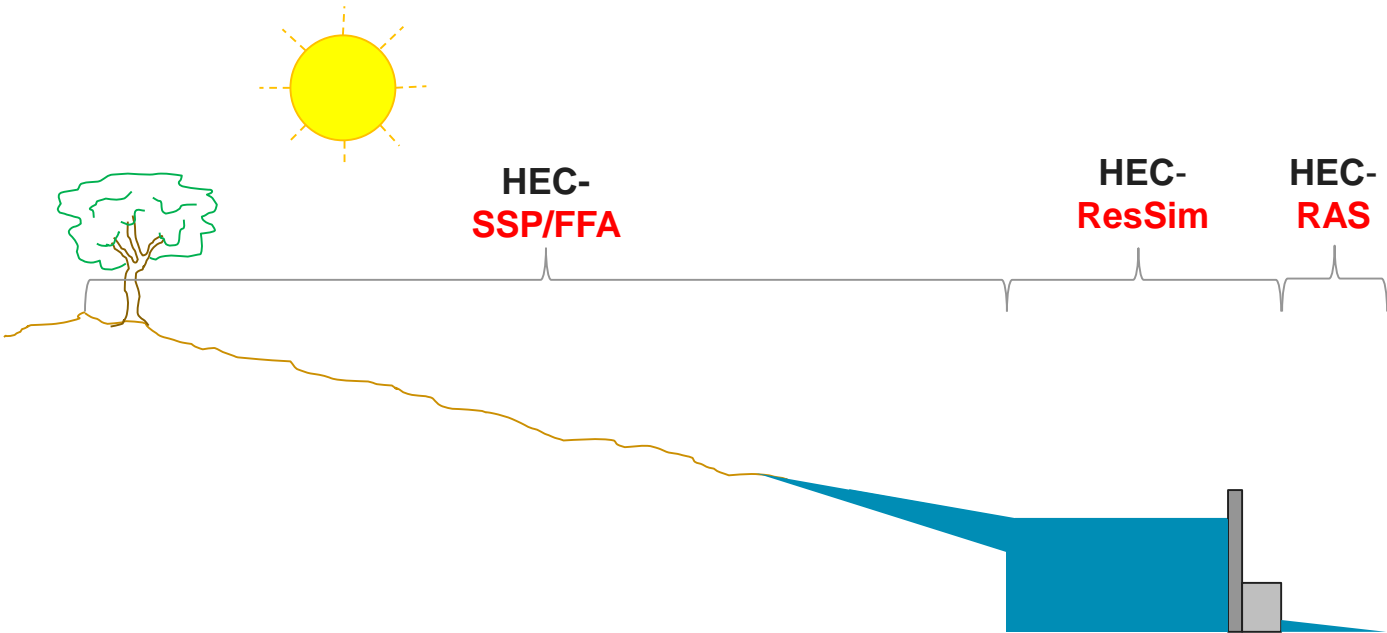


Operating Curve Change Feasibility Analysis Study





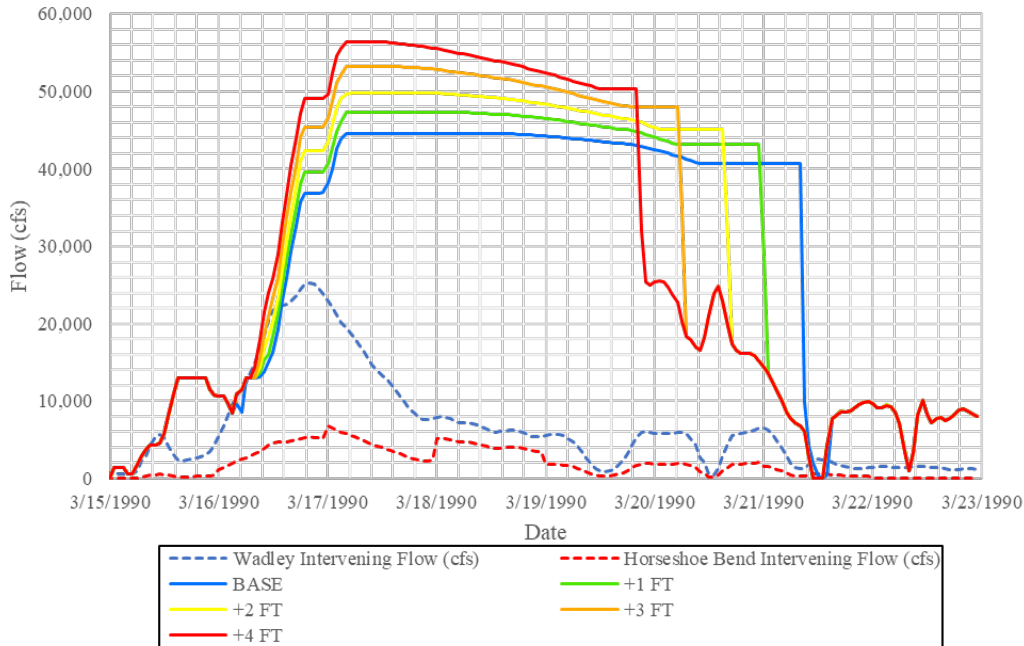
Where the models are used...



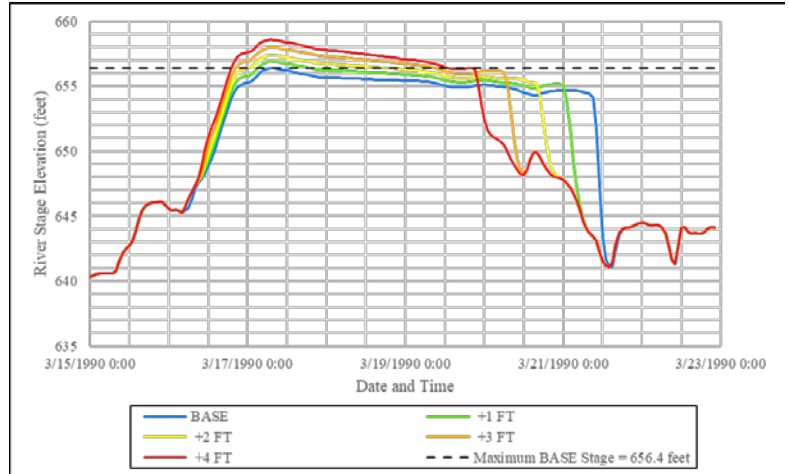
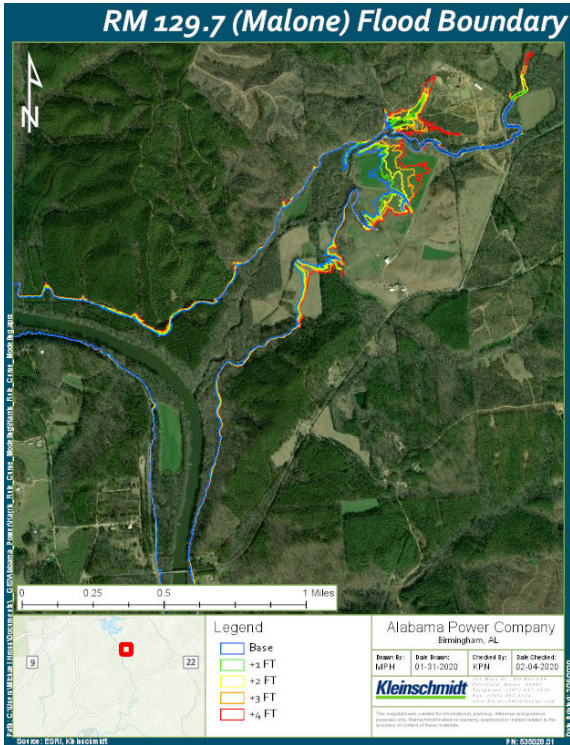
HEC-RAS – MODELED FLOWS



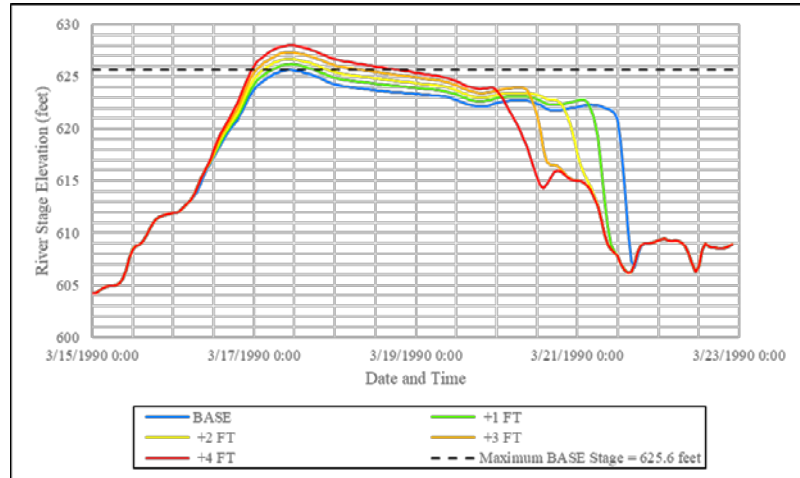
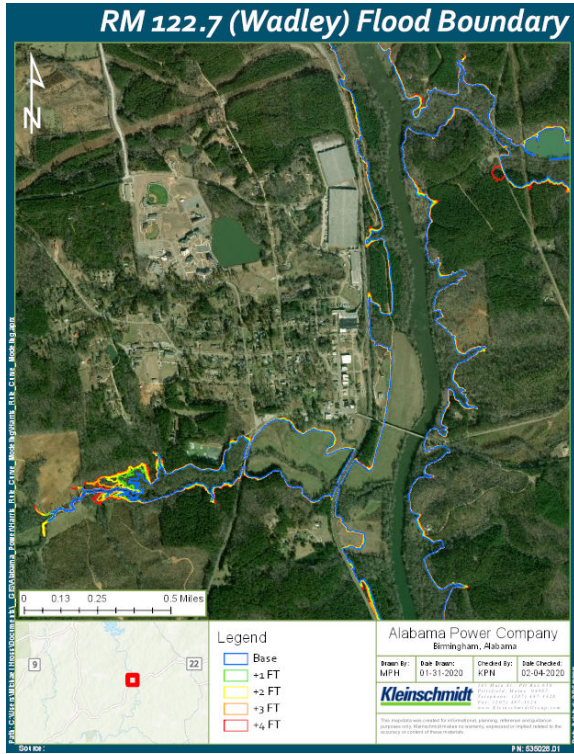
- Base scenario (i.e., existing) and 4 rule curve simulations
 - +1 ft, +2 ft, +3 ft, +4ft
- Intervening flows included in model
 - Flows contributed to river by watershed downstream of the dam
 - Between Harris Dam and Wadley, AL
 - Between Wadley, AL and Horseshoe Bend



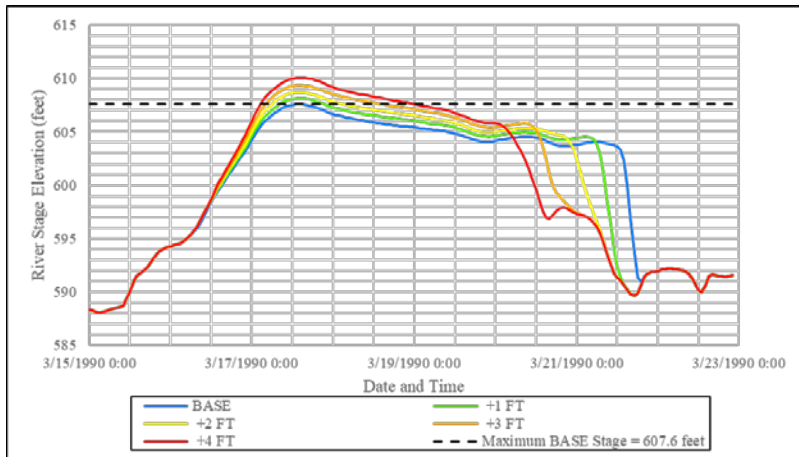
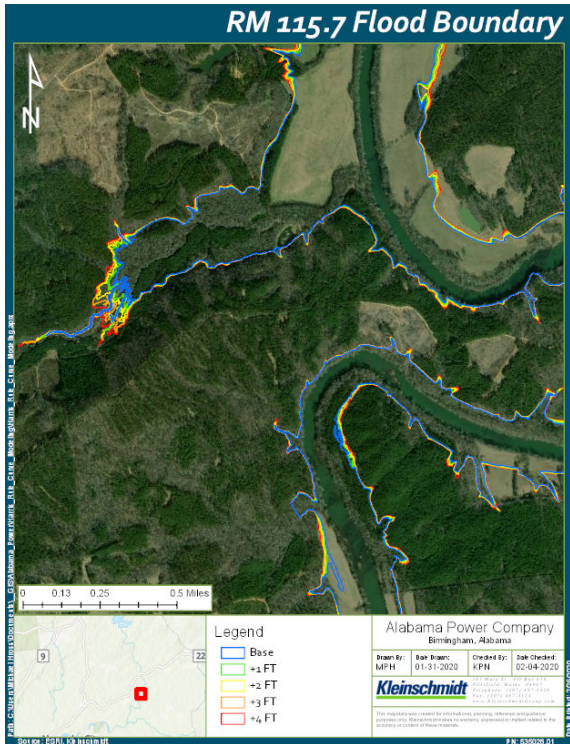
HEC-RAS – MODELING RESULTS



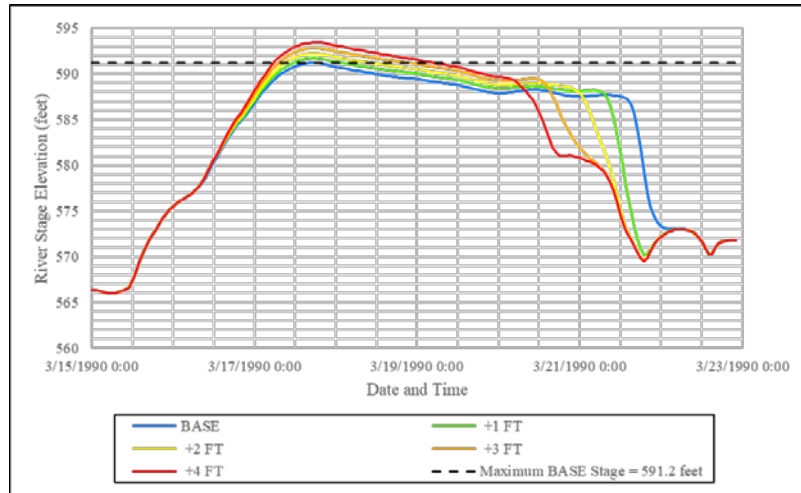
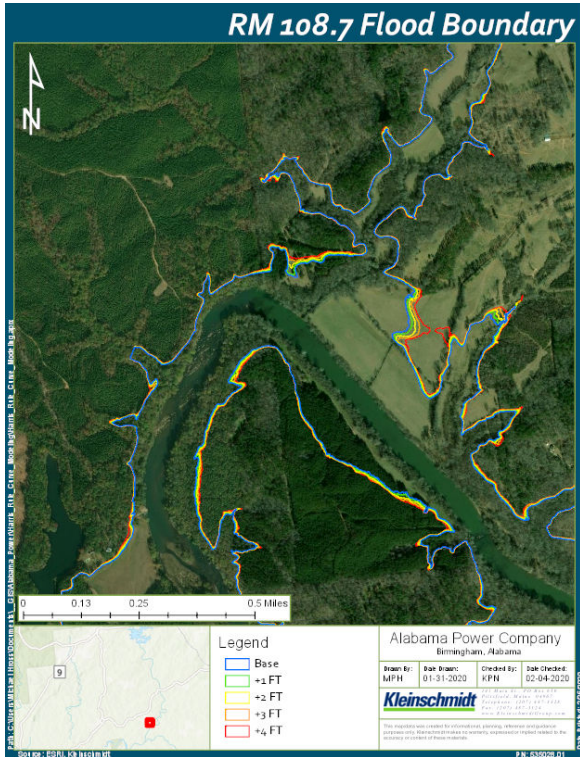
HEC-RAS – MODELING RESULTS



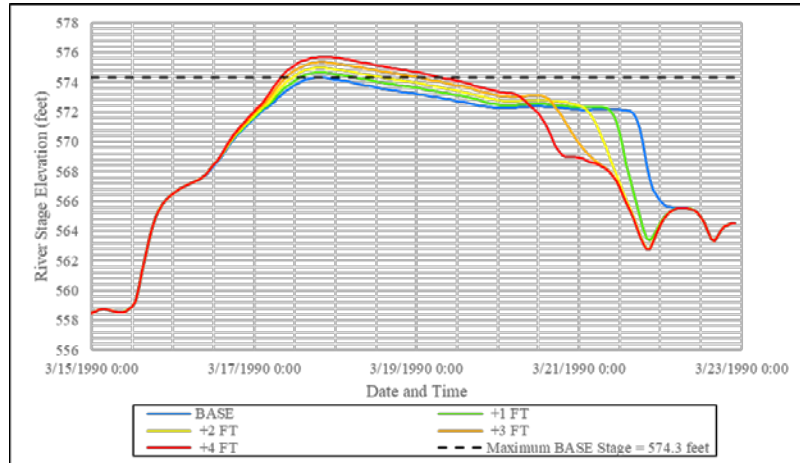
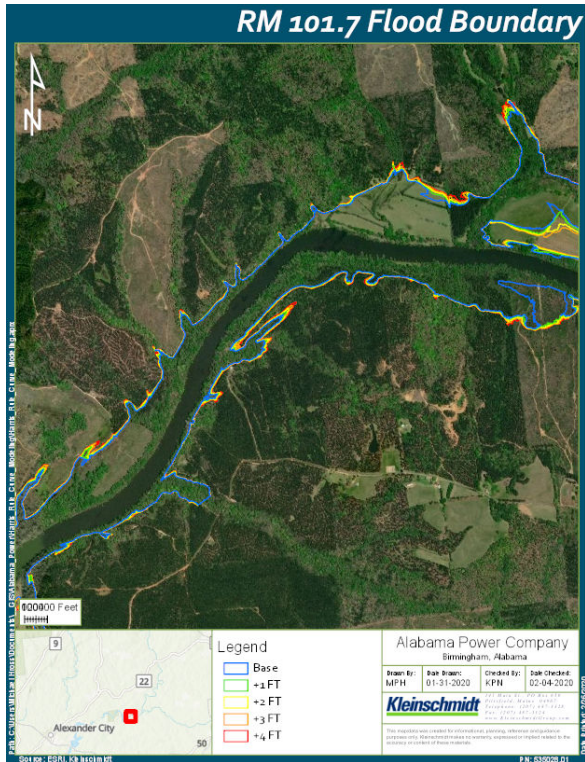
HEC-RAS – MODELING RESULTS



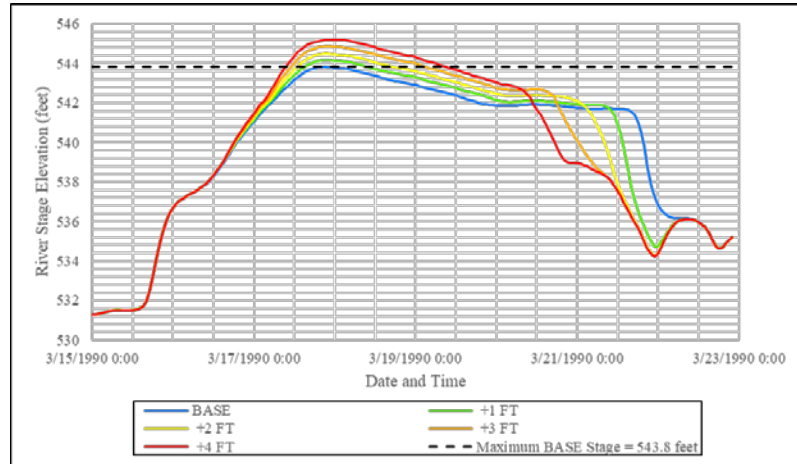
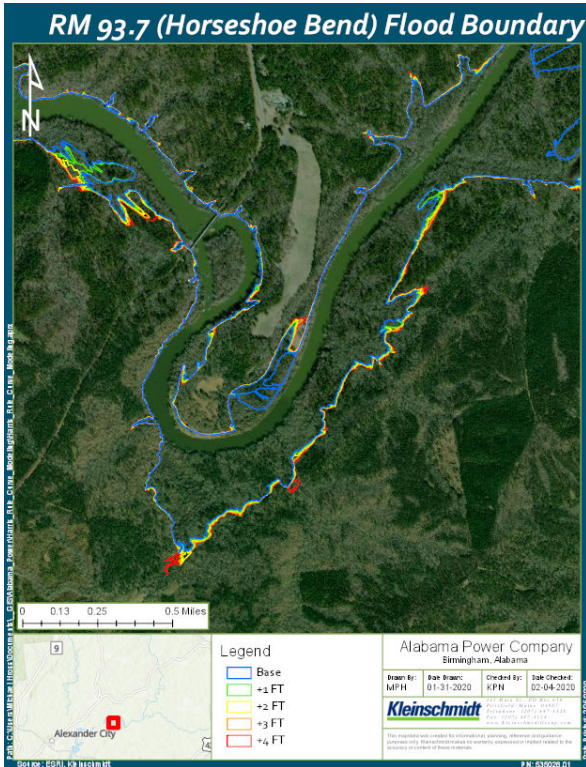
HEC-RAS – MODELING RESULTS



HEC-RAS – MODELING RESULTS



HEC-RAS – MODELING RESULTS



HEC-RAS – MODEL RESULTS



Location	Distance from Dam (miles)	Max Water Surface Rise (feet)			
		+ 1 foot	+ 2 feet	+ 3 feet	+ 4 feet
RM 129.7 (Malone, AL)	7	0.5	1.0	1.6	2.2
RM 122.7 (Wadley, AL)	14	0.5	1.1	1.7	2.4
RM 115.7	21	0.6	1.1	1.8	2.5
RM 108.7	28	0.5	1.0	1.6	2.2
RM 101.7	35	0.4	0.7	1.1	1.4
RM 93.7 (Horseshoe Bend)	43	0.3	0.7	1.0	1.4

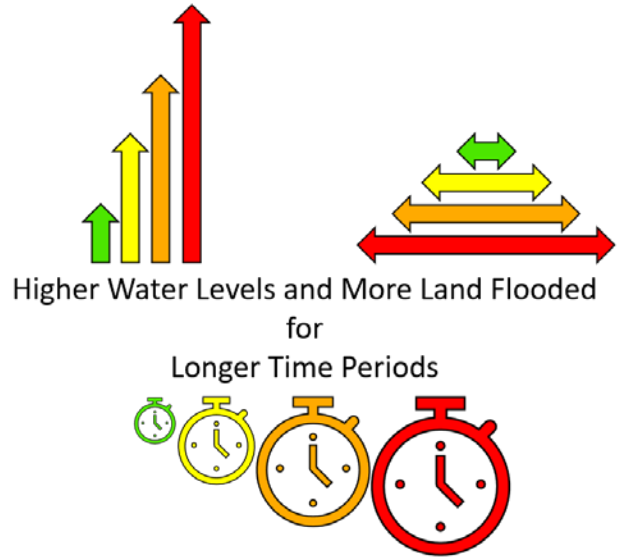
Location	Distance from Dam (miles)	Duration above Baseline Condition Max Elevation (hours)			
		+ 1 foot	+ 2 feet	+ 3 feet	+ 4 feet
RM 129.7 (Malone, AL)	7	15	43	61	67
RM 122.7 (Wadley, AL)	14	12	19	32	43
RM 115.7	21	13	21	34	46
RM 108.7	28	14	26	38	48
RM 101.7	35	17	27	40	48
RM 93.7 (Horseshoe Bend)	43	18	29	39	47



HEC-RAS - SUMMARY



- ❑ Any change in the operating curve causes:
 - ❑ increased maximum stage
 - ❑ increase in inundation,
 - ❑ increase in duration
- ❑ Most flooding occurs where tributaries enter Tallapoosa River
- ❑ Will need to evaluate effects on downstream structures



OPERATING CURVE CHANGE FEASIBILITY ANALYSIS



Variance from Study Plan and Schedule

- March 2020 HAT 1 meeting cancelled due to COVID-19

Remaining Activities/Modification/Other Proposed Studies

- Draft Phase 1 study report comments due June 11, 2020
- Begin Phase 2 analysis on effects of winter operating curve on other resources
- Present methods for the Lake Recreation Structure Usability at Winter Pool Alternatives phase 2 analysis to HAT 1 and HAT 5
- Present methods for evaluating effects on inundated structures downstream of Harris Dam
- No additional studies have been proposed beyond that in FERC's SPD

QUESTIONS?



DOWNSTREAM RELEASE ALTERNATIVES



Study Purpose and Methods Summary

- To evaluate the effects of pre- and post- implementation of Green Plan operations, a continuous minimum flow of 150 cfs, and an alternative/modified Green Plan operation on Project resources.

Study Progress

- RES-Sim outflow hydrographs developed
- HEC-RAS model complete;
- Navigation, ADROP and Hydrobudget analyses
- Draft report distributed to stakeholders



HEC-RAS – MODELED SCENARIOS



- ❑ 3 Downstream Release Alternative Plans
 - Pre-Green
 - Green Plan
 - 150 cfs Continuous Minimum Flow
- ❑ 2001 Selected as an average year
 - Intervening flows included in model
 - Flows contributed to river by watershed downstream of the dam
 - Between Harris Dam and Wadley, AL
 - Between Wadley, AL and Horseshoe Bend
 - Intervening flow data from USGS gages at Wadley, 02414500 and near Horseshoe Bend, 02414715



PHASE 1 MODELING RESULTS



- Lake Level Impacts: none
- Generation Impacts
 - Pre-Green Plan: + \$357,000 per year
 - Green Plan: none (current operation mode)
 - 150 cfs Continuous Minimum Flow: undetermined
- Flood Control Impacts: none
- Navigation Impacts: none
- Drought Operation Impacts: none



DOWNSTREAM RELEASE ALTERNATIVES



Variance from Study Plan and Schedule

- March 2020 HAT 1 meeting cancelled due to COVID-19

Remaining Activities/Modification/Other Proposed Studies

- Draft Phase 1 study report comments due June 11, 2020
- Begin Phase 2 analysis on effects of downstream release alternatives on other resources
- No additional studies have been proposed beyond that in FERC's SPD

QUESTIONS?



HAT 2 Water Quality and Use

- ❑ Water Quality Study
- ❑ Erosion and Sedimentation Study



WATER QUALITY



Study Purpose and Methods Summary

- ❑ Summarizes data collected from 2017 through 2019 from Alabama Power, Alabama Department of Environmental Management (ADEM), and Alabama Water Watch (AWW)
- ❑ Supports the required 401 Water Quality Certification by conducting dissolved oxygen and water temperature monitoring in the tailrace and Harris Reservoir forebay
- ❑ Identifies any possible areas of water quality concern by HAT 2 participants

Study Progress

- ❑ Held HAT 2 meeting on September 11, 2019
- ❑ HAT 2 stakeholders identified one location of water quality concern: the Foster's Bridge area at Lake Harris
- ❑ Distributed Draft Water Quality Report March 9, 2020
- ❑ Collected dissolved oxygen (DO) and temperature data at two locations downstream of the dam and monthly vertical profiles in the Harris Reservoir forebay



WATER QUALITY



Data Collection Results

- ❑ Generation data immediately downstream of Harris Dam in 2018 and 2019 had dissolved oxygen (DO) readings greater than 5 milligrams per liter (mg/L) for 94 percent of all measurements
- ❑ Continuous monitoring for generation and non-generation in 2019 had DO levels greater than 5 mg/L for 99.9 percent of all measurements
- ❑ Several low DO level readings in 2017 can be attributed to severe drought that impacted the Harris Reservoir in the summer and fall of 2016, where inflows to the lake were at historic lows, causing stronger stratification of Lake Harris
- ❑ Data collected by ADEM at Harris Dam, Wadley, and Horseshoe Bend had DO levels above 5 mg/L at each sampling event
- ❑ Continuous monitoring at Malone indicated that the DO levels were greater than 5 mg/L for 99 percent of the monitoring period

WATER QUALITY



Variance from the Study Plan and Schedule

- Alabama Power intends to submit an application to ADEM for the 401 Water Quality Certification in April 2021, not in April 2020 as noted in the FERC SPD.

Remaining Activities/Modification/Other Proposed Studies

- Comments on Draft Water Quality Study Report due June 11, 2020
- Review comments on the Draft Water Quality Study Report and modify the Final Report, as applicable
- Prepare the 401 WQC application and submit to ADEM in April 2021
- No additional studies have been proposed beyond that in FERC's SPD

QUESTIONS?



EROSION AND SEDIMENTATION



Study Purpose and Methods Summary

- Identify any problematic erosion sites and sedimentation areas and determine the likely causes
 - Identify erosion and sedimentation sites
 - Assess lake erosion sites using a qualified Erosion and Sediment Control Professional
 - Assess bank erosion susceptibility in Tallapoosa River from Harris Dam through Horseshoe Bend
 - Assess sedimentation sites by examining available lake photography and data (LIDAR) and analyzing with Geographic Information System (GIS)

Study Progress

- May 1, 2019 email to HAT 2 members distributed maps of sites identified for assessment and requested additional sites
- September 11, 2019 HAT 2 meeting – Reviewed study plan and last call for erosion and sedimentation sites
- Lake erosion site assessments performed in December 2019
- Bank erosion susceptibility assessment performed in May 2019
- Draft Erosion and Sedimentation Study Report distributed to HAT 2 on March 17, 2020



EROSION AND SEDIMENTATION



Lake Harris Erosion Assessment

☐ 24 sites assessed

- 8 sites – no erosion
- 16 sites with erosion due to land use (12), anthropogenic (6), and/or natural factors independent of Project operations (8).

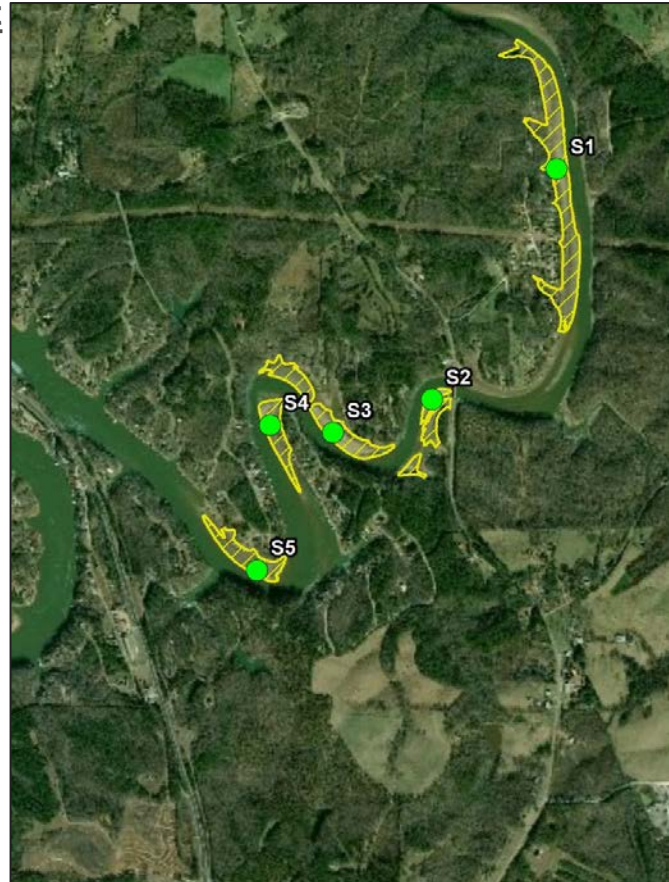


EROSION AND SEDIMENTATION



Lake Harris Sedimentation Assessment

- ❑ 9 sites assessed – most in Little Tallapoosa arm
- ❑ GIS analysis estimated 120 acres
- ❑ 25% of Little Tallapoosa River basin is hay/pasture fields



EROSION AND SEDIMENTATION



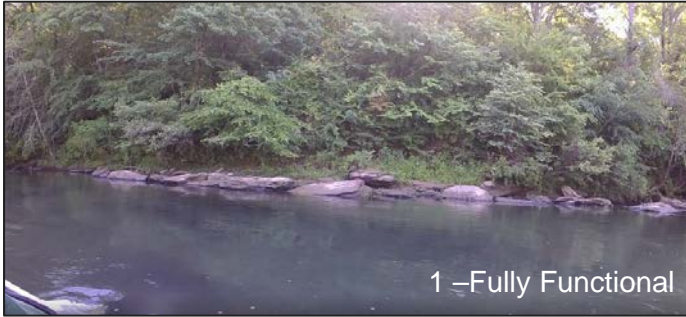
Tallapoosa River Assessment

- High Definition Stream Survey (HDSS)
- Left and right banks scored independently
- Only one area was impaired to non-functional

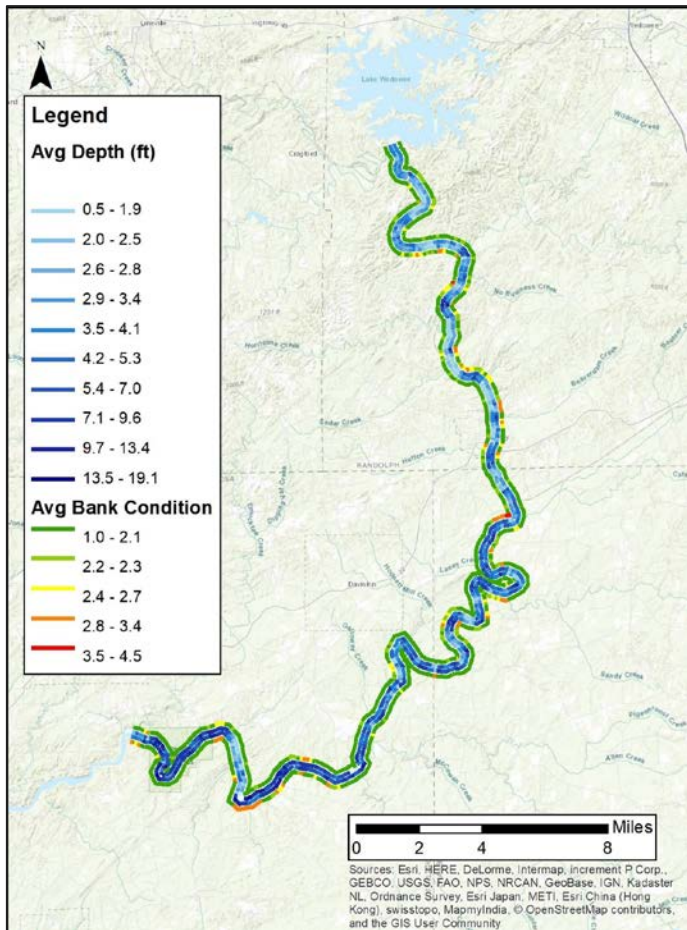
Bank Condition Score	Bank Condition Class	Description	Erosion Potential	Human Impact
1	Fully Functional	Banks with low erosion potential, such as, bedrock outcroppings, heavily wooded areas with low slopes and good access to flood plain.	Low to High	Low to High
2	Functional	Banks in good condition with minor impacts present, such as, forested with moderate bank angles and adequate access to flood plains.		
3	Slightly Impaired	Banks showing moderate erosion impact or some impact from human development.		
4	Impaired	Surrounding area consists of more than 50% exposed soil with low riparian diversity or surface protection. Obvious impacts from cattle, agriculture, industry, and poorly protected streambanks		
5	Non-functional	Surrounding area consists of short grass or bare soil and steep bank angles. Evidence of active bank failure with very little stabilization from vegetation. Contribution of sediment likely to be very high in these areas.		



EROSION AND SEDIMENTATION



EROSION AND SEDIMENTATION



EROSION AND SEDIMENTATION



Variance from the Study Plan and Schedule

- No variance from the study plan or schedule.

Remaining Activities/Modification/Other Proposed Studies

- Draft Erosion and Sedimentation Study Report comments due June 11, 2020
- Additional reconnaissance at Lake Harris sedimentation site during full (summer) pool conditions to determine if any nuisance aquatic vegetation is present
- No additional studies have been proposed beyond that in FERC's SPD

QUESTIONS?



HAT 3 Fish and Wildlife

- ❑ Threatened and Endangered Species Study
- ❑ Downstream Aquatic Habitat Study
- ❑ Aquatic Resources Study



THREATENED & ENDANGERED SPECIES



Study Purpose and Methods Summary

- ❑ Determine if listed species occur in the Project Area and identify potential project impacts
 - Compile a list of T&E species and critical habitats
 - Review literature of agreed upon species to gather habitat requirement data and describe historical range.
 - Identify factors affecting the status of each species.
 - Use GIS to map habitat information to determine possible areas in the geographic scope that T&E species may utilize.
 - Summarize collected data of areas within the geographic scope that provide habitat requirements for T&E species.
 - Determine if these areas are potentially impacted by Harris Project operations.
 - Perform field surveys, as appropriate

Study Progress

- ❑ August 27, 2019 – Reviewed Study Plan and discussed need for field surveys
- ❑ Surveyed for fine-lined pocketbook (mussel) in Tallapoosa River (November 2019)
- ❑ Draft Threatened and Endangered Species Desktop Assessment complete



THREATENED & ENDANGERED DESKTOP STUDY



Federally Threatened and Endangered Species Potentially Occurring in AL Counties within Project Vicinity

- 20 species: 7 threatened, 13 endangered
 - Harris – 7 species
 - Red-cockaded woodpecker
 - Southern pigtoe and fine-lined pocketbook
 - Indiana bat and northern long-eared bat
 - Little amphianthus and white fringeless orchid
 - Skyline – 16 species
 - Palezone shiner and spotfin chub
 - 8 mussel species
 - Indiana bat, northern long-eared bat, and gray bat
 - White fringeless orchid, Price's potato bean, Morefield's leather flower



THREATENED & ENDANGERED DESKTOP STUDY



HABITAT OCCURRENCE

SPECIES	SKYLINE	LAKE HARRIS
Fine-lined pocketbook		✓
Southern pigtoe		✓
Gray bat	✓	
Indiana bat	✓	✓
Northern long-eared bat	✓	✓
Little amphianthus		✓
Price's potato bean	✓	
White fringeless orchid	✓	✓
Red-cockaded woodpecker		✓



THREATENED & ENDANGERED DESKTOP STUDY



USFWS Designated Critical Habitat

- Fine-lined pocketbook
- Indiana bat
- Rabbitsfoot
- Slabside pearlymussel
- Southern pigtoe
- Spotfin chub



THREATENED & ENDANGERED SPECIES



Variance from the Study Plan and Schedule

- March 2020 HAT 3 meeting was cancelled due to COVID-19

Remaining Activities/Modifications/Other Proposed Studies

- Comments on Draft Threatened and Endangered Species Desktop Assessment due June 11, 2020
- Additional consultation with USFWS as needed
- Additional surveys in spring/summer 2020: palezone shiner and fine-lined pocketbook
- No additional studies have been proposed beyond that in FERC's SPD

QUESTIONS?



DOWNSTREAM AQUATIC HABITAT



Study Purpose and Methods Summary

- To develop a model that describes the relationship between Green Plan operations and aquatic habitat.

Study Progress

- Use HEC-RAS to evaluate the effect of current operations on the amount and persistence of wetted aquatic habitat, especially shoal/shallow-water habitat.
 - Model runs of Green Plan vs Pre-Green Plan operations
- Mesohabitat analysis (classified as riffle, run, or pool) complete
- 20 Level/temperature loggers deployed in 2019
- HAT 3 March 20, 2019 Meeting – Reviewed Study Plan and draft mesohabitat analysis
- HAT 3 December 11, 2019 – Reviewed study progress and proposed methodology for analyzing results from HEC-RAS
- February 20, 2020 – HAT 3 Meeting to review proposed analysis methodology and initial results of wetted perimeter analysis



DOWNSTREAM AQUATIC HABITAT



Variance from the Study Plan and Schedule

- March 2020 HAT 3 meeting was cancelled due to COVID-19

Remaining Activities/Modifications/Other Proposed Studies

- Level loggers continue to collect data through June 2020
- Analysis of HEC-RAS results
- Develop temperature component of HEC-RAS model (spring 2020)
- Draft Report in June 2020
- No additional studies have been proposed beyond that in FERC's SPD

QUESTIONS?



AQUATIC RESOURCES



Study Purpose and Methods Summary

Evaluate the effects of the Harris Project on aquatic resources.

Study Progress

Desktop Assessment of Aquatic Resources (Kleinschmidt)

Downstream Fish Population Research (Auburn)

- Fish Temperature Requirements
- Assessment of Temperature Data from Regulated and Unregulated Reaches
- Fish Community Surveys
 - Wadeable standardized (30+2) sampling
 - Boat Electrofishing
- Bioenergetics Modeling



DOWNSTREAM FISH POPULATION RESEARCH



- ❑ Literature review of temperature requirements of target species: Redbreast Sunfish, Channel Catfish, Tallapoosa Bass, and Alabama Bass
 - Spotted Bass temperature review will be used in place of Alabama Bass
- ❑ Fish sampling at Horseshoe Bend, Wadley, Lee's Bridge (control site), and Harris Dam tailrace
 - Sampling in April, May, July, September, November 2019 and January and March 2020
 - Individual fish weighed, measured, sexed, had gonads removed and weighed, had diets removed from stomachs and preserved, and had otoliths removed and stored to be evaluated
 - To date, all diets quantified, all prey items identified, and all diet data entered into databank
- ❑ Target species specimens being used in respirometry tests
 - Intermittent flow static respirometry tests: data will be used in bioenergetics models
 - Swimming respirometry to quantify performance capabilities of fish



AQUATIC RESOURCES

Variance from Study Plan and Schedule

- March 2020 HAT 3 meeting was cancelled due to COVID-19
- Auburn University exploring alternatives to electromyogram radio tags

Remaining Activities/Modifications/Other Proposed Studies

- Desktop Assessment of Aquatic Resources
- Downstream Fish Population Research
 - Fish Temperature Requirements
 - Assessment of Temperature Data from Regulated and Unregulated Reaches
 - Fish Community Surveys
 - Wadeable standardized (30+2) sampling
 - Boat Electrofishing
 - Bioenergetics Modeling
 - Consider Alternative “Control” Site Upstream of Reservoir
 - Tag and Track Fish During Summer 2020
 - Continue Static Respirometry Tests at 10 and 21°C
 - Continue Measuring Active Metabolic Rates (Combination of Increasing Water Velocity and Decreasing Water Temperature)
- Draft Aquatic Resources Study Report in July 2020
- No additional studies have been proposed beyond that in FERC’s SPD

QUESTIONS?



Next Steps



Next Steps



- Alabama Power will file a summary of the ISR meeting on **May 12, 2020**
- Comments on the ISR and ISR meeting summary should be submitted to FERC by **June 11, 2020**
- Any requests for modifying the FERC approved study plan must follow 18 CFR Section 5.15 (d) and (e)
- Comments on the draft study reports should be submitted to Alabama Power at harrisrelicensing@southernco.com by **June 11, 2020**



Next Steps in Relicensing Process



- Additional HAT meetings (2020-2021)
- Second Study Season/Phase II (2020/2021)
- Progress Update (10/2020)
- File Updated Study Report (4/12/2021)
- File Updated Study Report Meeting Summary (4/27/2021)
- File Preliminary Licensing Proposal (PLP) (by 7/3/2021)
- Comments on Preliminary Licensing Proposal, Additional Information Request (if necessary) (90 days from issuance of PLP or by 10/1/2021)
- File Final License Application (11/30/2021)

Questions?





HARRIS DAM

RELICENSING



Alabama Power

From: [APC Harris Relicensing](#)
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Bcc: eddieplemons@charter.net; 1942jthompson240@gmail.com; 9sling@charter.net; alcondir@aol.com; allan.creamer@ferc.gov; alpeople@southernco.com; amanda.fleming@kleinschmidtgroup.com; amanda.mcbride@ahc.alabama.gov; amccartn@blm.gov; ammcvica@southernco.com; amy.silvano@dcnr.alabama.gov; andrew.nix@dcnr.alabama.gov; arsegars@southernco.com; athall@fujifilm.com; aubie84@yahoo.com; awhorton@corblu.com; bart_robby@msn.com; baxterchip@yahoo.com; bboozier6@gmail.com; bdavis081942@gmail.com; beckyrainwater1@yahoo.com; bill_pearson@fws.gov; blacklake20@gmail.com; blm_es_inquiries@blm.gov; bob.stone@smimail.net; bradandsue795@gmail.com; bradfordt71@gmail.com; brian.atkins@adeca.alabama.gov; bruce.bradford@forestry.alabama.gov; bsmith0253@gmail.com; butchjackson60@gmail.com; bwhaley@randolphcountyyeda.com; carolbuggknight@hotmail.com; celestine.bryant@atcrite.org; chengstrom@centurytel.net; ceo@jcchamber.com; cggoodma@southernco.com; cgnav@uscg.mil; chad@cleburnecountychamber.com; chandlermary937@gmail.com; chiefknight2002@yahoo.com; chimneycove@gmail.com; chris.goodell@kleinschmidtgroup.com; chris.greene@dcnr.alabama.gov; chris.smith@dcnr.alabama.gov; chris@alaudubon.org; chuckenman@hotmail.com; clark.maria@epa.gov; claychamber@gmail.com; clint.lloyd@auburn.edu; cjohnson@adem.alabama.gov; clowry@alabamarivers.org; cmnix@southernco.com; coetim@aol.com; colin.dinken@kleinschmidtgroup.com; cooper.jamal@epa.gov; coty.brown@alea.gov; craig.litteken@usace.army.mil; crystal.davis@adeca.alabama.gov; crystal.lakewedowedocks@gmail.com; crystal@hunterbend.com; dalerose120@yahoo.com; damon.abernethy@dcnr.alabama.gov; dbronson@charter.net; dcnr.wffdirector@dcnr.alabama.gov; decker.chris@epa.gov; devridr@auburn.edu; dfarr@randolphcountyalabama.gov; dhayba@usgs.gov; djmoore@adem.alabama.gov; dkanders@southernco.com; dolmoore@southernco.com; donnamat@aol.com; doug.deaton@dcnr.alabama.gov; dpreston@southernco.com; drheinzen@charter.net; ebt.drt@numail.org; eilandfarm@aol.com; el.brannon@yahoo.com; elizabeth-toombs@cherokee.org; 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jesscunningham@msn.com; jfcrew@southernco.com; jhancock@balch.com; jharjo@alabama-quassarte.org; jhaslbauer@adem.alabama.gov; jhouser@osiny.org; jkwdurham@gmail.com; jlowe@alabama-quassarte.org; jnyerby@southernco.com; joan.e.zehrt@usace.army.mil; john.free@psc.alabama.gov; johndiane@sbcglobal.net; jonas.white@usace.army.mil; josh.benefield@forestry.alabama.gov; jpsparrow@att.net; jrsasber@southernco.com; jthacker@southernco.com; jthronberry@tnc.org; judycreator@gmail.com; jwest@alabamarivers.org; kajumba.ntale@epa.gov; karen.brunso@chickasaw.net; kate.cosnahan@kleinschmidtgroup.com; kcarleton@choctaw.org; kechandl@southernco.com; keith.gauldin@dcnr.alabama.gov; keith.henderson@dcnr.alabama.gov; kelly.schaeffer@kleinschmidtgroup.com; ken.wills@jcdh.org; kenbarnes01@yahoo.com; kenneth.boswell@adeca.alabama.gov; kmhunt@maxxsouth.net; kmo0025@auburn.edu; kodom@southernco.com; kpritchett@ukb-nsn.gov; kristina.mullins@usace.army.mil; lakewedowedocks@gmail.com; leeanne.wofford@ahc.alabama.gov; leon.m.cromartie@usace.army.mil; leopoldo_miranda@fws.gov; lewis.c.sumner@usace.army.mil; lgallen@balch.com; lgarland68@aol.com; lindastone2012@gmail.com; llangley@coushattatribela.org; lovvorn@randolphcountyalabama.gov; lswinsto@southernco.com; lth0002@auburn.edu; mark@americanwhitewater.org; matt.brooks@alea.gov; matthew_marshall@dcnr.alabama.gov; mayo.lydia@epa.gov; mcoker@southernco.com; mew0061@aces.edu; mdollar48@gmail.com; meredith.h.ladart@usace.army.mil; mhpwedowee@gmail.com; mhunter@alabamarivers.org; michael.w.creswell@usace.army.mil; midwaytreasures@bellsouth.net; mike.holley@dcnr.alabama.gov; mitchell.reid@tnc.org; milen@adem.alabama.gov; mnedd@blm.gov; monte.terhaar@ferc.gov; mooretn@auburn.edu; mprandolphwater@gmail.com; nancyburnes@centurylink.net; nanferabee@juno.com; nathan.aycock@dcnr.alabama.gov; orr.chauncey@epa.gov; pace.wilber@noaa.gov; partnersinfo@wwfus.org; patti.powell@dcnr.alabama.gov; patty@ten-o.com; paul.trudine@gmail.com; ptramnell@reddyice.com; publicaffairs@doc.gov; rachel.mcnamara@ferc.gov; raebutler@mcn-nsn.gov; rancococ@teleclipse.net; randall.b.harvey@usace.army.mil; randy@randyrogerslaw.com; randy@wedoweemarine.com; rbmorris222@gmail.com; rcodydeal@hotmail.com; reuteem@auburn.edu; richardburnes3@gmail.com; rick.oates@forestry.alabama.gov; rickmcwhorter723@icloud.com; rifaft2@aol.com; rjdavis8346@gmail.com; robert.a.allen@usace.army.mil; robinwaldrep@yahoo.com; roger.mcneil@noaa.gov; ron@lakewedowee.org; rosoweka@mcn-nsn.gov; rusttown@nc-chokeee.com; ryan.prince@forestry.alabama.gov; sabrinawood@live.com; sandnfrench@gmail.com; sarah.salazar@ferc.gov; sbunter@pci-nsn.gov; scsmith@southernco.com; section106@mcn-nsn.gov; sforehand@russelllands.com; sgraham@southernco.com; sherry.bradley@adph.state.al.us; sidney.hare@gmail.com; simsthe@aces.edu; snelson@nelsonandco.com; sonjahollomon@gmail.com; steve.bryant@dcnr.alabama.gov; stewartjack12@bellsouth.net; straylor426@bellsouth.net; sueagnew52@yahoo.com; tdadunaway@gmail.com; thpo@pci-nsn.gov; thpo@tttown.org; timguffey@jcch.net; tlamberth@russelllands.com; tlmills@southernco.com; todd.fobian@dcnr.alabama.gov; tom.diggs@ung.edu; tom.lettieri47@gmail.com; tom.littlepage@adeca.alabama.gov; tpfreema@southernco.com; trayjim@bellsouth.net; triciastearns@gmail.com; twstjohn@southernco.com; variscom506@gmail.com; walker.mary@epa.gov; william.puckett@swcc.alabama.gov; wmcampbell218@gmail.com; wright2@aces.edu; wsgardne@southernco.com; wtanders@southernco.com

Subject: Harris Relicensing - Initial Study Report Meeting Summary
Date: Tuesday, May 12, 2020 12:16:34 PM
Attachments: [2020-05-12 ISR Meeting Summary.pdf](#)

Harris relicensing stakeholders,

The meeting summary from the April 28th Initial Study Report meeting, including a list of attendees and the meeting presentation, was filed with FERC today. The meeting summary is attached and can also be found at www.harrisrelicensing.com.

Thanks,

Angie Anderegg

Hydro Services

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From: APC Harris Relicensing
To: "harrisrelicensing@southernco.com"
Bcc: amy.silvano@dcnr.alabama.gov; chris.greene@dcnr.alabama.gov; damon.abernethy@dcnr.alabama.gov; evan.lawrence@dcnr.alabama.gov; keith.henderson@dcnr.alabama.gov; mike.holley@dcnr.alabama.gov; steve.bryant@dcnr.alabama.gov; matthew.marshall@dcnr.alabama.gov; todd.fobian@dcnr.alabama.gov; nathan.aycock@dcnr.alabama.gov; ken.wills@jcdh.org; arsegars@southernco.com; ammcvica@southernco.com; dkanders@southernco.com; jcarlee@southernco.com; jefbaker@southernco.com; kechandi@southernco.com; tl Mills@southernco.com; cggoodma@southernco.com; clowry@alabamarivers.org; mhunter@alabamarivers.org; jwest@alabamarivers.org; gjobsis@americanrivers.org; devridr@auburn.edu; irwiner@auburn.edu; kmo0025@auburn.edu; wrihr2@aces.edu; jhancock@balch.com; lgallen@balch.com; chris@alaudubon.org; sarah.salazar@ferc.gov; allan.creamer@ferc.gov; rachel.mcnamara@ferc.gov; monte.terhaar@ferc.gov; amanda.fleming@kleinschmidtgroup.com; colin.dinken@kleinschmidtgroup.com; henry.mealing@kleinschmidtgroup.com; jason.moak@kleinschmidtgroup.com; kate.cosnahan@kleinschmidtgroup.com; kelly.schaeffer@kleinschmidtgroup.com; sforehand@russellands.com; lgarland68@aol.com; rbmorrison222@gmail.com; pace.wilber@noaa.gov; mitchell.reid@tnc.org; donnamat@aol.com; trayjim@bellsouth.net; mhpwewood@bell.com; straylor426@bellsouth.net; triciastearns@gmail.com; wmcampbell218@gmail.com; robinwaldrep@yahoo.com; holliman.daniel@epa.gov; decker.chris@epa.gov; mayo.lydia@epa.gov; bill_pearson@fws.gov; evan_collins@fws.gov; jeff_powell@fws.gov; jennifer_grunewald@fws.gov; jeff_duncan@nps.gov
Subject: HAT 3 - 2/20 DAH meeting notes
Date: Thursday, May 14, 2020 10:19:11 AM

HAT 3,

It was brought to my attention that we forgot to place the meeting presentation and notes from the February 20 Downstream Aquatic Habitat meeting on our website. You can now find them in the HAT 3 folder:

http://harrisrelicensing.com/_layouts/15/start.aspx#/HAT%203%20%20Fish%20and%20Wildlife/Forms/AllItems.aspx.

Thanks,

Angie Anderegg

Hydro Services
(205)257-2251
arsegars@southernco.com

FEDERAL ENERGY REGULATORY COMMISSION
MEMORANDUM

DATE: June 9, 2020

FROM: Sarah Salazar, Environmental Biologist
Division of Hydropower Licensing
Office of Energy Projects

TO: Public Files for the R.L. Harris Hydroelectric Project
(FERC Project No. 2628-065)

SUBJECT: Email communication with the Alabama Rivers Alliance regarding the comment period for the Initial Study Report for the R.L. Harris Hydroelectric Project.

On June 5, 2020, Jack West (Alabama Rivers Alliance) emailed Commission staff to inquire about the comment period for the Initial Study Report for the R.L. Harris Hydroelectric Project. Commission staff responded on June 8, 2020.

A copy of the email correspondence is attached.

Sarah Salazar

From: Sarah Salazar
Sent: Monday, June 08, 2020 12:52 PM
To: Jack West
Cc: Allan Creamer; Rachel McNamara
Subject: RE: Question Re: Harris Relicensing

Good afternoon Jack,

Yes, we strongly recommend filing any comments you have on the Initial Study Report, including the draft study reports, by June 11, 2020.

To the extent that you think that any of the approved study plans and schedules should be modified to address your concerns, we recommend that you file, by June 11, 2020, a request for study plan modification(s) using the criteria in the Commission's regulations at 18 C.F.R. § 5.15(d) (2019). The approved study plans can be found in the applicant's Revised Study Plan that was filed on March 13, 2019. Updates to the study schedules, as required in the Commission's April 12, 2019 Study Plan Determination, were filed in an updated Revised Study Plan on May 13, 2019. If you would like to request any new studies, you would need to file, by June 11, 2020, such a request using the criteria in the Commission's regulations at 18 C.F.R. §5.9(b) and 5.15(e) (2019). I'm including excerpts of the cited regulations below.

Excerpt from 18 C.F.R. § 5.15

- (d) *Criteria for modification of approved study.* Any proposal to modify an ongoing study . . . must be accompanied by a showing of good cause why the proposal should be approved, and must include, as appropriate to the facts of the case, a demonstration that:
 - (1) Approved studies were not conducted as provided for in the approved study plan; or
 - (2) The study was conducted under anomalous environmental conditions or that environmental conditions have changed in a material way.
- (e) *Criteria for new study.* Any proposal for new information gathering or studies . . . must be accompanied by a showing of good cause why the proposal should be approved, and must include, as appropriate to the facts of the case, a statement explaining:
 - (1) Any material changes in the law or regulations applicable to the information request;
 - (2) Why the goals and objectives of any approved study could not be met with the approved study methodology;
 - (3) Why the request was not made earlier;
 - (4) Significant changes in the project proposal or that significant new information material to the study objectives has become available; and
 - (5) Why the new study request satisfies the study criteria in § 5.9(b).

Excerpt from 18 C.F.R. § 5.9(b)

- (b) *Content of study request.* Any information or study request must:
 - (1) Describe the goals and objectives of each study proposal and the information to be obtained;
 - (2) If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied;
 - (3) If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study;
 - (4) Describe existing information concerning the subject of the study proposal, and the need for additional information;

- (5) Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements;
- (6) Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate filed season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge; and
- (7) Describe considerations of level of effort and cost, as applicable, and why proposed alternative studies would not be sufficient to meet the stated information needs.

Thanks again for your inquiry. I hope this response answers your question. Please let me know if you have additional questions.

Note, I will be filing this email to our record for the project.

Sarah L. Salazar ✦ *Environmental Biologist* ✦ *Federal Energy Regulatory Commission* ✦ *888 First St, NE, Washington, DC 20426* ✦ *(202) 502-6863*
📧 *Please consider the environment before printing this email.*

From: Jack West <jwest@alabamarivers.org>
Sent: Saturday, June 06, 2020 2:19 PM
To: Sarah Salazar <Sarah.Salazar@ferc.gov>
Cc: Allan Creamer <Allan.Creamer@ferc.gov>; Rachel McNamara <Rachel.McNamara@ferc.gov>
Subject: Re: Question Re: Harris Relicensing

Sarah,

No problem at all. Thanks for the response, and have a great weekend.

On Fri, Jun 5, 2020 at 4:54 PM Sarah Salazar <Sarah.Salazar@ferc.gov> wrote:

Hi Jack,

Thanks for your message and inquiry. Sorry for the delay in responding. I was actually off today, but I will get back to you first thing next week.

Sarah L. Salazar ✦ *Environmental Biologist* ✦ *Federal Energy Regulatory Commission* ✦ *888 First St, NE, Washington, DC 20426* ✦ *(202) 502-6863*
📧 *Please consider the environment before printing this email.*

From: Jack West <jwest@alabamarivers.org>
Sent: Friday, June 05, 2020 11:56 AM
To: Sarah Salazar <Sarah.Salazar@ferc.gov>; Allan Creamer <Allan.Creamer@ferc.gov>; Rachel McNamara <Rachel.McNamara@ferc.gov>
Subject: Question Re: Harris Relicensing

Hi Sarah, Allan, and Rachel:

Thank you for encouraging stakeholder input during the Harris relicensing. I'm writing with a procedural question regarding the timing of stakeholder requests for additional modeling of downstream release alternatives.

During the ISR meeting in April and during some HAT meetings, stakeholders have been asked by Licensee to suggest any additional flow release alternatives we would like to see modeled as soon as possible. We believe that modeling a wider variety of flows will strengthen the studies and inform future adaptive management, and we do plan to suggest other downstream release alternatives to model.

However, without at least draft reports of the Aquatic Resources Study and the Aquatic Habitat study, we feel it is premature to ask stakeholders to put forth all alternatives. Flows, thermal impacts on aquatic resources, water quality, and aquatic habitat reports are all deeply interrelated. Flows and the thermal regime, in particular, should be considered together, but analysis of the impacts of temperature on aquatic life is still forthcoming.

Licensee itself acknowledges that the results from the Aquatic Resources Study are needed to design the fourth flow scenario it plans to model (an alternative Green Plan). Those same results will help stakeholders, as well, to make the most informed flow recommendations for study.

We understand that the modeling of additional flows takes time and effort, and we have no desire to unnecessarily delay, but to be of the most value, requests for additional flow modeling should be informed by the results of the fisheries studies.

Which brings me to the question: Do absolutely all requests for modeling of additional flows need to be submitted by the comment period ending June 11, or will there be an opportunity for stakeholders to put forth additional release alternatives once the draft fisheries studies are available?

I can certainly include these thoughts in our comments to be filed next week. Again, my thanks for incorporating stakeholders in this process, and I look forward to continuing to participate in the relicensing.

I hope you're staying safe and well.

--

Jack West, Esq.

Policy and Advocacy Director

Alabama Rivers Alliance

2014 6th Ave N, Suite 200

Birmingham, AL 35203

205-322-6395

www.alabamarivers.org

Celebrating more than 20 years of protecting Alabama's 132,000 miles of rivers and streams!

--

Jack West, Esq.

Policy and Advocacy Director

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FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426
June 10, 2020

OFFICE OF ENERGY PROJECTS

Project No. 2628-065 – Alabama
R.L. Harris Hydroelectric Project
Alabama Power Company

VIA FERC Service

Ms. Angie Anderegg
Harris Relicensing Project Manager
Alabama Power Company
600 North 18th Street Birmingham,
AL 35203

Subject: Staff Comments on the Initial Study Report and Initial Study Report Meeting Summary for the R.L. Harris Hydroelectric Project

Dear Ms. Anderegg:

Staff have reviewed Alabama Power Company's (Alabama Power) Initial Study Report (ISR) and associated draft study reports for the R.L. Harris Hydroelectric Project (Harris Project) filed on April 10, 2020, attended the ISR Meeting held via teleconference on April 28, 2020, and reviewed the ISR Meeting Summary filed on May 12, 2020. Alabama Power filed its ISR two days earlier than the published deadline of April 12, 2020. However, staff is maintaining the original deadline posted in previously issued process plans, June 11, 2020, for filing: comments on the ISR and draft study reports; comments on the ISR Meeting summary; requests for modifications to the approved study plan; and proposals for new studies.

Any stakeholder requests for study plan modifications or new studies should follow the Commission's regulations at 18 C.F.R. § 5.9(b) and 5.15 (2019), which are attached for stakeholder convenience (Attachment B). A copy of the Commission's Integrated Licensing Process (ILP) schedule for the Harris Project pre-filing milestones is attached as a reminder (Attachment C).

Based on a review of the ISR, associated draft study reports, discussions at the ISR Meeting, and a review of the ISR Meeting Summary, staff provide comments and recommended updates on Alabama Power's filings in Attachment A. Unless otherwise noted, please address the comments in Attachment A in the Updated Study Report or the

Project No. 2628-065

- 2 -

preliminary licensing proposal and license application, as appropriate. Alabama Power's requests for variances to their approved schedules for the Water Quality Study, the Draft Recreation Evaluation Study Report, and the Cultural Resources Study¹ will be addressed after the close of the ISR comment period.

If you have questions please contact Sarah Salazar at (202) 502-6863, or at sarah.salazar@ferc.gov.

Sincerely,

Allan E. Creamer

for Stephen Bowler, Chief
South Branch
Division of Hydropower Licensing

Enclosures: Attachment A
Attachment B
Attachment C

¹ Alabama Power intends to submit its Clean Water Act section 401 Water Quality Certification application to the Alabama Department of Environmental Management in April 2021 instead of in 2020, as originally proposed. Alabama Power proposes to file its Draft Recreation Evaluation Study Report in August 2020 instead of June 2020 to allow time to complete two new recreation surveys, the Tallapoosa River Downstream Landowner Survey and the Tallapoosa River Recreation User Survey. Alabama Power also proposes to finalize the Area of Potential Effect (APE) for its Cultural Resources Study and file it with documentation of consultation in June 2020.

Attachment A**Staff comments on the Initial Study Report (ISR) and
Initial Study Report Meeting Summary**Draft Operating Curve Change Feasibility Analysis (Phase 1) Study Report

1. Figure 5-3, on page 39 of the Draft Operating Curve Change Feasibility Analysis (Phase 1) Study Report, shows how changing the winter pool elevation from the current project operating curve to the +1, +2, +3, and +4-foot winter operating curves could affect reservoir elevations in Lake Harris throughout the year. Moreover, the figure documents the interaction between higher winter pool levels and low-inflow periods. During the period between 2006 and 2008, which encompasses two low-flow periods, the model showed that increasing the winter pool elevation can result in higher reservoir elevations during low-flow years, compared to the existing operating curve. However, Figure 5-3 shows that from about July 2007 through mid-February 2008, modeled reservoir levels for the +2 and +3-foot winter pool curve alternatives were lower than that of the other operating curve alternatives for the same operating period. Please explain what appears to be an anomaly in the modeling result in the final report.

Draft Downstream Release Alternatives (Phase 1) Study Report

2. During the ISR Meeting, Alabama Power requested that stakeholders provide downstream flow alternatives for evaluation in the models developed during Phase 1 of the Downstream Release Alternatives Study. Stakeholders expressed concerns about their ability to propose flow alternatives without having the draft reports for the Aquatic Resources and Downstream Aquatic Habitat Studies, which are scheduled to be available in July 2020 and June 2020, respectively. It is our understanding that during Phase 2 of this study, Alabama Power would run stakeholder-proposed flow alternatives that may be provided with ISR comments, as well as additional flow alternatives that stakeholders may propose after the results for the Aquatic Resources and Downstream Aquatic Habitat Studies are available. Please clarify your intent by July 11, 2020, as part of your response to stakeholder comments on the ISR.

3. According to the approved study plan, the goal of the Downstream Release Alternatives Study is to evaluate the effects of four downstream flow release alternatives on project resources. The four release alternatives are: (1) the Green Plan, or Alabama Power's current pulsing operation; (2) the Pre-Green Plan, or Alabama Power's historic peaking operation; (3) the Pre-Green Plan with a continuous baseflow of 150 cubic feet per second (cfs); and (4) a modified Green Plan. The Phase 1 Report, filed on April 10, 2020, presented complete results for Pre-Green Plan operation and Green Plan operation, partial results for the Pre-Green Plan with a 150-cfs baseflow, and no results for the modified Green-Plan alternative.

During the ISR Meeting, Alabama Power requested that stakeholders identify and propose downstream flow release alternatives so that the proposed alternative's effects on environmental resources can be assessed during Phase 2 of the study. To facilitate modelling of downstream flow release alternatives, we recommend that Alabama Power run base flows of 150 cfs, 350 cfs, 600 cfs, and 800 cfs through its model for each of the three release scenarios (i.e., the Pre-Green Plan, the Green Plan, and the modified Green Plan flow release approach). The low-end flow of 150 cfs was proposed by Alabama Power as equivalent to the daily volume of three 10-minute Green Plan pulses. This flow also is about 15 percent of the average annual flow at the United States Geological Survey's flow gage (#02414500) on the Tallapoosa River at Wadley, Alabama, and represents "poor" to "fair" habitat conditions.¹ We recommend 800 cfs as the upper end of the base flow modeling range because it represents "good" to "excellent" habitat,² and is nearly equivalent to the U.S. Fish and Wildlife Service's Aquatic Base Flow guideline for the Tallapoosa River at the Wadley gage.³ The proposed base flows of 350 cfs and 600 cfs cover the range between 150 cfs and 800 cfs.

In addition, we recommend that the modeling for Alabama Power's Aquatic Resources Study and Downstream Aquatic Habitat Study,⁴ as well as any Phase 2

¹ See Tennant, D.L. 1976. Instream flow regimens for fish, wildlife, recreation, and related environmental resources. *in* Instream flow needs, Volume II: Boise, ID, Proceedings of the symposium and specialty conference on instream flow needs, May 3-6, American Fisheries Society, p. 359-373. Tennant (1976) defines habitat quality (measured by average depth and velocity of flow) as a percentage of the average annual flow. Poor habitat is represented by 0.1 (10 percent of the average annual flow), fair habitat is represented by 0.1 to 0.3 (10 to 30 percent of the average annual flow), and good habitat is represented by 0.3 to 0.4 (30 to 40 percent of the average annual flow), depending on season.

² *Id.*

³ For purposes of this analysis, we assumed an aquatic base flow of 0.5 cubic feet per second per square mile (or cfs/m) of drainage area (1,675 square miles at the Wadley gage). See U.S. Fish and Wildlife Service. 1981. Interim Regional Policy for New England Streams Flow Recommendations. Region 5. Boston, Massachusetts.

⁴ The Aquatic Resources Study involves the use of a bioenergetics model to conduct simulations needed to test potential influence of water temperature and flow on growth rates of fish species downstream from Harris Dam. The Downstream Aquatic Habitat Study involves using a HEC-RAS model to evaluate the effect of alternative operations on the amount and persistence of wetted aquatic habitat in the Tallapoosa River downstream from Harris Dam.

assessment(s) include all the downstream flow release alternatives identified and evaluated as part of the Downstream Flow Release Alternatives Study. The results of all the modeling for the Aquatic Resources Study and Downstream Aquatic Habitat Study should be included in the final study reports and filed with the Updated Study Report, due by April 12, 2021.

4. The Draft Downstream Release Alternatives (Phase 1) Study Report refers to data sets (e.g., topographic and geometric data on pages 12-13 and 17-19) that were used to develop the models. To assist us in interpreting the models, we recommend including in the final study report a table and/or figure that summarizes all of the data sets used in the models and identifies their spatial extents in terms such as watershed segments, river miles (RMs), and square miles covered by each dataset (as appropriate), with reference to other geographic landmarks (e.g., nearest city, dam, bridge, etc.). Please incorporate into the table and/or figure, the stakeholder- and Alabama Power-identified erosion areas of concern. In addition, please provide the metadata for each data set used.

5. Page 14 of the Draft Downstream Release Alternatives (Phase 1) Study Report includes a description of the HEC-ResSim model that was developed for the project. Harris Dam was modeled in HEC-ResSim with both a minimum release requirement and maximum constraint at the downstream gage at Wadley. The draft report states that the minimum release requirement is based on the flow at the upstream Heflin gage, which is located on the Tallapoosa River arm of Harris Reservoir and has 68 years of discharge records. Page 5 of the draft report indicates that there is also a gage (Newell) on the Little Tallapoosa River Arm of the reservoir, which has 45 years of discharge records. It appears that only the Heflin gage was used in developing the minimum release requirement. As part of your response to stakeholder comments on the ISR, please explain the rationale for basing the minimum releases in the HEC-ResSim model only on the flows at the Heflin gage and not also on the flows at the Newell gage.

6. Pages 15 and 16 of the Draft Downstream Release Alternatives (Phase 1) Study Report, state that the drought indicator thresholds, or triggers, are only evaluated on the 1st and the 15th of every month in the model and that once a drought operation is triggered, the drought intensity level can only recover from drought condition at a rate of one level per “period.” Please clarify in the final report if one “period” is equal to 15 days (i.e., the interval for evaluating drought triggers) and if this protocol is used for managing reservoir operations currently, or if it is only a parameter used in the model.

Draft Erosion and Sedimentation Study Report

7. The Erosion and Sedimentation Study in the approved study plan states that Alabama Power would analyze its existing lake photography and Light Detection and Ranging (LIDAR) data using a geographic information system (GIS) to identify elevation or contour changes around the reservoir from historic conditions and quantify changes in

lake surface area to estimate sedimentation rates and volumes within the reservoir. In addition, the approved study plan states that Alabama Power will verify and survey sedimentation areas for nuisance aquatic vegetation. According to the study schedule, Alabama Power will prepare the GIS overlay and maps from June through July 2019 and conduct field verification from fall 2019 through winter 2020.

The Draft Erosion and Sedimentation Study Report does not include a comparison of reservoir contour changes from past conditions or the results of nuisance aquatic vegetation surveys. The report states that limited aerial imagery of the lake during winter draw down and historic LIDAR data for the reservoir did not allow for comparison to historic conditions and that Alabama Power will conduct nuisance aquatic vegetation surveys during the 2020 growing season.

It is unclear why the existing aerial imagery and Alabama Power's LIDAR⁵ data did not allow for comparison with past conditions or why the nuisance aquatic vegetation surveys will be conducted during the 2020 growing season instead of during the approved field verifications from fall 2019 to winter 2020. As part of your response to stakeholder comments on the ISR, please clarify what existing aerial imagery and LIDAR data was used and why it was not suitable for comparison with past conditions. Also, please explain the change in timing for conducting the nuisance aquatic vegetation surveys.

Draft Water Quality Report

8. Figure 3-8, on page 18 of the Draft Water Quality Study Report shows dissolved oxygen (DO) profiles for the Harris Project forebay. While much of the data is typical of the DO stratification pattern in a southern reservoir, the figure also shows that in June, July, and August of 2017 and 2019, there was a 2.0 to 3.0 milligram per liter increase in DO concentration at a depth of about 20 to 25 meters in Lake Harris, which is uncommon in such reservoirs. Please include Alabama Power's interpretation of this DO anomaly in the final Water Quality Study Report.

Draft Threatened and Endangered (T&E) Species Study Report

9. The goals of Alabama Power's T&E Species Study are to assess the probability of T&E species populations and/or their critical habitat occurring within the Harris Project boundary or project area and determine if there are project related impacts (i.e., lake fluctuations, downstream flows, recreation and shoreline management activities, timber

⁵ During the June 4, 2020 Harris Action Team #1 and #5 meeting, Alabama Power stated it has LIDAR data sets from different years and would check its records to confirm the number of LIDAR data sets, and for which years the LIDAR data were collected.

management, etc.) to those species and critical habitats. According to the study schedule, Alabama Power would develop the GIS overlays and maps from April through July 2019, and conduct field verifications, if required, from October 2019 through September 2020.

The Draft T&E Species Study Report does not provide information on the presence or absence of potentially suitable habitat within the project boundary for all of the T&E species (e.g., red cockaded woodpecker,⁶ northern long-eared bat,⁷ pool sprite,⁸ and white fringeless orchid⁹) on the official species list for the project.¹⁰ Therefore, Alabama Power was unable to determine whether or not these species are likely to occur within the project boundary or identify a complete list of T&E species that require field surveys.

⁶ Page 8 the report states that land use data is not specific enough to determine if the 3,068 acres of coniferous forest in the project boundary at Lake Harris has the specific habitat characteristics suitable for red-cockaded woodpeckers.

⁷ Page 19 of the report states that the Lake Harris and Skyline project boundaries fall within the range of the northern long eared bat and that there are no known hibernacula or summer roost trees within the project boundaries. However, as discussed in the ISR meeting, the report does not state whether any known northern long-eared bat hibernacula occur within a 0.25-mile radius of the project boundaries, or whether known summer roost trees occur within a 150-foot radius of the project boundaries. The report also does not provide information about timber/vegetation management practices within the project boundary. This information is needed in order to determine known occurrences of northern long-eared bats within or adjacent to the project boundaries and to determine potential project effects to this species.

⁸ Page 21 of the reports states that pool sprite was documented at Lake Harris in Flat Rock Park in 1995. While subsequent surveys have not detected pool sprite, the report indicates that there are 138.4 acres of granite geology within the project boundary at Lake Harris. However, this species' vernal pool habitat was not identified at the project due to "a lack of available data."

⁹ Page 22 the report states that National Wetland Inventory data is not detailed enough to identify potentially suitable habitat for white fringeless orchid within the project boundary.

¹⁰ See FWS's official lists of T&E species within the Harris Project boundaries (i.e., at Lake Harris and Skyline) that were accessed on July 27, 2018, by staff using the FWS's Information for Planning and Conservation website (<https://ecos.fws.gov/ipac/>) and filed on July 30, 2018.

As part of your response to stakeholder comments on the ISR, please provide: (1) the maps and assessment of the availability of potentially suitable habitat within the project boundary for all of the T&E species on the official species list for the project; (2) documentation of consultation with FWS regarding the species-specific criteria for determining which T&E species on the official species list will be surveyed in the field; (3) a complete list of T&E species that will be surveyed during the 2nd study season as part of the T&E Species Study; and (4) confirmation that Alabama Power will complete the field verification scheduled by September 2020.

Draft Project Lands Evaluation (Phase 1) Report

10. The goals of the Project Lands Evaluation include: (1) identifying and classifying lands at the project that are needed for Harris Project purposes; (2) evaluating existing land use classifications at Lake Harris and determining if any changes are needed to conform to Alabama Power's current land classification system and other Alabama Power Shoreline Management Plans; and (3) identifying lands to be added to, or removed from the current project boundary.

Appendix B of the Draft Project Lands Evaluation (Phase 1) Report includes a small scale map of Lake Harris and the existing shoreline classifications, as well as larger scale maps showing parcels of land within the project boundary for which Alabama Power is considering either changing the existing land use classification, adding parcels to the project boundary, or removing parcels from the project boundary. However, the report does not include large scale maps showing the land use classifications for all of the existing shoreline. To facilitate review of the existing shoreline land use classifications, please file larger scale maps of all the shoreline areas as a supplement to the Draft Project Lands Evaluation Report, as part of your response to stakeholder comments on the ISR. Please include land use classifications on the maps. In addition, if available, please file the GIS data layers of the existing and proposed shoreline land use classifications.

Attachment B**Excerpt from 18 C.F.R. § 5.15**

- (d) *Criteria for modification of approved study.* Any proposal to modify an ongoing study . . . must be accompanied by a showing of good cause why the proposal should be approved, and must include, as appropriate to the facts of the case, a demonstration that:
- (1) Approved studies were not conducted as provided for in the approved study plan; or
 - (2) The study was conducted under anomalous environmental conditions or that environmental conditions have changed in a material way.
- (e) *Criteria for new study.* Any proposal for new information gathering or studies . . . must be accompanied by a showing of good cause why the proposal should be approved, and must include, as appropriate to the facts of the case, a statement explaining:
- (1) Any material changes in the law or regulations applicable to the information request;
 - (2) Why the goals and objectives of any approved study could not be met with the approved study methodology;
 - (3) Why the request was not made earlier;
 - (4) Significant changes in the project proposal or that significant new information material to the study objectives has become available; and
 - (5) Why the new study request satisfies the study criteria in § 5.9(b).

Excerpt from 18 C.F.R. § 5.9(b)

- (b) *Content of study request.* Any information or study request must:
- (1) Describe the goals and objectives of each study proposal and the information to be obtained;
 - (2) If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied;
 - (3) If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study;
 - (4) Describe existing information concerning the subject of the study proposal, and the need for additional information;
 - (5) Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how

the study results would inform the development of license requirements;

- (6) Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate filed season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge; and
- (7) Describe considerations of level of effort and cost, as applicable, and why proposed alternative studies would not be sufficient to meet the stated information needs.

Attachment C**R.L. Harris Process Plan and Schedule for the Integrated Licensing Process (ILP)**

(shaded milestones are unnecessary if there are no study disputes; if due date falls on a weekend or holiday, the due date is the following business day)

18 C.F.R.	Lead	Activity	Timeframe	Deadline
§ 5.5(a)	Alabama Power	Filing of NOI and PAD	Actual filing date	6/1/2018
§ 5.7	FERC	Initial Tribal Consultation Meeting	No later than 30 days from NOI and PAD	7/1/2018
§5.8	FERC	FERC Issues Notice of Commencement of Proceeding and Scoping Document (SD1)	Within 60 days of NOI and PAD	7/31/2018
§5.8 (b)(3)(viii)	FERC/ Stakeholders	Public Scoping Meetings and Environmental Site Review	Within 30 days of NOI and PAD notice and issuance of SD1	8/28/2018 - 8/29/2018
§ 5.9	Stakeholders/ FERC	File Comments on PAD, SD1, and Study Requests	Within 60 days of NOI and PAD notice and issuance of SD1	9/29/2018
§5.10	FERC	FERC Issues Scoping Document 2 (SD2), if necessary	Within 45 days of deadline for filing comments on SD1	11/13/2018
§5.11(a)	Alabama Power	File Proposed Study Plans	Within 45 days of deadline for filing comments on SD1	11/13/2018
§5.11(e)	Alabama Power/ Stakeholders	Study Plan Meetings	Within 30 days of deadline for filing proposed Study Plans	12/13/2018
§5.12	Stakeholders	File Comments on Proposed Study Plan	Within 90 days after proposed study plan is filed	2/11/2019
§5.13(a)	Alabama Power	File Revised Study Plan	Within 30 days following the deadline for filing comments on proposed Study Plan	3/13/2019
§5.13(b)	Stakeholders	File Comments on Revised Study Plan (if necessary)	Within 15 days following Revised Study Plan	3/28/2019
§5.13(c)	FERC	FERC Issues Study Plan Determination	Within 30 days following Revised Study Plan	4/12/2019
§5.14(a)	Mandatory Conditioning Agencies	Notice of Formal Study Dispute (if necessary)	Within 20 days of Study Plan determination	5/2/2019
§5.14(l)	FERC	Study Dispute Determination	Within 70 days of notice of formal study dispute	7/11/2019
§5.15(a)	Alabama Power	Conduct First Season Field Studies	Spring/Summer 2019	

18 C.F.R.	Lead	Activity	Timeframe	Deadline
§5.15(c)(1)	Alabama Power	File Initial Study Reports	No later than one year from Study Plan approval	4/12/2020
§5.15(c)(2)	Alabama Power	Initial Study Results Meeting	Within 15 days of Initial Study Report	4/28/2020
§5.15(c)(3)	Alabama Power	File Study Results Meeting Summary	Within 15 days of Study Results Meeting	5/12/2020
§5.15(c)(4)	Stakeholders/ FERC	File Meeting Summary Disagreements/Modifications to Study/Requests for New Studies	Within 30 days of filing Meeting Summary	6/11/2020
§5.15(c)(5)	Alabama Power	File Responses to Disagreements/Modifications/ New Study Requests	Within 30 days of disputes	7/11/2020
§5.15(c)(6)	FERC	Resolution of Disagreements/ Study Plan Determination (if necessary)	Within 30 days of filing responses to disputes	8/10/2020
§5.15	Alabama Power	Conduct Second Season Field Studies	Spring/Summer 2020	
§5.15 (f)	Alabama Power	File Updated Study Reports	No later than two years from Study Plan approval	4/12/2021
§5.15(c)(2)	Alabama Power	Second Study Results Meeting	Within 15 days of Updated Study Report	4/27/2021
§5.15(c)(3)	Alabama Power	File Study Results Meeting Summary	With 15 days of Study Results Meeting	5/12/2021
§5.15(c)(4)	Stakeholders/ FERC	File Meeting Summary Disagreements/ Modifications to Study Requests/Requests for New Studies	Within 30 days of filing Meeting Summary	6/11/2021
§5.15(c)(5)	Alabama Power/ Stakeholders	File Responses to Disagreements/Modifications/ New Study Requests	Within 30 days of disputes	7/11/2021
§5.15(c)(6)	FERC	Resolution of Disagreements/ Study Plan Determination (if necessary)	Within 30 days of filing responses to disagreements	8/10/2021
§5.16(a)	Alabama Power	File Preliminary Licensing Proposal (or Draft License Application) with the FERC and distribute to Stakeholders	Not later than 150 days before final application is filed	7/3/2021
§5.16 (e)	FERC/ Stakeholders	Comments on Alabama Power's Preliminary Licensing Proposal, Additional Information Request (if necessary)	Within 90 days of filing Preliminary Licensing Proposal (or Draft License Application)	10/1/2021
§5.17 (a)	Alabama Power	License Application Filed		11/30/2021



Alabama Rivers Alliance
Water Is Life

June 11, 2020

VIA ELECTRONIC FILING

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

RE: Comments on Initial Study Reports, Study Modification Requests, and New Study Proposal for R.L. Harris Hydroelectric Project (P-2628-065)

Dear Secretary Bose:

Enclosed for filing in the above-referenced docket are comments, study modification requests, and a new study proposal submitted by Alabama Rivers Alliance for the R.L. Harris Hydroelectric Project.

Thank you for your assistance in this matter. If you have any questions or need additional information, please call me at 205-322-6395.

Sincerely,

Jack K. West

Jack K. West, Esq.

Alabama Rivers Alliance
Policy and Advocacy Director
2014 6th Avenue North
Suite 200
Birmingham, AL 35203

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Alabama Power Company)	R.L. Harris Hydroelectric Project
)	
)	Project No. 2628-065

**ALABAMA RIVER ALLIANCE’S COMMENTS ON INITIAL STUDY REPORTS,
STUDY MODIFICATION REQUESTS, AND NEW STUDY PROPOSAL**

The Alabama Rivers Alliance (ARA) submits the following comments on the currently available draft study reports as part of the Federal Energy Regulatory Commission’s Integrated Licensing Procedure (ILP) for the R.L. Harris Hydroelectric Project, FERC Project No. P 2628-065 (“Harris” or “Harris Project”). Study modification requests for the Water Quality Study and Downstream Release Alternatives Study are contained in Sections I and II, and a new study proposal for a Battery Storage Feasibility Study comprises Section IV. Drafts of the Downstream Aquatic Habitat Study Report, Aquatic Resources Study Report, and the Recreation Study Report will be filed by Licensee over the summer, and the results of the forthcoming fisheries studies will likely inform future comments on the study reports currently available and commented upon here.

I. DRAFT WATER QUALITY REPORT

A. Request for Water Quality Study Modification

The caliber and usefulness of the studies conducted pursuant to the ILP will only be as good as the quality and quantity of data collected. ARA recommends that each opportunity to gather relevant data be taken during the relicensing process. The Draft Water Quality Study Report gathers data from three sources: Alabama Power Company (Licensee), the Alabama Department of Environmental Management (ADEM), and Alabama Water Watch.¹

Of primary concern for downstream ecological health are the two monitors collecting data closest to the dam, both of which are operated and monitored by Licensee. Continuous, 15-minute interval data for dissolved oxygen levels and water temperature has been collected from a monitor in the tailrace (approximately 800 feet from the dam) during the months of June - October in 2017, 2018, and 2019 (“Tailrace Monitor”). A second continuous, 15-minute interval monitor operated by Licensee was placed roughly 0.5 miles downstream of the dam (“Downstream Monitor”) and collected dissolved oxygen and temperature data from March 12 through October 31 of 2019, excluding approximately a week’s worth of data due to problems with the monitor.²

¹ Draft Water Quality Study Report (Mar. 2020), Accession No. 20200410-5095, at 5.

² See Appendix B (Excel spreadsheet) of the Draft Water Quality Report, “Downstream Monitor 2019” and “Notes” tabs.

Data collected by these two monitors, in particular, are essential to understanding the quality of water being discharged by Harris because they are closest to the dam and are the only continuous samplings included in the study. The ILP process allows for two seasons of study and data collection; however, Licensee is only collecting one season's worth of water quality data under the current study plan.³ While the 2019 dissolved oxygen levels from the Downstream Monitor met or exceeded 5mg/L 99.9% of the time,⁴ this is but one year's worth of data collected during a non-drought year. Data from the Tailrace Monitor for 2017 and 2018—closer in time to actual drought conditions in late 2016—shows “numerous events” where dissolved oxygen levels did not meet 5mg/L.⁵ Due to flooding events, the Downstream Monitor could not be deployed until March 12, 2019, and was inoperable for approximately another week due to a dead battery and washing ashore.⁶ Combined, roughly three weeks of data (or ~10% of the total) scheduled to be collected in the Water Quality Study Plan was not collected because of equipment failure and environmental conditions.

To bolster the studies being performed, and to provide the most useful reports to stakeholders and FERC, pursuant to 18 C.F.R. § 5.15(d), ARA proposes a second year of water quality monitoring at the Downstream Monitor to collect dissolved oxygen and water temperature data in 15-minute intervals from July 1 – October 31, 2020, and from March 1 – June 30, 2021. While 2020 has been a wet year thus far, conditions later in the year and early next year may provide an opportunity to collect data during drier, potentially drought, periods.

Additionally, we request that discharge data be included along with the dissolved oxygen and temperature data collected by the Downstream Monitor in 2020-21 to enable stakeholders to better understand the relationship between releases and water quality. The Tailrace Monitor data included in Appendix B to the Water Quality Report for 2017-2019 includes 15-minute interval discharge data for “Turbine 1,” “Turbine 2,” and “Total Discharge,” and such data should be included with the continued monitoring data.

Finally, an assessment of any aeration or aspiration devices used to boost dissolved oxygen levels should also be included in order to take into account such artificial enhancements (and to consider any declines in water quality were these devices not to function properly). Documents filed with FERC prior to Harris' operation describe “incorporating into the turbine discharge an aspiration system to provide up to a 2 ppm increase in dissolved oxygen.”⁷ The condition of any existing aspiration system and a comparison to current technologies used to enhance dissolved oxygen levels should be undertaken.

As FERC staff have recognized, it is difficult to draw conclusions and make decisions with only one season's worth of data from a critical monitoring location.⁸ Without additional monitoring efforts, Licensee, FERC, and stakeholders will miss an opportunity to collect data more reflective

³ See Final Water Quality Study Plan (May 2019), Accession No. 20190513-5093.

⁴ Draft Water Quality Study Report (Mar. 2020), Accession No. 20200410-5095, at 46.

⁵ *Id.*

⁶ See Appendix B (Excel spreadsheet) of the Draft Water Quality Report, “Notes” tab.

⁷ Application of Alabama Power Company for Approval of Revised Exhibit S to License (Apr. 30, 1982), Accession No. 19820504-0246, at 5.

⁸ See Initial Study Report Meeting Summary (May 12, 2020). Accession No. 20200512-5083, at 24-27.

of periods where water quality is decreased and water quality criteria more difficult to meet. Gathering a second year of continuous, 15-minute interval data for dissolved oxygen and temperature (paired with discharge data) at the Downstream Monitor will provide a more robust dataset and strengthen the studies conducted during this ILP.

B. Water Temperature Concerns

There is significant stakeholder concern over the temperature of releases from Harris, and ARA understands that analysis of the effects of temperatures will be included in the forthcoming Aquatic Resources Study Report.⁹ This concern stems from the scientific literature documenting the ecological consequences of cold-water pollution from hydroelectric dams¹⁰ and decades of research on Harris indicating “thermal alteration and generation frequency negatively affect the occupancy of most fish species below the dam.”¹¹ As additional study and analysis of the thermal regime progresses and is reported in the Aquatic Resources Study, ARA recommends that *temperature and flows be considered in tandem* during this analysis because “both discharge and temperature must be simultaneously considered for the successful implementation of environmental flow management below dams.”¹²

The existing license for Harris required Licensee to work with state agencies and EPA prior to commencement of construction to come up with an “optimum design and placement of the project intake structures to permit withdrawal of water from selected levels of the reservoir to control the water quality of the discharges from the powerhouse.”¹³ Within four years of the issuance of the existing license, Licensee was required to file a revised (and then a re-revised) Exhibit S that included its plans to study the potential fishery resources of the reservoir and “a description of measures being taken to maintain or change the water quality of the Tallapoosa River downstream from the project.”¹⁴

Licensee’s re-revised Exhibit S filed in April of 1982 evidenced Licensee’s understanding of the connection between temperatures and water quality and the need to design an intake structure to withdraw high-quality surface waters. Licensee’s re-revised Exhibit S reads in part:

“For enhancement of discharge water quality, it is desirable to withdraw water from as close to the surface as possible. At Harris Dam, which employs seasonal drawdown, the objective of surface withdrawal has been solved by incorporating into the design movable sills at the invert of each intake opening....Location of

⁹ Initial Study Report Meeting Summary (May 12, 2020). Accession No. 20200512-5083, at 26.

¹⁰ Julian D. Olden & Robert J. Naiman, *Incorporating Thermal Regimes into Environmental Flows Assessments: Modifying Dam Operations to Restore Freshwater Ecosystem Integrity*, *Freshwater Biology* (2010) 55, at 88-90.

¹¹ Elise R. Irwin, *Adaptive Management of Flows from R.L. Harris Dam (Tallapoosa River, Alabama)—Stakeholder Process and Use of Biological Monitoring Data for Decision Making*, U.S. Geological Survey Open-File Report 2019-1026, at 22 [hereinafter “USGS Open-File Report 2019-1026”].

¹² Olden, *supra* note 10, at 87.

¹³ Harris Dam License, FERC No. P-2628, Article 51, Appendix F to PAD, Accession No. 20180601-5125 [hereinafter “Harris License”].

¹⁴ Harris License, Article 52.

these sills at the highest levels possible for operation will ensure the highest quality water being drawn into the turbines.”¹⁵

Despite early attempts to engineer an intake to accommodate epilimnetic withdrawals and “solve” the problem of cold releases with lower dissolved oxygen content, thermal pollution¹⁶ has plagued the river downstream from Harris since it began operations.

Unfortunately, neither the Aquatic Resources Study Plan nor the Draft Water Quality Report contemplate the study of any potential remedial actions to adjust water temperatures in line with unregulated reaches of the Tallapoosa. Licensee has acknowledged that once an issue has been identified with water temperatures, it plans to study technologies that can address the thermal regime.¹⁷ Due to the available evidence of low temperatures impacting both colonization and persistence of fishes and the downstream macroinvertebrate community¹⁸ and the sizeable stakeholder concern, ARA urges thorough study of the infrastructure enhancements available for implementation at Harris to control release temperatures. A variety of temperature management strategies exist, including multi-level intake structures, floating intakes, and reservoir destratification approaches using pumps and submerged weirs, as well as operational adjustments in the timing and volume of releases.¹⁹

II. DRAFT DOWNSTREAM RELEASE ALTERNATIVES STUDY REPORT

The extent to which the Harris project has altered flows of the Tallapoosa River is reflected in comments submitted by the Alabama Department of Conservation and Natural Resources (ADCNR) in 1982, which lament the “loss of 49 percent of the last major free-flowing river habitat...in Alabama.”²⁰ According to the ADCNR’s reading of USGS data at the time, flows from the pre-dam period of 1923 to 1972 equaled or exceeded the minimum flow of 45cfs stipulated in Article 13 of the license *100% of the time*.²¹ Flows of 8,000cfs due to single turbine generation at Harris were equaled or exceeded during that era only 4.4% of the time, and flows of 16,000cfs due to two-unit generation were equaled or exceeded only 1.2% of the time.²² For decades the Tallapoosa downstream of Harris has weekly experienced flows it otherwise would have seen, on average, roughly eight days out of a given year.

This flow regime has not been without consequences. Researchers have documented as much as a 67% reduction in flows than during pre-dam periods, greater instability of day-to-day flow

¹⁵ Revised Exhibit S to Harris License Article 52 (Apr. 20, 1982), Accession No. 19820504-0246, at 5.

¹⁶ Olden, *supra* note 10, at 91.

¹⁷ Initial Study Report Meeting Summary (May 12, 2020). Accession No. 20200512-5083, at 26.

¹⁸ *See generally*, USGS Open-File Report 2019-1026.

¹⁹ Olden, *supra* note 10, at 97-101; *See also* Karin Krchnak et al., *Integrating Environmental Flows into Hydropower Dam Planning, Design, and Operations*, World Bank Technical Guidance Note (Nov. 22, 2009), at 24-27, available at <http://documents.worldbank.org/curated/en/712981468346147059/Integrating-environmental-flows-into-hydropower-dam-planning-design-and-operations>.

²⁰ Comments filed by ADCNR (Aug. 11, 1982) Accession No. 19820813-0012, at 3.

²¹ *Id.* (emphasis added).

²² *Id.*

variations, and an increase in very low-flow periods.²³ The flow instability and altered thermal patterns caused by hydropeaking operations have depressed species richness, “influenced fish persistence and colonization,” reconfigured the downstream macroinvertebrate community, and created “adverse effects on hydraulic variables such as water velocity, depth, and temperature.”²⁴

As a result of Harris operations, the 14-mile stretch of the Tallapoosa from the dam to Alabama Highway 77 is currently listed by ADEM as a Category 4C waterbody impaired due to hydrologic alteration.²⁵ And the U.S. Geological Survey’s (USGS) Open-File Report from last year indicates “that hydrologic alteration in the river has affected various biological processes.”²⁶

Despite the past decades of disruption, studies performed during the ILP and a reinvigorated adaptive management approach can shape a new framework for creating positive ecological responses below Harris. As the USGS Open-File Report on adaptive management of flows from Harris states, “[i]f flow and thermal alteration from the dam can be modified toward improving natural resource objectives, adaptive management processes and long-term monitoring could further reduce uncertainty related to biotic response to new Federal Energy Regulatory Commission licensing requirements.”²⁷

A. A Wider Variety of Release Patterns Needs to Be Modeled and Considered

We appreciate that Licensee was willing fifteen years ago to enter into a collaborative process with stakeholders and to voluntarily operate the Harris project according to an adaptive management plan known as the Green Plan,²⁸ the purpose of which “was to reduce effects of peaking operations on the aquatic community downstream.”²⁹ The Green Plan was a starting point for adaptive management, but evidence suggests it has not improved conditions for aquatic life. The most recent published literature demonstrates that although “[h]abitat availability for fishes increased under the Green Plan management...improved conditions did not improve recruitment processes for species of interest.”³⁰ Further, “results indicate that the Green plan did not meet the stakeholder objective to restore and maintain macroinvertebrate community composition similar to unregulated reaches within the regulated portions of the river.”³¹

²³ Elise R. Irwin & M.C. Freeman, *Proposal for Adaptive Management to Conserve Biotic Integrity in a Regulated Segment of the Tallapoosa River, Alabama, U.S.A.*, *Conservation Biology* (2002), 16(5): 1212-1222.

²⁴ USGS Open-File Report 2019-1026, at 2-3.

²⁵ ADEM’s 2020 *Alabama Integrated Water Quality Monitoring and Assessment Report* required by Clean Water Act Section 305(b), Appx. B, at 33 available at <http://www.adem.state.al.us/programs/water/waterforms/2020AL-IWQMAR.pdf>.

²⁶ USGS Open-File Report 2019-1026, at 9.

²⁷ USGS Open-File Report 2019-1026, at 3.

²⁸ FERC Scoping Document 2 (Nov. 16, 2018), Accession No. 20181116-3065, FN11 at 16 (“The Green Plan is an adaptive management program that began in 2005, and that consists of providing pulsing flow releases (10 to 30 minutes in length) in the Tallapoosa River to enhance aquatic habitat, fish, and other aquatic organism downstream from Harris Dam.”).

²⁹ Downstream Release Alternatives Study Plan (May 2019), Accession No. 20190513-5093, at 2.

³⁰ USGS Open-File Report 2019-1026, at 22.

³¹ *Id.* at 3.

Since beginning adaptive management and the Green Plan roughly fifteen years ago, no actual adaptation or iteration has occurred. This relicensing and the studies now underway provide an opportunity to iterate, adapt, and improve flows and subsequent impacts on downstream aquatic life, recreation opportunities, erosion and sedimentation, and water quality. In order to make the refinements contemplated by a full adaptive management process, a wide variety of flow scenarios should be studied, and “[c]ontinuing adaptive management in tandem during the FERC relicensing process would be advantageous to include a specific assessment of long-term objectives of all stakeholders.”³²

B. Until Aquatic Resources and Aquatic Habitat Study Reports Are Available, It Is Premature to Ask Stakeholders to Specify All Flow Alternatives to Model

Commenters, stakeholders, and FERC staff have encouraged Licensee to examine a broad range of flows throughout the ILP.³³ Currently, licensee is studying two possibilities other than its current flow regime and its prior flow regime. The Draft Downstream Release Alternatives Phase 1 Report filed by Licensee assesses impacts to operational parameters (*e.g.*, generation, reservoir levels, flood control) under three flow scenarios: (i) the current Green Plan pulsing regime that has been in effect since 2005 through a voluntary adaptive management process; (ii) the pre-Green Plan regime with no intermittent flows between peaks, which occurred from 1983 to 2004; and (iii) a continuous minimum flow of 150cfs, which is the equivalent daily volume of the current Green Plan pulses and has never been physically implemented and studied.

A fourth release scenario, the alternative/modified Green Plan, will be evaluated in Phase 2 of the study, once results from the Aquatic Resources Study are available to shape the design of an altered Green Plan.³⁴ The two alternatives that have never been implemented—a continuous minimum flow of roughly an equivalent volume and altering the timing of the existing Green Plan releases—are effectively different flavors of the existing release scheme, though studying those modifications may yield important insights into improving flows.

The summary of the Initial Study Report meeting reflects that Licensee desires “to hear from stakeholders now” regarding alternative flow scenarios stakeholders would like to have modeled,³⁵ despite no draft Aquatic Resources Study or Aquatic Habitat Study reports being available. The downstream release alternatives, aquatic resources, water quality, and aquatic habitat reports are *all deeply interrelated*, and without at least draft reports of the fisheries studies, stakeholders should not be required to propose alternative flow scenarios until more information is available. Indeed, Licensee itself acknowledges that the results from the Aquatic Resources Study are needed

³² *Id.* at 19.

³³ Initial Study Report Meeting Summary (May 12, 2020), Accession No. 20200512-5083, at 40; *see also* Comments submitted by the Environmental Protection Agency (Sept. 25, 2018), at 5 (“The EPA encourages APC to consider adding as many feasible modeling scenarios as possible to determine the optimal downstream flow conditions.”).

³⁴ Draft Downstream Release Alternatives Phase 1 Report (Apr. 2020), Accession No. 20200410-5069, at 2, FN1.

³⁵ Initial Study Report Meeting Summary (May 12, 2020), Accession No. 20200512-5083, at 21.

to design the fourth flow scenario it plans to model.³⁶ Those same results will also inform what variety of inputs stakeholders suggest.

In fact, the logical time to propose additional flow scenarios is after Licensee has “analyze[d] the effects of each downstream release alternative on other resources, including water quality... downstream aquatic resource (temperature and habitat), wildlife and terrestrial resources, threatened and endangered species, recreation, and cultural resources,” which will be accomplished by Phase 2 of the study.³⁷ At a minimum, stakeholders should be equipped with the draft fisheries studies showing the current status of aquatic resources before being required to list all alternative flows to be studied.

C. Preliminary Proposals for Additional Flow Modeling and Study Modification Request

However, ARA understands that the modeling of additional flows takes time and effort, and Licensee has made clear that it would like to have as much stakeholder input as to various flows to model as soon as possible. While reserving the right to request other release alternatives be considered once more information is made available to stakeholders, ARA proposes the following study modification request pursuant to 18 C.F.R. § 5.15(d) for additional flow scenarios be analyzed as part of the Downstream Release Alternatives Study:

- (i) A variation of the existing Green Plan where the Daily Volume Release is 100% of the prior day’s flow at the USGS Heflin streamgage, rather than the current 75%;
- (ii) A hybrid Green Plan that incorporates both a base minimum flow of 150 cfs and the pulsing laid out in the existing Green Plan release criteria;
- (iii) A constant but variable release that matches the flow at the USGS Wadley streamgage to the USGS Heflin streamgage to mimic natural flow variability;³⁸ and
- (iv) 300cfs and 600cfs minimum flows.

Some of these flows, particularly items (iii) and (iv) may have been modeled internally by Licensee as part of the original adaptive management process; however, those models are not currently available as part of this relicensing.³⁹ Studying a wider range of potential flows during the ILP

³⁶ Draft Downstream Release Alternatives Phase 1 Report (Apr. 2020), Accession No. 20200410-5069, at 2, FN1 (“Results from the other three scenarios as well as from the Aquatic Resources Study are needed to design the alternative to be studied.”).

³⁷ *Id.* at 2-3.

³⁸ We understand that there may be limitations imposed by the existing turbines to implementing this type of flow, but modeling it would provide a frame of reference to other options relative to a more natural flow.

³⁹ USGS Open-File Report 2019-1026, at 10 (“The other three alternatives were based upon the concept of mimicking the flow regime recorded at the USGS streamgage in Heflin, at Wadley, 22 km below the dam. The Heflin streamgage measures flows in the unregulated upper portion of the Tallapoosa River (fig. A1); several stakeholders hypothesized that mimicking these flows at the dam would allow for some natural flow variability in the regulated portion of the river. The first of these alternatives was, in effect, modeled as a constant flow from the dam to maintain the Heflin

could result in improved diversity and abundance of aquatic life and habitat, more recreation opportunities, decreased erosion and sedimentation, and gains in water quality.

III. DRAFT EROSION AND SEDIMENTATION REPORT

FERC has identified erosion and sedimentation as an issue to assess for cumulative impacts, with the tentative geographic scope of inquiry to encompass the upper Tallapoosa and the 44 river miles downstream of Harris dam, including Horseshoe Bend Military Park.⁴⁰ The Erosion and Sedimentation Study Plan involves “collecting and summarizing information under baseline operations,” meaning the project and project operations as they exist today.⁴¹ While the Draft Erosion and Sedimentation Study Report primarily attributes erosion downstream of the dam to clear-cutting and agricultural use, it reports that “erosion at these sites may be exacerbated as a result of flow releases from Harris Dam.”⁴²

Article 20 of the existing license states that Licensee “is responsible for and must take reasonable measures to prevent erosion and sedimentation.”⁴³ Such measures and responsibility must be comprehensive in light of hydropeaking’s amplifying effects on other potential sources of erosion both upstream and downstream of Harris. The High Definition Stream Survey (HDSS) completed as part of the Erosion and Sedimentation Study Report describes opportunities to “support targeted restoration, habitat improvement,” and identified at least one area that “would be an excellent area to focus streambank rehabilitation efforts.”⁴⁴ The HDSS states that it documents baseline conditions and that future surveys could be directly compared to it in order to understand ongoing shifts in river conditions.⁴⁵ ARA supports the collection of future surveys for this purpose.

As part of its environmental analysis, ARA encourages FERC to consider all historical evidence available when assessing how geology and soils may be impacted over another 30- to 50-year license term, including any evidence submitted by stakeholders in the form of photographs, maps, and personal accounts. If the Green Plan, or a similar pulsing flow regime is to be continued as part of a renewed license, a suspended solids sampling conducted pre-pulse, during generation, and post-pulse would better identify how and when sediment transport is occurring in the river, enabling an identification of project operations’ impact apart from natural river processes and other potential sources of erosion.

target at Wadley (Heflin), which consisted of minimum flows plus any necessary generation flows. The second was similar, except the flow from the dam was to never reach levels below 8.5 m³/s (Heflin 300). The third was an option proposed by the power utility, in which at least 75 percent of the Heflin target was maintained by 2–3 daily pulses, 1 at 0600 and 1 at 1200.”).

⁴⁰ FERC Scoping Document 2 (Nov. 16, 2018), Accession No. 20181116-3065, at 21-22.

⁴¹ Erosion and Sedimentation Study Plan (May 2019), Accession No20190513-5093, at 2.

⁴² Draft Erosion and Sedimentation Study Report (Mar. 2020), Accession No. 20200410-5091, at 31.

⁴³ Harris License, Article 20.

⁴⁴ See Appendix E to Draft Erosion and Sedimentation Study Report (Mar. 2020), Accession No. 20200410-5091, High Definition Stream Survey Final Report prepared by Trutta Environmental Solutions, LLC, at 43.

⁴⁵ *Id.*

IV. NEW STUDY PROPOSAL FOR BATTERY STORAGE FEASIBILITY STUDY TO RETAIN FULL PEAKING CAPABILITIES WHILE MITIGATING HYDROPEAKING IMPACTS

Project operations of hydropeaking dams come with environmental costs, and over the past decade dam operators have faced increasing pressure to shift from highly-altered hydrologic conditions (*i.e.*, peaking operations) to more natural flows to restore downstream ecosystems.⁴⁶ Yet the need to meet peak system demand remains, and researchers are increasingly studying the use of battery energy storage systems (BESS) to mitigate the effects of hydropeaking while retaining full peaking capabilities. Increasingly cost-effective BESS can substitute for the peaking ability (or a portion of the peaking ability) usually provided by conventional hydropower plants by storing hydropower produced during off-peak hours (*e.g.*, generated with a continuous minimum flow or variable flow) and discharging this power during peak periods.⁴⁷

By implementing BESS, restrictions can be imposed on ramping rates, which requires operators to adjust flows more slowly and constrains peaking capabilities; however, supplemental energy can be discharged from the BESS to still meet peak demand. BESS also provide additional grid benefits of frequency regulation, voltage support, black start services, and can further accommodate intermittent renewables, which make up a growing portion of the generation mix. According to new research, BESS “should begin to enter into discussions related to hydropeaking mitigation, especially given the typically long duration of operating licenses.”⁴⁸

At Harris, Licensee has expressed concerns that a 150cfs minimum flow would begin to constrain the utility’s ability to peak with its current level of flexibility.⁴⁹ By undertaking a study of pairing BESS with existing hydropower generation, FERC, Licensee, and stakeholders may uncover a cost-effective path to expand operational flexibility, create new grid benefits, and achieve multiple stakeholder objectives, including accommodating a wider range of releases and mitigated peaking that improve ecological health downstream. Some studies indicate that “BESS can help to restore the natural [flow] regime at lower costs than using environmental flows alone,” and such may be the case with the Harris Project.⁵⁰

Pursuant to 18 C.F.R. §§ 5.15(e) and 5.9(b), ARA submits this proposal for a new study to determine the feasibility of adding BESS to the Harris Project to both serve project purposes and address project effects.

A. Goals, Objectives, and Information to Be Obtained - § 5.9(b)(1)

⁴⁶ Ryan A. McManamay et al., *Organizing Environmental Flow Frameworks to Meet Hydropower Mitigation Needs*, *Environmental Management* 58(3):365-85, doi: 10.1007/s00267-016-0726-y (Jun. 25, 2016), at 366.

⁴⁷ See generally Yoga Anindito et al., *A New Solution to Mitigate Hydropeaking? Batteries Versus Re-Regulation Reservoirs*, *Journal of Cleaner Production* 210 (2019) 477-489, available at <https://kern.wordpress.ncsu.edu/files/2018/11/1-s2.0-S0959652618334401-main.pdf>.

⁴⁸ Anindito, *supra* note 47, at 487.

⁴⁹ Initial Study Report Meeting Summary (May 12, 2020). Accession No. 20200512-5083, at 23.

⁵⁰ Anindito, *supra* note 47, at 487.

The goal of conducting the Battery Storage Feasibility Study is to determine whether a BESS system could be economically integrated at Harris to mitigate the impacts of hydropeaking while retaining full system peaking capabilities. The objectives of the study are to assess:

1. What type, size, and configuration of BESS is most practical?
 2. How much would the BESS cost, and what are the ownership options?
 3. What are the economic benefits of a BESS addition, including capacity and ancillary benefits and the ability to enable future additions of non-dispatchable renewables?
 4. Could BESS integration allow Harris to generate more often while retaining week-day peaking capabilities?
 5. What are the technical and economic barriers to integrating BESS?
- B. Resource Management Goals of the agencies or Indian Tribes with Jurisdiction over the Resource to Be Studied - § 5.9(b)(2)

Not applicable.

- C. Relevant Public Interest Considerations in Regard to the Proposed Study - § 5.9(b)(3)

Sections 4(e) and 10(a) of the Federal Power Act require the Commission to give equal consideration to all uses of the waterway on which a project is located. When reviewing a proposed action, the Commission must consider the environmental, recreational, fish and wildlife, and other non-developmental values of the project, as well as power and developmental values.

This study request relates to the public interest of restoring riverine ecosystems, including by providing more natural flow regimes that promote aquatic habitat and increase opportunities for fishing and other recreation. Riverine ecosystems are resources of particular public interest for a variety of reasons, including their ecological functions, sporting interest, and subsistence use. Describing the effects on these resources is necessary to fulfill the Commission's responsibilities under the National Environmental Policy Act (NEPA). Ensuring that environmental measures pertaining to these resources are considered in a reasoned way is relevant to the Commission's public interest determination.

- D. Existing Information and the Need for Additional Information - § 5.9(b)(4)

While sources of information related to project generation and peak demand exist, there is a need for a more holistic understanding of Harris' role in the power system and what contributions it is required to make to meet system peak demand. The Pre-Application Document (PAD) filed by Licensee does not contain detailed information about the current operational flexibility of Harris, its limitations, and the causes of those limitations. A data gap exists around Project ramping rates, and understanding the extent to which imposing maximum ramping rates can smoothen the dam's discharge pattern and mitigate the impacts of hydropeaking would be useful to many stakeholders and to FERC. To ARA's knowledge, no battery feasibility study has been performed at other hydropower projects owned by Licensee that could provide sufficient comparable information, and

a feasibility study is needed to assess how much operational flexibility BESS could provide and how it might allow for more fine-tuned control of ramping rates and discharges while also benefitting the larger grid and Licensee.

E. Nexus to Project - § 5.9(b)(5)

A clear project nexus exists between project operations, downstream releases, and aquatic habitat. The Harris Project regulates the timing, allocation, and distribution of water flows in the Tallapoosa below Harris Dam, and prior to the Green Plan, completely cut off flows of the river at times. This regulation influences the availability of water for a variety of uses, including power generation, fisheries, and recreation. This requested study could form the basis for license requirements stipulating minimum or variable releases, mitigation measures, and assist future adaptive management.

F. Study Methodology - § 5.9(b)(6)

Integrating BESS at hydropower projects is a relatively new field with no established methodology.⁵¹ This study can be completed through desktop analysis only and is primarily a financial cost/benefit analysis. By lessening hydropeaking activities, energy and perhaps capacity revenues from Harris will be reduced, and the study must quantify the additional value of BESS to Harris. Adding BESS has the potential to produce energy, capacity, and ancillary revenues (as well as deferral of transmission and distribution investments) that could offset these implementation costs. Importantly, some of these values are not dependent upon water flow.

Study activities will include:

- Creating a survey of battery cost estimates based on public sources focusing on price projections for 2023 and beyond, as well as any incentives that may be available.
- Describing the operational flexibility gains for a range of BESS (*e.g.*, 5 MW, 2-hour; 5 MW, 4-hour; 10 MW, 2-hour; 10 MW, 4-hour) vs. costs.
- Comparing BESS options to “business-as-usual” Harris operations to quantify revenues to be replaced by a BESS alternative. This will provide a preliminary alternative framework to consider changes in operations and allow for comparisons against other possible project mitigation measures.

⁵¹ Examples of battery-paired hydropower projects, such as the 4 MW battery storage project added to Byllesby project in Virginia and the hydro-battery microgrid project in Alaska, can be used to further develop this study. *See generally* James R. Thrasher, *How the Byllesby Hydro Plant Continues to Make History*, Hydro Review (Jul. 29, 2019), available at (<https://www.hydroreview.com/2019/07/29/hydro-review-how-the-byllesby-hydro-plant-continues-to-make-history/#gref>); Clay Koplin, *Cordova’s Microgrid Integrates Battery Storage with Hydropower*, T&D World (Mar. 7, 2019), available at <https://www.tdworld.com/distributed-energy-resources/energy-storage/article/20972311/cordovas-microgrid-integrates-battery-storage-with-hydropower>; and Marek Kubik, *Adding Giant Batteries To This Hydro Project Creates A 'Virtual Dam' With Less Environmental Impact*, Forbes (May 23, 2019), available at <https://www.forbes.com/sites/marekkubik/2019/05/23/adding-giant-batteries-to-this-hydro-project-cre>

- Identifying any technical requirements and limitations to integrating BESS, including siting restrictions and any separate metering needed to allow the BESS to draw power from hydro generation, the grid, or a combination of the two.
- Preparing a report summarizing economic data and other analysis to be presented to stakeholders and commented upon.

G. Level of Cost and Effort - § 5.9(b)(7)

The total cost of this study is expected to be \$20,000 - \$30,000. This cost estimate is based on a recent battery storage feasibility study conducted for a series of four hydroelectric dams in the northeast. The study would include a review of dam operational constraints and power system requirements (2 days), gathering BESS economic data (1/2 day), analysis (4 days), project report development (3 days), and presentation of results to the stakeholders (1/2 day).

H. Changes in Law or Regulations - § 5.15(e)(1)

There have been no material changes in law or regulations applicable to the information in this study proposal.

I. Goals and Objectives of Other Studies - § 5.15(e)(2)

This study request puts forward new goals and objectives that are not addressed by the methodology of any of the current approved studies.

J. Timing of Request - § 5.15(e)(3)

Adding battery storage to existing hydropower projects is a relatively new topic with examples and studies just becoming available. The enabling factor has been decreases in battery prices in recent years, making the technology an increasingly economic option, along with the growing body of scientific literature documenting the need for better environmental performance at hydropeaking dams.

This study request was not made earlier because the subject of minimum flows constraining Licensee's ability to peak arose after the Draft Downstream Release Alternatives Study Report was filed. This study can be completed in a relatively short amount of time with desktop work only, and if taken into account with the ongoing flow modeling, could inform possible release alternatives and operational parameters that meet the objectives of Licensee and stakeholders, making it an appropriate request at this stage in the relicensing.

K. Changes in Project Proposal - § 5.15(e)(4)

There have been no significant changes in the project proposal.

David Bishop, Helena, AL.
June 10, 2020

FERC Permit P-2628-065

Dear FERC,

I have spent much time fishing the Tallapoosa River from Wadley to Horseshoe Bend. I have been following the re-licensing for the past couple of years and have listened in on one call.

I began fishing on the Tallapoosa River near Wadley with my family in 1962. Both my grandfathers before me fished on the river since they were children in the early 1900's. As an adult I fish often (35-40 days) every year. As a kid I probably fished 100 times a year. I grew up less than a mile from Lake Harris but have only fished it a handful of times. I have no problem with the lake.. But I do have a problem with it's operation regarding downstream releases.

As recently as last week (June 2-3, 2020), actual release was at least 3 times more volume than scheduled. Currently, I live 2 hours away from where I fish, so I always call the dial-up line before leaving the house. It said only one turbine would be generating. This information was wrong. Not only was it an inconvenience, but a real endangerment to those of us who rely on the phone schedule for release information . In this case, at Horseshoe Bend, the water rose at least 5 feet in a 45 minute span. This has happened numerous times and presents a real danger to small craft. We were run off the river for about 10 hours while the water was too high and fast to fish. I do my best to pick good, safe times to fish. I check with the power company ahead of time. I know that water from the dam takes 10 hours to reach Horseshoe Bend. In spite of all I know, I don't know what the Power Company doesn't share. They could send real time alerts to my phone. This would go a long way toward protecting the lives of Alabama citizens.

We have noticed a large amount of bank erosion and tree loss in the years since the dam was built. A corresponding widening and shallowing of the stream with warmer water resulting in fewer fish has been noted by many who fish the river. I feel that responsible and constant release would mimic the pre-dam flow and allow the river to recover to its natural state. I am also concerned that raising the winter pool of the lake will result in more flooding, erosion, loss of property and life downstream. Also, public access is limited to only two points above Lake Martin and below Wadley. This needs to be remedied so that more people may enjoy the river. FERC can take the lead and make sure that those of us downstream can enjoy our river as before.

Thank you, David Bishop
205-613-3091
177 River Valley Road
Helena, AL 35080

Document Content(s)

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June 11, 2020

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

RE: Comments on Initial Study Reports for Relicensing of Harris Dam (P-2628-065)

As a charter member of the Tallapoosa River Heritage group, I am the official spokesperson for other members who have concerns about our river and its ecosystems. Disturbed by changes that have been taking place on our river, we need to express our opinions, document our information, and preserve our memories of a river that has been vital to our economy for generations.

Some of those who have submitted to interviews go back three generations on the Tallapoosa, whether they are landowners or not. The Tallapoosa River has always been important, and only through our efforts do we believe that it will continue to be.

In fact, the area surrounding the town of Wadley itself (where my family has resided for at least four generations before me) was developed on the west bank of the Tallapoosa River to take the best advantage of the power it could provide (reprint of *LaGrange Reporter*, 14 Aug. 1908, as quoted in *Taproots: An Historical Account of Southern Union State Junior College and Areas in Randolph County*, October 1978). In fact, the main thoroughfare of the town was changed when the location of the river bridge was moved in the 1920s. The location of the bridge and its proximity to the river have always significantly influenced the town's configuration and therefore, its residents.

I am filing these anecdotal records on behalf of the following persons who for one reason or another either do not have an email address or who are intimidated by the submission process.

Dana Chandler
Wayne Cotney
Ronnie Siskey and Nelson Hay
Mike Smith
John Carter Wilkins

Dana Chandler (This is a reprint of an article I wrote for the local newspaper this spring)

Although most Randolph County residents are familiar with the river and its recreational uses, few of us may be aware of its historical and archaeological significance. According to Dana Chandler of Tuskegee University who is an expert on the river and its history, "The Tallapoosa river system was home for Native Americans from Archaic (3000 to 1000 BCE) through Creek (1600 to 1830 CE) time periods. Not only was the river a major transportation route, it also supplied an abundance of aquatic life to the communities. Interestingly, there were over a hundred habitation sites located along the Big and Little Tallapoosa river systems. Furthermore, the natives relied on river mollusks as a staple and even developed a tool used for

opening them and extracting the meat. Although these tools have been found in other locales, they are found in abundance throughout these river systems” (email communication, 2 March 2020).

Chandler adds the Tallapoosa River was once the habitat for more species of mollusks than any other Alabama river. Of course, many of these are now gone because of the inconsistent river flow, among other reasons.

Over 100 fish wiers (traps) were lost when the river was dammed, and now below the dam, the inconsistent release of water has led to other sites being washed away or covered, ones that were used during the prehistoric period.

During the historic period, the river was navigable up to a point at Malone, but now many crossing sites have been decimated. These were all along the river.

The river banks have long been spots to find pottery shards and other Native American artifacts, but those sites are now almost gone, having been covered or washed away (personal communication, 1 March 2020).

We have a responsibility to preserve those sites that still exist and to record our experiences for those who come after us.

Wayne Cotney

Wayne Cotney is another lifelong river who has fished from the Wadley bridge to the head of the backwater since 1954. He has especially enjoyed fishing around Horseshoe Bend and the Frogeye/Bibby’s Ferry areas. He tells me that it breaks his heart to know how the river used to be and to see it now and how much it has changed just during his lifetime.

When he was a boy, he and his grandfather Bishop, neither of whom could swim, would use fish baskets. There were always trees to hold on to, and trees that were small when he was a boy are now large trees, and some have even washed away. He remembers fishing around Capp’s Island, so named for Capp Hodnett, a local farmer. All that’s left are a few trees and a pile of rocks.

He remembers when the bridge was built at Horseshoe Bend and when folks kept boats tied to the banks up and down the river. Fishing was a way of life—and a way of feeding one’s family—during those days. Those days are long gone, for several reasons, including but not limited to erosion and “fast water” that comes from up the river.

Wayne knows and uses the 800 number to check the generation schedule. However, he finds the information he obtains from the number to be quite inadequate, even downright incorrect. For instance, he was fishing June 2 and 3, 2020, near Horseshoe Bend. Checking the generation schedule, he learned the turbine would run from the morning of June 2 to 8 PM. According to Wayne, you seldom see big surges at Horseshoe Bend like the ones you see in Wadley, and if you do, it takes about 10 hours to reach the bend. On June 2, the rushing water ran him and his companions out of the water. They are experienced fishermen, and this water seemed to be more than what would have been released through generation.

He has noticed during the past week (June 1-9) that the river banks are washing away, with water at flood stage for several days. It appears that 25-50 feet of bank have eroded since last fall.

There was a sandbar below the Horseshoe Bend bridge that has all but disappeared, but for the past few months, it seems to be reappearing! That is the enigma of the Tallapoosa River and its path. This is just one person's experiences with a river that has almost mythical significance to folks around here.

Ronnie Siskey and Nelson Hay

Ronnie Siskey and his brother-in-law Nelson Hay live within sight of the river and have been fishing its waters for years. Eating a mess of fish for supper that they pulled from the river in the afternoon was not unusual at all for their family. They are familiar with the Tallapoosa River and fish "patterns."

I am directly quoting him: "I haven't been able to fish all year. The water won't let me fish. I can call and get the release schedule, but then I can't go by it because it's not reliable. I used to be able to depend on it being accurate. Not anymore."

Mike Smith

Mike Smith, a resident of Wadley in his early 70s, has been raised and has lived on the river all of his life. He inherited the property that his parents owned on the banks of the Tallapoosa just below the Wadley bridge, and he, too, has seen the banks of the river gradually erode over the years, leaving trees uprooted or barely hanging onto the soil at the edge of the water that alternately rushes and meanders on its way to Horseshoe Bend. He says that his biggest concern is the erosion that is eating away at the bank. He lives within sight of Hutton Creek, which crosses Highway 22 just inside the Wadley city limits. He has watched that creek fill with trees and silt to the point that it no longer flows as freely as it did when he was a boy.

His father, Charles Smith, was a fisherman who caught baskets of fish that were plentiful in the river during the 1950s and 60s. According to Mike, his dad "caught lots of fish. We gave them away, sold them, ate them, froze them. There were always plenty of fish!"

Although Mike never fished as his father did, others were allowed to "put in" at their place for years. However, no one does that anymore, just highlighting the issues that come with the fishing on the river these days. It is not the relaxing activity that it once was.

John Carter Wilkins

John Carter Wilkins is yet another lifelong Wadley resident who has lived on the river over half his life. He has, of course, witnessed the erosion issues, but his concern is the mostly for the wildlife that no longer exists on his property.

In the past, he says that he could catch a mess of yellow cats, but now he is lucky if he catches one. Bullfrogs used to be so plentiful that he could frog gig at night, but not he might see one frog if he goes out at night.

The land and the wildlife are no longer what they were. To him, that is the greatest shame of all.

Chuck Denman
1810 Oak Grove Road
Titusville Florida
32796

Regarding:Alabama Power Company relicensing for the Harris Hydroelectric Project (FERC No. 2628-065).

Harris Dam additional studies suggested

A general review of historical materials ie newspapers, and other records dealing with the proposals for constructing the Dam. Including comments and conditions provided in initial permitting. With the goal being to determine if the dam has achieved the original benefits expected. Perhaps a score card.

A pre vs post Dam analysis of down stream impacts. Including flooding,erosion and habitat changes to flora and fauna.

1. Flooding :storm runoff model comparing 25,50 and 100 year 24 hour storm events.
2. Erosion : utilizing available remote sensing materials to compare river channel and islands size and shape today and pre dam.
3. Plants: utilize remote sensing materials to map flag grass and invasive plant communities to compare changes from pre Dam.
4. Fisheries: review available materials from locals in the community, fish and game and other resources to determine what effect the Dam has had on down stream fish types and numbers.

HAT 3 - Downstream Aquatic Habitat draft report

APC Harris Relicensing <g2apchr@southernco.com>

Tue 6/30/2020 7:51 PM

To: 'harrisrelicensing@southernco.com' <harrisrelicensing@southernco.com>

Bcc: amy.silvano@dcnr.alabama.gov <amy.silvano@dcnr.alabama.gov>; chris.greene@dcnr.alabama.gov <chris.greene@dcnr.alabama.gov>; damon.abernethy@dcnr.alabama.gov <damon.abernethy@dcnr.alabama.gov>; evan.lawrence@dcnr.alabama.gov <evan.lawrence@dcnr.alabama.gov>; keith.henderson@dcnr.alabama.gov <keith.henderson@dcnr.alabama.gov>; mike.holley@dcnr.alabama.gov <mike.holley@dcnr.alabama.gov>; steve.bryant@dcnr.alabama.gov <steve.bryant@dcnr.alabama.gov>; matthew.marshall@dcnr.alabama.gov <matthew.marshall@dcnr.alabama.gov>; todd.fobian@dcnr.alabama.gov <todd.fobian@dcnr.alabama.gov>; nathan.aycock@dcnr.alabama.gov <nathan.aycock@dcnr.alabama.gov>; ken.wills@jcdh.org <ken.wills@jcdh.org>; arsegars@southernco.com <arsegars@southernco.com>; ammcvica@southernco.com <ammcvica@southernco.com>; dkanders@southernco.com <dkanders@southernco.com>; jcarlee@southernco.com <jcarlee@southernco.com>; jefbaker@southernco.com <jefbaker@southernco.com>; kechandl@southernco.com <kechandl@southernco.com>; tlmills@southernco.com <tlmills@southernco.com>; cggoodma@southernco.com <cggoodma@southernco.com>; clowry@alabamarivers.org <clowry@alabamarivers.org>

HAT 3,

The draft Downstream Aquatic Habitat report is available for your review on the Harris relicensing website in the [HAT 3](#) folder (2020-06-30 Draft Downstream Aquatic Habitat Report (includes Level Logger Data)). It can also be found on FERC elibrary ([Draft Report on FERC elibrary](#)). Note that in order to view the Level Logger Data appendix, the report must be downloaded or saved as a pdf. Once open as a pdf, click on the paperclip icon on the left-hand side, then double click on Appendix B – Level Logger Data.xlsx to open the data in Excel.

Please submit your comments on this draft report to Alabama Power at harrisrelicensing@southernco.com by **August 1, 2020**.

Thanks,

Angie Anderegg

Hydro Services

(205)257-2251

arsegars@southernco.com



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Hydro Services 16N-8180
Birmingham, AL 35203
205 257 2251 tel
arsegars@southernco.com

July 10, 2020

VIA ELECTRONIC FILING

Project No. 2628-065
R.L. Harris Hydroelectric Project
Response to Initial Study Report (ISR) Disputes or Requests for Modifications of Study Plan

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

Dear Secretary Bose,

Alabama Power Company (Alabama Power) is the Federal Energy Regulatory Commission (FERC) licensee for the R.L. Harris Hydroelectric Project (Harris Project) (FERC No. 2628). On April 10, 2020, Alabama Power filed the Initial Study Report (ISR) along with six Draft Study Reports and two cultural resources documents. Alabama Power held the ISR Meeting with stakeholders and FERC on April 28, 2020. On May 12, 2020, Alabama Power filed the ISR Meeting Summary. Comments on the ISR, draft reports, and ISR Meeting Summary were due on June 11, 2020.

On June 10, 2020, FERC staff provided comments on the ISR and the ISR Meeting Summary.¹ FERC requested that Alabama Power respond to specific comments by July 11, 2020. Attachment A of this filing includes Alabama Power's responses to those questions for which FERC requested a July 11 response.

Stakeholders and FERC provided three Additional Study Requests and two study modifications as part of comments on the ISR and ISR Meeting Summary. Two of the requested studies do not meet the criteria outlined in FERC's regulations at 18 C.F.R. § 5.9(b) and 5.15 and/or address pre-project conditions. Although, the other study request meets FERC's criteria, Alabama Power is not incorporating the study request into the relicensing process for the Harris Project. The complete response to these study requests is in Attachment B.

FERC staff, Alabama Rivers Alliance (ARA)², and the U.S. Environmental Protection Agency (EPA)³ also requested the inclusion of additional downstream flow release alternatives as modifications to Alabama

¹ Accession No. 20200610-3059.

² Accession No. 20200611-5114.

³ Accession Nos. 20200612-5025 and 20200612-5079.

Power's existing Downstream Release Alternatives Study. Alabama Power's response to the recommended modifications is also provided in Attachment B.

Within preliminary comments on the Draft Water Quality Study Report as well as during the ISR Meeting and within comments on the ISR and ISR Meeting Summary, multiple stakeholders requested that Alabama Power continue monitoring water quality downstream of Harris Dam in 2020 and 2021. To collect dissolved oxygen and water temperature data in 2020, Alabama Power installed the continuous monitor on May 4, following the ISR meeting. The generation monitor was installed on June 1 to align with the monitoring season start date in the Water Quality Study Plan. Alabama Power also agrees to collect water quality data at both locations in 2021 (from March 1 – June 30, 2021 at the continuous monitor and June 1 – June 30, 2021 at the generation monitor) to include in the final license application.

The EPA recommended inclusion of water quality monitoring data with the Water Quality report. Alabama Power notes that the Draft Water Quality Study Report contains an appendix with the 2017 – 2019 water quality monitoring data, and the Final Water Quality Study Report will contain a similar appendix with the complete set of water quality monitoring data (including 2020). Any data collected in 2021 and after the Final Water Quality Study Report is provided will be included within the Final Licensing Proposal.

Alabama Power reviewed FERC and stakeholder comments on the ISR and Draft Study Reports and will address all other comments in any Final Study Reports (filed in 2020 and 2021), the Updated Study Report (USR) (due April 10, 2021), or the Preliminary Licensing Proposal (PLP) (due on or before July 3, 2021).

If there are any questions concerning this filing, please contact me at arsegars@southernco.com or 205-257-2251.

Sincerely,



Angie Anderegg
Harris Relicensing Project Manager

Attachment A: Alabama Power's Response to FERC's June 10, 2020 Staff Comments on the Initial Study Report and Initial Study Report Meeting Summary for the R.L. Harris Hydroelectric Project
Attachment B: Alabama Power's Response to Study Modifications and Additional Study Requests Following the May 12, 2020 Initial Study Report and Initial Study Report Meeting Summary for the R.L. Harris Hydroelectric Project

cc: Harris Stakeholder List

Attachment A

Alabama Power's Response to FERC's June 10, 2020 Staff Comments on the Initial Study Report and
Initial Study Report Meeting Summary for the R.L. Harris Hydroelectric Project

FERC questions are presented in italic text and the specific information requested is highlighted in yellow; Alabama Power's response follows.

Draft Downstream Release Alternatives (Phase 1) Study Report

Question #2: During the ISR Meeting, Alabama Power requested that stakeholders provide downstream flow alternatives for evaluation in the models developed during Phase 1 of the Downstream Release Alternatives Study. Stakeholders expressed concerns about their ability to propose flow alternatives without having the draft reports for the Aquatic Resources and Downstream Aquatic Habitat Studies, which are scheduled to be available in July 2020 and June 2020, respectively. It is our understanding that during Phase 2 of this study, Alabama Power would run stakeholder-proposed flow alternatives that may be provided with ISR comments, as well as additional flow alternatives that stakeholders may propose after the results for the Aquatic Resources and Downstream Aquatic Habitat Studies are available. Please clarify your intent by July 11, 2020, as part of your response to stakeholder comments on the ISR.

Alabama Power Response:

Alabama Power's response to evaluating additional flow alternatives is discussed in Attachment B.

Regarding the Aquatic Resources and Downstream Aquatic Habitat Studies, it is Alabama Power's intent to provide stakeholders 30 days to review, provide comments, and recommend any additional flow analyses based on the information in the draft reports. It is also Alabama Power's intent to meet with the Harris Action Teams (HATs) between Fall 2020 and Spring 2021 to present preliminary results, including the bioenergetics modeling, and obtain stakeholder input on additional analyses.

Question #5: Page 14 of the Draft Downstream Release Alternatives (Phase 1) Study Report includes a description of the HEC-ResSim model that was developed for the project. Harris Dam was modeled in HEC-ResSim with both a minimum release requirement and maximum constraint at the downstream gage at Wadley. The draft report states that the minimum release requirement is based on the flow at the upstream Heflin gage, which is located on the Tallapoosa River arm of Harris Reservoir and has 68 years of discharge records. Page 5 of the draft report indicates that there is also a gage (Newell) on the Little Tallapoosa River Arm of the reservoir, which has 45 years of discharge records. It appears that only the Heflin gage was used in developing the minimum release requirement. As part of your response to stakeholder comments on the ISR, please explain the rationale for basing the minimum releases in the HEC-ResSim model only on the flows at the Heflin gage and not also on the flows at the Newell gage.

Alabama Power Response:

The HEC-ResSim model bases the releases on the Green Plan, which specifies the use of the Heflin gage. During development of the Green Plan, the Heflin gage was considered the gage that best mimicked the unregulated, natural flow of the Tallapoosa River. Based on available information from stakeholder meetings in early 2000, the Newell gage was not considered. Stakeholders involved in the Green Plan development process did acknowledge that the Heflin gage excluded the flow from Little Tallapoosa River.

Below is a brief summary of the recorded stakeholder discussions that reference the use of the Heflin gage.

- 5/21/2003 Stakeholder Meeting: Stan Cook (Alabama Department of Conservation and Natural Resources (ADCNR)) stated that the Heflin gage is being used to mimic natural events and that the "Big" Tallapoosa River better reflects a larger scale drainage.
- 8/4/2003 Stakeholder Meeting: Elise Irwin presents findings on the models indicate that the Heflin gage is a promising location.
- 11/3/2003 Stakeholder Meeting: Alabama Rivers Alliance (ARA) stated they wanted Alabama Power to evaluate use of a house turbine that would provide capabilities to duplicate the Heflin gage flows. During this meeting, it was mentioned that the Heflin gage does not include flows from the Little Tallapoosa River, and no one stated opposition to use of the Heflin gage.
- 1/1/2006 Stakeholder Meeting: Stakeholders commented that mimicking Heflin flows would allow for some natural variability of flow in the regulated part of the river.

Draft Erosion and Sedimentation Study Report

Question #7: The Erosion and Sedimentation Study in the approved study plan states that Alabama Power would analyze its existing lake photography and Light Detection and Ranging (LIDAR) data using a geographic information system (GIS) to identify elevation or contour changes around the reservoir from historic conditions and quantify changes in lake surface area to estimate sedimentation rates and volumes within the reservoir. In addition, the approved study plan states that Alabama Power will verify and survey sedimentation areas for nuisance aquatic vegetation. According to the study schedule, Alabama Power will prepare the GIS overlay and maps from June through July 2019 and conduct field verification from fall 2019 through winter 2020.

The Draft Erosion and Sedimentation Study Report does not include a comparison of reservoir contour changes from past conditions or the results of nuisance aquatic vegetation surveys. The report states that limited aerial imagery of the lake during winter draw down and historic LIDAR data for the reservoir did not allow for comparison to historic conditions and that Alabama Power will conduct nuisance aquatic vegetation surveys during the 2020 growing season. It is unclear why the existing aerial imagery and Alabama Power's LIDAR data did not allow for comparison with past conditions or why the nuisance aquatic vegetation surveys will be conducted during the 2020 growing season instead of during the approved field verifications from fall 2019 to winter 2020. As part of your response to stakeholder comments on the ISR, please clarify what existing aerial imagery and LIDAR data was used and why it was not suitable for comparison with past conditions.

Alabama Power Response:

Alabama Power has 2007 and 2015 Light Detection and Ranging (LiDAR) data for Lake Harris that it will use to develop a comparison for the Final Erosion and Sedimentation Study Report.

Ms. Donna Matthews proposed a new study of the Tallapoosa River downstream of Harris Dam to use historic images overlaid on current imagery to evaluate changes in the Tallapoosa River.¹ Alabama Power's response to this study request is addressed in Attachment B; however, Ms. Matthews noted in the ISR Meeting that she would share various images of the Tallapoosa River pre-Harris Dam and after construction. Alabama Power intends to facilitate obtaining copies of these images to provide to FERC for its use in addressing cumulative effects, as noted in FERC's November 16, 2018 Scoping Document 2.²

Regarding the nuisance aquatic vegetation component of the Erosion and Sedimentation study, the growing season is late spring into summer, which did not correspond with the fall 2019 to winter 2020 in the FERC-approved study plan schedule. Therefore, Alabama Power plans to conduct the nuisance aquatic vegetation survey in summer 2020. These results will be provided to HAT 2 participants as a technical memo to supplement the Draft Erosion and Sedimentation Study Report.

¹ Accession No. 20200612-5018.

² Accession No. 20181116-3065.

Question #9: (comment provided below includes only the information requested by FERC) As part of your response to stakeholder comments on the ISR, please provide:

- 1) the maps and assessment of the availability of potentially suitable habitat within the project boundary for all of the T&E species on the official species list for the project;
- 2) documentation of consultation with FWS regarding the species-specific criteria for determining which T&E species on the official species list will be surveyed in the field;
- 3) a complete list of T&E species that will be surveyed during the 2nd study season as part of the T&E Species Study; and
- 4) confirmation that Alabama Power will complete the field verification scheduled by September 2020.

Alabama Power Response:

1) The maps and assessment of the availability of potentially suitable habitat within the Harris Project Boundary were included in the draft Threatened and Endangered Species Desktop Assessment Report and were prepared based on available sources of information. Any maps and assessments of habitat suitability that could not be resolved in the desktop assessment will be included in the Final Threatened and Endangered Species Study Report. Alabama Power is actively consulting with U.S. Fish and Wildlife Service (USFWS) regarding Threatened and Endangered Species (T&E species) where existing information is insufficient to determine their presence/absence and habitat suitability. Alabama Power plans to continue to work with USFWS and the Alabama Natural Heritage Program (ANHP) to resolve questions about the species and perform field surveys as deemed appropriate.

2) Alabama Power met with HAT 3 participants on August 27, 2019 to discuss species included in the Threatened and Endangered Species Study Plan. As a result of that meeting and based on recommendations from USFWS, Alabama Power conducted surveys for Finelined Pocketbook in the Tallapoosa River and Palezone Shiner in Little Coon Creek. Additional surveys for Finelined Pocketbook in tributaries to Lake Harris are ongoing and should be completed in Summer 2020. Alabama Power is consulting with the USFWS and ANHP to determine the need for additional surveys. If requested, Alabama Power may perform surveys for additional species and/or assessments to determine suitability of habitat that could not be resolved in the Threatened and Endangered Species Desktop Assessment. All consultation regarding this process will be included as an appendix to the Final Threatened and Endangered Species Study Report.

3) Alabama Power plans to conduct additional surveys for Finelined Pocketbook in Summer 2020. Based on ongoing consultation with USFWS and with input from ANHP, Alabama Power may perform surveys for Price's Potato Bean, White Fringeless Orchid, and Little Amphianthus (pool sprite) as well as assessments to determine if suitable habitat exists for Red-cockaded Woodpecker and Little Amphianthus.

4) Alabama Power plans to complete field verifications by September 2020.

Question #10: To facilitate review of the existing shoreline land use classifications, please file larger scale maps of all the shoreline areas as a supplement to the Draft Project Lands Evaluation Report, as part of your response to stakeholder comments on the ISR. Please include land use classifications on the maps. In addition, if available, please file the GIS data layers of the existing and proposed shoreline land use classifications.

Alabama Power Response:

Included with this filing are the larger scale maps, including land classifications, and the GIS files of the existing and proposed shoreline land use classifications.

Attachment B

Alabama Power's Response to Study Modifications and Additional Study Requests Following the May 12, 2020 Initial Study Report and Initial Study Report Meeting Summary for the R.L. Harris Hydroelectric Project

Alabama Power received two recommendations to modify the existing FERC-approved studies and three Additional Study Requests. Alabama Power's response to the study modifications and Additional Study Requests is discussed below.

A. Modifications to Existing Studies

- 1) FERC Question #3:¹ "To facilitate modelling of downstream flow release alternatives, we recommend that Alabama Power run base flows of 150 cfs, 350 cfs, 600 cfs, and 800 cfs through its model for each of the three release scenarios (i.e., the Pre-Green Plan, the Green Plan, and the modified Green Plan flow release approach). The low-end flow of 150 cfs was proposed by Alabama Power as equivalent to the daily volume of three 10-minute Green Plan pulses. This flow also is about 15 percent of the average annual flow at the United States Geological Survey's flow gage (#02414500) on the Tallapoosa River at Wadley, Alabama, and represents "poor" to "fair" habitat conditions. We recommend 800 cfs as the upper end of the base flow modeling range because it represents "good" to "excellent" habitat and is nearly equivalent to the U.S. Fish and Wildlife Service's Aquatic Base Flow guideline for the Tallapoosa River at the Wadley gage. The proposed base flows of 350 cfs and 600 cfs cover the range between 150 cfs and 800 cfs."

- 2) ARA's June 11, 2020 comments:² "While reserving the right to request other release alternatives be considered once more information is made available to stakeholders, ARA proposes the following study modification request pursuant to 18 C.F.R. § 5.15(d) for additional flow scenarios be analyzed as part of the Downstream Release Alternatives Study:
 - (i) A variation of the existing Green Plan where the Daily Volume Release is 100% of the prior day's flow at the USGS Heflin stream gage, rather than the current 75%;
 - (ii) A hybrid Green Plan that incorporates both a base minimum flow of 150 cfs and the pulsing laid out in the existing Green Plan release criteria;
 - (iii) A constant but variable release that matches the flow at the USGS Wadley stream gage to the USGS Heflin stream gage to mimic natural flow variability, and
 - (iv) 300 cfs and 600 cfs minimum flows.

Some of these flows, particularly items (iii) and (iv) may have been modeled internally by Licensee as part of the original adaptive management process; however, those models are not currently available as part of this relicensing. Studying a wider range of potential flows during the ILP could result in improved diversity and abundance of aquatic life and habitat, more recreation opportunities, decreased erosion and sedimentation, and gains in water quality."

¹ Accession No. 20200610-3059.

² Accession No. 20200611-5114.

- 3) In its June 11, 2020 comments³, EPA “requests that the flow scenarios include the evaluation of an option including both the pulses of the Green Plan with a minimum flow, and a higher minimum flow.

Alabama Power’s Response:

Based on FERC, ARA, and EPA’s recommendation to modify the Downstream Release Alternatives study, Alabama Power will model the following additional downstream flow scenarios:

- A variation of the existing Green Plan where the Daily Volume Release is 100% of the prior day’s flow at the USGS Heflin stream gage, rather than the current 75%;
- A hybrid Green Plan that incorporates both a base minimum flow of 150 cfs and the pulsing laid out in the existing Green Plan release criteria;
- 300 cfs continuous minimum flow;
- 600 cfs continuous minimum flow; and a
- 800 cfs continuous minimum flow.

These recommended flow release alternatives are in addition to Alabama Power’s release alternatives in the FERC-approved Study Plan that include:

- Pre-Green Plan (peaking only; no pulsing or continuous minimum flow);
- Green Plan (existing condition);
- Modified Green Plan (changing the time of day in which the Green Plan pulses are released); and
- 150 cfs continuous minimum flow.

Alabama Power has not included ARA’s recommended “constant but variable release that matches the flow at the USGS Wadley streamgage to the USGS Heflin streamgage to mimic natural flow variability”, as an alternative to model. This alternative would eliminate peaking operations, which would significantly reduce or eliminate use of the Harris Project for voltage support and system reliability, including black start operations. Alabama Power regards this alternative as a complete change in Project operations (from peaking to run-of-river) that is not consistent with Project purposes.⁴

Furthermore, the units are not capable of adjusting to the extent of simulating natural river flows. The flow through the Harris units varies only to the extent of changes in gross head (the difference between the forebay elevation and tailwater elevation) and the wicket gate opening. Small wicket gate openings lead to excessive pressure drops, which is the primary driver of cavitation⁵ initiation. The best way to minimize cavitation and its associated detrimental vibrations is to quickly move the wicket gates from a closed position to the best gate setting. The best gate setting is a permanent setting on the governor system to ensure that the control system will force a fast movement of the wicket gates through the “rough zone” to the best gate position thereby minimizing the time spent in the rough zone. The rough zone is an area on the operating curve where flows that are less than efficient gate cause increased vibrations in the turbine

³ Accession Nos. 20200612-5025 and 20200612-5079.

⁴ For additional explanation, see Alabama Power’s March 13, 2019 letter to FERC (Accession No. 20190313-5060).

⁵ Cavitation is a phenomenon in which rapid changes of pressure in a liquid lead to the formation of small vapor-filled cavities in places where the pressure is relatively low.

and cavitation along the low-pressure surfaces of the turbine runner. For these reasons, this is not a viable alternative.

Alabama Power also declines FERC's recommendation to study all of the continuous minimum flows combined with the Pre-Green Plan, Green Plan, and Modified Green Plan. Alabama Power asserts that modeling one combination of a continuous minimum flow AND pulsing (the hybrid Green Plan listed above) is adequate to determine the effect of this downstream release alternative on Project operations and other resources. The eight alternatives Alabama Power will model will provide sufficient information to evaluate the resources of interest, determine any downstream release proposal, and determine protection, mitigation, and enhancement (PM&E) measures to be incorporated into the new license for the Project.

B. Proposed Additional Studies

- 1) ARA proposed a new study for "Battery Storage Feasibility Study to Retain Full Peaking Capabilities While Mitigating Hydropeaking Impacts".

Alabama Power's Response:

While ARA's additional study request appears to conform to FERC's regulations and criteria for additional study requests, Alabama Power respectfully declines to complete this study for the Harris Project relicensing. Our reasons are provided below:

a. ARA notes that there is a data gap around Project ramping rates. The Harris Project units are not capable of ramping; rather they were designed as peaking units to quickly react to electrical grid needs, and as such, the turbines were not designed to operate in a gradually loaded state—or restricted ramping rate—over an extended period of time. In fact, restricted ramping is avoided to prevent damage to hydroturbine machinery. When transitioning from spinning mode to generating mode, the wicket gates are opened over a period of approximately 45 seconds. One reason for this method of operating is so the turbine spends a minimal amount of time in the rough zone.

b. The goal of this study, as outlined by ARA, is to determine whether a battery energy storage system (BESS) could be economically integrated at Harris. This technology is very new and there is no established methodology for integrating BESS at hydropower facilities. The cost of a BESS system with restricted hydraulic ramping is concerning because the cost must include not only the battery but also the cost of replacing both turbine runners and determining the extent of the effect on the balance of plant. Each unit at Harris makes approximately 60 megawatts (MW) at efficient gate. For an example, a 60 MW/60-megawatt hour (MWhr), 1-hour duration, standalone battery including construction and installation, is estimated to cost \$36M dollars.⁶ This battery would need to be sized to produce up to 60 MW for one hour so that the full capacity of the turbine could be supplemented from battery power. The battery would need this capacity because ramping would essentially begin at zero MWs with a very small wicket gate opening and then gradually open over the period of one hour. A smaller MW battery would not be large enough to make up the lost MWs in a full ramping scenario. For example, if a 5 MW battery

⁶ Fu, Remo and Margolis, "2018 U.S. Utility-Scale Photovoltaics-Plus-Energy Storage System Costs Benchmark", National Renewable Energy Laboratory, NREL/TP-6A20-71714.

were used, the unit would have to ramp very quickly, within 30 to 45 seconds, to an output of 55 MW. The 5 MW battery would then make up for the remaining power to reach the original power output of 60 MW. To be clear, a battery smaller than the unit's power at efficient gate does not allow for full ramping because the unit must quickly be brought up to a point where the unit's power plus the battery's power equals 60 MW.

The cost of \$36M would be doubled to \$72M since there are two units at Harris Dam and peaking requires the availability of both units. Additionally, this is a one-hour battery, so the unit(s) must be at efficient gate at one hour past the start of generation. If a longer ramping rate was desired, the battery would likely need to be even larger. The cost to upgrade the turbine runners in order to have a much wider operating range would also need to be considered. It is also important to note that it is undetermined, due to the site-specific conditions and the geometry of the water passages in the powerhouse, if a suitable turbine runner with a wide operating range can even be produced.

c. While information and access to battery storage technology is increasing, as ARA notes, integrating BESS at hydropower projects is a relatively new field with no established methodology. This is especially true for the size of BESS needed to replace the full megawatt capacity at Harris. Furthermore, full-scale redesign of the existing turbines is not being considered by Alabama Power during this relicensing.

For these reasons, Alabama Power declines this study proposal and contends that the downstream release alternatives study will provide information for Alabama Power and the stakeholders to effectively evaluate effects of downstream releases on Project resources (both on Lake Harris and in the Tallapoosa River below Harris Dam) and for Alabama Power to propose an operating scenario for the next license term.

2) Pre-and Post-Dam Analysis of Downstream Impacts, including flooding, erosion, and habitat changes to flora and fauna.

Alabama Power's Response:

Mr. Chuck Denman⁷ proposed that Alabama Power conduct an additional study that analyzes pre-dam and post-dam impacts on flooding, erosion, plants, and fisheries. This study request did not meet FERC's criteria for an additional study; however, Alabama Power notes that many of the analyses requested by Mr. Denman are in fact occurring as part of the Harris relicensing. FERC does not require a licensee to evaluate pre-project conditions in a relicensing. In FERC's "*Guide to Understanding and Applying the Integrated Licensing Process Study Criteria*" (2012), FERC notes that where information is being sought solely to look at historic effects, FERC staff will not require an applicant to reconstruct pre-project conditions, because that is not the baseline from which the FERC conducts its environmental analysis. The FERC's choice of current environmental conditions as the baseline for environmental analysis in relicense cases was affirmed in *American Rivers v. FERC*, 187 F.3d 1007, amended and rehearing denied, 201 F.3d 1186 (9th Cir., 1999); *Conservation Law Foundation v. FERC*, 216 F.3d 41 (D. C. Cir. 2000).

⁷ Accession No 20200611-5174.

Alabama Power has consistently communicated and explained that it will use the 100-year flood event to model effects from a change in Harris Project operations on downstream resources. Alabama Power has also completed an erosion evaluation and is reviewing all stakeholder comments on lake and downstream erosion and sedimentation and will address those comments in the Final Erosion and Sedimentation Report. Alabama Power is also evaluating how changes to current Project operations may affect nuisance aquatic vegetation. Finally, Alabama Power has compiled a large amount of existing information on the Tallapoosa River fisheries community and is also conducting three studies investigating fish habitat, aquatic resources in the Tallapoosa River, and water quality and water temperature in both Lake Harris and in the Tallapoosa River. For these reasons, Alabama Power believes the issues raised by Mr. Denman are covered in the FERC-approved Study Plan and a new study is not warranted.

3) A New Study of the Downstream River Using Historic Images Overlaid onto Current Imagery

Alabama Power's Response:

Ms. Donna Matthews⁸ proposed that Alabama Power conduct a new study using GIS to compare historic imagery to current imagery to evaluate effects of releases downstream of Harris Dam. Ms. Matthews notes that existing data can be used and that Alabama Power can gather historic images and overlay them on current images to determine the effects of the dam on the river downstream. The primary purpose of this study is to address "significant and persistent concerns about erosion" in the Tallapoosa River downstream of Harris Dam.

Alabama Power notes that while this study does not conform to FERC's criteria for additional studies, Alabama Power is committed to evaluating erosion and sedimentation effects on Lake Harris and in the Tallapoosa River downstream of Harris Dam. Alabama Power is reviewing stakeholder comments on the Draft Erosion and Sedimentation Report and will address these comments in the Final Erosion and Sedimentation Report. Further, the FERC-approved Erosion and Sedimentation Study Plan provides adequate methodology to address erosion and sedimentation issues resulting from Harris Project operations.

As noted above, FERC does not require licensees in the relicensing process to study pre-project conditions; however, Ms. Matthews volunteered in the April 28, 2020 ISR Meeting to provide images to Alabama Power that FERC may consider in conducting its cumulative effects analysis for soils and geologic resources, specifically erosion and sedimentation. Alabama Power intends to contact Ms. Matthews to obtain copies of these photos.

⁸ Accession No. 20200611-5169.

Note: The large-scale maps referenced in the response to Question #10 are not included in this version of the filing due to file size recommendations for eFiling.

Harris relicensing - response to ISR comments

APC Harris Relicensing <g2apchr@southernco.com>

Fri 7/10/2020 6:58 PM

To: 'harrisrelicensing@southernco.com' <harrisrelicensing@southernco.com>
Bcc: 1942jthompson420@gmail.com <1942jthompson420@gmail.com>; 9sling@charter.net <9sling@charter.net>; allan.creamer@ferc.gov <allan.creamer@ferc.gov>; alpeople@southernco.com <alpeople@southernco.com>; amanda.fleming@kleinschmidtgroup.com <amanda.fleming@kleinschmidtgroup.com>; amanda.mcbride@ahc.alabama.gov <amanda.mcbride@ahc.alabama.gov>; amccartn@blm.gov <amccartn@blm.gov>; ammcvica@southernco.com <ammcvica@southernco.com>; amy.silvano@dcnr.alabama.gov <amy.silvano@dcnr.alabama.gov>; andrew.nix@dcnr.alabama.gov <andrew.nix@dcnr.alabama.gov>; arsegars@southernco.com <arsegars@southernco.com>; athall@fujifilm.com <athall@fujifilm.com>; aubie84@yahoo.com <aubie84@yahoo.com>; awhorton@corblu.com <awhorton@corblu.com>; bart_robby@msn.com <bart_robby@msn.com>; baxterchip@yahoo.com <baxterchip@yahoo.com>; bbooz6@gmail.com <bbooz6@gmail.com>; bdavis081942@gmail.com <bdavis081942@gmail.com>; beckyrainwater1@yahoo.com <beckyrainwater1@yahoo.com>; bill_pearson@fws.gov <bill_pearson@fws.gov>

 1 attachments (143 KB)

2020-07-10 Response to ISR Comments.pdf;

Harris relicensing stakeholders,

On April 10, 2020, Alabama Power filed the Initial Study Report (ISR) along with six Draft Study Reports and two cultural resources documents. Alabama Power held the ISR Meeting with stakeholders and FERC on April 28, 2020. On May 12, 2020, Alabama Power filed the ISR Meeting Summary. Comments on the ISR, draft reports, and ISR Meeting Summary were due on June 11, 2020.

Alabama filed a response to ISR comments with FERC today. The response is attached and can also be found on the relicensing website: www.harrisrelicensing.com under "Relicensing Documents." Note that the larger scale maps requested by FERC can be found in the HAT 4 – Project Lands folder.

Thanks,

Angie Anderegg

Hydro Services

(205)257-2251

arsegars@southernco.com

APC Harris Relicensing

From: Jack West <jwest@alabamarivers.org>
Sent: Friday, July 31, 2020 8:23 AM
To: APC Harris Relicensing
Cc: Anderegg, Angela Segars
Subject: ARA Comments on Draft Aquatic Habitat Study Report
Attachments: ARA Comments on Draft Aquatic Habitat Study Report - 7.31.20.pdf

Hi Angie,

Please see attached for Alabama Rivers Alliance's comments on the Draft Aquatic Study Report. Thank you for including these comments in the FERC correspondence record.

Best,

--

Jack West, Esq.
Policy and Advocacy Director
Alabama Rivers Alliance
2014 6th Ave N, Suite 200
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Alabama Rivers Alliance
Water Is Life

July 30, 2020

VIA EMAIL

Ms. Angie Anderegg
Harris Relicensing Project Manager
Alabama Power Company
600 North 18th Street
Birmingham, AL 35203

RE: Comments on Draft Downstream Aquatic Habitat Study Report for R.L. Harris Hydroelectric Project (P-2628-065)

Dear Ms. Anderegg:

Below are the preliminary comments of Alabama Rivers Alliance on the Draft Downstream Aquatic Habitat Study Report filed by Alabama Power.¹ The draft Aquatic Resources Study Report was filed earlier this week, and we will be commenting upon that study as well. Since the two studies are particularly related, we may include additional comments on the draft Aquatic Habitat study report in our comments to the Aquatic Resources study report. Thank you for including these comments in the FERC correspondence record.

I. Description of Fish Population Response to Green Plan

The Draft Downstream Aquatic Habitat Study Report describes the voluntary management efforts of the Green Plan as beneficial to the fish population below Harris: “Monitoring conducted since initiation of the Green Plan has indicated a positive fish community response due to increased shoal habitat availability.” This statement mischaracterizes the monitoring results from 2005-2010 reported in Irwin et al. 2011² (which it cites for this proposition) and ignores the most recent published research on the topic. Instead, Licensee conflates increased habitat availability with actual fish population response.

In fact, the post-Green Plan monitoring from 2005-2010 reported by Irwin et al. 2011 and cited by Licensee in the draft study report flatly refuses to link the amount of increased habitat created by the Green Plan with fish population response:

¹ Draft Downstream Aquatic Habitat Study Report (Jun. 2020), Accession No. 20200630-5200.

² Elise R. Irwin et al., *Adaptive Management and Monitoring for Restoration and Faunal Recolonization of Tallapoosa River Shoal Habitats* (2011), Alabama Cooperative Fish and Wildlife Research Unit Report 2011-1.

“Analysis of differences in hydrology that provide critical habitat for shoal dwelling species during pre- and post-management periods indicate significant increases in the amount of time quality habitat conditions were met (average gain of 30 d/season). *However, linking vital rates of fish populations to habitat variability will require more specific habitat measurement and modeling in relation to managed flow features.*”³

Irwin et al. 2011 does report the Green Plan tentatively has been successful for the reestablishment of one species (the Alabama shiner),⁴ but it details steep declines in occupancy for other species, such as the Tallapoosa sculpin, black redhorse, and blacktail redhorse.⁵

Moreover, the most recent relevant scientific literature from last year that incorporates longer-term biological monitoring also refutes Licensee’s statement about positive fish response contained in the draft study report. The USGS Open-File Report 2019-1026, *Adaptive Management of Flows from R.L. Harris Dam (Tallapoosa River, Alabama)—Stakeholder Process and Use of Biological Monitoring Data for Decision Making*, assesses persistence and colonization for 38 fish species over a 12-year period.⁶ In contrast to Licensee’s draft report, the 2019 Open-File Report finds that quite the opposite is true—that the Green Plan has *not* resulted in a positive fish response.

Chapter B of the 2019 Open-File Report focuses on the long-term occupancy of fishes above and below Harris. It clearly states that any increase in shoal habitat provided by the Green Plan has not translated into population benefits: “Irwin and others (2011) reported an increase in shoal habitat persistence associated with the Green Plan; *however, positive population responses have not ensued.*”⁷ Rather, the long-term data in the 2019 Open-File Report “provide evidence that suggests broadscale negative influences of the dam on species persistence and colonization parameters. Specifically, generation frequency and cool thermal regimes negatively affected fish persistence and colonization, respectively.”⁸

In assessing the relationship between aquatic habitat, fish population health, and downstream release alternatives (the Green Plan, alternative pulsing regimes, various minimum flows), Licensee, FERC, and stakeholders should not start from the misleading conclusion that the Green Plan generally benefitted fish populations downstream of Harris. This statement should be struck from the draft report and an accurate description of post-Green Plan monitoring that takes into account the most recent published scientific materials inserted in its place.

II. Use of Wetted Perimeter Metric to Gauge Aquatic Health

The Draft Downstream Aquatic Habitat Study Report uses “wetted perimeter” (the portion of the riverbed and banks in contact with the water in the channel) as a fundamental metric in comparing

³ *Id.* at 3 (emphasis added).

⁴ *Id.* at 20-21.

⁵ *Id.* at 14-15.

⁶ Elise R. Irwin, *Adaptive Management of Flows from R.L. Harris Dam (Tallapoosa River, Alabama)—Stakeholder Process and Use of Biological Monitoring Data for Decision Making*, U.S. Geological Survey Open-File Report 2019-1026.

⁷ *Id.* at 48 (emphasis added).

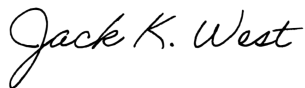
⁸ *Id.*

habitat availability among release scenarios. Licensee's HEC-RAS model outputs wetted perimeter values for simulations of the different flow scenarios, the preliminary conclusions being that the Green Plan created some gains in wetted perimeter over pre-Green Plan management, and that a 150cfs continuous minimum flow would result in further increases of wetted perimeter.⁹

We caution against using wetted perimeter as a guide-star metric to measure aquatic health. Certainly, wetted perimeter and habitat duration should be evaluated and considered as part of this habitat study, but as described in the section above, over a decade of monitoring since implementation of the Green Plan has shown that an increase in quality habitat availability (made possible by increased wetted perimeter) has not led to a positive population response from fishes below the dam. Other variables, including stability of flows, thermal regime, and the availability of spawning windows must be considered along with habitat availability.

The independent science simply does not connect increased habitat availability or wetted perimeter in the Tallapoosa River below Harris with increases in colonization, persistence, or recruitment of fishes, and when managing for conservation and restoration of fish species, FERC, Licensee, and stakeholders would do well not to believe one will necessarily lead to the other. The draft report should fully acknowledge what the science reveals and seek to understand through the other studies what additional factors may be contributing to the lack of fish species recovery.

Sincerely,



Jack K. West, Esq.

Alabama Rivers Alliance
Policy and Advocacy Director
2014 6th Avenue North
Suite 200
Birmingham, AL 35203

⁹ Draft Downstream Aquatic Habitat Study Report (Jun. 2020), Accession No. 20200630-5200, at 24.

APC Harris Relicensing

From: Fobian, Todd <Todd.Fobian@dcnr.alabama.gov>
Sent: Friday, July 31, 2020 9:07 PM
To: APC Harris Relicensing
Cc: Anderegg, Angela Segars; Marshall, Matthew; Greene, Chris; Abernethy, Damon
Subject: ADCNR Comments Harris Project Initial Study Report (ISR) Draft Downstream Aquatic Habitat Report for the R. L. Harris Hydroelectric Project (FERC No. 2628)
Attachments: Harris Project Initial Study Report (ISR) Draft Downstream Aquatic Habitat Report_tbf_072420_ADCNR_comments_Final.pdf

Good afternoon-

Attached please find our review comments on the Harris Project Initial Study Report (ISR) Draft Downstream Aquatic Habitat Report for the R. L. Harris Hydroelectric Project (FERC No. 2628). If you have any questions or concerns, please contact me. Thank you for the opportunity to review this report.

Todd Fobian
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COMMISSIONER

EDWARD F. POOLOS
DEPUTY COMMISSIONER

The mission of the Wildlife and Freshwater Fisheries Division is to manage, protect, conserve, and enhance the wildlife and aquatic resources of Alabama for the sustainable benefit of the people of Alabama.

CHARLES F. "CHUCK" SYKES
DIRECTOR

FRED R. HARDERS
ASSISTANT DIRECTOR

July 31, 2020

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

RE: Comments on the Harris Project Initial Study Report (ISR) Draft Downstream Aquatic Habitat Report for the R. L. Harris Hydroelectric Project (FERC No. 2628).

Dear Ms. Bose:

The Alabama Department of Natural Resources (ADCNR) Division of Wildlife and Freshwater Fisheries (WFF), has reviewed the Federal Energy Regulatory Commission (FERC) filed Harris Project Initial Study Report (ISR) Draft Downstream Aquatic Habitat Report in regards to the relicensing of R.L. Harris Hydroelectric Project No. 2628 and submits the following comments and recommendations for your consideration:

Draft Downstream Aquatic Habitat Report

- On page 1, section 1.1 Study Background of Draft Downstream Aquatic Habitat Report, it states *"Monitoring conducted since initiation of the Green Plan has indicated a positive fish community response due to increased shoal habitat availability (Irwin et al. 2011); however, there is little existing information characterizing the extent that the Green Plan has enhanced the aquatic habitat from Harris Dam downstream through Horseshoe Bend."* Recent reporting of fish community monitoring indicates that fish densities in the regulated river downstream of Harris Dam have been depressed when compared to unregulated sites (Irwin et al. 2019).
- On page 2, section 1.1 Study Background of Draft Downstream Aquatic Habitat Report, change *"i.e."* ("that is") should be changed to *"e.g."* ("for example"). Details and design of a Modified Green Plan alternative are pending results and full evaluation from the Aquatic Resources Study. ADCNR is not in agreement that the alternative/modified Green Plan would only consider changing the time of day in which Green Plan pulses are released. ADCNR is in agreement that results from the Aquatic Resources Study are needed to design and recommend the alternative to be studied. Aquatic Resources Study results should be included in the footnote as a precursor to fully evaluate and recommend an alternative Green Plan to be modeled as a downstream release alternative for initial study report. ADCNR maintains its recommendation for a fourth alternative Modified Green

Plan be fully evaluated. ADCNR requests the opportunity to provide specific recommendations for the Modified Green Plan alternative after assessing the Aquatic Resources Study report.

- On page 2, section 1.1 Study Background of Draft Downstream Aquatic Habitat Report, change “*intened*” to “intended”
- On page 3, section 3.1 Mesohabitat Analysis of Draft Downstream Aquatic Habitat Report, provide the total river miles, in addition to hectares for each section (*e.g.*, Harris Dam to Malone (total river miles), Wadley to Bibby’s Ferry (total river miles))
- On page 4, section 2.2 Water Level Monitoring of Draft Downstream Aquatic Habitat Report, it states “*data were lost from four level loggers (logger numbers 12, 14, 18, 20) (Figure 2-1)*” Provide a detailed explanation why data is unavailable from these four loggers (*e.g.* equipment malfunction or computer error). On page 6, Figure 2-1 note the four level loggers that had lost data with an asterisk and provide an explanation of the asterisks in the Figure description.
- On page 9, Figure 3-2 of Draft Downstream Aquatic Habitat Report, the image resolution is poor. If available provide higher resolution images for this data.
- On page 10, section 3.2.1 Study Period Hydrology and Climate, of Draft Downstream Aquatic Habitat Report, provide statistical analysis information documenting that significant differences occurred between the river flows in August/September 2019 and January/March 2020 compared to long-term averages.
- On page 14, Figure 3-6, of Draft Downstream Aquatic Habitat Report, provide standard deviation bars for the average daily water level.
- On page 14, of Draft Downstream Aquatic Habitat Report, provide an additional graph similar to Figure 3-6 that depicts the maximum daily water level fluctuation (Delta T) from May 2019 to April 2020. This graphic will better represent the unnatural, harsh conditions subjected to aquatic fauna daily below Harris Dam.
- On page 15, Table 3-3 Summary of Daily Water Level Fluctuations of Draft Downstream Aquatic Habitat Report, in addition to mean, minimum and maximum, provide the median (ft) for each site and standard deviation of the means.
- On page 16, Figure 3-7 of Draft Downstream Aquatic Habitat Report, provide standard deviation bars for the average hourly water level. Change the y-axis label from “*temperature*” to “water level”.
- On page 17 Table 3-4 Summary of Hourly Water Level Fluctuations of Draft Downstream Aquatic Habitat Report, in addition to mean, minimum and maximum, provide the median (ft) for each site and standard deviation of the means.
- On page 18, section 3.2.4 Water Temperature of Draft Downstream Aquatic Habitat Report, temperature change data is primarily depicted in averages. It is important to remember that like dissolved oxygen declines, only one significant sudden temperature change event can stress or kill aquatic species. In addition, temperature highly influences dissolved oxygen levels in aquatic environments and significant dissolved oxygen declines and extreme temperature fluctuations can often coincide. For water temperature data, maximum and minimum values, and how long those values persist (hours) would better explain the fluctuation in temperature changes occurring in a regulated river. Providing detailed reporting of minimum and maximum values at hourly intervals

especially when water temperatures reach critical spawning ranges (15-25°C) in the spring are required to fully understand what is occurring. For example, if water temperature rise during the spring reaches a fish species thermal spawning cue but then suddenly decreases due to generation, disruption of spawning success can occur. Decreased and varied downstream water temperatures, as a result of project operations, can negatively impact downstream aquatic fauna. The impacts of water temperatures on the aquatic environment have been well-documented in peer-reviewed literature (Travnicek and Maceina 1994; Bowen *et al.* 1998; Andress 2002, Craven *et al.* 2010; Irwin *et al.* 2010; Goar 2013; Early and Sammons 2015). A component of varied downstream water temperatures downstream of regulated waterways, includes rapid sudden changes in water temperatures. These rapid changes can cause serious stress responses in some fishes in captivity and in the wild that are otherwise healthy, even leading to mortality (Jenkins *et al.* 2004). Limits of tolerance and ability to tolerate changes in temperature are influenced by the previous thermal histories of individual fish as well as species characteristics (Carmichael *et al.* 1984). Sudden temperature changes of greater magnitude, either upward or downward, are very stressful and should be avoided. The magnitude of change that aquatic species can tolerate will depend on the species, the life history stage in consideration, previous thermal history, and the initial conditions. The literature-based temperature requirement for fish information provided by the ongoing Aquatic Resources Study should provide useful details on various Tallapoosa River system fish species temperature tolerances. In addition, the comparison of temperature data in regulated and unregulated portions of the study area in the ongoing Aquatic Resources Study should provide additional insight into this topic. The Aquatic Resources Study results in conjunction with downstream flow data, water quality data and downstream habitat data from the initial study reports must be fully evaluated to assess potential impacts to the aquatic resources of the system. For these reasons it is important to provide median, minimum and maximum daily and hourly water temperature fluctuations in this section, in addition to the provided means. Median site data should be included into Tables 3-5 and 3-6. Provide Figure line plots of 15-minute water temperature data collected for each site, similar to page 29, Figure 4-2 line plots of 15-minute water temperature data collected by ADEM on the Tallapoosa River of the Draft Water Quality Study Report.

- On page 18, section 3.2.4 Water Temperature of Draft Downstream Aquatic Habitat Report, in the discussion on water temperature, explain how the temperature change range is lower at the dam, in comparison to sites 1 and 3 miles downstream. Explain what processes might cool the water moving downstream before warming them again.
- On Page 19, Figure 3-8 of Draft Downstream Aquatic Habitat Report, provide standard deviation bars for the average monthly temperature data points.
- On page 20, Figure 3-9 of Draft Downstream Aquatic Habitat Report, provide standard deviation bars for the average daily temperature fluctuation.
- On page 20, of Draft Downstream Aquatic Habitat Report, provide an additional graph similar to Figure 3-9 that depicts the maximum daily water temperature fluctuation (Delta T) from May 2019 to April 2020. This graphic will better represent the unnatural, harsh conditions subjected to aquatic fauna daily below Harris Dam.
- On page 21, Table 3-5 of Draft Downstream Aquatic Habitat Report, in addition to mean, minimum and maximum provided, provide the median (°C) for each site and standard deviation of the means.
- On page 22, Figure 3-10 of Draft Downstream Aquatic Habitat Report, provide standard deviation bars for the average hourly temperature fluctuation.

- On page 22, of Draft Downstream Aquatic Habitat Report, provide an additional graph similar to Figure 3-10 that depicts the maximum hourly water temperature fluctuation (Delta T) from May 2019 to April 2020. This graphic will better represent the unnatural, harsh conditions subjected to aquatic fauna frequently below Harris Dam.
- On page 23, Table 3-6 of Draft Downstream Aquatic Habitat Report, provide map site numbers from Figure 2-1, in addition to the included miles below Harris dam.
- On page 23, Table 3-6 of Draft Downstream Aquatic Habitat Report, in addition to mean, minimum and maximum numbers provided, provide the median (°C) for each site and standard deviation of the means.
- On page 25, section 3.3 Wetted Perimeter of Draft Downstream Aquatic Habitat Report, median is used to evaluate seasonal analysis of wetted perimeter. Provide mean wetted perimeter in addition to median.
- On page 32, section 4.0 Discussion and Conclusions of Draft Downstream Aquatic Habitat Report, it states “*Results indicate that, on average, the largest daily water level fluctuations occur in the first seven miles below Harris Dam.*” Provide the metric value you are using to separate out the first seven miles of sites from the other sites downstream to make this statement. There are average daily water level changes over 3.0 ft occurring at river mile 15 and over 2.0 ft at river mile 28.2. A metric should be selected, utilized and stated for comparisons. Ideally this metric should be a point equivalent to the historical mean or median daily water level change of the unregulated natural flow regime for that stretch of river being analyzed.
- On page 32, section 4.0 Discussion and Conclusions of Draft Downstream Aquatic Habitat Report, it states “*Results indicate that the largest daily water temperature fluctuations occur in the first seven miles below Harris Dam.*” Provide the metric value you are using to separate out the first seven miles of sites from the other sites downstream to make this statement. There are hourly water temperatures changes over 4°C occurring at river mile 19.5. A metric should be selected, utilized and stated for comparisons. Ideally this metric should be for a maximum hourly change in addition to percent of time this maximum is exceeded (See ADCNR section 3.2.4 Water Temperature comments, discuss sites with separation metric points of 2°C and 4°C maximum temperature change per hour).
- On page 32, section 4.0 Discussion and Conclusions of Draft Downstream Aquatic Habitat Report, it states “*It is also worth noting that river flows during August and September of 2019, typically the warmest months of the year, were well below normal which could have resulted in greater daily and hourly temperature fluctuations than normal.*” This statement as presented does not seem accurate. Explain how a warm water unregulated river, without a dam, would decrease in temperature as it moves downstream. In many instances rainwater (runoff) in the summer will warm streams and tributaries, thus warm runoff increases temperatures in the creeks in some instances, particularly during afternoon storms when ambient air temperatures have peaked for the day. Additionally, since the Harris dam discharge is below the surface water at 30-40 feet deep, changes to the stratification of the reservoir, would be more pronounced in higher flow, than lower flow years. Reservoir stratification is affected more by higher inflows, than low inflows, especially when discharge occurs from the metalimnion or hypolimnion. Downstream temperature changes should not be significantly different if a thermocline is present, which occurs annually at Harris Reservoir, and persists into September. The statement above requires additional explanation including mechanisms that would cause greater hourly temperature fluctuations than normal during low flow. Provide a reference to a Figure in document illustrating river flows during this time period and provide a specific instance that supports this statement. Clarify whether this statement

is referring to tailrace flows or tributary inflows to the tailrace. Significant differences between large tributaries and tailrace temperatures even during atypical river flow scenarios in warmer months may be indications that the regulated reach is significantly altered compared to the natural temperature regime of the river system. Under a new FERC license agreement, R.L. Harris Hydroelectric Project will operate under various weather conditions throughout the issuance period of the license. We maintain our request that when evaluating impacts on downstream water quality (including water temperature) due to project operations, that methods to mitigate the unnatural water temperature variability be fully assessed to minimize impacts to the aquatic resources.

- On page 3, Task 2 – Water Level, Channel Profile and Discharge Data Collection and Analysis of the Downstream Aquatic Habitat Study Plan, it specifies using Acoustic Doppler Current Profilers (ADCP) to collect bed elevation and flow data. The data from the ADCP's is not mentioned in the study report. If data from these profilers will be used, include in the report. If data from these profilers will not be used, include an explanation for the deviation from the Study Plan.

Thank you for the opportunity to comment on the R.L. Harris Hydroelectric Project relicensing filed Harris Project Initial Study Report (ISR) Draft Downstream Aquatic Habitat Report. We look forward to continuing our cooperative efforts with the Federal Energy Regulatory Commission, Alabama Power, and other stakeholders during this process.

If you have any questions regarding these comments, please contact me at (334-353-7484) or Todd.Fobian@dcnr.alabama.gov.

Sincerely,



Todd Fobian

Environmental Affairs Supervisor

References:

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FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, DC 20426
August 10, 2020

OFFICE OF ENERGY PROJECTS

Project No. 2628-065 – Alabama
R.L. Harris Hydroelectric Project
Alabama Power Company

VIA FERC Service

Angie Anderegg
Harris Relicensing Project Manager
Alabama Power Company
600 North 18th Street
Birmingham, AL 35203

Reference: Determination on Requests for Study Modifications for the R.L. Harris Hydroelectric Project

Dear Ms. Anderegg:

Pursuant to 18 C.F.R. § 5.15 of the Commission's regulations, this letter contains the determination on requests for modifications to the approved study plan for Alabama Power Company's (Alabama Power) R.L. Harris Hydroelectric Project No. 2628 (Harris Project). The determination is based on the study criteria set forth in sections 5.9(b) and 5.15(d) and (e) of the Commission's regulations, applicable law, Commission policy and practice, and Commission staff's review of the record of information.

Background

Commission staff issued the study plan determination (SPD) for the Harris Project on April 12, 2019. Alabama Power filed an initial study report (ISR) and associated draft study reports on April 10, 2020, held an ISR meeting on April 28, 2020, and filed an ISR meeting summary on May 12, 2020. Comments on the ISR and meeting summary were filed by Commission staff on June 10, 2020, and by Alabama Department of Conservation and Natural Resources, Alabama Rivers Alliance, David Bishop, Dana Chandler, Wayne Cotney, Chuck Denman, Albert Eiland, Nelson Hay, Sharon Holland, Carol Knight, Joe Meigs, David Royster, Ronnie Siskey, Mike Smith, Michelle Waters, and John Carter Wilkins on June 11, 2020. The Alabama Department of Environmental Management, the U.S. Environmental Protection Agency (EPA), and Donna Matthews

P-2628-065

filed comments on June 12, 2020,¹ and the National Park Service filed comments June 29, 2020. Alabama Power filed reply comments on July 10, 2020.

Comments

Some of the comments received do not specifically request modifications to the approved study plan. This determination does not address these types of comments, which include: comments on the presentation of data and results; requests for additional information; disagreements on study results; recommendations for protection, mitigation, or enhancement measures; or issues that were previously addressed in either the November 16, 2018 Scoping Document 2 or the April 12, 2019 SPD.

Study Plan Determination

Pursuant to section 5.15(d) of the Commission's regulations, any proposal to modify a required study must be accompanied by a showing of good cause, and must demonstrate that: (1) the approved study was not conducted as provided for in the approved study plan, or (2) the study was conducted under anomalous environmental conditions or that environmental conditions have changed in a material way. As specified in section 5.15(e), requests for new information gathering or studies must include a statement explaining: (1) any material change in law or regulations applicable to the information request, (2) why the goals and objectives of the approved study could not be met with the approved study methodology, (3) why the request was not made earlier, (4) significant changes in the project proposal or that significant new information material to the study objectives has become available, and (5) why the new study request satisfies the study criteria in section 5.9(b).

Alabama Power agreed with requests to modify its Water Quality Study, as discussed immediately below. As indicated in Appendix A, two additional study modifications were requested, one of which Alabama Power partially agreed to and is required with staff modifications. In addition, three new studies were requested, one of which is approved herein, with staff modifications. The bases for modifying the study plan or approving new studies are explained in Appendix B (Requested Modifications to Approved Studies). Commission staff considered all study plan criteria in section 5.9 of

¹ Alabama Department of Environmental Management (Alabama DEM) and Donna Matthews' comments were filed on June 11, 2020, just after close of Commission business at 5:00 p.m. EST. Section 385.2001(a)(2) of the Commission's regulations provide that any filing received on a regular business day after close of Commission business is considered filed on the next regular business day. Therefore, the comments by Alabama Department of Environmental Management and Donna Matthews are considered filed on the next regular business day, or June 12, 2020.

P-2628-065

the Commission's regulations; however, only the specific study criteria particularly relevant to the study in question are referenced in Appendix B.

Water Quality Study

The draft Water Quality Study Report includes measurements of dissolved oxygen concentration and water temperature at a generation monitor located in the Harris Dam tailrace (3 years of data) and at a continuous monitor located about 0.5 mile downstream from Harris Dam (1 year of data). As requested by Alabama Rivers Alliance and other stakeholders, in its ISR reply comments,² Alabama Power agrees to collect additional water quality data in 2020 and 2021. Alabama Power provided a monitoring schedule for 2021 but did not do so for 2020 other than to say that monitoring began on May 4, 2020. Because the approved study plan requires Alabama Power to monitor dissolved oxygen and water temperature through October 31, the 2020 monitoring period should extend until October 31, 2020.

Threatened and Endangered Species Study

As noted in staff's comments on the ISR, the draft Threatened and Endangered (T&E) Species Study Report does not provide an assessment of T&E species populations and/or their habitats at the project, or a record of consultation with the U.S. Fish and Wildlife Service (FWS) regarding the need for field surveys for all of the species on the official T&E species list.³ In its reply comments, Alabama Power states that existing information is insufficient to determine some of the T&E species' presence/absence and habitat suitability in the project area. Alabama Power also states that it may conduct additional field surveys⁴ for T&E species and/or their potentially suitable habitat based on ongoing consultation with the FWS and Alabama Natural Heritage Program, and will provide documentation of this consultation in the Final T&E Species Report which will be filed in January 2021, per the approved study plan schedule filed on May 13, 2019.

² See Alabama Power's July 10, 2020 Reply Comments at 2. Alabama Power indicates that the continuous monitor was installed on May 4, 2020, and the tailrace monitor was installed on June 1, 2020.

³ See the official list of T&E species within the Harris Project boundaries (i.e., at Lake Harris and Skyline), accessed on July 27, 2018, by staff using the FWS's Information for Planning and Conservation website (<https://ecos.fws.gov/ipac/>) and filed on July 30, 2018.

⁴ Alabama Power confirmed it would complete T&E species field verifications by September 2020, per the approved study plan schedule.

P-2628-065

Requested Variances

In the ISR, Alabama Power requests variances to the approved schedules for the Draft Recreation Evaluation Study Report and the Cultural Resources Study.⁵ Specifically, Alabama Power proposes to file its Draft Recreation Evaluation Study Report in August 2020, instead of June 2020, to allow time to complete two new recreation surveys, a Tallapoosa River Downstream Landowner Survey and a Tallapoosa River Recreation User Survey. Alabama Power also proposes to finalize the Area of Potential Effect (APE) for its Cultural Resources Study and file it with documentation of consultation in June 2020, which it did on June 29, 2020. No stakeholders objected to the requested variances and these changes to the approved study schedule will not affect the overall relicensing schedule. Therefore, the requested variances are approved.

Please note that nothing in this determination is intended, in any way, to limit any agency's proper exercise of its independent statutory authority to require additional studies.

If you have any questions, please contact Sarah Salazar at sarah.salazar@ferc.gov or (202) 502-6863.

Sincerely,

for
Terry L. Turpin
Director
Office of Energy Projects

Enclosures: Appendix A – Summary of determinations on requested modifications to approved studies and new study requests

⁵ Alabama Power also requested a variance to the approved schedule for the Water Quality Study, proposing to submit its Clean Water Act section 401 water quality certification (certification) application to the Alabama DEM in April 2021, instead of as originally proposed in 2020. Section 5.23(b) of the Commission's regulations requires the application for certification to be submitted to the certifying agency within 60 days of issuance of the Ready for Environmental Analysis notice, which will occur post-filing. Accordingly, a variance for submitting the certification application prior to filing the license application is not needed.

P-2628-065

Appendix B – Commission staff’s recommendations on requested modifications to approved studies and new study requests

P-2628-065

APPENDIX A**SUMMARY OF DETERMINATIONS ON REQUESTED MODIFICATIONS TO APPROVED STUDIES (see Appendix B for discussion)**

Study	Recommending Entity	Approved	Approved with Modifications	Not Required
Requested Modifications to Approved Studies				
Downstream Release Alternatives Study	Commission staff, Alabama Rivers Alliance, EPA		X	
Operating Curve Change Feasibility Analysis Study and Downstream Release Alternatives Study – Climate Change Assessment	Donna Matthews			X
New Study Requests				
Battery Storage Feasibility Study	Alabama Rivers Alliance		X	
Pre-and Post-Dam Analysis of Downstream Impacts	Chuck Denman			X
Study of the Downstream River Using Historic, Pre-Dam Images Overlaid onto Current, Post-Dam Imagery	Donna Matthews			X

APPENDIX B

STAFF RECOMMENDATIONS ON REQUESTED MODIFICATIONS TO APPROVED STUDIES AND NEW STUDY REQUESTS

Downstream Release Alternatives Study

Background

Alabama Power designed and constructed the Harris Project, which began operation in 1983, as a peaking project. Prior to 2005, Alabama Power, while operating in a peaking mode, would alternately generate electricity for part of the day, and store flow in the reservoir for the rest of the day.⁶ While storing flows, there would be no downstream flow releases into the Tallapoosa River other than a license required minimum release of 45 cubic feet per second (cfs), as measured at the United States Geological Survey (USGS) gage located 14 miles downstream at Wadley, Alabama.

In 2005, Alabama Power voluntarily modified project operation to provide downstream pulse flow releases ranging from 15 minutes to 4 hours in length during non-generation periods for the benefit of the aquatic community downstream (called “Green Plan”).

The goal of the approved Downstream Release Alternatives Study is to evaluate the effects of the current Green Plan and the historic peaking operation, along with alternative downstream releases, on environmental and developmental resources affected by the project. Throughout the study planning and implementation process, Alabama Power has requested that stakeholders provide alternative flow releases to model as part of the study.⁷

Requested Study Modification

The approved study plan requires Alabama Power to model four downstream release scenarios, including: (1) current operation (the Green Plan); (2) the project’s historic peaking operation; (3) a modified Green Plan (i.e., modifying the time of day during which the pulses are released); and (4) a downstream continuous minimum flow of 150 cfs under a historic peaking operation scenario. Based on the findings in the draft Downstream Release Alternatives Study Report, in comments on the ISR, Commission

⁶ See Final Downstream Release Alternatives Study Report at 1.

⁷ See Study Plan Meeting Summary in the Revised Study Plan filed on March 13, 2019; the ISR Meeting Summary filed on May 12, 2020; and Alabama Power’s ISR reply comments filed on July 10, 2020.

P-2628-065

staff, the Environmental Protection Agency (EPA), and Alabama Rivers Alliance, request that Alabama Power evaluate additional downstream release alternatives. Commission staff request that Alabama Power model continuous minimum flows of 150, 350, 600, and 800 cfs under the historic peaking, Green Plan, and modified Green Plan release scenarios. EPA requests that Alabama Power evaluate: (1) the Green Plan with minimum flows; and (2) continuous minimum flows higher than 150 cfs. Alabama River Alliance requests Alabama Power evaluate the following downstream flow alternatives:

1. a variation of the existing Green Plan where the Daily Volume Release is 100 percent of the prior day's flow at the upstream USGS Heflin stream gage (rather than the current 75 percent);
2. a hybrid Green Plan that incorporates a downstream continuous minimum flow of 150 cfs;
3. releases from the Harris Project that match flow at the downstream USGS Wadley stream gage to the USGS Heflin stream gage to mimic natural flow variability; and
4. downstream continuous minimum flows of 300 and 600 cfs.

Comments on Requested Study Modification

In Attachment B of its reply comments, Alabama Power proposes to model the following five downstream release alternative model runs, in addition to the required four initial alternative model runs, for a total of nine alternative model runs:

1. a variation to the existing Green Plan where the Daily Volume Release is 100 percent of the prior day's flow at the USGS Heflin stream gage;
2. a 150-cfs continuous minimum flow with Green Plan releases;
3. a 300-cfs continuous minimum flow with historic peaking operation;⁸
4. a 600-cfs continuous minimum flow with historic peaking; and
5. an 800-cfs continuous minimum flow with historic peaking.

Alabama Power does not propose to model Alabama Rivers Alliance's requested alternative for a release from the Harris Project that mimics the natural flow variability in the Tallapoosa River. Alabama Power states that such operation would significantly reduce or eliminate use of the project for peaking. Moreover, Alabama Power states that the project's units are not capable of adjusting, to the extent necessary, to simulate natural

⁸ In the draft Downstream Release Alternatives Study Report, Alabama Power refers to the continuous minimum flow alternatives solely as minimum flows. To eliminate confusion, we recommend Alabama Power define the minimum flow alternatives, with regard to the associated operational scenario (e.g., 150-cfs continuous minimum flow with Green Plan operation).

P-2628-065

river flows. Alabama Power also does not propose to model staff's requested range of minimum flows with the Green Plan (except 150 cfs) or modified Green Plan releases (with any flow). Alabama Power states that modeling one combination of a minimum flow (150 cfs) and Green Plan releases is adequate to determine the effect of this downstream release alternative on project resources.

Discussion and Staff Recommendation

The purpose of the Green Plan releases is to reduce the effects of peaking operation on the aquatic community, including habitat, in the Tallapoosa River downstream from Harris Dam. Monitoring conducted since initiation of the Green Plan in 2005 indicates that there has been an increase in shoal habitat availability, but the response by the fish community has been mixed (Irwin, 2019).

Alabama Rivers Alliance's request for a downstream release alternative, whereby releases from the Harris Project would mimic the Tallapoosa River's natural flow variability, which could benefit the habitat and aquatic community downstream from Harris Dam, would require a change in project operation from peaking to run-of-river. As detailed by Alabama Power in its July 10, 2020, comments,⁹ the turbine-generator units at the Harris Project are designed to be operated at best gate and are not capable of adjusting to the extent necessary to simulate natural river flows (i.e., it is unable to operate in a run-of-river mode). Operating the units in this manner would lead to cavitation, which would damage the units. Therefore, operating the Harris Project to mimic the river's natural flow variability under a run-of-river mode would likely require significant redesign and redevelopment of the project (e.g., structural modifications, intake redesign, turbine retrofits, etc.). Because run-of-river operation is not feasible at the Harris Project without a major redesign and redevelopment of the project, we do not consider it to be a reasonable alternative for further consideration as part of our eventual environmental analysis. Therefore, we do not recommend modifying the study to include a release alternative that mimics natural flow variability in the Tallapoosa River.

With respect to the modified Green Plan releases requested by staff, we no longer recommend that Alabama Power model continuous minimum flows with this release strategy because, other than shifting the time of day of the releases, the release characteristics, model results, and environmental benefits would be the same as those for the continuous minimum flows and the Green Plan release strategy being modeled.

As noted above, the current license requires Alabama Power to release flows from the project such that a 45-cfs minimum flow is provided at the downstream USGS Wadley streamflow gage. Incrementally higher minimum flows (e.g., 150, 300, 600, and

⁹ See Alabama Power's July 10, 2020 comments, Attachment B, page 2.

P-2628-065

800 cfs) would provide additional wetted width, which could improve habitat availability between pulsing releases. Therefore, there is the potential for additional enhancement and protection that we will need to consider as part of our environmental analysis. Modeling a range of continuous minimum flows with the existing Green Plan releases would allow for an evaluation of flows that could improve downstream aquatic habitat. Therefore, in addition to the nine alternative model runs identified by Alabama Power,¹⁰ we recommend Alabama Power model three additional continuous minimum flows with the Green Plan releases (i.e., 300, 600, and 800 cfs).¹¹

Operating Curve Change Feasibility Analysis Study and Downstream Release Alternatives Study – Climate Change Assessment

Background

The approved study plan includes two operations-related modeling studies: an Operating Curve Change Feasibility Analysis Study and a Downstream Release Alternative Study. The respective objectives of these approved studies are to:

- (1) evaluate proposed incremental increases to the winter rule curve for Harris Lake; and
- (2) evaluate the effects of the historic peaking, existing Green Plan, and alternative downstream release alternatives, on environmental and developmental resources affected by the project.

Requested Study Modification

Donna Matthews requests that the Operating Curve Change Feasibility Analysis and Downstream Release Alternative Studies be modified to include additional modeling of the effect of climate change on flows and Harris Project operation. The additional modeling would use predictive data from climate change studies.

Comments on Requested Study Modification

No comments were filed on this requested study modification.

¹⁰ See Alabama Power's July 10, 2020 Reply Comments at Appendix B, page 2.

¹¹ These flows were selected because they are consistent with those minimum flows selected by Alabama Power for their historic peaking model runs.

P-2628-065

Discussion and Staff Recommendation

We are not aware of any available climate change model or assessment, including the climate change assessment referenced by Ms. Matthews,¹² that would support, with any degree of accuracy and reliability, a prediction of water availability at the individual project level. However, there is historical streamflow data available for the Tallapoosa River upstream of, and downstream from, the Harris Project. This data can be used to evaluate whether climate change has resulted in any changes to hydrologic inputs over time at the project. Therefore, we do not recommend modifying either the Operating Curve Change Feasibility Analysis Study or Downstream Release Alternative Study to include additional modeling using predictive data from climate change studies.

¹² Ms. Matthews references U.S. Department of Energy (2017), which was cited in EPA's March 29, 2019 comments on Alabama Power's Revised Study Plan.

P-2628-065

STAFF RECOMMENDATIONS ON REQUESTED NEW STUDIES

Battery Energy Storage Systems (BESS) Study

Background

Harris Lake is a storage reservoir in which flows are stored to supplement inflows from April through December. The daily discharge from the project is based on a percentage of flows measured at the upstream USGS Heflin gage (i.e., the Green Plan calls for daily discharge to be at least 75 percent of flows at Heflin). Hydropower is typically generated during hours when demand for electrical power is highest (i.e., peak energy), causing significant variations in downstream flows. Daily hydropower releases from the dam vary from 0 cfs during off-peak periods to as much as 16,000 cfs, which is approximately best gate,¹³ or the maximum turbine discharge.

The project has two turbine-generating units, rated at 67.5 megawatts (MW) each, which produce about 60 MW and have a hydraulic capacity of 8,000 cfs each at best gate opening. Lake elevations can vary 0.5- to 1.5-feet during a 24-hour period as a result of daily peak releases. Daily tailwater levels can vary significantly (up to 5 feet) because of peaking hydropower operations at Harris Dam, characterized by a rapid rise in downstream water levels immediately after generation is initiated, and a rapid fall in elevations as generation is ceased. Except during high flow conditions when hydropower may be generated for more extended periods of time, this peaking power generation scenario with daily fluctuating downstream flows is repeated nearly every weekday. Under the voluntary Green Plan, environmental flows are released through the turbines daily for short periods of time (i.e., 15 minutes to 4 hours).

Recommended New Study

In its comments on the ISR, Alabama Rivers Alliance requests a new study titled “Battery Storage Feasibility Study to Retain Full Peaking Capabilities While Mitigating Hydropeaking Impacts.” The goal of the study is to determine whether a battery energy storage system (BESS) could be economically integrated at Harris to mitigate the impacts of peaking, while retaining full system peaking capabilities. Under such a scenario, the BESS would be used to provide power during peak demand periods, which would

¹³ In its reply comments, Alabama Power notes that the best gate setting is a permanent setting on the governor system to ensure that the control system will force a fast movement of the wicket gates to the best gate position thereby minimizing the time spent in the rough zone (i.e., an area on the operating curve in which flows that are less than efficient gate cause increased vibrations in the turbine and cavitation along the low-pressure surfaces of the turbine runner).

P-2628-065

decrease the need for peak generation flow releases and reduce flow fluctuations downstream of the project. The objectives of the study are to evaluate battery type and size configurations, costs, and ownership options, as well as technical barriers to implementing BESS. The study would also assess how much operational flexibility could be provided by BESS and allow for more control of discharges downstream of the dam.

Alabama Rivers Alliance acknowledges that BESS at hydropower projects is a new field with no established methodologies. Alabama Rivers Alliance requests a desktop analysis to evaluate the feasibility of BESS at the Harris Project, including a preliminary cost/benefit analysis. Alabama Rivers Alliance estimates the cost of this study would be \$20,000 to \$30,000.

Comments on the Study Request

Alabama Power did not adopt this study because it believes the system would have a high cost and the turbines at Harris Dam are not designed to operate in a gradually loaded rate over an extended period. Rather, the turbines are peaking units designed to quickly react to electrical grid needs. Restricted ramping may be possible; however, it would require replacement of both turbine runners at a cost in addition to the cost of the batteries. Alabama Power estimates the cost of one 60 MW-1-hour storage battery unit equivalent to the power of one turbine, would be \$36,000,000. A battery equivalent to the power of both turbines would be \$72,000,000. There would be additional cost for any necessary modification of the project turbine-generator units. (Alabama Power did not provide an estimate for the cost of modifying/replacing the turbine runners.) Alabama Power dismisses the feasibility of a smaller MW battery. Alabama Power states that a smaller MW battery, i.e., 5 MW, would not be large enough to make up the lost power in full ramping mode. A battery smaller than the turbine's efficient gate would not allow for full ramping of that turbine.

Discussion and Staff Recommendation

We reviewed Alabama Power's cost estimate for the installation of a BESS at the Harris Project. Alabama Power's cost of the battery is based on a 2018 National Renewable Energy Report which estimates the cost of a 60 MW, 1-hour reserve battery at \$601/kWh, or about \$36,000,000 to be used in place of the MWs from one turbine at Harris (DOE, 2018). This cost does not include any modifications to the turbine-generator units, which would be necessary. In addition, a battery with 4 hours reserve storage may be necessary, because the Harris Project can generate up to 4 hours in peaking mode. The 2018 National Renewable Energy Report estimates the cost of a 60 MW, 4-hour reserve battery at \$380/kWh, or about \$91,000,000 to mirror the MW

P-2628-065

from one unit at Harris. This option would also require modification of the turbine runners at additional costs.

The goal of Alabama Rivers Alliance's study is to evaluate the feasibility of a storage system which could be economically implemented at the Harris Project. Such a study would require evaluating not only the cost of installing the battery units, but also the potential benefits to both developmental and non-developmental resources. Installing a BESS at the Harris Project has the potential to mitigate project effects on water levels in Harris Lake, and fluctuations in flows released downstream during peaking operations. Potential hydrologic changes could be achieved by spreading out the releases throughout the day/night rather than releasing most of flows during peak hours. Assuming the same daily volume of flow is released, installing one 60-MW battery to provide an equivalent amount of the power provided by one turbine-generator unit could reduce daily fluctuations in Harris Lake by half. Harris Lake water levels, which currently fluctuate up to 1.5 feet daily, could be reduced to 0.75 feet daily. Downstream releases during peaking could be reduced from 16,000 cfs to 8,000 cfs, and the tailwater surface elevation could be reduced by 2.8 feet.¹⁴ To consider the environmental benefits potentially associated with such changes in hydrologic conditions described above, the changes in releases from the project would have to be considered in the context of Alabama Power's approved Downstream Release Alternatives Study, which provides for identifying and evaluating Alternative Release scenarios.

Sections 4(e) and 10(a) of the Federal Power Act require the Commission to give equal consideration to all uses of the waterway on which a project is located. When reviewing a proposed action, the Commission must consider the environmental, recreational, fish and wildlife, and other non-developmental values of the project. We currently have insufficient information to evaluate the potential environmental benefits of a BESS. The cost of conducting the study, between \$20,000 and \$30,000, is relatively low and would provide information that does not already exist and is needed for our analysis.

Alabama Rivers Alliance's study methodology includes a description of operational flexibility associated with installing a range of battery sizes. Alabama Power did not consider a smaller battery because of the operational limits of the existing turbines. Alabama Power's analysis should not be limited to the existing turbines but should also consider the feasibility and cost of modifying or replacing a turbine necessary to support operation of a smaller battery, which may be more cost-effective and provide some environmental benefits. At minimum, the study should look at the costs and

¹⁴ The tailwater elevation below Harris dam is 667.7 feet msl when two units are operating and 664.9 feet msl when one unit is operating, a difference of 2.8 feet.

P-2628-065

environmental benefits of replacing one 60 MW unit, as discussed above, and at least one smaller battery and its associated changes in project releases.

Alabama Rivers Alliance's study methodology includes a survey of battery cost estimates based on public resources, future projections for battery costs, and potential incentives to offset battery cost. Alabama Power used a 2018 Department of Energy Report which provides a reasonable methodology for estimating the cost of a technology which has not been widely implemented in hydropower. The cost of batteries, however, is rapidly decreasing,¹⁵ and future projections in the cost of a battery should be considered in the cost analysis.

In summary, we recommend that Alabama Power conduct a BESS Study, along with the Downstream Release Alternative Study. The Downstream Release Alternative Study should be amended to include at least two new release alternatives: (a) a 50 percent reduction in peak releases associated with installing one 60 MW battery unit, and (b) a proportionately smaller reduction in peak releases associated with installing a smaller MW battery unit (i.e. 5, 10 or 20 MW battery). Alabama Power should include in its cost estimates for installing a BESS any specific structural changes, any changes in turbine-generator units, and costs needed to implement each battery storage type. Finally, consistent with the Downstream Release Alternative Study Plan, Alabama Power should evaluate how each of these release alternatives (i.e., items (a) and (b) above) would affect recreation and aquatic resources in the project reservoir and downstream.

Change Analyses: Project Operation Effects on Environmental Resources in the Tallapoosa River Downstream from Harris Dam

Background

The purpose of the Erosion and Sedimentation Study relative to downstream resources is to identify problematic erosion sites and sedimentation areas on the Tallapoosa River downstream from Harris Dam as well as determine the likely causes. The plan calls for sites downstream of Harris Dam to be identified, including by stakeholders; documented by observation and video; and assessed for the location, extent, and potential causes of erosion or sedimentation. As outlined in the approved study plan, during Phase 1 of the Operating Curve Change Feasibility Analysis Study, Alabama Power modeled the effect of increasing the winter elevation of Harris Lake by 1-, 2-, 3-, and 4-feet on the ability to provide flood control and downstream releases, among other operational parameters. Information from the Erosion and Sedimentation Study will be used in Phase 2 of both the Downstream Release Alternatives Study and the Operating

¹⁵ The National Energy Research Laboratory reports that since 2018, battery costs have been reduced by about 15 percent, with further decreases expected.

P-2628-065

Curve Change Feasibility Analysis Study to assess the effects of potential changes in project operation on resources downstream from Harris Dam, including erosion and sedimentation in the Tallapoosa River.

Recommended New Studies

Pre-and Post-Dam Analysis of Downstream Impacts

Chuck Denman requests a new study with the goal of analyzing pre-dam and post-dam impacts on environmental resources downstream from Harris Dam, including flooding, erosion, and habitat changes to flora and fauna. Specifically, Mr. Denman requests the following information:

1. a storm runoff model comparing 25-, 50-, and 100-year 24-hour storm events.
2. use of available remote sensing materials to identify erosion by comparing the current river channel and islands' sizes and shapes with pre-dam conditions.
3. use of remote sensing to map flag grass¹⁶ and invasive plant communities to compare changes from pre-dam conditions.
4. review available materials from local individuals in the community, as well as fish and game and other resources to determine what effect the dam has had on downstream fish species and population sizes.

Study of the Downstream River Using Historic, Pre-Dam Images Overlaid onto Current, Post-Dam Imagery

Donna Matthews states that erosion is a significant and persistent concern that is problematic for landowners, flora, and fauna in and around the Tallapoosa River downstream from Harris Dam. Ms. Matthews requests that Alabama Power use existing aerial imagery¹⁷ and other available data to analyze changes in erosion, fisheries, and other environmental resources downstream from Harris Dam. As part of the study, Ms. Matthews requests that Alabama Power prepare a detailed geographic information system (GIS) map with existing information relating fish populations and other parameters in three dimensions (3D). The 3D GIS map would display presence/absence of species along the river length and during different decades, where data are available. Ms.

¹⁶ Staff assumes that “flag grass” here refers to a non-native plant in the genus *Acorus*, such as *Acorus calamus*, given that the range of the native *Acorus americanus*, or “American sweetflag,” is northern United States and Canada (USDA, 2020).

¹⁷ Ms. Matthews filed an image of the Tallapoosa River in the Harris Project area from 1942 and provided a source for obtaining additional existing aerial imagery of the project area from 1950, 1954, 1964, and 1973.

P-2628-065

Matthews states that the results could be used to evaluate the potential effects of future changes to downstream flow patterns.

Comments on the Study Requests

Alabama Power indicates that it is conducting many of the requested analyses as part of the approved study plan, including evaluations of how existing operation affects, and alternative operations may affect, erosion and sedimentation, nuisance aquatic vegetation, fisheries/aquatic resources, and water quality in the Tallapoosa River downstream from Harris Dam. Alabama Power also states that the approved Erosion and Sedimentation Study provides an adequate methodology to evaluate project-related effects on erosion and sedimentation downstream from Harris Dam. To support the Commission's cumulative effects analysis for soils and geologic resources (i.e., erosion and sedimentation), Alabama Power indicates that it intends to contact Ms. Matthews to obtain copies of the aerial images referenced in her study request and file them with the Commission.¹⁸

Discussion and Staff Recommendation

Mr. Denman and Ms. Matthews present their new study requests as collecting data on pre-dam conditions, which is not necessary with the context of the Commission's environmental baseline (i.e., current conditions) for evaluating project effects during a relicensing proceeding and does not relate to the eventual proposed action, which is relicensing an existing hydroelectric project.¹⁹ The images of the project area that Ms. Matthews identifies were all taken prior to the construction and operation of the Harris Project. Analysis of these images would not be helpful in evaluating project-related erosion.

The flood analysis component of the Operating Curve Change Feasibility Analysis is intended to assess the effects of a large-scale flood, which could address some of the existing stormwater runoff and erosion issues that Mr. Denman identifies in his proposed study. The Downstream Release Alternatives Study calls for Alabama Power to model potential changes in operational flow releases. Modeling these potential operational scenarios will support an analysis of flow effects downstream of Harris Dam under a range of scenarios more effectively than additional modeling of smaller floods. The 100-year flood serves as a representative large flood for risk assessment and planning purposes. Therefore, modeling the 100-year flood scenario is sufficient.

¹⁸ See Alabama Power August 4, 2020 Memo.

¹⁹ *Am. Rivers v. FERC*, 187 F.3d 1007, amended by and denying reh'g, 201 F.3d 1186 (9th Cir. 1999); *Conservation Law Found. v. FERC*, 216 F.3d 41 (D. C. Cir. 2000).

P-2628-065

The data collected as part of the approved studies, including the Downstream Release Alternatives Study, Erosion and Sedimentation Study, Aquatic Resource Study, and Downstream Aquatic Habitat Study, include much of the information that Mr. Denman and Ms. Matthews request with regard to current conditions. The results of Phase 2 of the Downstream Release Alternatives Study that is being conducted currently (during the second study season, April 2020 through April 2021) will also provide information responsive to most of Mr. Denman and Ms. Mathews' requests. The information gained through the approved studies should be adequate to assess the effects of project operation on downstream resources, including erosion and sedimentation and related invasive species effects, fisheries, water quality and use, terrestrial resources, recreation, and cultural resources. Therefore, we do not recommend that Alabama Power conduct Mr. Denman's or Ms. Matthews' requested new studies.

P-2628-065

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P-2628-065.PDF.....1-19

Determination on Study Modifications

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<rjdavis8346@gmail.com>; robert.a.allen@usace.army.mil <robert.a.allen@usace.army.mil>;
robinwaldrep@yahoo.com <robinwaldrep@yahoo.com>; roger.mcneil@noaa.gov <roger.mcneil@noaa.gov>;
ron@lakewedowee.org <ron@lakewedowee.org>; rosoweka@mcn-nsn.gov <rosoweka@mcn-nsn.gov>;
russtown@nc-cherokee.com <russtown@nc-cherokee.com>; ryan.prince@forestry.alabama.gov
<ryan.prince@forestry.alabama.gov>; sabrinawood@live.com <sabrinawood@live.com>; sandnfrench@gmail.com
<sandnfrench@gmail.com>; sarah.salazar@ferc.gov <sarah.salazar@ferc.gov>; sbryan@pci-nsn.gov <sbryan@pci-
nsn.gov>; scsmith@southernco.com <scsmith@southernco.com>; section106@mcn-nsn.gov <section106@mcn-
nsn.gov>; sforehand@russellands.com <sforehand@russellands.com>; sgraham@southernco.com
<sgraham@southernco.com>; sherry.bradley@adph.state.al.us <sherry.bradley@adph.state.al.us>;
sidney.hare@gmail.com <sidney.hare@gmail.com>; simsthe@aces.edu <simsthe@aces.edu>;
snelson@nelsonandco.com <snelson@nelsonandco.com>; sonjahollomon@gmail.com
<sonjahollomon@gmail.com>; steve.bryant@dcnr.alabama.gov <steve.bryant@dcnr.alabama.gov>;
stewartjack12@bellsouth.net <stewartjack12@bellsouth.net>; straylor426@bellsouth.net
<straylor426@bellsouth.net>; sueagnew52@yahoo.com <sueagnew52@yahoo.com>; tdadunaway@gmail.com
<tdadunaway@gmail.com>; thpo@pci-nsn.gov <thpo@pci-nsn.gov>; thpo@tttown.org <thpo@tttown.org>;
timguffey@jcch.net <timguffey@jcch.net>; tlamberth@russellands.com <tlamberth@russellands.com>;
tlmills@southernco.com <tlmills@southernco.com>; todd.fobian@dcnr.alabama.gov
<todd.fobian@dcnr.alabama.gov>; tom.diggs@ung.edu <tom.diggs@ung.edu>; tom.lettieri47@gmail.com
<tom.lettieri47@gmail.com>; tom.littlepage@adeca.alabama.gov <tom.littlepage@adeca.alabama.gov>;
tpfreema@southernco.com <tpfreema@southernco.com>; trayjim@bellsouth.net <trayjim@bellsouth.net>;
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variscom506@gmail.com <variscom506@gmail.com>; walker.mary@epa.gov <walker.mary@epa.gov>;
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<wsgardne@southernco.com>; wtanders@southernco.com <wtanders@southernco.com>

Harris relicensing stakeholders,

Yesterday FERC issue a determination on study modifications for the Harris Project. It can be found on FERC elibrary and on the Harris relicensing website (www.harrisrelicensing.com) in the Relicensing Documents folder.

Thanks,

Angie Anderegg

Hydro Services

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APC Harris Relicensing

From: Jack West <jwest@alabamarivers.org>
Sent: Wednesday, August 26, 2020 1:57 PM
To: Anderegg, Angela Segars
Cc: APC Harris Relicensing
Subject: Re: Harris - Spawning Window Data

Hi Angie,

Thank you for sharing the AMP history of spawning windows downstream. I'm glad to hear there will be more conversation on this topic in the next HAT 3 meeting and discussion of using spawning windows as a management tool. It originally took me a little while to discern the reservoir spawning windows APC coordinates with ADCNR from downstream spawning windows, so thank you for that clarification.

Take care,

On Tue, Aug 25, 2020 at 11:05 AM Anderegg, Angela Segars <ARSEGARS@southernco.com> wrote:

Hi Jack,

The only record we have of a request from someone in the AMP group for a downstream spawning window is from 2006. It was a request from Elise Irwin for 10-14 days in May with no generation (i.e. Green Plan pulses only); however, we were not able to implement it due to high inflows.

In 2017, following several meetings with the AMP technical team (which consisted of USGS, Auburn, ADCNR, USFWS and Alabama Power), a 14-day downstream spawning window in the spring was evaluated. Alabama Power limited operations for as long as possible to just the Green Plan pulses. However, the window could not be held due to the high reservoir inflows requiring additional water to be released.

Since the topic of spawning windows will be of interest as we move forward in the process of evaluating release scenarios, we plan on dedicating some time to discuss it in detail at the next HAT 3 meeting in the fall of this year. At that meeting, we can discuss in more detail past efforts to provide spawning windows to determine their usefulness as a management option.

Also, note that the spawning windows referenced in Appendix E of the PAD (Downstream Flow Adaptive Management History and Research), specifically Table 3-1, are for lake level stabilization. At ADCNR's request, Alabama Power voluntarily holds the reservoir elevation constant or slightly increasing to help with spawning in the reservoir.

Thanks,

Angie Anderegg

Hydro Services

(205)257-2251

arsegars@southernco.com

From: Jack West <jwest@alabamarivers.org>
Sent: Wednesday, August 19, 2020 1:47 PM
To: Anderegg, Angela Segars <ARSEGARS@southernco.com>
Cc: APC Harris Relicensing <g2apchr@southernco.com>
Subject: Harris - Spawning Window Data

EXTERNAL MAIL: Caution Opening Links or Files

Hi Angie,

I hope you are doing well. Back during the ISR meeting in the spring, I asked a question about whether there is any available data on spawning windows during the Green Plan period (what years and seasons spawning windows were made available; how long they were held open; what flows were during those times; what were the overriding conditions in years where spawning windows were not made available).

I looked back at the ISR Meeting Summary and saw that there is some data available, but I haven't been able to locate it in the PAD. I may just be looking in the wrong place. Or APC's Reservoir Management Group may have some helpful information that is not contained in the PAD.

If you're able to help me locate the historical data about spawning windows during the Green Plan era, I would appreciate it.

My best,

--

Jack West, Esq.

Policy and Advocacy Director

Alabama Rivers Alliance

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Birmingham, AL 35203

205-322-6395

www.alabamarivers.org [alabamarivers.org]

Celebrating more than 20 years of protecting Alabama's 132,000 miles of rivers and streams!

--

Jack West, Esq.

Policy and Advocacy Director

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HAT 3 - November 5th meeting

APC Harris Relicensing <g2apchr@southernco.com>

Fri 10/16/2020 2:37 PM

To: APC Harris Relicensing <harrisrelicensing@southernco.com>

Bcc: amy.silvano@dcnr.alabama.gov <amy.silvano@dcnr.alabama.gov>; chris.greene@dcnr.alabama.gov <chris.greene@dcnr.alabama.gov>; damon.abernethy@dcnr.alabama.gov <damon.abernethy@dcnr.alabama.gov>; evan.lawrence@dcnr.alabama.gov <evan.lawrence@dcnr.alabama.gov>; keith.henderson@dcnr.alabama.gov <keith.henderson@dcnr.alabama.gov>; mike.holley@dcnr.alabama.gov <mike.holley@dcnr.alabama.gov>; steve.bryant@dcnr.alabama.gov <steve.bryant@dcnr.alabama.gov>; matthew.marshall@dcnr.alabama.gov <matthew.marshall@dcnr.alabama.gov>; todd.fobian@dcnr.alabama.gov <todd.fobian@dcnr.alabama.gov>; nathan.aycock@dcnr.alabama.gov <nathan.aycock@dcnr.alabama.gov>; ken.wills@jcdh.org <ken.wills@jcdh.org>; arsegars@southernco.com <arsegars@southernco.com>; ammcvica@southernco.com <ammcvica@southernco.com>; dkanders@southernco.com <dkanders@southernco.com>; jcarlee@southernco.com <jcarlee@southernco.com>; jefbaker@southernco.com <jefbaker@southernco.com>; kechandl@southernco.com <kechandl@southernco.com>; tlmills@southernco.com <tlmills@southernco.com>; cggoodma@southernco.com <cggoodma@southernco.com>; clowry@alabamarivers.org <clowry@alabamarivers.org>

HAT 3,

Please join us for a HAT 3 meeting on November 5th from 9-11. We will be providing some additional information based on comments received on the draft Aquatic Resources and draft Downstream Aquatic Habitat reports. We will also present results of downstream aquatic habitat modeling for the downstream release alternatives. Call in information is below.

Thanks,

Angie Anderegg

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arsegars@southernco.com

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Harris Relicensing Progress Update

APC Harris Relicensing <g2apchr@southernco.com>

Fri 10/30/2020 5:37 PM

To: APC Harris Relicensing <harrisrelicensing@southernco.com>

Bcc: 1942jthompson420@gmail.com <1942jthompson420@gmail.com>; 9sling@charter.net <9sling@charter.net>; abnoel@southernco.com <abnoel@southernco.com>; allan.creamer@ferc.gov <allan.creamer@ferc.gov>; alpeeples@southernco.com <alpeeples@southernco.com>; amanda.fleming@kleinschmidtgroup.com <amanda.fleming@kleinschmidtgroup.com>; amanda.mcbride@ahc.alabama.gov <amanda.mcbride@ahc.alabama.gov>; amccartn@blm.gov <amccartn@blm.gov>; ammcvica@southernco.com <ammcvica@southernco.com>; amy.silvano@dcnr.alabama.gov <amy.silvano@dcnr.alabama.gov>; andrew.nix@dcnr.alabama.gov <andrew.nix@dcnr.alabama.gov>; arsegars@southernco.com <arsegars@southernco.com>; athall@fujifilm.com <athall@fujifilm.com>; aubie84@yahoo.com <aubie84@yahoo.com>; awhorton@corblu.com <awhorton@corblu.com>; bart_robby@msn.com <bart_robby@msn.com>; baxterchip@yahoo.com <baxterchip@yahoo.com>; bboozzer6@gmail.com <bboozzer6@gmail.com>; bdavis081942@gmail.com <bdavis081942@gmail.com>; Beason, Jeffrey A. <JABEASON@southernco.com>; 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craig.litteken@usace.army.mil <craig.litteken@usace.army.mil>; crystal.davis@adeca.alabama.gov <crystal.davis@adeca.alabama.gov>; crystal.lakewedoweedocks@gmail.com <crystal.lakewedoweedocks@gmail.com>; crystal@hunterbend.com <crystal@hunterbend.com>; dalerose120@yahoo.com <dalerose120@yahoo.com>; damon.abernethy@dcnr.alabama.gov <damon.abernethy@dcnr.alabama.gov>; dbronson@charter.net <dbronson@charter.net>; dcnr.wffdirector@dcnr.alabama.gov <dcnr.wffdirector@dcnr.alabama.gov>; decker.chris@epa.gov <decker.chris@epa.gov>; devridr@auburn.edu <devridr@auburn.edu>; dfarr@randolphcountyalabama.gov <dfarr@randolphcountyalabama.gov>; dhayba@usgs.gov <dhayba@usgs.gov>; djmoore@adem.alabama.gov <djmoore@adem.alabama.gov>; dkanders@southernco.com <dkanders@southernco.com>; donnamat@aol.com <donnamat@aol.com>; doug.deaton@dcnr.alabama.gov <doug.deaton@dcnr.alabama.gov>; dpreston@southernco.com <dpreston@southernco.com>; drheinzen@charter.net <drheinzen@charter.net>; ebt.drt@numail.org <ebt.drt@numail.org>; 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mnedd@blm.gov <mnedd@blm.gov>; monte.terhaar@ferc.gov <monte.terhaar@ferc.gov>; mooretn@auburn.edu <mooretn@auburn.edu>; mprandolphwater@gmail.com <mprandolphwater@gmail.com>; nancyburnes@centurylink.net <nancyburnes@centurylink.net>; nanferebee@juno.com <nanferebee@juno.com>; nathan.aycock@dcnr.alabama.gov <nathan.aycock@dcnr.alabama.gov>; orr.chauncey@epa.gov <orr.chauncey@epa.gov>; pace.wilber@noaa.gov <pace.wilber@noaa.gov>; partnersinfo@wwfus.org <partnersinfo@wwfus.org>; patti.powell@dcnr.alabama.gov <patti.powell@dcnr.alabama.gov>; patty@ten-o.com <patty@ten-o.com>; paul.trudine@gmail.com <paul.trudine@gmail.com>; ptrammell@reddyice.com <ptrammell@reddyice.com>; publicaffairs@doc.gov <publicaffairs@doc.gov>; rachel.mcnamara@ferc.gov <rachel.mcnamara@ferc.gov>; raebutler@mcn-nsn.gov <raebutler@mcn-nsn.gov>; rancococ@teleclipse.net <rancococ@teleclipse.net>; randall.b.harvey@usace.army.mil <randall.b.harvey@usace.army.mil>; randy@randyrogerslaw.com <randy@randyrogerslaw.com>; randy@wedoweemarine.com <randy@wedoweemarine.com>; 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<scsmith@southernco.com>; section106@mcn-nsn.gov <section106@mcn-nsn.gov>; sforehand@russellands.com <sforehand@russellands.com>; sgraham@southernco.com <sgraham@southernco.com>; sherry.bradley@adph.state.al.us <sherry.bradley@adph.state.al.us>; sidney.hare@gmail.com <sidney.hare@gmail.com>; simsthe@aces.edu <simsthe@aces.edu>; snelson@nelsonandco.com <snelson@nelsonandco.com>; sonjahollomon@gmail.com <sonjahollomon@gmail.com>; steve.bryant@dcnr.alabama.gov <steve.bryant@dcnr.alabama.gov>; stewartjack12@bellsouth.net <stewartjack12@bellsouth.net>; straylor426@bellsouth.net <straylor426@bellsouth.net>; sueagnew52@yahoo.com <sueagnew52@yahoo.com>; tdadunaway@gmail.com <tdadunaway@gmail.com>; thpo@pci-nsn.gov <thpo@pci-nsn.gov>; thpo@tntown.org <thpo@tntown.org>; timguffey@jcch.net <timguffey@jcch.net>; tlamberth@russellands.com <tlamberth@russellands.com>; tlmills@southernco.com <tlmills@southernco.com>; todd.fobian@dcnr.alabama.gov <todd.fobian@dcnr.alabama.gov>; tom.diggs@ung.edu <tom.diggs@ung.edu>; tom.lettieri47@gmail.com <tom.lettieri47@gmail.com>; tom.littlepage@adeca.alabama.gov <tom.littlepage@adeca.alabama.gov>; trayjim@bellsouth.net <trayjim@bellsouth.net>; triciastearns@gmail.com <triciastearns@gmail.com>; twstjohn@southernco.com <twstjohn@southernco.com>; variscom506@gmail.com <variscom506@gmail.com>; walker.mary@epa.gov <walker.mary@epa.gov>; william.puckett@swcc.alabama.gov <william.puckett@swcc.alabama.gov>; wmcampbell218@gmail.com <wmcampbell218@gmail.com>; wright2@aces.edu <wright2@aces.edu>; wsgardne@southernco.com <wsgardne@southernco.com>; wtanders@southernco.com <wtanders@southernco.com>

Harris Relicensing stakeholders,

In the Harris Project Final Study Plans, filed with FERC on May 13, 2019, Alabama Power agreed to file voluntary Progress Updates with FERC in October 2019 and October 2020. The purpose of the Progress Update is to ensure that stakeholders and FERC can review the study progress to date and plan for future reports, meetings, and overall relicensing activities. This is a voluntary action that is not required under the ILP. Alabama Power has filed the October 2020 Progress Update with FERC and posted it to the Harris Project relicensing website: www.harrisrelicensing.com [harrisrelicensing.com] (in the Relicensing Documents folder).

Thanks,

Angie Anderegg

Hydro Services

(205)257-2251

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Hydro Services 16N-8180
Birmingham, AL 35203
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October 30, 2020

VIA ELECTRONIC FILING

Project No. 2628-065
R.L. Harris Hydroelectric Project
Progress Update

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

Dear Secretary Bose,

Alabama Power Company (Alabama Power) is the Federal Energy Regulatory Commission (FERC) licensee for the R.L. Harris Hydroelectric Project (Harris Project) (FERC No. 2628). On March 13, 2019¹, Alabama Power filed 10 study plans for FERC approval as part of the Integrated Licensing Process (ILP) for the Harris Project. On April 12, 2019², FERC approved Alabama Power's study plans with FERC modifications. Alabama Power filed the Final Study Plans with FERC on May 13, 2019³ and posted the Final Study Plans to the Harris Project relicensing website at www.harrisrelicensing.com. Alabama Power filed the Initial Study Report along with six Draft Study Reports and two cultural resources documents on April 10, 2020⁴.

As part of the May 13, 2019 filing, Alabama Power recognized the complexity of tracking the 10 relicensing studies and committed to filing a voluntary Progress Update with FERC in October 2019 and October 2020. Alabama Power filed the 2019 Progress Update on October 30, 2019⁵. The purpose of this Progress Update (Attachment A) is to ensure that stakeholders and FERC can review the study progress to date and plan for future reports, meetings, and overall relicensing activities. This is a voluntary action that is not required under the ILP. A summary of the Harris Project relicensing activities for the six established Harris Action Teams (HAT) and their associated studies from April 10, 2020 to date is outlined in the Progress Update. Alabama Power will post this 2020 Progress Update to the Harris Project relicensing website. The current HAT distribution lists are included as Attachment B.

¹ Accession No. 20190313-5060

² Accession No. 20190412-3000

³ Accession No. 20190513-5093

⁴ Accession No. 20200410-5084

⁵ Accession No. 20191030-5053

Page 2
October 30, 2020

If there are any questions concerning this filing, please contact me at arsegars@southernco.com or 205-257-2251.

Sincerely,

A handwritten signature in blue ink that reads "Angela Anderegg". The signature is written in a cursive, flowing style.

Angie Anderegg
Harris Relicensing Project Manager

Attachments (2)

cc: Harris Stakeholder List

Attachment A
October 2020 Harris Project Progress Update

HARRIS PROGRESS UPDATE REPORT

R.L. HARRIS HYDROELECTRIC PROJECT

FERC No. 2628



Prepared for:
Alabama Power Company

Prepared by:
Kleinschmidt Associates
October 2020



TABLE OF CONTENTS

1.0 INTRODUCTION..... 1

2.0 HAT 1 – PROJECT OPERATIONS 3

 2.1 Downstream Release Alternatives Study Plan..... 3

 2.2 Operating Curve Change Feasibility Analysis Study Plan 3

3.0 HAT 2 – WATER QUALITY AND USE..... 5

 3.1 Erosion and Sedimentation Study Plan..... 5

 3.2 Water Quality Study Plan..... 6

4.0 HAT 3 – FISH AND WILDLIFE..... 7

 4.1 Aquatic Resources Study Plan 7

 4.2 Downstream Aquatic Habitat Study Plan..... 8

 4.3 Threatened And Endangered (T&E) Species Study Plan..... 8

5.0 HAT 4 – PROJECT LANDS 9

 5.1 Project Lands Evaluation Study Plan 9

6.0 HAT 5 – RECREATION..... 10

 6.1 Recreation Evaluation Study Plan..... 10

7.0 HAT 6 – CULTURAL RESOURCES..... 11

 7.1 Cultural Resources Programmatic Agreement and Historic Properties
 Management Plan Study Plan 11

1.0 INTRODUCTION

Alabama Power Company (Alabama Power) is the Federal Energy Regulatory Commission (FERC) licensee for the R.L. Harris Hydroelectric Project (Harris Project) (FERC No. 2628). On June 1, 2018, Alabama Power filed a Pre-Application Document and began the Integrated Licensing Process (ILP) for the Harris Project¹.

On November 13, 2018, Alabama Power filed ten proposed study plans for the Harris Project. FERC issued a Study Plan Determination on April 12, 2019, which included FERC staff recommendations. Alabama Power incorporated FERC's recommendations and filed the Final Study Plans with FERC on May 13, 2019². Based upon FERC's prior comments and as part of the Final Study Plans, Alabama Power incorporated within each study plan's schedule a milestone to file a voluntary Progress Update in October 2019 and October 2020. This Progress Update is designed to inform stakeholders and FERC of the study progress, future reports, Harris Action Team (HAT) meetings, and overall relicensing activities.

Three activities apply to all the HATs that are described here: the Initial Study Report (ISR), ISR Meeting, and the ISR Meeting Summary. On April 10, 2020, Alabama Power filed the ISR³ along with six Draft Study Reports and two cultural resources documents. Alabama Power held an ISR Meeting with stakeholders and FERC on April 28, 2020 and filed the ISR Meeting Summary on May 12, 2020⁴. Comments on the ISR and ISR Meeting Summary were due June 11, 2020. On July 10, 2020, Alabama Power filed its response to questions/comments on the ISR and additional studies/study modifications for the Harris Project.⁵

On August 10, 2020, FERC sent a letter to Alabama Power discussing the Determination on Requests for Study Modifications for the R.L. Harris Hydroelectric Project⁶. In that letter, FERC recommended that Alabama Power conduct a new study titled Battery Energy Storage System (BESS). FERC recommended that the BESS study be conducted with the

¹ Accession No. 20180601-5125

² Accession No. 20190513-5093

³ Accession No. 20200410-5084

⁴ Accession No. 20200512-5083

⁵ Accession No. 20200710-5122

⁶ Accession No. 20200810-3007

Downstream Release Alternative Study and include at least two new release alternatives: (a) a 50 percent reduction in peak releases associated with installing one 60 MW battery unit, and (b) a proportionately smaller reduction in peak releases associated with installing a smaller MW battery unit (i.e., 5, 10 or 20 MW battery). FERC further recommended that Alabama Power include in its cost estimates for installing a BESS, any specific structural changes, any changes in turbine-generator units, and costs needed to implement each battery storage type. Finally, FERC recommended that, consistent with the Downstream Release Alternative Study Plan, Alabama Power evaluate how each of the release alternatives (i.e., items (a) and (b) above) would affect recreation and aquatic resources in the Harris Project reservoir and downstream. Alabama Power is conducting the BESS study as recommended by FERC and will prepare and file a BESS report in first quarter 2021.

Sections 2-7 of this Progress Report summarize the relicensing activities of the six established HATs from the ISR filing to date.

2.0 HAT 1 – PROJECT OPERATIONS

2.1 DOWNSTREAM RELEASE ALTERNATIVES STUDY PLAN

- Alabama Power downloaded the lever logger data and incorporated these data into the HEC-RAS (Hydrologic Engineering Center's River Analysis System) model.
- Alabama Power filed the Draft *Downstream Release Alternatives Phase 1 Report* on April 10, 2020⁷ with comments due June 11, 2020. This report was also distributed to the HAT 1 (Project Operations) participants and posted on the Harris Relicensing website at www.harrisrelicensing.com.
- Alabama Power filed the Final *Downstream Release Alternatives Phase 1 Report* on July 27, 2020⁸. This report was also distributed to the HAT 1 participants and posted on the Harris Relicensing website at www.harrisrelicensing.com.
- As noted in the Alabama Power Response to ISR Disputes or Requests for Modifications of Study Plan filed on July 10, 2020 and recommended in FERC's August 10, 2020 Determination on Study Modifications, Alabama Power is analyzing additional downstream releases and using qualitative and quantitative data to identify potential resource impacts from changes in the downstream releases. Alabama Power will present this information in the Phase 2 Report. The Draft Phase 2 report will be filed on or before April 12, 2021.

2.2 OPERATING CURVE CHANGE FEASIBILITY ANALYSIS STUDY PLAN

- Alabama Power filed the Draft *Operating Curve Change Feasibility Analysis Phase 1 Report* on April 10, 2020⁹ with comments due June 11, 2020. This report was also distributed to the HAT 1 (Project Operations) participants and posted on the Harris Relicensing website at www.harrisrelicensing.com.
- Alabama Power hosted a HAT 1 meeting on June 4, 2020, to present the methodologies for analyzing how structures on Lake Harris and downstream

⁷ Accession No. 20200410-5069

⁸ Accession No. 20200727-5088

⁹ Accession No. 20200410-5086

of Harris Dam might be affected by the proposed winter operating curve alternatives and posted the meeting summary on the Harris Relicensing website at www.harrisrelicensing.com.

- Alabama Power filed the *Final Operating Curve Change Feasibility Analysis Phase 1 Report* on August 31, 2020¹⁰. This report was also distributed to the HAT 1 participants and posted on the Harris Relicensing website at www.harrisrelicensing.com.
- Alabama Power is analyzing qualitative and quantitative data in Phase 2 to identify potential resource impacts from a change in the operating curve. The Draft Phase 2 report will be filed on or before April 12, 2021.

¹⁰ Accession No. 20200831-5339

3.0 HAT 2 – WATER QUALITY AND USE

3.1 EROSION AND SEDIMENTATION STUDY PLAN

- Alabama Power distributed the Draft *Erosion and Sedimentation Study Report* to HAT 2 (Water Quality and Use) participants for review on March 18, 2020. Alabama Power provided this report to HAT 2 participants prior to the official ISR comment period to allow additional time for review.
- Alabama Power filed the Draft *Erosion and Sedimentation Study Report* on April 10, 2020¹¹ with comments due June 11, 2020. This report was also distributed to the HAT 2 participants and posted on the Harris Relicensing website at www.harrisrelicensing.com.
- Alabama Power posted the videos associated with the *Tallapoosa River High Definition Stream Survey Final Report* on the Harris Relicensing website at www.harrisrelicensing.com.
- Alabama Power facilitated obtaining from a stakeholder copies of various images of the Tallapoosa River pre-Harris Dam and post-construction. Alabama Power filed these images as Consultation Regarding Historic Photographs of the Tallapoosa River with FERC on August 4, 2020¹². These photos were also posted to the Harris Relicensing website at www.harrisrelicensing.com.
- Alabama Power performed additional reconnaissance at identified sedimentation sites on Lake Harris during full (summer) pool conditions to determine if any nuisance aquatic vegetation is present and will provide the results of that assessment to HAT 2 participants in the form of a technical memorandum on or before April 12, 2021.
- Alabama Power will file the Final *Erosion and Sedimentation Study Report* on or before April 12, 2021.

¹¹ Accession No. 20200410-5091

¹² Accession No. 20200804-5252

3.2 WATER QUALITY STUDY PLAN

- Alabama Power distributed the *Draft Water Quality Study Report* to HAT 2 participants for review on March 11, 2020. Alabama Power provided this report to HAT 2 participants prior to the official ISR comment period to allow additional time for review.
- Alabama Power filed the *Draft Water Quality Study Report* on April 10, 2020¹³ with comments due June 11, 2020. This report was also distributed to the HAT 2 participants and posted on the Harris Relicensing website at www.harrisrelicensing.com.
- As filed in the Response to ISR Disputes or Requests for Modifications of Study Plan on July 10, 2020, Alabama Power is collecting additional water quality data in 2020 and 2021 as requested by Alabama Rivers Alliance and other stakeholders.
- To collect dissolved oxygen and water temperature data in 2020, Alabama Power installed the continuous monitor on May 4, 2020, following the ISR meeting. The generation monitor was installed on June 1, 2020, to align with the monitoring season start date in the Water Quality Study Plan.
- Alabama Power will collect water quality data at both locations in 2021 (from March 1 – June 30, 2021 at the continuous monitor and June 1 – June 30, 2021 at the generation monitor) to include in the Final License Application (FLA).
- Alabama Power will file the Final *Water Quality Study Report* on or before April 12, 2021.

¹³ Accession No. 20200410-5095

4.0 HAT 3 – FISH AND WILDLIFE

4.1 AQUATIC RESOURCES STUDY PLAN

- Alabama Power hosted a HAT 3 (Fish and Wildlife) meeting on June 2, 2020. Auburn University presented its research to date and informed meeting participants of remaining work on the Aquatic Resources Study. Alabama Power posted the June 2, 2020 HAT 3 meeting summary on the Harris Relicensing website at www.harrisrelicensing.com.
- Auburn has conducted fish sampling in May, July, and September 2020 and will also sample in November 2020.
- Auburn deployed eight acoustic receivers from Harris Dam to Malone to detect overall fish movement and responses and two acoustic receivers at Wadley. Auburn tagged 13 Alabama Bass and 3 Tallapoosa Bass and has also performed manual tracking of these fish. Results of this tagging will be compiled and presented in Auburn's report in 2021.
- Auburn continues to perform static and swimming respirometry testing of target fish species.
- Auburn continues to analyze temperature data and work on the bioenergetics modeling protocols.
- Alabama Power filed the Draft *Aquatic Resources Report* on July 28, 2020¹⁴ with comments due August 28, 2020. This report was also distributed to the HAT 3 participants and posted on the Harris Relicensing website at www.harrisrelicensing.com.
- Alabama Power will host a HAT 3 meeting on November 5, 2020; a meeting agenda was provided to HAT 3 participants on October 16, 2020.
- Alabama Power will file the Final *Aquatic Resources Report* on or before April 12, 2021.

¹⁴ Accession No. 20200728-5120

4.2 DOWNSTREAM AQUATIC HABITAT STUDY PLAN

- Alabama Power filed the Draft *Downstream Aquatic Habitat Study Report* on June 30, 2020¹⁵ with comments due August 1, 2020. This report was also distributed to the HAT 3 participants and posted on the Harris Relicensing website at www.harrisrelicensing.com.
- Alabama Power will host a HAT 3 meeting on November 5, 2020; a meeting agenda was provided to HAT 3 participants on October 16, 2020.
- Alabama Power will file the Final *Downstream Aquatic Habitat Report*, including all Geographic Information System (GIS) Shapefiles and HEC-RAS model outputs on or before April 12, 2021.

4.3 THREATENED AND ENDANGERED (T&E) SPECIES STUDY PLAN

- Alabama Power filed the Draft *Threatened and Endangered Species Desktop Assessment* on April 10, 2020¹⁶ with comments due June 11, 2020. This report was also distributed to the HAT 3 participants and posted on the Harris Relicensing website at www.harrisrelicensing.com.
- In accordance with FERC's Determination on Requests for Study Modifications for the R.L. Harris Hydroelectric Project, Alabama Power conducted additional field surveys for Threatened & Endangered species and/or their potentially suitable habitat based on ongoing consultation with the United States Fish and Wildlife Service (USFWS), Alabama Department of Conservation and Natural Resources (ADCNR), and Alabama Natural Heritage Program.
- Alabama Power will host a HAT 3 meeting on November 5, 2020; a meeting agenda was provided to HAT 3 participants on October 16, 2020.

Alabama Power will provide documentation of consultation in the Final *Threatened and Endangered Species Report*, which will be filed in January 2021.

¹⁵ Accession No. 20200630-5200

¹⁶ Accession No. 20200410-5094

5.0 HAT 4 – PROJECT LANDS

5.1 PROJECT LANDS EVALUATION STUDY PLAN

- Alabama Power filed the Draft *Phase 1 Project Lands Evaluation Study Report* on April 10, 2020¹⁷ with comments due June 11, 2020. This report was also distributed to the HAT 4 (Project Lands) participants and posted on the Harris Relicensing website at www.harrisrelicensing.com.
- Alabama Power filed the Final *Phase 1 Project Lands Evaluation Study Report* on October 2, 2020¹⁸. This report was also distributed to the HAT 3 participants and posted on the Harris Relicensing website at www.harrisrelicensing.com.
- Spring and summer fieldwork at the Flat Rock botanical area was completed, and researchers are planning one additional site visit to document any remaining plant species that bloom in late autumn. To date, 403 species have been documented from the Flat Rock botanical area. Researchers will submit a draft report in December 2020 on the additional research at the Flat Rock Botanical area, and a final report in Q1 2021; this report will be included in the Updated Study Report.
- On October 5, 2020, Alabama Power distributed the Final *Project Lands Evaluation Study Report* as well as a Draft Shoreline Management Plan (SMP) and Draft Wildlife Management Plan (WMP) Annotated Outline to HAT 4 for review and comment.
- Alabama Power held a HAT 4 meeting on October 19, 2020 to review and discuss the Draft SMP and WMP outline. A meeting summary was distributed to HAT 4 participants and posted on the Harris relicensing website at www.harrisrelicensing.com.
- Phase 2 of the Project Lands Evaluation Study will use the Phase 1 evaluation information, as well as results from other studies, to develop a WMP and a SMP, and draft versions of both plans will be filed with the FLA.

¹⁷ Accession No. 20200410-5092

¹⁸ Accession No. 20201002-5139

6.0 HAT 5 – RECREATION

6.1 RECREATION EVALUATION STUDY PLAN

- In the April 10, 2020 ISR, Alabama Power noted a variance in the Recreation Evaluation Study Plan due to the additional study elements and an extended deadline for landowners and the public to participate in the recreation surveys. Alabama Power noted a variance for filing the Draft *Recreation Evaluation Study Report* in August 2020 rather than in April 2020. FERC concurred with this variance on August 10, 2020.
- Alabama Power held a HAT 5 (Recreation) meeting on June 4, 2020 to present the methodologies for analyzing how structures on Lake Harris might be affected by the proposed winter operating curve alternatives and posted the HAT 5 meeting summary on the Harris Relicensing website at www.harrisrelicensing.com.
- Alabama Power filed the Draft *Recreation Evaluation Study Report* on August 24, 2020¹⁹ with comments due September 30, 2020. This report was also distributed to the HAT 5 participants and posted on the Harris Relicensing website at www.harrisrelicensing.com.
- Alabama Power hosted a HAT 5 meeting on October 19, 2020 to present the methodology for analyzing boatable flows in the Tallapoosa River and present initial recreation protection, mitigation and enhancement measures and posted the meeting summary on the Harris Relicensing website at www.harrisrelicensing.com.
- Alabama Power will file the Final *Recreation Evaluation Study Report* in November 2020.

¹⁹ Accession No. 20200824-5241

7.0 HAT 6 – CULTURAL RESOURCES

7.1 CULTURAL RESOURCES PROGRAMMATIC AGREEMENT AND HISTORIC PROPERTIES MANAGEMENT PLAN STUDY PLAN

- Alabama Power filed the Inadvertent Discovery Plan (IDP) and Traditional Cultural Properties (TCP) Identification Plan on April 10, 2020²⁰ with comments due June 11, 2020. These documents were also distributed to the HAT 6 (Cultural Resources) participants and posted on the Harris Relicensing website at www.harrisrelicensing.com.
- In the April 10, 2020 ISR, Alabama Power noted a variance in the Cultural Resources Programmatic Agreement and Historic Properties Management Plan Study Plan to finalize and file the Area of Potential Effects (APE) and associated consultation by June 30, 2020 (revised from April 2020).
- Alabama Power distributed the Draft *Harris Project Area of Potential Effects Report* to HAT 6 on May 15, 2020 and posted the report on the Harris Relicensing website at www.harrisrelicensing.com.
- Alabama Power held a HAT 6 meeting on May 28, 2020, to discuss the Draft *Harris Project Area of Potential Effects Report* and review the status of the cultural resources surveys. Stakeholders comments were due June 15, 2020.
- Alabama Power posted a public version of the May 28, 2020 HAT 6 meeting summary on the Harris Relicensing website at www.harrisrelicensing.com; however, due to the privileged information discussed in the meeting, distribution of some of the meeting materials were limited.
- On June 18, 2020, the Alabama State Historic Preservation Office (SHPO) concurred with the Harris Project APE as defined by Alabama Power.
- Alabama Power filed the Final *Harris Project Area of Potential Effects Report* on June 29, 2020²¹.
- On August 11, 2020, FERC found Alabama Power's proposed APE for the Harris Project appropriate²².

²⁰ Accession Nos. 20200410-5067, 20200410-5068

²¹ Accession No. 20200629-5328

²² Accession No. 20200811-3007

- Alabama Power and the Office of Archeological Research (OAR) completed approximately 80 percent of all of the preliminary archeological assessments (96 sites) around Lake Harris. The remaining 20 percent will be completed as the water level of Lake Harris lowers in the winter months of 2020-2021 and the necessary shoreline is accessible.
- Alabama Power and OAR completed cultural resources assessments at Skyline (30 sites). In addition, OAR finished approximately 90 percent of the cave art survey sample in Skyline (14 caves were investigated, and OAR will reevaluate 3 cave sites).
- Alabama Power and OAR continue TCP consultation with the Muscogee (Creek) Nation. To date, there have been seven discussions.

OAR identified known cultural resources sites in the Tallapoosa River downstream of Harris Dam. Alabama Power and OAR are evaluating effects on cultural resources due to any changes in Harris Project operations.

Attachment B
Harris Action Team Distribution Lists

HAT 1 – Project Operations

Full Name	Company
Damon Abernethy	Alabama Department of Conservation and Natural Resources
Bob Allen	U.S. Army Corps of Engineers
Brian Atkins	Alabama Department of Economic and Community Affairs
Nathan Aycock	Alabama Department of Conservation and Natural Resources
Richard Bronson	Stakeholder
Steve Bryant	Alabama Department of Conservation and Natural Resources
Nancy Burnes	Lake Wedowee Property Owners Association
Richard Burnes	Property Owner
Matt and Ann Campbell	Stakeholder
Kristie Coffman	Auburn University
Allan Creamer	Federal Energy Regulatory Commission
Doug & Jan Crisp	Stakeholder
Robin Crockett	Stakeholder
Gene Crouch	Keller Williams Realty Group; Lake Wedowee
Jesse Cunningham	Lake Martin HOBO
Dennis Devries	Auburn University
Mike Dollar	Lake Martin HOBO
Jeff Duncan	U.S. National Park Service
Albert Eiland	Property Owner
Todd Fobian	Alabama Department of Conservation and Natural Resources
Steve Forehand	Lake Martin Resource Association
Sylvia French	Lake Wedowee Property Owners Association
Tom Garland	Lake Wedowee Property Owners Association
Lisa Perras Gordon	U.S. Environmental Protection Agency
Chris Greene	Alabama Department of Conservation and Natural Resources
Jennifer Grunewald	U.S. Fish and Wildlife
Andrew Hall	Property Owner
Randall Harvey	U.S. Army Corps of Engineers
Jennifer Haslbauer	Alabama Department of Environmental Management
James Hathorn	U.S. Army Corps of Engineers
Dave Heinzen	Lake Martin HOBO
Keith Henderson	Alabama Department of Conservation and Natural Resources
Mike Holley	Alabama Department of Conservation and Natural Resources
Dan Holliman	U.S. Environmental Protection Agency
Sonja Hollomon	Stakeholder
Martha Hunter	Alabama Rivers Alliance
Elise Irwin	Auburn University
Butch Jackson	Stakeholder

Full Name	Company
Gerrit Jobsis	American Rivers
Chris Johnson	Alabama Department of Environmental Management
Evan Lawrence	Alabama Department of Conservation and Natural Resources
Michael Len	Alabama Department of Environmental Management
Fred Leslie	Alabama Department of Environmental Management
Tom Littlepage	Alabama Department of Economic and Community Affairs
Cindy Lowry	Alabama Rivers Alliance
Matthew Marshall	Alabama Department of Conservation and Natural Resources
Donna Matthews	Stakeholder
Lydia Mayo	U.S. Environmental Protection Agency
Rachel McNamara	Federal Energy Regulatory Commission
David Moore	Alabama Department of Environmental Management
Barry Morris	Lake Wedowee Property Owners Association
Ginny Oxford	Stakeholder
Erin Padgett	U.S. Fish and Wildlife
Mellie Parrish	Stakeholder
Ira Parsons	Lake Wedowee Property Owners Association
Jeff Powell	U.S. Fish and Wildlife
Becky Rainwater	ReMax Lakefront
Mitch Reid	Nature Conservancy
Sarah Salazar	Federal Energy Regulatory Commission
Jerrel Shell	Stakeholder
Barry Smith	Stakeholder
David Smith	Stakeholder
Paul Smith	Stakeholder
Linda Stone	Stakeholder
Chuck Sumner	U.S. Army Corps of Engineers
Monte Terhaar	Federal Energy Regulatory Commission
David Thomas	Stakeholder
David Thompson	Property Owner
John Thompson	Lake Martin Resource Association
George Traylor	Property Owner
Jimmy Traylor	Stakeholder
Steve Traylor	Stakeholder
Jack West	Alabama Rivers Alliance
Jonas White	U.S. Army Corps of Engineers
Russell Wright	Auburn University

HAT 2 – Water Quality and Use

Full Name	Company
Damon Abernethy	Alabama Department of Conservation and Natural Resources
Nathan Aycock	Alabama Department of Conservation and Natural Resources
Steve Bryant	Alabama Department of Conservation and Natural Resources
Nancy Burnes	Lake Wedowee Property Owners Association
Richard Burnes	Property Owner
Matt and Ann Campbell	Stakeholder
Maria Clark	U.S. Environmental Protection Agency
Kristie Coffman	Auburn University
Allan Creamer	Federal Energy Regulatory Commission
Jan and Doug Crisp	Stakeholder
Robin Crockett	Stakeholder
Jesse Cunningham	Lake Martin HOBO
Chris Decker	U.S. Environmental Protection Agency
Chuck Denman	Stakeholder
Jeff Duncan	U.S. National Park Service
Albert Eiland	Property Owner
Todd Fobian	Alabama Department of Conservation and Natural Resources
Steve Forehand	Lake Martin Resource Association
Tom Garland	Lake Wedowee Property Owners Association
Lisa Perras Gordon	U.S. Environmental Protection Agency
Chris Greene	Alabama Department of Conservation and Natural Resources
Evelyn Hammrick	Property Owner
Jennifer Haslbauer	Alabama Department of Environmental Management
Keith Henderson	Alabama Department of Conservation and Natural Resources
Mike Holley	Alabama Department of Conservation and Natural Resources
Dan Holliman	U.S. Environmental Protection Agency
Martha Hunter	Alabama Rivers Alliance
Elise Irwin	Auburn University
Gerrit Jobsis	American Rivers
Chris Johnson	Alabama Department of Environmental Management
Carol Knight	Stakeholder
Michael Len	Alabama Department of Environmental Management
Fred Leslie	Alabama Department of Environmental Management
Cindy Lowry	Alabama Rivers Alliance
Matthew Marshall	Alabama Department of Conservation and Natural Resources
Donna Matthews	Stakeholder
Lydia Mayo	U.S. Environmental Protection Agency
Rachel McNamara	Federal Energy Regulatory Commission

Full Name	Company
Harry Merrill	Stakeholder
David Moore	Alabama Department of Environmental Management
Barry Morris	Lake Wedowee Property Owners Association
Mellie Parrish	Stakeholder
Jerry & Mary Lee Poss	Stakeholder
Mitch Reid	Nature Conservancy
Eric Reutebuch	Auburn University
Sarah Salazar	Federal Energy Regulatory Commission
Amy Silvano	Alabama Department of Conservation and Natural Resources
David Smith	Stakeholder
Monte Terhaar	Federal Energy Regulatory Commission
John Thompson	Lake Martin Resource Association
Jack West	Alabama Rivers Alliance

HAT 3 – Fish and Wildlife

Full Name	Company
Damon Abernethy	Alabama Department of Conservation and Natural Resources
Nathan Aycock	Alabama Department of Conservation and Natural Resources
Steve Bryant	Alabama Department of Conservation and Natural Resources
Matt and Ann Campbell	Stakeholder
Kristie Coffman	Auburn University
Evan Collins	U.S. Fish and Wildlife
Allan Creamer	Federal Energy Regulatory Commission
Robin Crockett	Stakeholder
Chris Decker	U.S. Environmental Protection Agency
Dennis Devries	Auburn University
Jeff Duncan	U.S. National Park Service
Todd Fobian	Alabama Department of Conservation and Natural Resources
Steve Forehand	Lake Martin Resource Association
Tom Garland	Lake Wedowee Property Owners Association
Chris Greene	Alabama Department of Conservation and Natural Resources
Jennifer Grunewald	U.S. Fish and Wildlife
Keith Henderson	Alabama Department of Conservation and Natural Resources
Mike Holley	Alabama Department of Conservation and Natural Resources
Dan Holliman	U.S. Environmental Protection Agency
Martha Hunter	Alabama Rivers Alliance
Elise Irwin	Auburn University
Gerrit Jobsis	American Rivers
Evan Lawrence	Alabama Department of Conservation and Natural Resources
Cindy Lowry	Alabama Rivers Alliance
Matthew Marshall	Alabama Department of Conservation and Natural Resources
Donna Matthews	Stakeholder
Lydia Mayo	U.S. Environmental Protection Agency
Rachel McNamara	Federal Energy Regulatory Commission
Barry Morris	Lake Wedowee Property Owners Association
Chris Oberholster	Birmingham Audubon
Erin Padgett	U.S. Fish and Wildlife
Mellie Parrish	Stakeholder
Bill Pearsons	U.S. Fish and Wildlife
Jeff Powell	U.S. Fish and Wildlife
Mitch Reid	Nature Conservancy
Sarah Salazar	Federal Energy Regulatory Commission
Amy Silvano	Alabama Department of Conservation and Natural Resources
Tricia Stearns	Stakeholder

Full Name	Company
Monte Terhaar	Federal Energy Regulatory Commission
Jimmy Traylor	Stakeholder
Steve Traylor	Stakeholder
Jack West	Alabama Rivers Alliance
Pace Wilber	National Oceanic and Atmospheric Administration
Ken Wills	Alabama Glade Conservation Coalition
Russell Wright	Auburn University

HAT 4 – Project Lands

Full Name	Company
Damon Abernethy	Alabama Department of Conservation and Natural Resources
Nathan Aycock	Alabama Department of Conservation and Natural Resources
Matt Brooks	Alabama Law Enforcement Agency
Coty Brown	Alabama Law Enforcement Agency
Steve Bryant	Alabama Department of Conservation and Natural Resources
Matt and Ann Campbell	Stakeholder
Kristie Coffman	Auburn University
Evan Collins	U.S. Fish and Wildlife
Allan Creamer	Federal Energy Regulatory Commission
Robin Crockett	Stakeholder
Gene Crouch	Keller Williams Realty Group; Lake Wedowee
Todd Fobian	Alabama Department of Conservation and Natural Resources
Steve Forehand	Lake Martin Resource Association
Tom Garland	Lake Wedowee Property Owners Association
Keith Gauldin	Alabama Department of Conservation and Natural Resources
Chris Greene	Alabama Department of Conservation and Natural Resources
Jennifer Grunewald	U.S. Fish and Wildlife
Keith Henderson	Alabama Department of Conservation and Natural Resources
Mike Holley	Alabama Department of Conservation and Natural Resources
Martha Hunter	Alabama Rivers Alliance
Elise Irwin	Auburn University
Gerrit Jobsis	American Rivers
Bruce Knapp	Stakeholder
Evan Lawrence	Alabama Department of Conservation and Natural Resources
Cindy Lowry	Alabama Rivers Alliance
Diane Lunsford	Lake Wedowee Property Owners Association
Matthew Marshall	Alabama Department of Conservation and Natural Resources
Donna Matthews	Stakeholder
Lydia Mayo	U.S. Environmental Protection Agency
Allison McCartney	U.S. Bureau of Land Management
Rachel McNamara	Federal Energy Regulatory Commission
Harry Merrill	Stakeholder
Brad Mitchell	Lake Wedowee Property Owners Association
Barry Morris	Lake Wedowee Property Owners Association
Stan Nelson	Nelson and Company
Chris Oberholster	Birmingham Audubon
Erin Padgett	U.S. Fish and Wildlife
Mellie Parrish	Stakeholder

Full Name	Company
Jerry & Mary Lee Poss	Stakeholder
Jeff Powell	U.S. Fish and Wildlife
Mark Prestridge	Randolph County Water Authority
Mitch Reid	Nature Conservancy
Sarah Salazar	Federal Energy Regulatory Commission
Amy Silvano	Alabama Department of Conservation and Natural Resources
Chris Smith	Alabama Department of Conservation and Natural Resources
David Smith	Stakeholder
Glenell Smith	Stakeholder
Paul Smith	Stakeholder
John Sullivan	U.S. Bureau of Land Management
Monte Terhaar	Federal Energy Regulatory Commission
John Thompson	Stakeholder
Jack West	Alabama Rivers Alliance
Ken Wills	Alabama Glade Conservation Coalition

HAT 5 – Recreation

Full Name	Company
Damon Abernethy	Alabama Department of Conservation and Natural Resources
Nathan Aycock	Alabama Department of Conservation and Natural Resources
Matt Brooks	Alabama Law Enforcement Agency
Coty Brown	Alabama Law Enforcement Agency
Matt and Ann Campbell	Stakeholder
Kristie Coffman	Auburn University
Allan Creamer	Federal Energy Regulatory Commission
Robin Crockett	Stakeholder
Jesse Cunningham	Lake Martin HOBO
Mike Dollar	Lake Martin HOBO
Jeff Duncan	U.S. National Park Service
Todd Fobian	Alabama Department of Conservation and Natural Resources
Steve Forehand	Lake Martin Resource Association
Sylvia French	Stakeholder
Tom Garland	Stakeholder
Keith Gauldin	Alabama Department of Conservation and Natural Resources
Chris Greene	Alabama Department of Conservation and Natural Resources
Dave Heinzen	Lake Martin HOBO
Keith Henderson	Alabama Department of Conservation and Natural Resources
Mike Holley	Alabama Department of Conservation and Natural Resources
Sonja Hollomon	Stakeholder
Kevin Hunt	Consultant
Martha Hunter	Alabama Rivers Alliance
Elise Irwin	Auburn University
Butch Jackson	Property Owner
Gerrit Jobsis	American Rivers
Gerry Knight	Stakeholder
Evan Lawrence	Alabama Department of Conservation and Natural Resources
Cindy Lowry	Alabama Rivers Alliance
Matthew Marshall	Alabama Department of Conservation and Natural Resources
Donna Matthews	Stakeholder
Lydia Mayo	U.S. Environmental Protection Agency
Rachel McNamara	Federal Energy Regulatory Commission
Harry Merrill	Stakeholder
Brad Mitchell	Lake Wedowee Property Owners Association
Barry Morris	Lake Wedowee Property Owners Association
Chris Oberholster	Birmingham Audubon
Ginny Oxford	Stakeholder

Full Name	Company
Mellie Parrish	Stakeholder
Ira Parsons	Lake Wedowee Property Owners Association
Jerry and Mary Lee Poss	Stakeholder
Mitch Reid	Nature Conservancy
Sarah Salazar	Federal Energy Regulatory Commission
Chris Smith	Alabama Department of Conservation and Natural Resources
Paul Smith	Stakeholder
Jim Sparrow	Alabama Bass Federation
Tricia Stearns	Stakeholder
Monte Terhaar	Federal Energy Regulatory Commission
Jack West	Alabama Rivers Alliance
Bryant Whaley	Randolph County Economic / Industrial Development

HAT 6 – Cultural Resources

Full Name	Company
Nathan Aycock	Alabama Department of Conservation and Natural Resources
Steve Bryant	Alabama Department of Conservation and Natural Resources
Nancy Burnes	Lake Wedowee Property Owners Association
RaeLynn Butler	Muscogee (Creek) Nation of Oklahoma
Rae-Lynn Butler	Muscogee (Creek) Nation of Oklahoma
Bryant Celestine	Alabama-Coushatta Tribe of Texas
Kristie Coffman	Auburn University
Allan Creamer	Federal Energy Regulatory Commission
Robin Crockett	Stakeholder
Jeff Duncan	U.S. National Park Service
Todd Fobian	Alabama Department of Conservation and Natural Resources
Matthew Gage	Office of Archaeological Research
Chris Greene	Alabama Department of Conservation and Natural Resources
Larry Haikey	Poarch Band of Creek Indians
Evelyn Hamrick	Property Owner
Mike Holley	Alabama Department of Conservation and Natural Resources
Martha Hunter	Alabama Rivers Alliance
Gerrit Jobsis	American Rivers Alliance
Dr. Linda Langley	Coushatta Tribe of Louisiana
Janice Lowe	Alabama Quassarte Tribe
Matthew Marshall	Alabama Department of Conservation and Natural Resources
Donna Matthews	Stakeholder
Janet Maylen	Thlopthlocco Tribal Town
Lydia Mayo	U.S. Environmental Protection Agency
Amanda McBride	Alabama Historical Commission
Allison McCartney	U.S. Bureau of Land Management
Rachel McNamara	Federal Energy Regulatory Commission
Barry Morris	Lake Wedowee Property Owners Association
Karen Pritchett	United Keetoowah Band of Cherokee Indians
Mitch Reid	Nature Conservancy
Sarah Salazar	Federal Energy Regulatory Commission
Eric D. Sipes	Alabama Historical Commission
Barry Smith	Stakeholder
Robin Soweka	Muscogee (Creek) Nation of Oklahoma
John Sullivan	U.S. Bureau of Land Management
Monte Terhaar	Federal Energy Regulatory Commission
Elizabeth Toombs	Tribal Historic Preservation Office Cherokee Nation
Russ Townsend	Eastern Band of Cherokee Indians

Full Name	Company
Jack West	Alabama Rivers Alliance
Lee Anne Wofford	Alabama Historical Commission

HAT 3 Meeting today

APC Harris Relicensing <g2apchr@southernco.com>

Thu 11/5/2020 2:13 PM

To: APC Harris Relicensing <harrisrelicensing@southernco.com>

Bcc: damon.abernethy@dcnr.alabama.gov <damon.abernethy@dcnr.alabama.gov>; lgallen@balch.com <lgallen@balch.com>; arsegars@southernco.com <arsegars@southernco.com>; dkanders@southernco.com <dkanders@southernco.com>; nathan.aycock@dcnr.alabama.gov <nathan.aycock@dcnr.alabama.gov>; jefbaker@southernco.com <jefbaker@southernco.com>; steve.bryant@dcnr.alabama.gov <steve.bryant@dcnr.alabama.gov>; wmcampbell218@gmail.com <wmcampbell218@gmail.com>; jcarlee@southernco.com <jcarlee@southernco.com>; kechandl@southernco.com <kechandl@southernco.com>; kmo0025@auburn.edu <kmo0025@auburn.edu>; evan_collins@fws.gov <evan_collins@fws.gov>; allan.creamer@ferc.gov <allan.creamer@ferc.gov>; robinwaldrep@yahoo.com <robinwaldrep@yahoo.com>; decker.chris@epa.gov <decker.chris@epa.gov>; devridr@auburn.edu <devridr@auburn.edu>; colin.dinken@kleinschmidtgroup.com <colin.dinken@kleinschmidtgroup.com>; jeff_duncan@nps.gov <jeff_duncan@nps.gov>; Fleming, Amanda <afleming@southernco.COM>; todd.fobian@dcnr.alabama.gov <todd.fobian@dcnr.alabama.gov>

 1 attachments (3 MB)

2020-11-05 HAT 3 Meeting.pdf;

HAT 3,

Attached is the presentation we will we going through in our meeting today from 9:00-11:00. Call in information is below.

Thanks,

Angie Anderegg

Hydro Services

(205)257-2251

arsegars@southernco.com

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HAT 3 - November 5th meeting notes

APC Harris Relicensing <g2apchr@southernco.com>

Fri 11/20/2020 2:34 PM

To: APC Harris Relicensing <harrisrelicensing@southernco.com>

Bcc: damon.abernethy@dcnr.alabama.gov <damon.abernethy@dcnr.alabama.gov>; lgallen@balch.com <lgallen@balch.com>; arsegars@southernco.com <arsegars@southernco.com>; dkanders@southernco.com <dkanders@southernco.com>; nathan.aycock@dcnr.alabama.gov <nathan.aycock@dcnr.alabama.gov>; jefbaker@southernco.com <jefbaker@southernco.com>; steve.bryant@dcnr.alabama.gov <steve.bryant@dcnr.alabama.gov>; wmcampbell218@gmail.com <wmcampbell218@gmail.com>; jcarlee@southernco.com <jcarlee@southernco.com>; kechandl@southernco.com <kechandl@southernco.com>; kmo0025@auburn.edu <kmo0025@auburn.edu>; evan_collins@fws.gov <evan_collins@fws.gov>; allan.creamer@ferc.gov <allan.creamer@ferc.gov>; robinwaldrep@yahoo.com <robinwaldrep@yahoo.com>; decker.chris@epa.gov <decker.chris@epa.gov>; devridr@auburn.edu <devridr@auburn.edu>; colin.dinken@kleinschmidtgroup.com <colin.dinken@kleinschmidtgroup.com>; jeff_duncan@nps.gov <jeff_duncan@nps.gov>; afleming@southernco.com <afleming@southernco.com>; todd.fobian@dcnr.alabama.gov <todd.fobian@dcnr.alabama.gov>; sforehand@russelllands.com <sforehand@russelllands.com>; lgarland68@aol.com <lgarland68@aol.com>; cggoodma@southernco.com <cggoodma@southernco.com>; chris.greene@dcnr.alabama.gov <chris.greene@dcnr.alabama.gov>; jennifer_grunewald@fws.gov <jennifer_grunewald@fws.gov>; jhancock@balch.com <jhancock@balch.com>; keith.henderson@dcnr.alabama.gov <keith.henderson@dcnr.alabama.gov>; mike.holley@dcnr.alabama.gov <mike.holley@dcnr.alabama.gov>; holliman.daniel@epa.gov <holliman.daniel@epa.gov>; mhunter@alabamarivers.org <mhunter@alabamarivers.org>; irwiner@auburn.edu <irwiner@auburn.edu>; gjobsis@americanrivers.org <gjobsis@americanrivers.org>; evan.lawrence@dcnr.alabama.gov <evan.lawrence@dcnr.alabama.gov>; clowry@alabamarivers.org <clowry@alabamarivers.org>; matthew.marshall@dcnr.alabama.gov <matthew.marshall@dcnr.alabama.gov>; donnamat@aol.com <donnamat@aol.com>; mayo.lydia@epa.gov <mayo.lydia@epa.gov>; rachel.mcnamara@ferc.gov <rachel.mcnamara@ferc.gov>; ammcvica@southernco.com <ammcvica@southernco.com>; tlmills@southernco.com <tlmills@southernco.com>; jason.moak@kleinschmidtgroup.com <jason.moak@kleinschmidtgroup.com>; rbmorris222@gmail.com <rbmorris222@gmail.com>; chris@alaudubon.org <chris@alaudubon.org>; erin_padgett@fws.gov <erin_padgett@fws.gov>; mhpwedowee@gmail.com <mhpwedowee@gmail.com>; bill_pearson@fws.gov <bill_pearson@fws.gov>; jeff_powell@fws.gov <jeff_powell@fws.gov>; mitchell.reid@tnc.org <mitchell.reid@tnc.org>; sarah.salazar@ferc.gov <sarah.salazar@ferc.gov>; kelly.schaeffer@kleinschmidtgroup.com <kelly.schaeffer@kleinschmidtgroup.com>; amy.silvano@dcnr.alabama.gov <amy.silvano@dcnr.alabama.gov>; triciastearns@gmail.com <triciastearns@gmail.com>; monte.terhaar@ferc.gov <monte.terhaar@ferc.gov>; trayjim@bellsouth.net <trayjim@bellsouth.net>; straylor426@bellsouth.net <straylor426@bellsouth.net>; sandra.wash@kleinschmidtgroup.com <sandra.wash@kleinschmidtgroup.com>; jwest@alabamarivers.org <jwest@alabamarivers.org>; pace.wilber@noaa.gov <pace.wilber@noaa.gov>; ken.wills@jcdh.org <ken.wills@jcdh.org>; wrighr2@aces.edu <wrighr2@aces.edu>

HAT 3,

The meeting notes and presentation from our November 5th meeting can be found on the Harris relicensing website in the [HAT 3](#) folder.

Thanks,

Angie Anderegg

Hydro Services

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R. L. Harris Hydroelectric Project

FERC No. 2628

Meeting Summary
Harris Action Team 3 – Fish and Wildlife
November 5, 2020
9:00 am to 10:00 am
Conference Call

Participants:

Angie Anderegg – Alabama Power Company (Alabama Power)
Dave Anderson – Alabama Power
Jeff Baker – Alabama Power
Jason Carlee – Alabama Power
Keith Chandler – Alabama Power
Evan Collins – United States Fish and Wildlife Service (USFWS)
Allan Creamer – Federal Energy Regulatory Commission (FERC)
Colin Dinken – Kleinschmidt Associates
Amanda Fleming – Alabama Power
Todd Fobian – Alabama Department of Conservation and Natural Resources (ADCNR)
Chris Goodman – Alabama Power
Jim Hancock – Balch and Bingham
Martha Hunter – Alabama Rivers Alliance (ARA)
Carol Knight – Downstream Property Owner
Matthew Marshall – ADCNR
Lydia Mayo – Environmental Protection Agency (EPA)
Ashley McVicar – Alabama Power
Tina Mills – Alabama Power
Jason Moak – Kleinschmidt Associates
Erin Padgett – USFWS
Kelly Schaeffer – Kleinschmidt Associates
Sandra Wash – Kleinschmidt Associates
Jack West – ARA

Meeting Summary:

Angie Anderegg (Alabama Power) opened the meeting and introduced everyone. Following a safety briefing, Jason Moak (Kleinschmidt Associates) presented the effects of the downstream release alternatives on downstream aquatic habitat. Attachment A contains the HAT 3 presentation. Jason explained that the downstream release scenario involving releasing 100 percent (%) of the discharge of the previous day at Heflin (100% Prior Day Heflin) was not analyzed in HEC-RAS because, in practice, Green Plan (GP) releases equal or exceed that amount. Jason presented the relative percent difference in wetted perimeter from the GP for each downstream release scenario at a sample of different transects representing different habitats (riffles, runs, pools). Jason also presented figures summarizing the amount of time each release scenario equaled or exceeded wetted perimeter values at each transect. The impact of downstream release alternatives on wetted perimeter is typically less in pools than in riffles and attenuates for all habitat types with increasing distance from the dam.

Jason also reviewed wetted perimeter stability, which is defined as the daily fluctuation in wetted perimeter for each scenario, compared to GP. Negative percentages indicate greater fluctuation, and positive numbers indicate less fluctuation or greater stability. In some of the riffles, there is increased stability with increase in flows.

Evan Collins (USFWS) asked why instability is relatively consistent among scenarios at certain transects. For example, transect 23 does not have a general trend of increasing stability as total discharge of the downstream release scenarios increased. Jason indicated that there might be some kind of hydraulic control occurring and that he would investigate the morphology of the river channel and determine what variables could cause these types of anomalies.

Jason asked the HAT 3 participants to request any additional metrics that would be of interest within 2-3 weeks of the meeting; any suggestions should be sent to Angie Anderegg.

Jack West (ARA) asked Jason to further clarify why 100% Prior Day Heflin was not analyzed in HEC-RAS. Jason said at least 100% of Prior Day Heflin flow is regularly released under the current GP. Angie added that the GP criteria states that at least 75% of the prior day's flow at Heflin would be released. Translating that minimum requirement into the 10, 15, and 30 minute GP pulsing operations results in releases well above 75% of the prior day's Heflin flow. Therefore, comparing actual GP baseline operations to 100% of the prior day's Heflin flow in HEC-RAS is not necessary, because there is no discernible difference. Alabama Power will include this explanation in the Phase 2 Downstream Release Alternatives Study Report.

Colin Dinken (Kleinschmidt Associates) presented Auburn University's progress on its research for the Aquatic Resources Study. Jack West asked about the location of the potential alternative reference site for fish community sampling that was proposed in Appendix B of the Draft Aquatic Resources Study Report. This alternative reference site was proposed, because the unregulated site located about four miles upstream of Lee's Bridge seemed to be more influenced by dam operations than anticipated. Colin stated that Auburn University determined that the reference site for fish community sampling will remain the same, because no suitable alternative sites further upstream could be located. It was important that sampling methodology to be consistent at both sites; however, the areas located further upstream would not have allowed Auburn to use the same sampling equipment, thereby altering the study methods. It was determined that since the reference site upstream of Lee's Bridge is riverine, and the operational influence is limited to a decrease in water level of one to two feet, continuing to sample at the original unregulated site was preferred over changing sampling methodology at an alternative site. The Final Aquatic Resources Study Report will be filed by April 2021.

Jason reviewed the history of GP spawning windows. During the development of the GP, the stakeholders wanted Alabama Power to provide periods of stable flows to benefit fish spawning and recruitment downstream of Harris Dam. Spawning windows were requested by Elise Irwin (United States Geological Survey) in 2006 but could not be provided due to a tropical storm. There were no additional requests from stakeholders or agencies between 2006 and 2017. In 2017, Alabama Power met with the GP technical team to evaluate a 14-day period in March to withhold peaking and include three, 10-minute pulses per day. This operational regime was initiated, but the spawning window could not be maintained for the entire 14 days due to increasing inflows into the reservoir. Jason also reviewed lake stabilization for spawning. The

ADCNR typically requests that Alabama Power maintain stable or slightly rising lake levels during the spring for 14 days to benefit fish that spawn in the shallow regions of Harris Reservoir. These spawning windows are typically provided during the spring when temperatures are suitable for bass and sunfish spawning; however, the full 14-day window is not always achieved if inflows are high.

Colin provided an update on the Threatened and Endangered Species Study. Field surveys have been conducted for Finelined Pocketbook (*Hamiota altilis*), Palezone Shiner (*Notropis albizonatus*), White Fringeless Orchid (*Platanthera integrilabia*), and Price's Potato-bean (*Apios priceana*) specimens and Red-cockaded Woodpecker (*Picoides borealis*) habitat occurring within the Project Boundary at Lake Harris and at Skyline. It was determined that none of these species are likely to occur within the Project Boundary. The survey reports and revised Threatened and Endangered Species Desktop Assessment will be filed with the Final Threatened and Endangered Species Study Report in January 2021.

The meeting adjourned.

Attachment A – Presentation from November 5, 2020 HAT 3 Meeting

R.L. Harris Project Relicensing

HAT 3 – Fish and Aquatic Resources

November 5, 2020



Meeting Agenda



- Safety Moment
- Roll Call
- Downstream Aquatic Habitat – New Release Scenarios
- Aquatic Resources Study Update
- Green Plan Spawning Windows and Lake Stabilization
- Threatened & Endangered Species Study Update





Phone Etiquette

- Be patient with any technology issues
- Follow the facilitator's instructions
- Phones will be muted during presentations
- Follow along with PDF of presentations
- Write down any questions you have for the designated question section
- Clearly state name and organization when asking questions
- Facilitator will ask for participant questions following the presentation



Downstream Release Alternatives Habitat Analysis

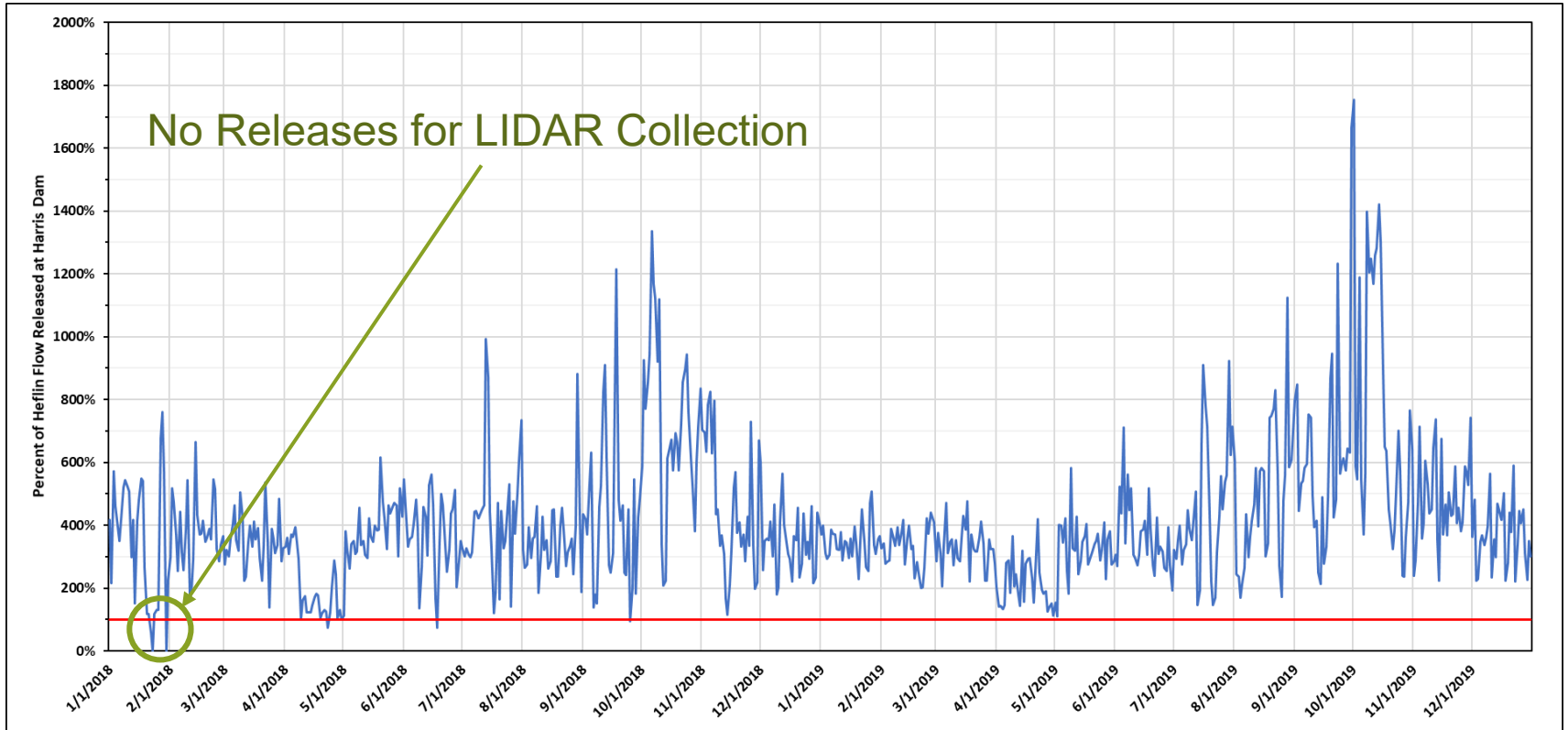
Analysis of Release Scenarios



- Pre-Green Plan (PGP)
- Green Plan (GP)
- 150 cfs Continuous Minimum Flow (150CMF)

- Modified Green Plan (ModGP) [Pulses at 2 am, 10 am, and 6 pm, generation as need if water available]
- **100% Prior Day Heflin**
- 300 Continuous Minimum Flow (300CMF)
- 600 Continuous Minimum Flow (600CMF)
- 800 Continuous Minimum Flow (800CMF)
- Green Plan Plus 150 cfs Continuous Minimum Flow (150CMF+GP)
- Green Plan Plus 300 cfs Continuous Minimum Flow (300CMF+GP)
- Green Plan Plus 600 cfs Continuous Minimum Flow (600CMF+GP)
- Green Plan Plus 800 cfs Continuous Minimum Flow (800CMF+GP)

Harris Releases and Heflin Flows



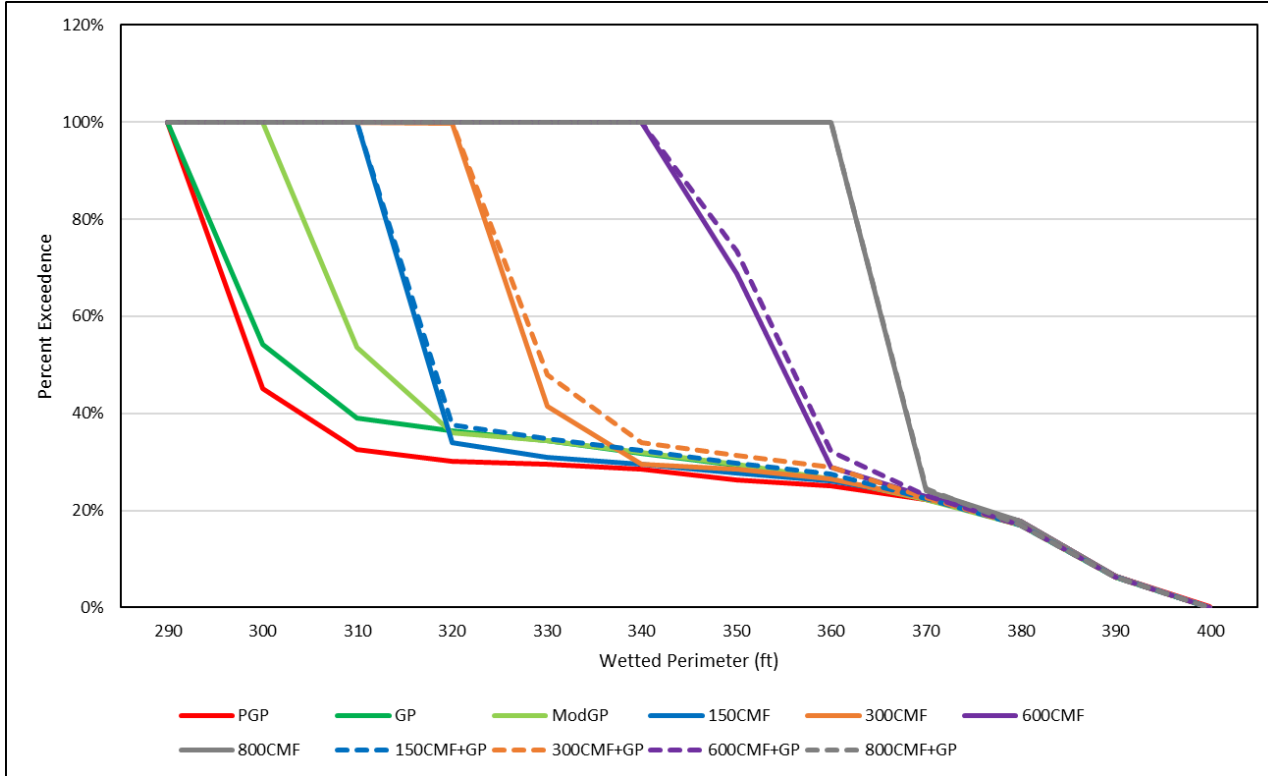
Amount of Wetted Perimeter



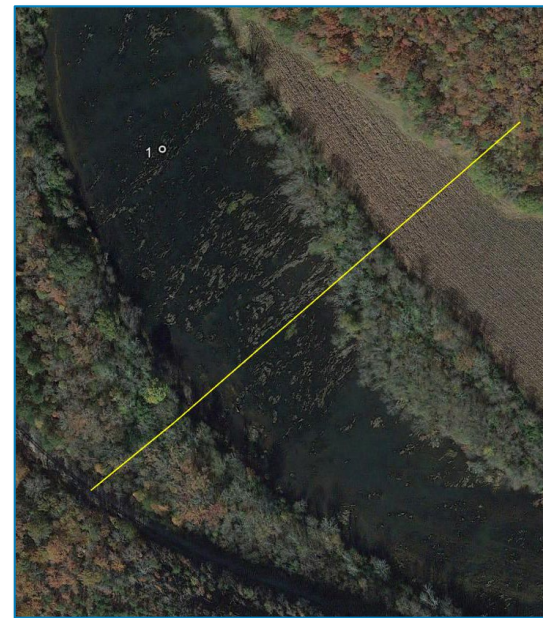
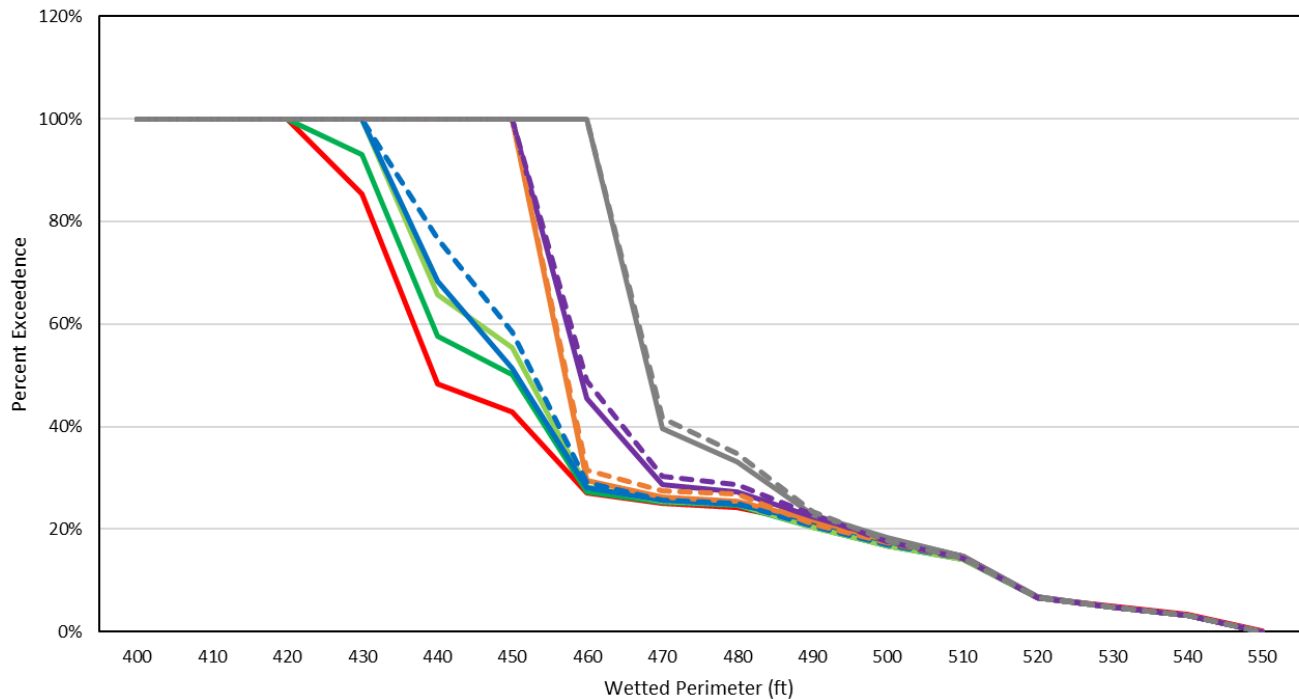
$$\text{Relative \% Difference} = (\text{DailyAvgWP}_{\text{PGP}} - \text{DailyAvgWP}_{\text{GP}}) \div ((\text{DailyAvgWP}_{\text{PGP}} + \text{DailyAvgWP}_{\text{GP}})/2)$$

Miles Below Harris	0.4	1	2	4	7	10	14	19	23	38	43
Mesohabitat Type	Riffle	Riffle	Riffle	Pool	Pool	Riffle	Run-Pool	Riffle-Run	Riffle	Riffle	Pool
PGP	-1%	0%	-2%	0%	-2%	0%	0%	-1%	-1%	0%	0%
GP	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
ModGP	2%	1%	2%	0%	3%	1%	0%	1%	1%	0%	0%
150CMF	3%	1%	2%	0%	2%	0%	0%	1%	1%	1%	0%
150CMF+GP	3%	1%	3%	0%	3%	1%	0%	1%	1%	1%	0%
300CMF	6%	2%	7%	0%	6%	1%	1%	2%	3%	1%	1%
300CMF+GP	6%	2%	7%	1%	7%	1%	1%	3%	3%	1%	1%
600CMF	11%	3%	8%	1%	11%	2%	1%	7%	7%	2%	1%
600CMF+GP	11%	3%	8%	1%	11%	2%	1%	7%	7%	2%	1%
800CMF	14%	4%	9%	1%	12%	2%	1%	11%	11%	3%	2%
800CMF+GP	14%	4%	9%	1%	13%	2%	1%	11%	11%	3%	2%

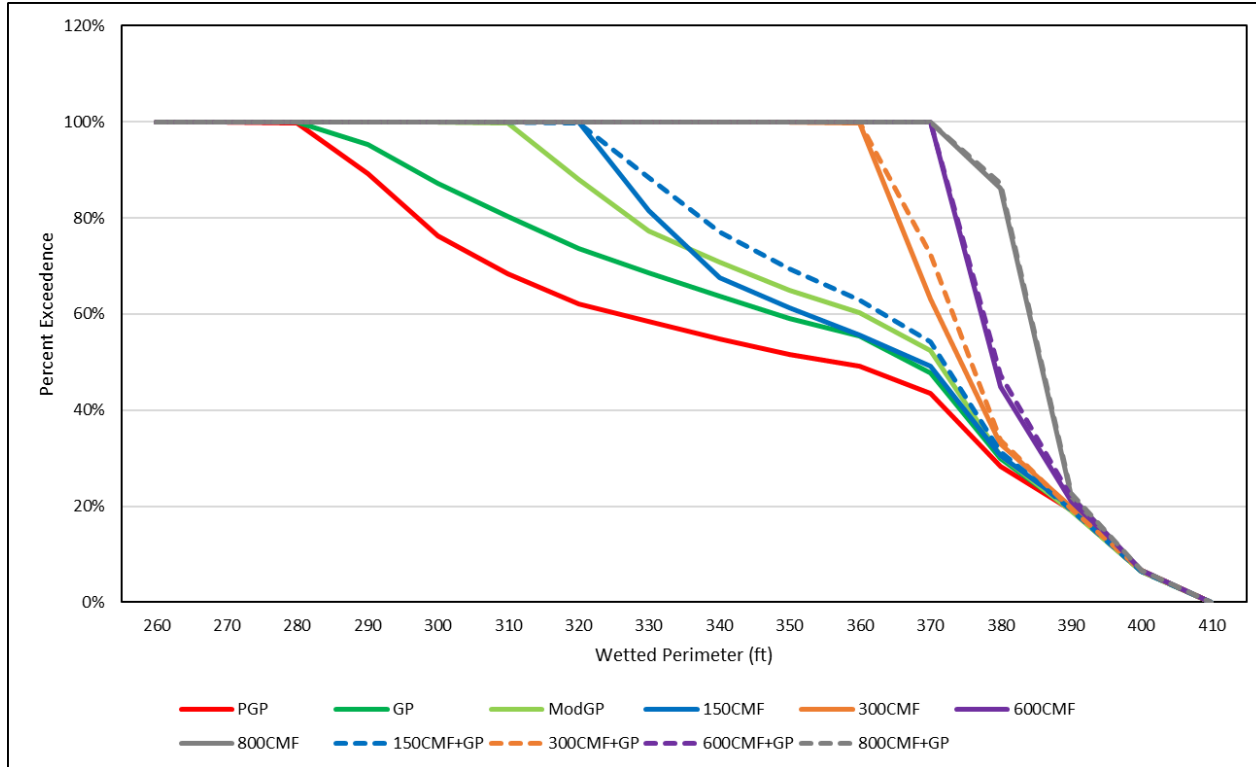
0.4 Miles Downstream (Riffle)



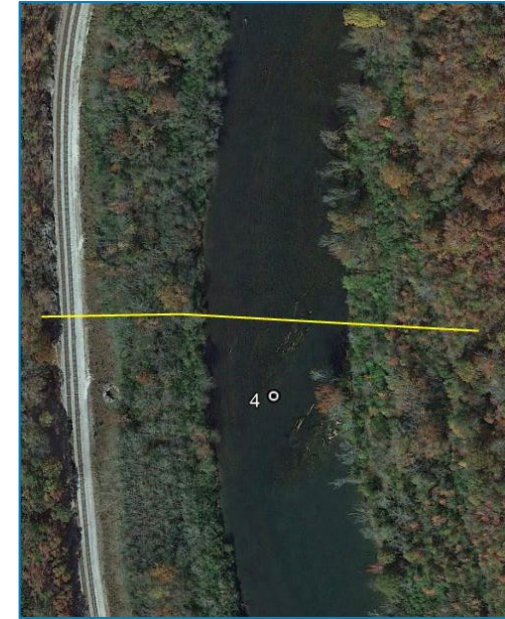
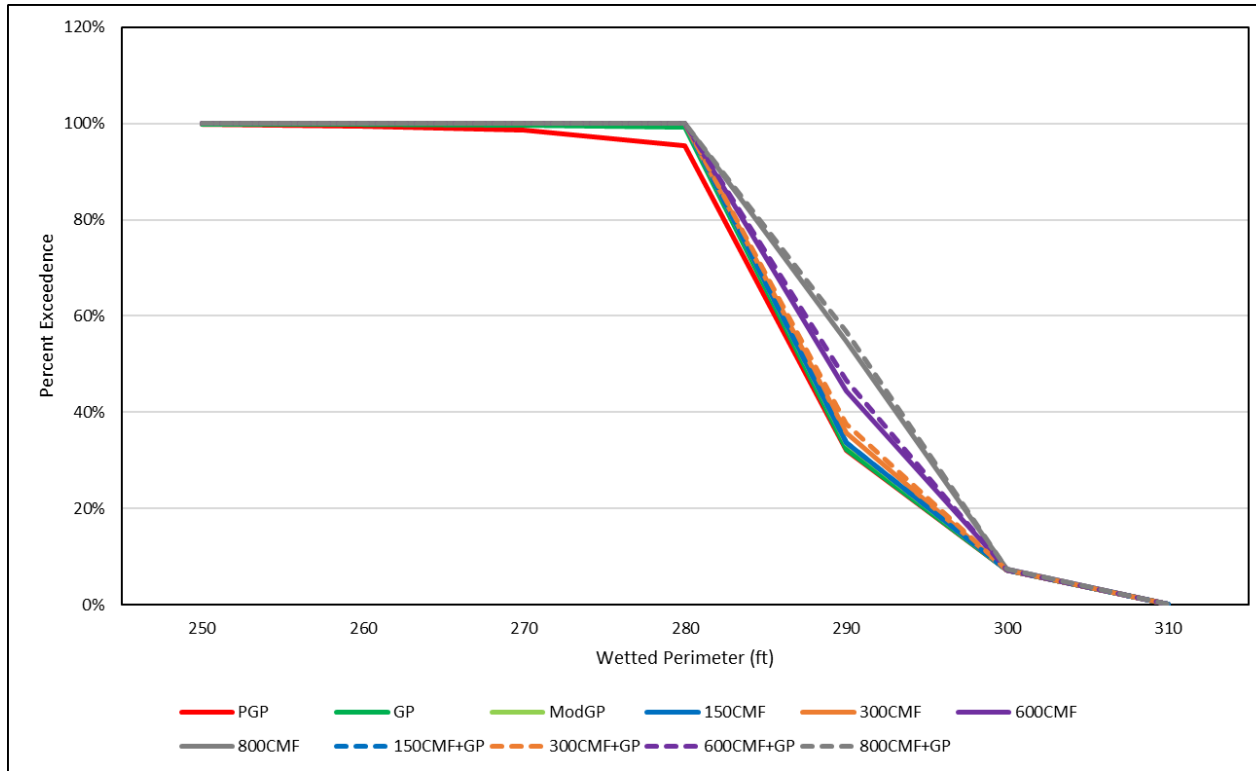
1 Mile Downstream (Riffle)



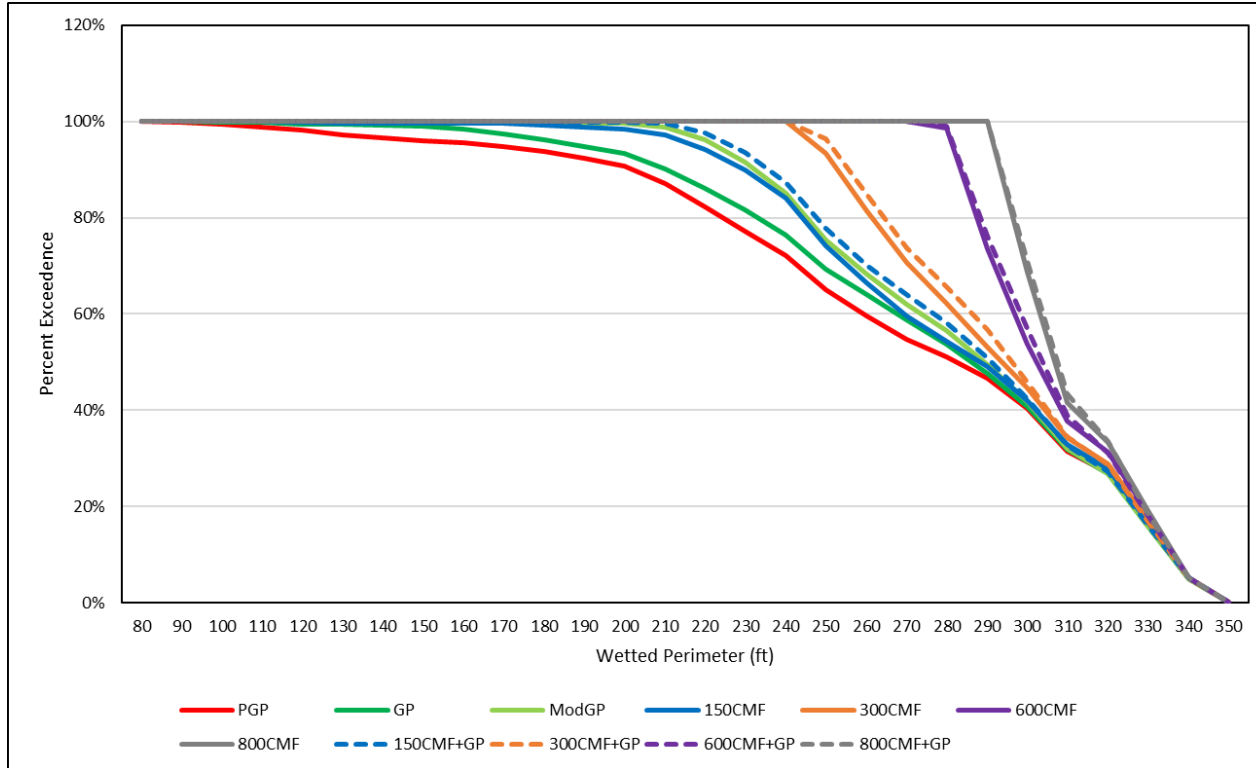
2 Miles Downstream (Riffle)



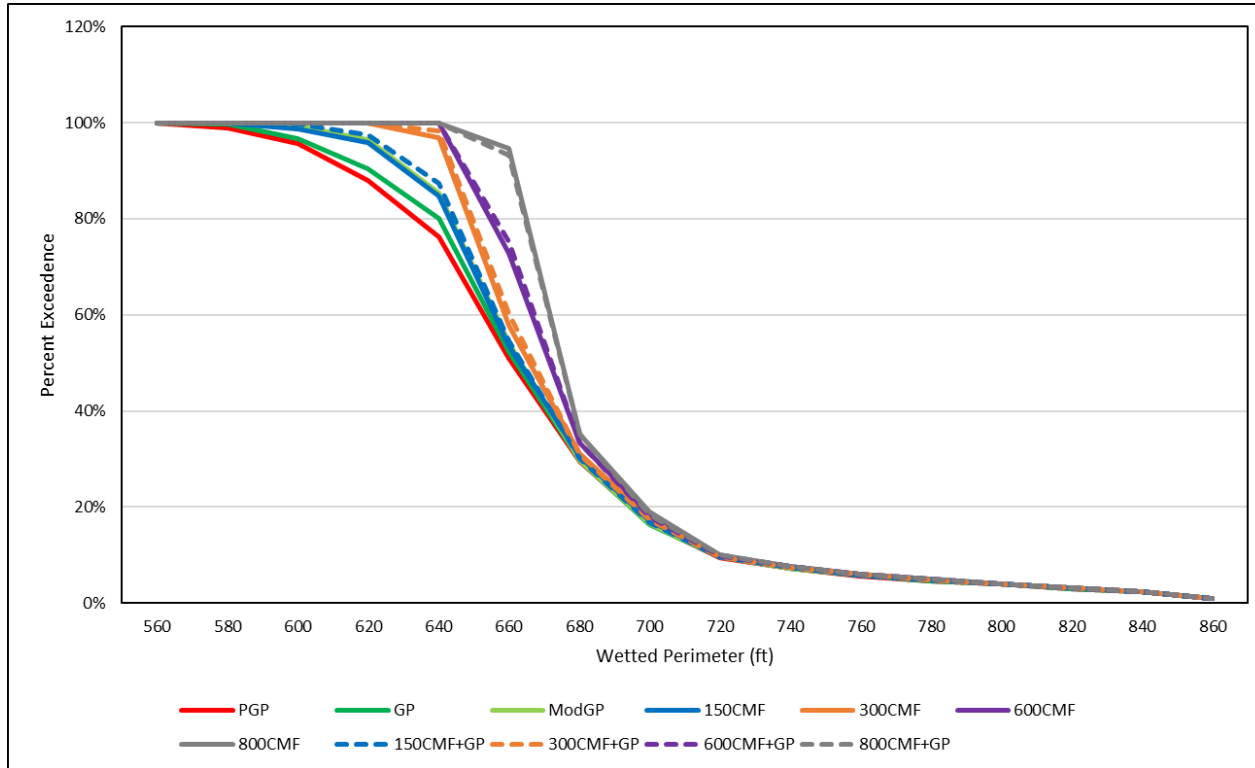
4 Miles Downstream (Pool)



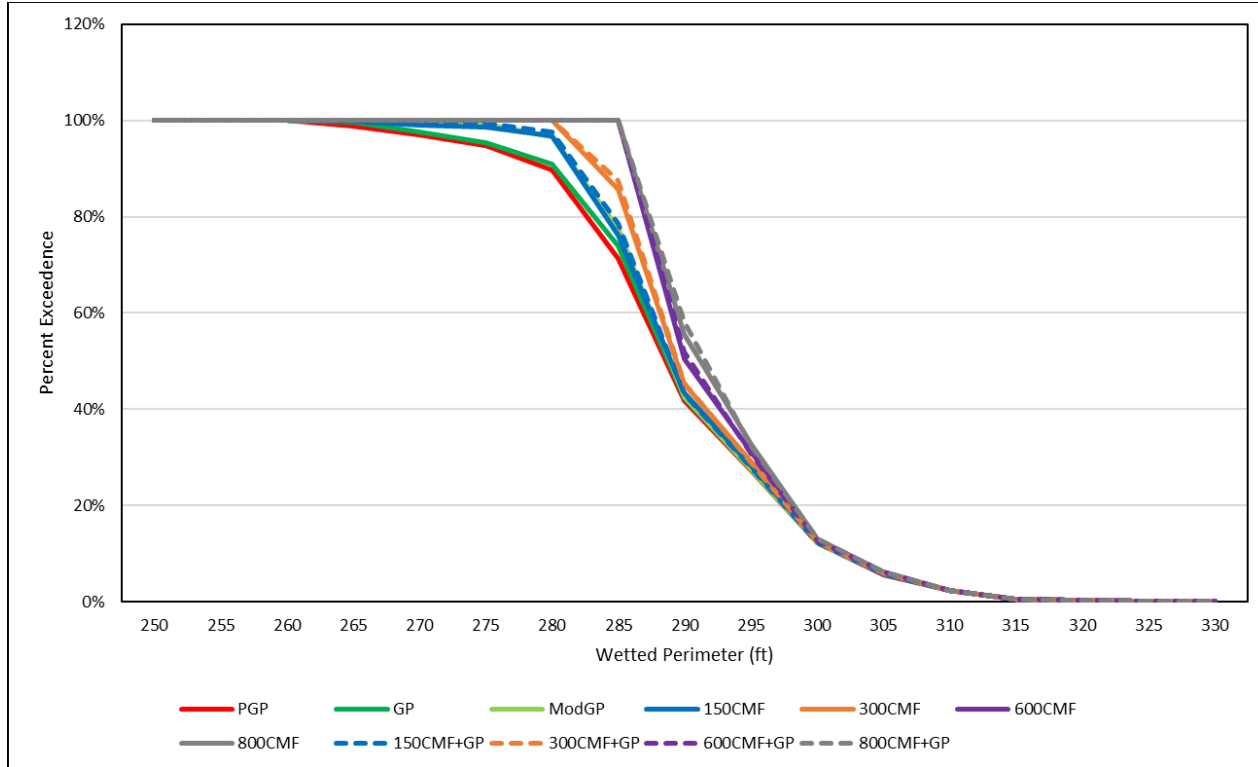
7 Miles Downstream (Riffle)



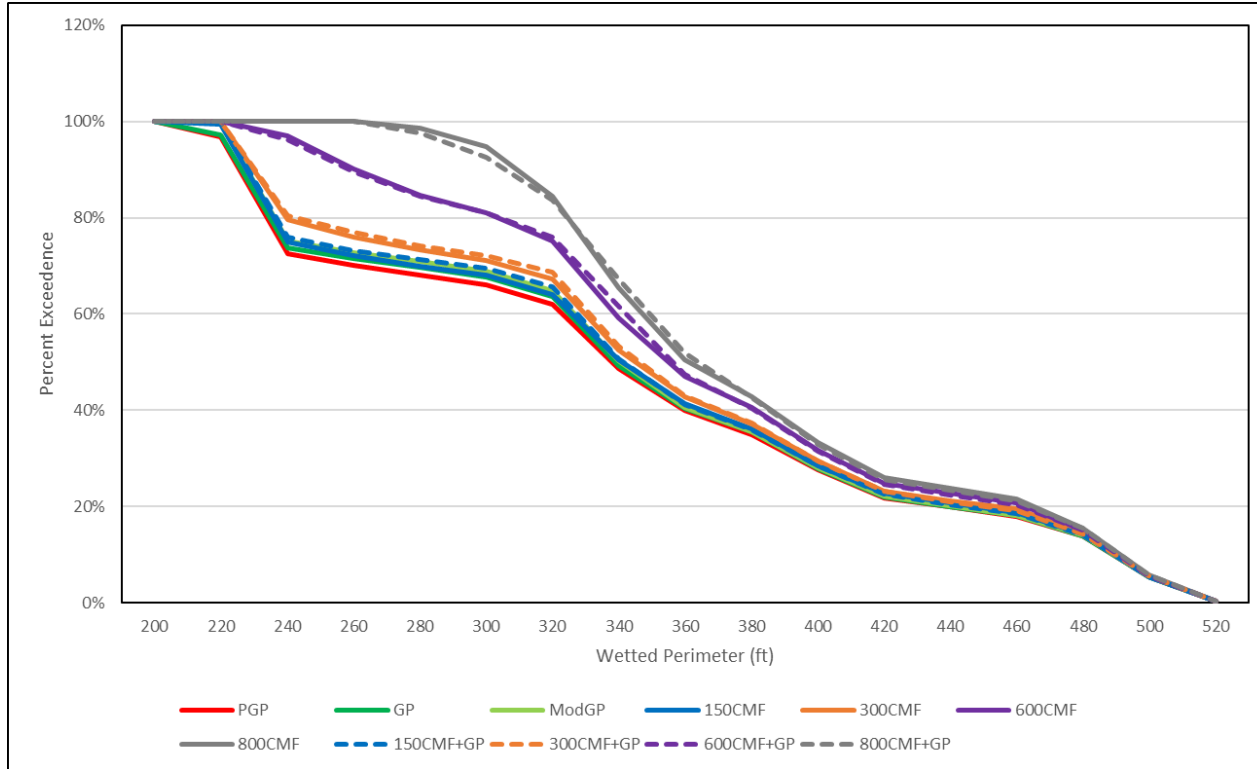
10 Miles Downstream (Riffle)



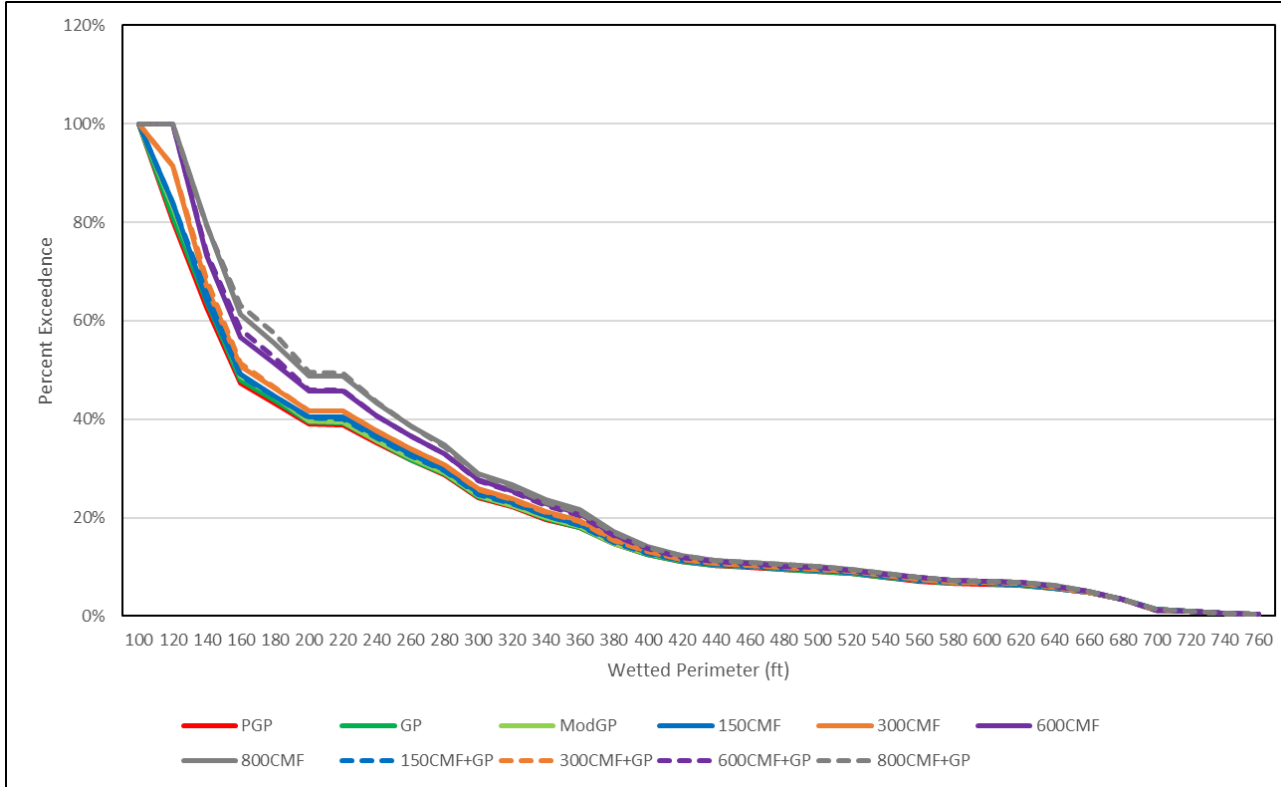
14 Miles Downstream (Pool)



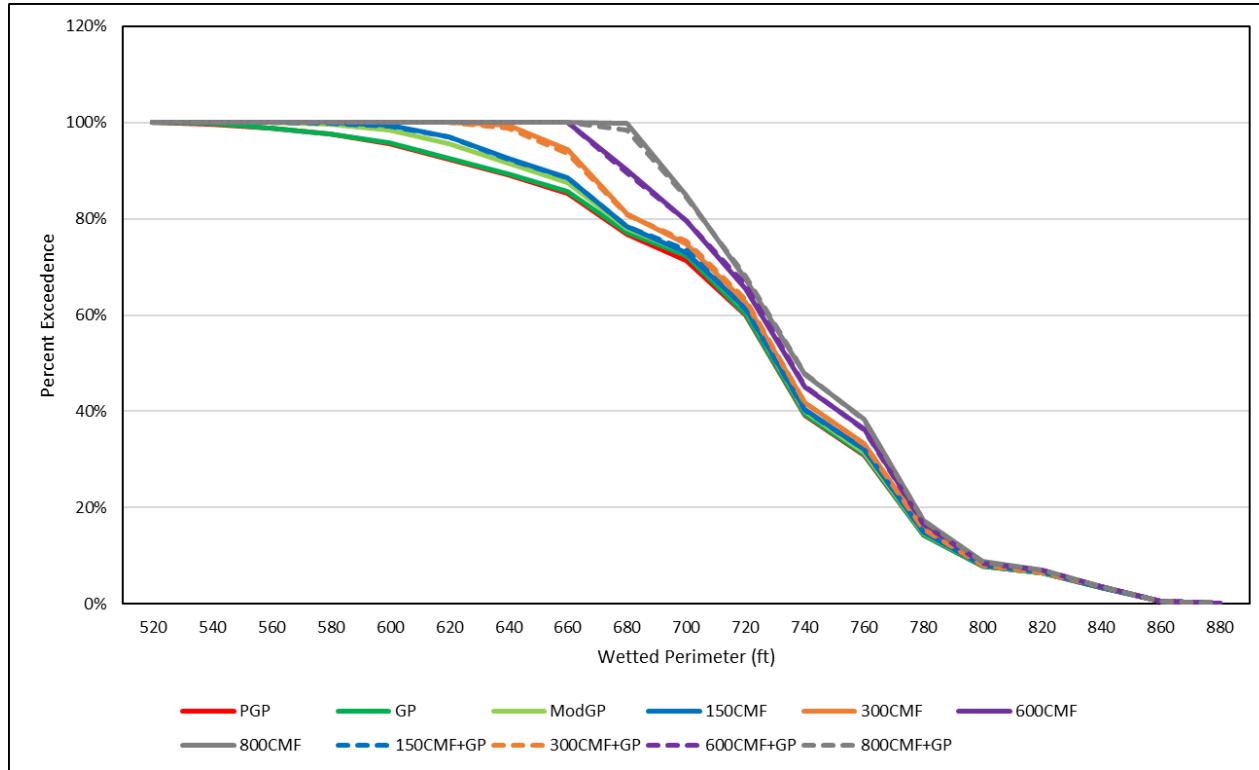
19 Miles Downstream (Riffle)



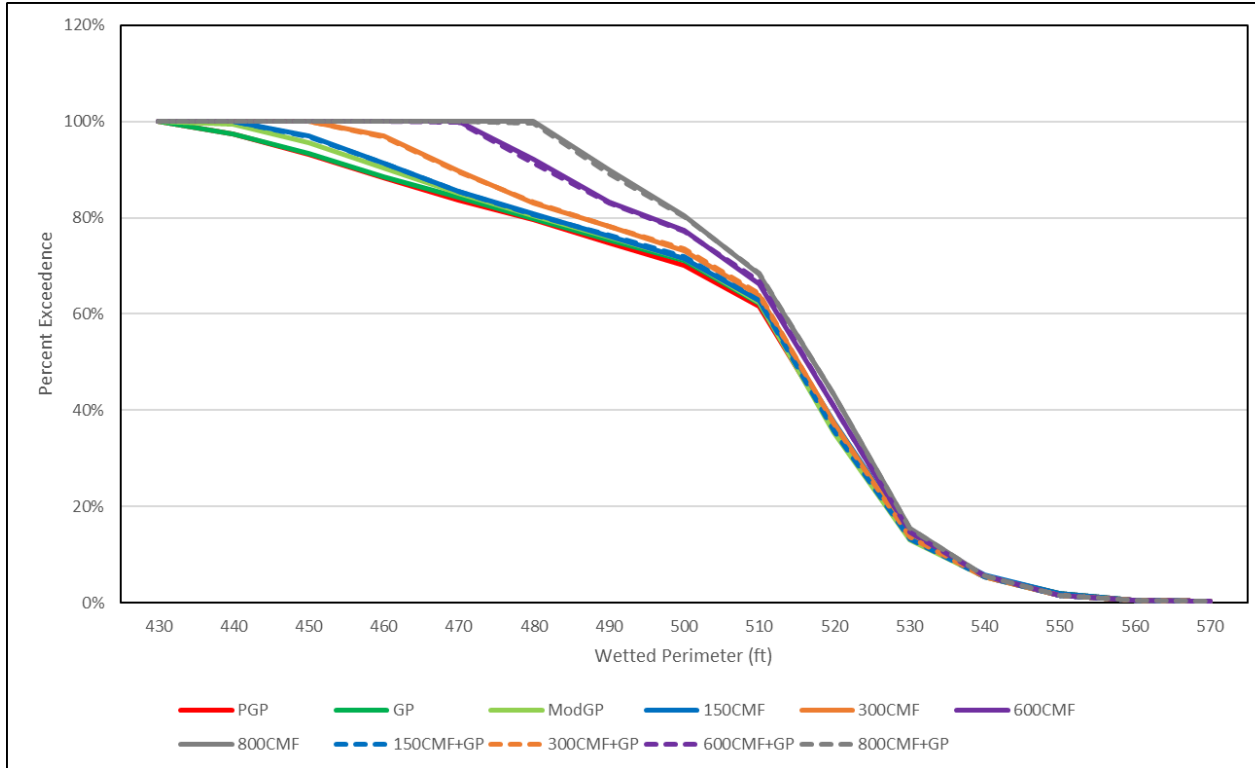
23 Miles Downstream (Riffle)



38 Miles Downstream (Griffin Shoals)



43 Miles Downstream (Horseshoe Bend)



Amount of Wetted Perimeter



$$\text{Relative \% Difference} = (\text{DailyAvgWP}_{\text{PGP}} - \text{DailyAvgWP}_{\text{GP}}) \div ((\text{DailyAvgWP}_{\text{PGP}} + \text{DailyAvgWP}_{\text{GP}})/2)$$

Miles Below Harris	0.4	1	2	4	7	10	14	19	23	38	43
Mesohabitat Type	Riffle	Riffle	Riffle	Pool	Pool	Riffle	Run-Pool	Riffle-Run	Riffle	Riffle	Pool
PGP	-1%	0%	-2%	0%	-2%	0%	0%	-1%	-1%	0%	0%
GP	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
ModGP	2%	1%	2%	0%	3%	1%	0%	1%	1%	0%	0%
150CMF	3%	1%	2%	0%	2%	0%	0%	1%	1%	1%	0%
150CMF+GP	3%	1%	3%	0%	3%	1%	0%	1%	1%	1%	0%
300CMF	6%	2%	7%	0%	6%	1%	1%	2%	3%	1%	1%
300CMF+GP	6%	2%	7%	1%	7%	1%	1%	3%	3%	1%	1%
600CMF	11%	3%	8%	1%	11%	2%	1%	7%	7%	2%	1%
600CMF+GP	11%	3%	8%	1%	11%	2%	1%	7%	7%	2%	1%
800CMF	14%	4%	9%	1%	12%	2%	1%	11%	11%	3%	2%
800CMF+GP	14%	4%	9%	1%	13%	2%	1%	11%	11%	3%	2%

Wetted Perimeter Stability

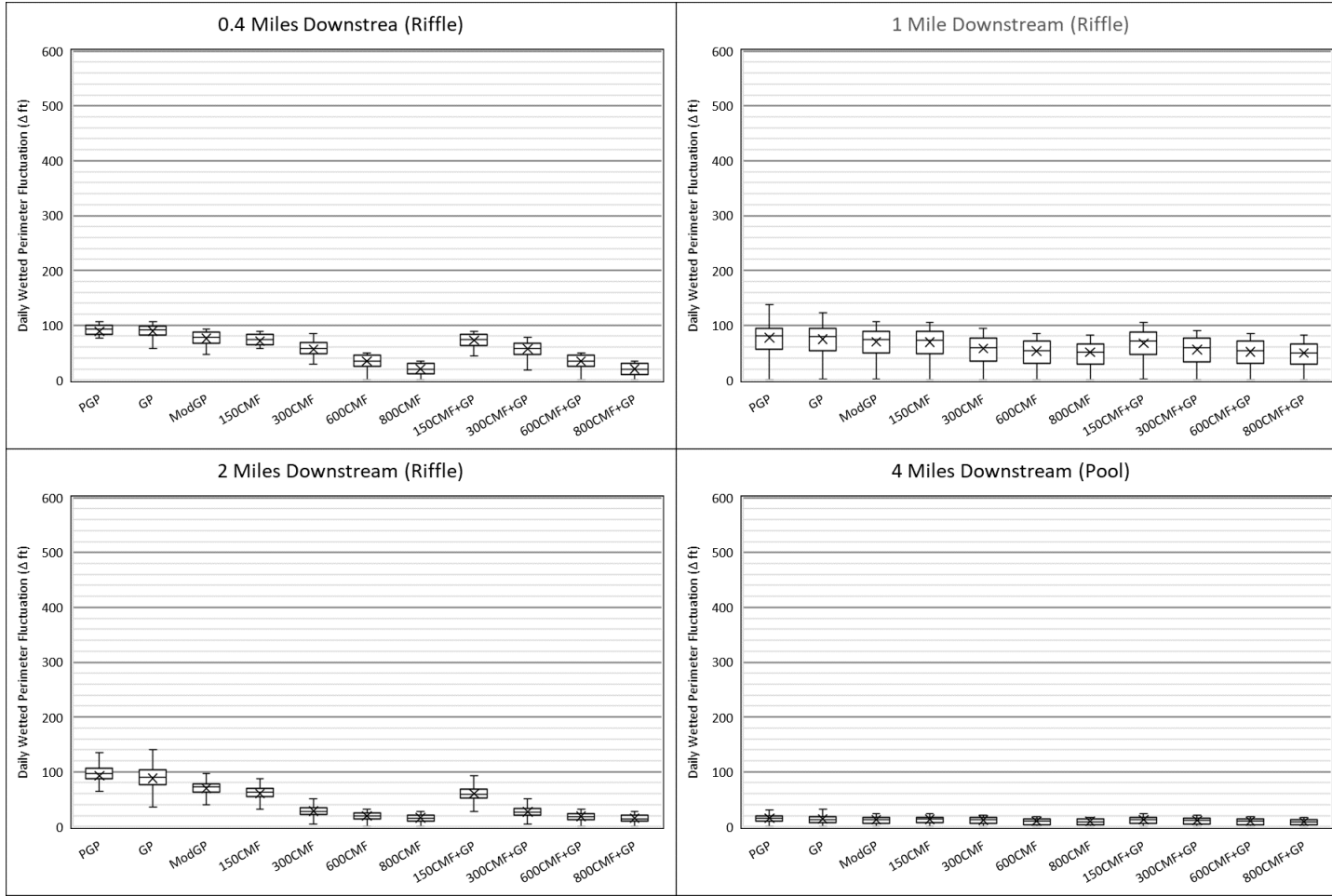


Daily Maximum – Daily Minimum = Daily Range

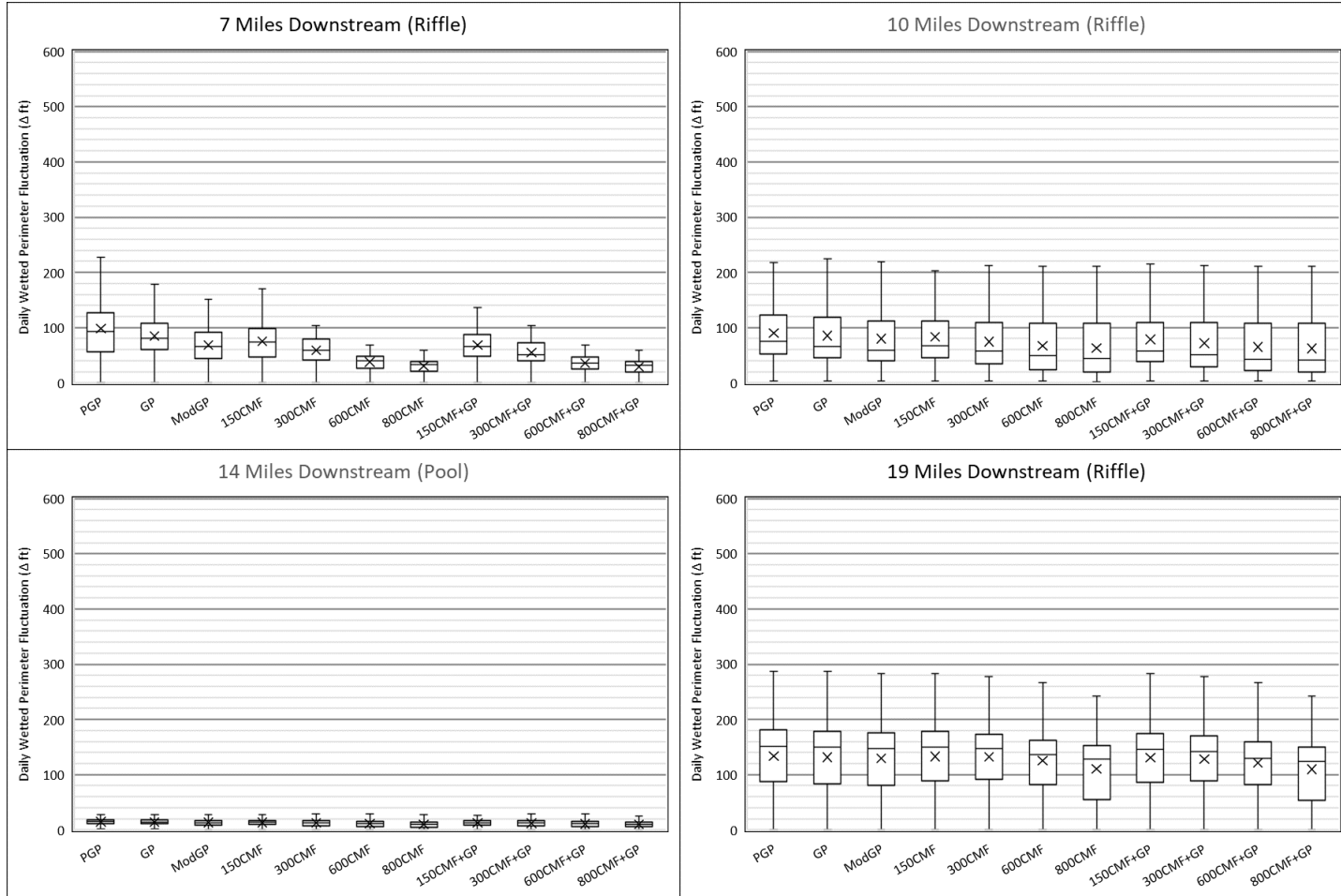
Relative % Difference = $(\text{Daily Range}_{\text{PGP}} - \text{Daily Range}_{\text{GP}}) \div ((\text{Daily Range}_{\text{PGP}} + \text{Daily Range}_{\text{GP}})/2)$

Mesohabitat Type	Riffle	Riffle	Riffle	Pool	Pool	Riffle	Run-Pool	Riffle-Run	Riffle	Riffle	Pool
Miles Below Harris	0.4	1	2	4	7	10	14	19	23	38	43
PGP	1%	-3%	-5%	-13%	-16%	-5%	-4%	-2%	0%	-1%	-1%
GP	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
ModGP	15%	7%	21%	9%	19%	7%	9%	2%	0%	5%	4%
150CMF	20%	7%	31%	7%	11%	3%	5%	-1%	-1%	3%	2%
150CMF+GP	19%	10%	32%	10%	19%	8%	10%	1%	-1%	5%	5%
300CMF	37%	23%	68%	14%	31%	13%	13%	0%	-3%	9%	9%
300CMF+GP	37%	25%	70%	18%	35%	16%	16%	3%	-2%	10%	10%
600CMF	61%	29%	78%	28%	56%	22%	23%	5%	-4%	14%	20%
600CMF+GP	61%	31%	78%	30%	58%	24%	25%	8%	-2%	15%	21%
800CMF	77%	32%	82%	35%	64%	26%	28%	16%	-2%	17%	27%
800CMF+GP	78%	34%	82%	37%	66%	28%	29%	17%	-1%	18%	27%

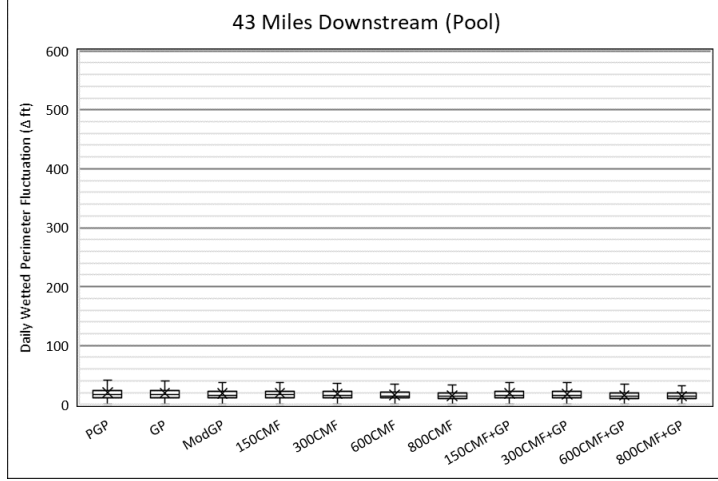
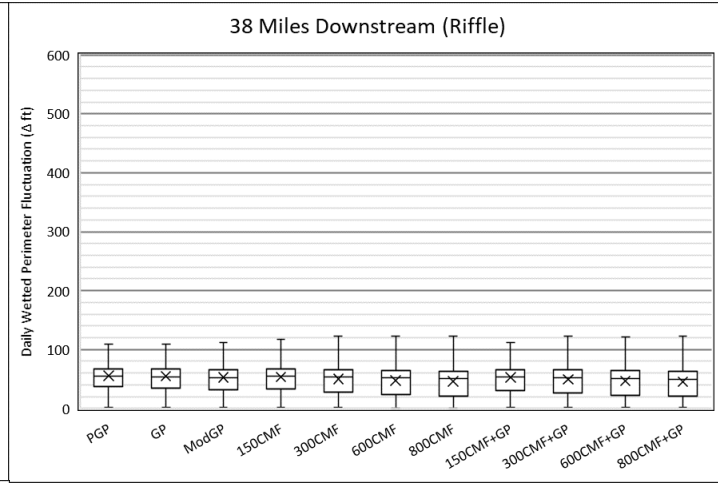
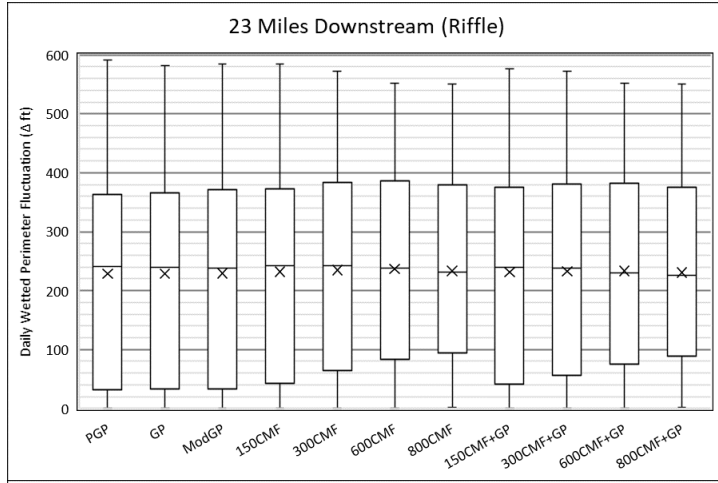
Wetted Perimeter Daily Fluctuations



Wetted Perimeter Daily Fluctuations



Wetted Perimeter Daily Fluctuations



Summary of Wetted Perimeter Analysis



Amount

Miles Below Harris	0.4	1	2	4	7	10	14	19	23	38	43
Mesohabitat Type	Riffle	Riffle	Riffle	Pool	Pool	Riffle	Run-Pool	Riffle-Run	Riffle	Riffle	Pool
PGP	-1%	0%	-2%	0%	-2%	0%	0%	-1%	-1%	0%	0%
GP	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
ModGP	2%	1%	2%	0%	3%	1%	0%	1%	1%	0%	0%
150CMF	3%	1%	2%	0%	2%	0%	0%	1%	1%	1%	0%
150CMF+GP	3%	1%	3%	0%	3%	1%	0%	1%	1%	1%	0%
300CMF	6%	2%	7%	0%	6%	1%	1%	2%	3%	1%	1%
300CMF+GP	6%	2%	7%	1%	7%	1%	1%	3%	3%	1%	1%
600CMF	11%	3%	8%	1%	11%	2%	1%	7%	7%	2%	1%
600CMF+GP	11%	3%	8%	1%	11%	2%	1%	7%	7%	2%	1%
800CMF	14%	4%	9%	1%	12%	2%	1%	11%	11%	3%	2%
800CMF+GP	14%	4%	9%	1%	13%	2%	1%	11%	11%	3%	2%

Stability

PGP	1%	-3%	-5%	-13%	-16%	-5%	-4%	-2%	0%	-1%	-1%
GP	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
ModGP	15%	7%	21%	9%	19%	7%	9%	2%	0%	5%	4%
150CMF	20%	7%	31%	7%	11%	3%	5%	-1%	-1%	3%	2%
150CMF+GP	19%	10%	32%	10%	19%	8%	10%	1%	-1%	5%	5%
300CMF	37%	23%	68%	14%	31%	13%	13%	0%	-3%	9%	9%
300CMF+GP	37%	25%	70%	18%	35%	16%	16%	3%	-2%	10%	10%
600CMF	61%	29%	78%	28%	56%	22%	23%	5%	-4%	14%	20%
600CMF+GP	61%	31%	78%	30%	58%	24%	25%	8%	-2%	15%	21%
800CMF	77%	32%	82%	35%	64%	26%	28%	16%	-2%	17%	27%
800CMF+GP	78%	34%	82%	37%	66%	28%	29%	17%	-1%	18%	27%

Aquatic Resources Study Update

Updates on Downstream Fish Population Study by Auburn University



- Fish Sampling
 - Two remaining sampling events: November 2020 and January 2021
 - All fish samples to date have been worked up and all target species aged
- Fish Movement
 - Electromyogram (EMG) tags replaced with acoustic/radio (CART) tags
 - 8 passive receivers between Harris Dam and Malone and 2 at Wadley
 - 13 Alabama Bass and 3 Tallapoosa Bass tagged between late July and early August
 - Roughly a month and a half of movement data gathered so far
 - Fish also manually tracked with radio receiver
 - Data analysis has begun to investigate how fish respond to releases

Updates on Downstream Fish Population Study by Auburn University



- Respirometry
 - Static trials have continued
 - 5 specimens per target species per site per trial
- Temperature Data
 - Continuing temperature comparison between regulated and unregulated
- Final Aquatic Resources Report: April 2021

Green Plan Spawning Windows and Lake Stabilization

Spawning Windows



Tallapoosa River – Green Plan Spawning Windows

- Based on hypothesis that periods of stable flow without hydropeaking should increase opportunities for fish to spawn and larvae to develop successfully
- Requested by Irwin in 2006 but could not be accomplished due to a tropical storm system
- Alabama Power coordinated with technical team members to evaluate a 14-day period in March 2017
 - Avoided peaking and provided three 10-minute pulses per day
 - Could not be accomplished during the full 14-day period due to increasing inflows to the lake

Spawning Windows



Lake Harris

- At the request of ADCNR, Alabama Power holds lake levels stable or slightly rising for 14 days to benefit fish that spawn in shallow water areas of the lake, such as bass and sunfish
- Typically occurs in April, based on water temperatures
- The full 14 days is not always achieved if inflows are too high

Threatened & Endangered Species Study Update

Threatened & Endangered Species Study Progress



- Field Surveys

Species	Nov 2019	Dec 2019	Jan 2020	Feb 2020	Mar 2020	Apr 2020	May 2020	Jun 2020	Jul 2020	Aug 2020	Sep 2020	Oct 2020
Finelined Pocketbook	Harris							Harris	Harris			
Palezone Shiner								Skyline				
White Fringeless Orchid										Harris	Skyline	
Price's Potato Bean											Skyline	
Red-cockaded Woodpecker											Harris	

- Final Threatened and Endangered Species Report: January 2021
- Threatened and Endangered Species Survey Reports
- Revised Threatened and Endangered Species Desktop Assessment

Questions/Comments?

harrisrelicensing@southernco.com

Attachment 2
Comments and Responses on the Draft Downstream
Aquatic Habitat Report

Commenting Entity	<u>Date of Comment & FERC Accession Number</u>	<u>Comment – Downstream Aquatic Habitat</u>	<u>Alabama Power Response</u>
Federal Energy Regulatory Commission (FERC) Note: footnotes included in the original letter have been omitted from this table	6/10/2020 20200610-3059	During the ISR Meeting, Alabama Power requested that stakeholders provide downstream flow alternatives for evaluation in the models developed during Phase 1 of the Downstream Release Alternatives Study. Stakeholders expressed concerns about their ability to propose flow alternatives without having the draft reports for the Aquatic Resources and Downstream Aquatic Habitat Studies, which are scheduled to be available in July 2020 and June 2020, respectively. It is our understanding that during Phase 2 of this study, Alabama Power would run stakeholder-proposed flow alternatives that may be provided with ISR comments, as well as additional flow alternatives that stakeholders may propose after the results for the Aquatic Resources and Downstream Aquatic Habitat Studies are available. Please clarify your intent by July 11, 2020, as part of your response to stakeholder comments on the ISR.	Based on FERC, ARA, and EPA's recommendation to modify the Downstream Release Alternatives study, Alabama Power evaluated the following additional downstream flow scenarios: <ul style="list-style-type: none"> • A variation of the existing Green Plan (GP) where the Daily Volume Release is 100% of the prior day's flow at the USGS Heflin stream gage, rather than the current 75%; • A hybrid Green Plan that incorporates both a base minimum flow of 150 cfs and the pulsing laid out in the existing Green Plan release criteria; • 300 cfs continuous minimum flow (CMF); • 600 CMF; • 800 CMF; • 300 CMF + GP; • 600 CMF +GP; and • 800 CMF +GP. Alabama Power met with HAT 3 following distribution of the Draft Aquatic Resources Study Report and Draft Downstream Aquatic Habitat Report. No additional downstream release alternatives were requested by stakeholders.
FERC		In addition, we recommend that the modeling for Alabama Power's Aquatic Resources Study and Downstream Aquatic Habitat Study, ⁴ as well as any Phase 2 assessment(s) include all the downstream flow release alternatives identified and evaluated as part of the Downstream Flow Release Alternatives Study. The results of all the modeling for the Aquatic Resources Study and Downstream Aquatic Habitat Study should be included in the final study reports and filed with the Updated Study Report, due by April 12, 2021.	Alabama Power will analyze the effects of the additional release alternatives on aquatic resources and downstream aquatic habitat in the Downstream Release Alternatives Study phase 2 analysis.

Commenting Entity	<u>Date of Comment & FERC Accession Number</u>	Comment – Downstream Aquatic Habitat	Alabama Power Response
Alabama Department of Conservation and Natural Resources (ADCNR) Note: footnotes included in the original letter have been omitted from this table	6/11/2020 20200611-5152	On page 11, section 4.1 of Initial Study Report, “i.e.” (“that is”) should be changed to “e.g.” (“for example”). The alternative/modified Green Plan operation downstream release alternative will be evaluated as part of Phase 2. Results from the other three scenarios as well as from the Aquatic Resources Study are needed to design the alternative to be studied. Downstream Aquatic Habitat Study and Recreational Evaluation Study results should be included in footnotes in order to fully evaluate and recommend an alternative Green Plan to be modeled and evaluated as a downstream release alternative. Without the ability to fully evaluate the Aquatic Resources Study, Downstream Aquatic Habitat Study and Recreational Evaluation Study results at this time, ADCNR recommends multiple base flow scenarios calculated from available aquatic inflow and base flow records and guidelines representative for the tailwaters downstream to the Horseshoe Bend with Pre-Green Plan, Green Plan and Modified Green Plan be modeled during the evaluation process. All operational changes to downstream releases should evaluate methods for how these flows could be provided while maintaining state dissolved oxygen guidelines and a natural temperature regime, at all times for the sustainable benefit of aquatic resources.	The “modified Green Plan” alternative was discussed with and agreed to by ADCNR prior to the FERC’s April 12, 2019 Study Plan Determination. The modified Green Plan is defined in the FERC-approved Downstream Release Alternatives Study Plan as changing the time of day in which the Green Plan pulses are released. Effects on dissolved oxygen and temperature as a result of alternative releases are analyzed in the Downstream Release Alternatives Study Phase 2 Report.
ADCNR	7/31/2020 Filed by email	On page 1, section 1.1 Study Background of Draft Downstream Aquatic Habitat Report, it states “ <i>Monitoring conducted since initiation of the Green Plan has indicated a positive fish community response due to increased shoal habitat availability (Irwin et al. 2011); however, there is little existing information characterizing the extent that the Green Plan has enhanced the aquatic habitat from Harris Dam downstream through Horseshoe Bend.</i> ” Recent reporting of fish community monitoring indicates that fish densities in the regulated river downstream of Harris Dam have been depressed when compared to unregulated sites (Irwin et al. 2019).	Comment noted.
ADCNR		On page 2, section 1.1 Study Background of Draft Downstream Aquatic Habitat Report, change “i.e.” (“that is”) should be changed to “e.g.” (“for example”). Details and design of a Modified Green Plan alternative are pending results and full evaluation from the Aquatic Resources Study. ADCNR is not in agreement that the alternative/modified Green Plan would only consider changing the time of day in which Green Plan pulses are released. ADCNR is in agreement that results from the Aquatic Resources Study are needed to design and recommend the alternative to be studied. Aquatic Resources Study results should be included in the footnote as a precursor to fully evaluate and recommend an alternative Green Plan to be modeled as a downstream release alternative for initial study report. ADCNR maintains its recommendation for a fourth alternative Modified Green Plan be fully evaluated. ADCNR requests the opportunity to provide specific recommendations for the Modified Green Plan alternative after assessing the Aquatic Resources Study report.	The “modified Green Plan” alternative was discussed with and agreed to by ADCNR prior to the FERC’s April 12, 2019 Study Plan Determination. The modified Green Plan is defined in the FERC-approved Downstream Release Alternatives Study Plan as changing the time of day in which the Green Plan pulses are released.
ADCNR		On page 2, section 1.1 Study Background of Draft Downstream Aquatic Habitat Report, change “ <i>intened</i> ” to “intended”	This correction was made in the Final Report.

Commenting Entity	<u>Date of Comment & FERC Accession Number</u>	<u>Comment – Downstream Aquatic Habitat</u>	<u>Alabama Power Response</u>
ADCNR		On page 3, section 3.1 Mesohabitat Analysis of Draft Downstream Aquatic Habitat Report, provide the total river miles, in addition to hectares for each section (e.g., Harris Dam to Malone (total river miles), Wadley to Bibby's Ferry (total river miles))	River miles are included in the Final Report.
ADCNR		On page 4, section 2.2 Water Level Monitoring of Draft Downstream Aquatic Habitat Report, it states " <i>data were lost from four level loggers (logger numbers 12, 14, 18, 20) (Figure 2-1)</i> " Provide a detailed explanation why data is unavailable from these four loggers (e.g. equipment malfunction or computer error).	The existing explanation that malfunctioning equipment caused faulty data transfers is adequate.
ADCNR		On page 6, Figure 2-1 note the four level loggers that had lost data with an asterisk and provide an explanation of the asterisks in the Figure description.	The existing explanation in the text is sufficient to explain the malfunctioning level loggers.
ADCNR		On page 9, Figure 3-2 of Draft Downstream Aquatic Habitat Report, the image resolution is poor. If available provide higher resolution images for this data.	This was corrected in the Final Report.
ADCNR		On page 10, section 3.2.1 Study Period Hydrology and Climate, of Draft Downstream Aquatic Habitat Report, provide statistical analysis information documenting that significant differences occurred between the river flows in August/September 2019 and January/March 2020 compared to long-term averages.	The word "significantly" was removed in the Final Report.
ADCNR		On page 14, Figure 3-6, of Draft Downstream Aquatic Habitat Report, provide standard deviation bars for the average daily water level.	Standard deviation was added to the tabular summary.
ADCNR		On page 14, of Draft Downstream Aquatic Habitat Report, provide an additional graph similar to Figure 3-6 that depicts the maximum daily water level fluctuation (Delta T) from May 2019 to April 2020. This graphic will better represent the unnatural, harsh conditions subjected to aquatic fauna daily below Harris Dam.	Maximum daily water level fluctuation is provided in the tabular summaries in Tables 3-3 and 3-4.
ADCNR		On page 15, Table 3-3 Summary of Daily Water Level Fluctuations of Draft Downstream Aquatic Habitat Report, in addition to mean, minimum and maximum, provide the median (ft) for each site and standard deviation of the means.	This information was included in the Final Report.
ADCNR		On page 16, Figure 3-7 of Draft Downstream Aquatic Habitat Report, provide standard deviation bars for the average hourly water level. Change the y-axis label from " <i>temperature</i> " to "water level".	This information was included in the Final Report.
ADCNR		On page 17 Table 3-4 Summary of Hourly Water Level Fluctuations of Draft Downstream Aquatic Habitat Report, in addition to mean, minimum and maximum, provide the median (ft) for each site and standard deviation of the means.	This information was included in the Final Report.
ADCNR		On page 18, section 3.2.4 Water Temperature of Draft Downstream Aquatic Habitat Report, temperature change data is primarily depicted in averages. It is important to remember that like dissolved oxygen declines, only one significant sudden temperature change event can stress or kill aquatic species. In addition, temperature highly influences dissolved oxygen levels in aquatic environments and significant dissolved oxygen declines and extreme temperature fluctuations can often coincide. For water temperature data, maximum and minimum values, and how long	All temperature data and analyses were moved from the Downstream Aquatic Habitat Report to the Final Aquatic Resources Study Report. An appendix to the Final Aquatic Resources Study Report will include 15-minute line plots of water temperature and sensor depth for each level logger.

Commenting Entity	<u>Date of Comment & FERC Accession Number</u>	<u>Comment – Downstream Aquatic Habitat</u>	<u>Alabama Power Response</u>
		<p>those values persist (hours) would better explain the fluctuation in temperature changes occurring in a regulated river. Providing detailed reporting of minimum and maximum values at hourly intervals especially when water temperatures reach critical spawning ranges (15-25°C) in the spring are required to fully understand what is occurring. For example, if water temperature rise during the spring reaches a fish species thermal spawning cue but then suddenly decreases due to generation, disruption of spawning success can occur. Decreased and varied downstream water temperatures, as a result of project operations, can negatively impact downstream aquatic fauna. The impacts of water temperatures on the aquatic environment have been well-documented in peer-reviewed literature (Travnichek and Maceina 1994; Bowen <i>et al.</i> 1998; Andress 2002, Craven <i>et al.</i> 2010; Irwin <i>et al.</i> 2010; Goar 2013; Early and Sammons 2015). A component of varied downstream water temperatures downstream of regulated waterways, includes rapid sudden changes in water temperatures. These rapid changes can cause serious stress responses in some fishes in captivity and in the wild that are otherwise healthy, even leading to mortality (Jenkins <i>et al.</i> 2004). Limits of tolerance and ability to tolerate changes in temperature are influenced by the previous thermal histories of individual fish as well as species characteristics (Carmichael <i>et al.</i> 1984). Sudden temperature changes of greater magnitude, either upward or downward, are very stressful and should be avoided. The magnitude of change that aquatic species can tolerate will depend on the species, the life history stage in consideration, previous thermal history, and the initial conditions. The literature-based temperature requirement for fish information provided by the ongoing Aquatic Resources Study should provide useful details on various Tallapoosa River system fish species temperature tolerances. In addition, the comparison of temperature data in regulated and unregulated portions of the study area in the ongoing Aquatic Resources Study should provide additional insight into this topic. The Aquatic Resources Study results in conjunction with downstream flow data, water quality data and downstream habitat data from the initial study reports must be fully evaluated to assess potential impacts to the aquatic resources of the system. For these reasons it is important to provide median, minimum and maximum daily and hourly water temperature fluctuations in this section, in addition to the provided means. Median site data should be included into Tables 3-5 and 3-6. Provide Figure line plots of 15-minute water temperature data collected for each site, similar to page 29, Figure 4-2 line plots of 15-minute water temperature data collected by ADEM on the Tallapoosa River of the Draft Water Quality Study Report.</p>	<p>In addition, Auburn University conducted bioenergetics modeling to determine the effect of temperature and flow regimes on fish respiration and energy expenditure. Results of Auburn's modeling are provided in the Final Aquatic Resources Study Report.</p>

Commenting Entity	<u>Date of Comment & FERC Accession Number</u>	<u>Comment – Downstream Aquatic Habitat</u>	<u>Alabama Power Response</u>
ADCNR		On page 18, section 3.2.4 Water Temperature of Draft Downstream Aquatic Habitat Report, in the discussion on water temperature, explain how the temperature change range is lower at the dam, in comparison to sites 1 and 3 miles downstream. Explain what processes might cool the water moving downstream before warming them again.	All temperature data and analyses were moved from the Downstream Aquatic Habitat Report to the Final Aquatic Resources Study Report. Mean daily water temperature fluctuations near the dam (0.4 miles downstream) are within one standard deviation of the mean fluctuations measured one and 3 miles downstream (i.e., essentially the same).
ADCNR		On Page 19, Figure 3-8 of Draft Downstream Aquatic Habitat Report, provide standard deviation bars for the average monthly temperature data points.	All temperature data and analyses were moved from the Downstream Aquatic Habitat Report to the Final Aquatic Resources Study Report. This figure was revised and included in the Final Aquatic Resources Study Report.
ADCNR		On page 20, Figure 3-9 of Draft Downstream Aquatic Habitat Report, provide standard deviation bars for the average daily temperature fluctuation.	All temperature data and analyses were moved from the Downstream Aquatic Habitat Report to the Final Aquatic Resources Study Report. This figure was revised and included in the Final Aquatic Resources Study Report.
ADCNR		On page 20, of Draft Downstream Aquatic Habitat Report, provide an additional graph similar to Figure 3-9 that depicts the maximum daily water temperature fluctuation (Delta T) from May 2019 to April 2020. This graphic will better represent the unnatural, harsh conditions subjected to aquatic fauna daily below Harris Dam.	All temperature data and analyses were moved from the Downstream Aquatic Habitat Report to the Final Aquatic Resources Study Report. The minima and maxima are provided in a table in the Final Aquatic Resources Study Report.
ADCNR		On page 21, Table 3-5 of Draft Downstream Aquatic Habitat Report, in addition to mean, minimum and maximum provided, provide the median (°C) for each site and standard deviation of the means.	All temperature data and analyses were moved from the Downstream Aquatic Habitat Report to the Final Aquatic Resources Study Report. This information is included in the Final Aquatic Resources Study Report.
ADCNR		On page 22, Figure 3-10 of Draft Downstream Aquatic Habitat Report, provide standard deviation bars for the average hourly temperature fluctuation.	All temperature data and analyses were moved from the Downstream Aquatic Habitat Report to the Final Aquatic Resources Study Report. Standard deviation is included in a table.
ADCNR		On page 22, of Draft Downstream Aquatic Habitat Report, provide an additional graph similar to Figure 3-10 that depicts the maximum hourly water temperature fluctuation (Delta T) from May 2019 to April 2020. This graphic will better represent the unnatural, harsh conditions subjected to aquatic fauna frequently below Harris Dam.	All temperature data and analyses were moved from the Downstream Aquatic Habitat Report to the Final Aquatic Resources Study Report. The maximum hourly temperature fluctuations are provided in a table.

Commenting Entity	<u>Date of Comment & FERC Accession Number</u>	<u>Comment – Downstream Aquatic Habitat</u>	<u>Alabama Power Response</u>
ADCNR		On page 23, Table 3-6 of Draft Downstream Aquatic Habitat Report, provide map site numbers from Figure 2-1, in addition to the included miles below Harris dam.	All temperature data and analyses were moved from the Downstream Aquatic Habitat Report to the Final Aquatic Resources Study Report. A revised figure has been included in the Final Aquatic Resources Study Report.
ADCNR		On page 23, Table 3-6 of Draft Downstream Aquatic Habitat Report, in addition to mean, minimum and maximum numbers provided, provide the median (°C) for each site and standard deviation of the means.	All temperature data and analyses were moved from the Downstream Aquatic Habitat Report to the Final Aquatic Resources Study Report. This information was included in the Final Aquatic Resources Study Report.
ADCNR		On page 25, section 3.3 Wetted Perimeter of Draft Downstream Aquatic Habitat Report, median is used to evaluate seasonal analysis of wetted perimeter. Provide mean wetted perimeter in addition to median.	A revised figure was included in the Final Report.
ADCNR		On page 32, section 4.0 Discussion and Conclusions of Draft Downstream Aquatic Habitat Report, it states “ <i>Results indicate that, on average, the largest daily water level fluctuations occur in the first seven miles below Harris Dam.</i> ” Provide the metric value you are using to separate out the first seven miles of sites from the other sites downstream to make this statement. There are average daily water level changes over 3.0 ft occurring at river mile 15 and over 2.0 ft at river mile 28.2. A metric should be selected, utilized and stated for comparisons. Ideally this metric should be a point equivalent to the historical mean or median daily water level change of the unregulated natural flow regime for that stretch of river being analyzed.	The text was edited to be more general. No metric was used. This was simply meant to summarize the trends in the data.
ADCNR		On page 32, section 4.0 Discussion and Conclusions of Draft Downstream Aquatic Habitat Report, it states “ <i>Results indicate that the largest daily water temperature fluctuations occur in the first seven miles below Harris Dam.</i> ” Provide the metric value you are using to separate out the first seven miles of sites from the other sites downstream to make this statement. There are hourly water temperatures changes over 4°C occurring at river mile 19.5. A metric should be selected, utilized and stated for comparisons. Ideally this metric should be for a maximum hourly change in addition to percent of time this maximum is exceeded (See ADCNR section 3.2.4 Water Temperature comments, discuss sites with separation metric points of 2°C and 4°C maximum temperature change per hour).	The text was edited to be more general. No metric was used. This was simply meant to summarize the trends in the data.

Commenting Entity	<u>Date of Comment & FERC Accession Number</u>	<u>Comment – Downstream Aquatic Habitat</u>	<u>Alabama Power Response</u>
ADCNR		<p>On page 32, section 4.0 Discussion and Conclusions of Draft Downstream Aquatic Habitat Report, it states “<i>It is also worth noting that river flows during August and September of 2019, typically the warmest months of the year, were well below normal which could have resulted in greater daily and hourly temperature fluctuations than normal.</i>” This statement as presented does not seem accurate. Explain how a warm water unregulated river, without a dam, would decrease in temperature as it moves downstream. In many instances rainwater (runoff) in the summer will warm streams and tributaries, thus warm runoff increases temperatures in the creeks in some instances, particularly during afternoon storms when ambient air temperatures have peaked for the day. Additionally, since the Harris dam discharge is below the surface water at 30-40 feet deep, changes to the stratification of the reservoir, would be more pronounced in higher flow, than lower flow years. Reservoir stratification is affected more by higher inflows, than low inflows, especially when discharge occurs from the metalimnion or hypolimnion. Downstream temperature changes should not be significantly different if a thermocline is present, which occurs annually at Harris Reservoir, and persists into September. The statement above requires additional explanation including mechanisms that would cause greater hourly temperature fluctuations than normal during low flow. Provide a reference to a Figure in document illustrating river flows during this time period and provide a specific instance that supports this statement. Clarify whether this statement is referring to tailrace flows or tributary inflows to the tailrace. Significant differences between large tributaries and tailrace temperatures even during atypical river flow scenarios in warmer months may be indications that the regulated reach is significantly altered compared to the natural temperature regime of the river system. Under a new FERC license agreement, R.L. Harris Hydroelectric Project will operate under various weather conditions throughout the issuance period of the license. We maintain our request that when evaluating impacts on downstream water quality (including water temperature) due to project operations, that methods to mitigate the unnatural water temperature variability be fully assessed to minimize impacts to the aquatic resources.</p>	<p>All temperature data and analyses were moved from the Downstream Aquatic Habitat Report to the Final Aquatic Resources Study Report.</p> <p>The intent was not to imply that a warm water unregulated river decreases in temperature as it moves downstream. During periods of very low flow, shallow water areas such as shoals can warm or cool much faster than deep areas such as pools. A figure was added to the discussion section of the Final Aquatic Resources Study Report to illustrate this concept.</p>
ADCNR		<p>On page 3, Task 2 – Water Level, Channel Profile and Discharge Data Collection and Analysis of the Downstream Aquatic Habitat Study Plan, it specifies using Acoustic Doppler Current Profilers (ADCP) to collect bed elevation and flow data. The data from the ADCP’s is not mentioned in the study report. If data from these profilers will be used, include in the report. If data from these profilers will not be used, include an explanation for the deviation from the Study Plan.</p>	<p>An explanation for why the ADCP was not used was included in the Final Report.</p>

Commenting Entity	<u>Date of Comment & FERC Accession Number</u>	<u>Comment – Downstream Aquatic Habitat</u>	<u>Alabama Power Response</u>
<p>Alabama Rivers Alliance (ARA)</p> <p>Note: footnotes included in the original letter have been omitted from this table</p> <p>(highlighted portion of letter pertains to this study)</p>	<p>6/11/2020</p> <p>20200611-5114</p>	<p>The summary of the Initial Study Report meeting reflects that Licensee desires “to hear from stakeholders now” regarding alternative flow scenarios stakeholders would like to have modeled,³⁵ despite no draft Aquatic Resources Study or Aquatic Habitat Study reports being available. The downstream release alternatives, aquatic resources, water quality, and aquatic habitat reports are <i>all deeply interrelated</i>, and without at least draft reports of the fisheries studies, stakeholders should not be required to propose alternative flow scenarios until more information is available. Indeed, Licensee itself acknowledges that the results from the Aquatic Resources Study are needed to design the fourth flow scenario it plans to model.³⁶ Those same results will also inform what variety of inputs stakeholders suggest.</p>	<p>Comment noted.</p>
<p>ARA</p>	<p>7/30/2020</p> <p>Filed by email</p>	<p>The Draft Downstream Aquatic Habitat Study Report describes the voluntary management efforts of the Green Plan as beneficial to the fish population below Harris: “Monitoring conducted since initiation of the Green Plan has indicated a positive fish community response due to increased shoal habitat availability.” This statement mischaracterizes the monitoring results from 2005-2010 reported in Irwin et al. 2011² (which it cites for this proposition) and ignores the most recent published research on the topic. Instead, Licensee conflates increased habitat availability with actual fish population response.</p> <p>In fact, the post-Green Plan monitoring from 2005-2010 reported by Irwin et al. 2011 and cited by Licensee in the draft study report flatly refuses to link the amount of increased habitat created by the Green Plan with fish population response:</p> <p style="padding-left: 40px;">“Analysis of differences in hydrology that provide critical habitat for shoal dwelling species during pre- and post-management periods indicate significant increases in the amount of time quality habitat conditions were met (average gain of 30 d/season). <i>However, linking vital rates of fish populations to habitat variability will require more specific habitat measurement and modeling in relation to managed flow features.</i>”³</p> <p>Irwin et al. 2011 does report the Green Plan tentatively has been successful for the reestablishment of one species (the Alabama shiner),⁴ but it details steep declines in occupancy for other species, such as the Tallapoosa sculpin, black redhorse, and blacktail redhorse.⁵</p> <p>Moreover, the most recent relevant scientific literature from last year that incorporates longer-term biological monitoring also refutes Licensee’s statement about positive fish response contained in the draft study report. The USGS Open-File Report 2019-1026, <i>Adaptive Management of Flows from R.L. Harris Dam (Tallapoosa River, Alabama)—Stakeholder Process</i></p>	<p>Comment noted. The goal of this study was to characterize the effects of Harris operations on aquatic habitat within the study area through measurement and modeling.</p>

Commenting Entity	<u>Date of Comment & FERC Accession Number</u>	<u>Comment – Downstream Aquatic Habitat</u>	<u>Alabama Power Response</u>
		<p><i>and Use of Biological Monitoring Data for Decision Making</i>, assesses persistence and colonization for 38 fish species over a 12-year period.⁶ In contrast to Licensee’s draft report, the 2019 Open-File Report finds that quite the opposite is true—that the Green Plan has not resulted in a positive fish response.</p> <p>Chapter B of the 2019 Open-File Report focuses on the long-term occupancy of fishes above and below Harris. It clearly states that any increase in shoal habitat provided by the Green Plan has not translated into population benefits: “Irwin and others (2011) reported an increase in shoal habitat persistence associated with the Green Plan; <i>however, positive population responses have not ensued.</i>”⁷ Rather, the long-term data in the 2019 Open-File Report “provide evidence that suggests broadscale negative influences of the dam on species persistence and colonization parameters. Specifically, generation frequency and cool thermal regimes negatively affected fish persistence and colonization, respectively.”⁸</p> <p>In assessing the relationship between aquatic habitat, fish population health, and downstream release alternatives (the Green Plan, alternative pulsing regimes, various minimum flows), Licensee, FERC, and stakeholders should not start from the misleading conclusion that the Green Plan generally benefitted fish populations downstream of Harris. This statement should be struck from the draft report and an accurate description of post-Green Plan monitoring that takes into account the most recent published scientific materials inserted in its place.</p>	

Commenting Entity	<u>Date of Comment & FERC Accession Number</u>	<u>Comment – Downstream Aquatic Habitat</u>	<u>Alabama Power Response</u>
ARA		<p>The Draft Downstream Aquatic Habitat Study Report uses “wetted perimeter” (the portion of the riverbed and banks in contact with the water in the channel) as a fundamental metric in comparing habitat availability among release scenarios. Licensee’s HEC-RAS model outputs wetted perimeter values for simulations of the different flow scenarios, the preliminary conclusions being that the Green Plan created some gains in wetted perimeter over pre-Green Plan management, and that a 150cfs continuous minimum flow would result in further increases of wetted perimeter.⁹</p> <p>We caution against using wetted perimeter as a guide-star metric to measure aquatic health. Certainly, wetted perimeter and habitat duration should be evaluated and considered as part of this habitat study, but as described in the section above, over a decade of monitoring since implementation of the Green Plan has shown that an increase in quality habitat availability (made possible by increased wetted perimeter) has not led to a positive population response from fishes below the dam. Other variables, including stability of flows, thermal regime, and the availability of spawning windows must be considered along with habitat availability.</p> <p>The independent science simply does not connect increased habitat availability or wetted perimeter in the Tallapoosa River below Harris with increases in colonization, persistence, or recruitment of fishes, and when managing for conservation and restoration of fish species, FERC, Licensee, and stakeholders would do well not to believe one will necessarily lead to the other. The draft report should fully acknowledge what the science reveals and seek to understand through the other studies what additional factors may be contributing to the lack of fish species recovery.</p>	<p>We disagree with the premise that previous Green Plan monitoring assessed the availability of quality habitat. Those studies focused on the fish community and provided no assessment of the effects of the Green Plan on physical habitat. The results of the Downstream Aquatic Habitat Study appear to indicate that the Green Plan provided little benefit in terms of habitat availability, which may explain why certain species did not appear to benefit from this operation. To our knowledge, Bowen et al. (1998) is the only work that sought to understand flow-habitat relationships in the Tallapoosa River below Harris Dam, and that work was conducted under Pre-Green Plan conditions.</p> <p>Additionally, Alabama Power is adhering to the approved study plan methods.</p>

Attachment 3
Final Downstream Aquatic Habitat Report

DOWNSTREAM AQUATIC HABITAT STUDY REPORT

R.L. HARRIS HYDROELECTRIC PROJECT

FERC No. 2628



Prepared for:

Alabama Power Company

Prepared by:

Kleinschmidt Associates

April 2021



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TABLE OF CONTENTS

LIST OF TABLES	I
LIST OF FIGURES.....	II
LIST OF APPENDICES	II
1.0 INTRODUCTION.....	1
1.1 STUDY BACKGROUND	1
2.0 METHODS.....	3
2.1 MESOHABITAT ANALYSIS	3
2.2 WATER LEVEL MONITORING.....	3
2.3 CHANNEL PROFILE DATA COLLECTION	4
2.4 MODELING	4
3.0 RESULTS	7
3.1 MESOHABITAT ANALYSIS	7
3.2 WATER LEVEL.....	15
3.2.1 STUDY PERIOD HYDROLOGY.....	15
3.2.2 STUDY AREA HYDROGRAPHY	15
3.2.3 WATER LEVEL	18
3.3 WETTED PERIMETER	23
4.0 DISCUSSION AND CONCLUSION.....	32
5.0 REFERENCES	34

LIST OF TABLES

Table 3-1	Summary of Mesohabitat Analysis Results.....	7
Table 3-2	Summary of Study Area Tributary Locations and Drainage Areas.....	17
Table 3-3	Summary of Daily Water Level Fluctuations	20
Table 3-4	Summary of Hourly Water Level Fluctuations.....	22
Table 3-5	Summary of Wetted Perimeter results from Model Simulations	25

LIST OF FIGURES

Figure 2-1	Water Level Logger Locations.....	6
Figure 3-1	Density of Mesohabitat Types by Reach.....	8
Figure 3-2	Mesohabitat Classifications – Harris Dam to Malone.....	9
Figure 3-3	Mesohabitat Classifications – Malone to Wadley.....	10
Figure 3-4	Mesohabitat Classifications – Wadley to Bibby’s Ferry.....	11
Figure 3-5	Mesohabitat Classifications – Bibby’s Ferry to Germany’s Ferry.....	12
Figure 3-6	Mesohabitat Classifications – Germany’s Ferry to Horseshoe Bend.....	13
Figure 3-7	Mesohabitat Classifications – Horseshoe Bend to Jaybird Landing.....	14
Figure 3-8	Long-Term and 2019-2020 Daily Average River Flow at Wadley.....	15
Figure 3-9	Tallapoosa River Bed Elevation Profile.....	18
Figure 3-10	Average Daily Water Level Fluctuation from May 2019 to April 2020.....	19
Figure 3-11	Average Hourly Water Level Fluctuation from May 2019 to April 2020.....	21
Figure 3-12	Example of Wetted Perimeter Duration Calculation.....	23
Figure 3-13	Wetted Perimeter Duration Plots of PGP (red), GP (green), and 150 CMF (blue) from 0.25 to 4 Miles Below Harris Dam.....	26
Figure 3-14	Wetted Perimeter Duration Plots of PGP (red), GP (green), and 150 CMF (blue) from 7.5 to 23 Miles Below Harris Dam.....	27
Figure 3-15	Box Plots of Seasonal Wetted Perimeter for PGP (red), GP (green), and 150 CMF (blue) from 0.25 to 4 Miles Below Harris Dam.....	28
Figure 3-16	Box Plots of Seasonal Wetted Perimeter for PGP (red), GP (green), and 150 CMF (blue) from 7.5 to 23 Miles Below Harris Dam.....	29
Figure 3-17	Box Plots of Daily Wetted Perimeter Fluctuations by Season for PGP (red), GP (green), and 150 CMF (blue) from 0.25 to 4 Miles Below Harris Dam...	30
Figure 3-18	Box Plots of Daily Wetted Perimeter Fluctuation by Season for PGP (red), GP (green), and 150 CMF (blue) from 7.5 to 23 Miles Below Harris Dam...	31

LIST OF APPENDICES

Appendix A	Acronyms and Abbreviations
Appendix B	Level Logger Data
Appendix C	Line Plots of 15-minute Level Logger data

1.0 INTRODUCTION

Alabama Power Company (Alabama Power) owns and operates the R.L. Harris Hydroelectric Project (Harris Project), licensed by the Federal Energy Regulatory Commission (FERC or Commission) (FERC Project No. 2628). The Harris Project consists of a dam, spillway, powerhouse, and those lands and waters necessary for the operation of the hydroelectric project and enhancement and protection of environmental resources.

Alabama Power began operating the Harris Project in 1983. Initially, the Harris Project operated in peaking mode with no intermittent flows between peaks. Subsequently, agencies and non-governmental organizations requested that Alabama Power modify operations to potentially enhance downstream aquatic habitat. In 2005, based on recommendations developed in cooperation with stakeholders, Alabama Power implemented a pulsing scheme for releases from Harris Dam known as the Green Plan (GP) (Kleinschmidt 2018a). The purpose of the GP was to reduce the effects of peaking operations on the aquatic community downstream. Although GP operations are not required by the existing license, Alabama Power has operated Harris Dam according to its guidelines since 2005.

Commonly used acronyms that may appear in this final report are included in Appendix A.

1.1 STUDY BACKGROUND

Monitoring conducted since initiation of the GP has indicated a positive fish community response due to increased shoal habitat availability (Irwin et al. 2011); however, there is little existing information characterizing the extent that the GP has enhanced the aquatic habitat from Harris Dam downstream through Horseshoe Bend.

During the October 19, 2017 issue identification workshop, several stakeholders noted Tallapoosa River downstream flows and water temperature as potential issues at the Harris Project. On November 13, 2018, Alabama Power filed ten proposed study plans for the Harris Project, including a study plan for downstream aquatic habitat. FERC issued a Study Plan Determination on April 12, 2019, which included FERC staff recommendations. Alabama Power incorporated FERC's recommendations and filed the Final Study Plans with FERC on May 13, 2019.

The goal of this study is to develop a model that describes the relationship between GP operations and aquatic habitat. Originally, Alabama Power intended to use this model to analyze the effects of downstream release alternatives on aquatic habitat in Phase 2 of

the Downstream Release Alternatives Study, in which Alabama Power proposed to model Pre-Green Plan (PGP) operations, a continuous minimum flow (CMF) of 150 cubic feet per second (cuffs), and an alternative/modified GP (i.e., changing the time of day in which GP pulses are released). However, in an effort to provide information to stakeholders earlier in the process, the PGP operations alternative and the 150 CMF alternative were modeled, and the results included in the Draft Downstream Aquatic Habitat Study Report.

Alabama Power prepared and filed the Draft Downstream Aquatic Habitat Study with FERC on June 30, 2020. Concurrently, Alabama Power distributed the draft report to the Harris Action Team (HAT) 3 (Fish and Wildlife) participants. Stakeholders provided comments on the Draft Downstream Aquatic Habitat Study Report, and this Final Downstream Aquatic Habitat Study Report addresses the comments received.

After reviewing the comments on the Draft Downstream Aquatic Habitat Study Report and the FERC-approved study plans for the Downstream Aquatic Habitat Study Report, Aquatic Resources, and Downstream Release Alternatives Study, Alabama Power determined that all temperature data and relevant discussion and conclusions on water temperature in the Tallapoosa River below Harris Dam should be analyzed in the Aquatic Resources Report and Downstream Release Alternatives Study Report. Therefore, temperature data and associated figures that were included in the Draft Downstream Aquatic Habitat Study Report have been moved to the Final Aquatic Resources Report.

This final report was prepared to support the relicensing process and to fulfill the requirements of the FERC-approved Downstream Aquatic Habitat Study Plan.

2.0 METHODS

2.1 MESOHABITAT ANALYSIS

A desktop analysis of the types of available habitat in the Tallapoosa River was conducted using Geographic Information Systems (GIS) and aerial imagery from the U.S. Department of Agriculture National Agriculture Imagery Program (NAIP). A polygon shapefile of the Tallapoosa River from Harris Dam through Horseshoe Bend was obtained from the U.S. Geological Survey's (USGS) national hydrography dataset. The polygon was divided and classified into the following habitat categories:

- Riffle/Shoal: shallow, moderate velocity, turbulent, high gradient, moderate to large substrates (cobble/gravel)
- Run: shallow, moderate to high velocity, turbulent, chutes and eddies present, high gradient, large substrates, or bedrock
- Pool: deep, low velocity, well defined hydraulic control at outlet

Habitat characterizations were verified with field observations obtained during water level monitoring and discharge measurement events. Results were depicted graphically using GIS, and quantitatively summarized in tabular format.

2.2 WATER LEVEL MONITORING

Alabama Power deployed 20 water level/temperature loggers (“loggers” or “level loggers”) (Onset U20L-04) within a 48-mile reach of the Tallapoosa River from Harris Dam through Horseshoe Bend to Irwin Shoals beginning in April 2019¹ (Figure 2-1). Although Irwin Shoals is located roughly 4.5 miles downstream of the FERC-approved geographic scope of this study² (Harris Dam through Horseshoe Bend), a level logger was deployed at that location, and channel profile data was gathered downstream to Jaybird Landing. The level loggers were set to record measurements at 15-minute intervals, and were deployed on the river bottom in protective, vented PVC tubes, attached to a weight via steel cable, and tethered to a tree on the streambank or other in-river structure, when available. A separate logger was deployed near Harris Dam to record ambient (barometric) pressure, which was used to convert the pressure readings from the water

¹ Loggers were initially targeted for installation in fall 2018, though high river flows from fall 2018 through spring 2019 prevented installation until April 2019.

² The geographic scope is also referred to herein as “study area”.

level loggers into water depth using the manufacturer's software (HOBOWare Pro version 3.7.14).

Data was downloaded from level loggers in the field twice between April 2019 and April 2020 to prevent the loggers from reaching their data storage capacity. On one occasion, malfunctioning equipment caused faulty data transfers and portions of data were lost from four level loggers (logger numbers 12, 14, 18, 20) (Figure 2-1). Therefore, 4 of the 20 loggers, including the logger at Irwin Shoals, did not provide continuous, 15-minute data through April 2020 and were omitted from this analysis; however, water level fluctuation results are provided from Harris Dam through Horseshoe Bend, consistent with the geographic scope of the study plan. Data collected from all level loggers is provided in Appendix B. Line plots of the level logger data are presented in Appendix C.

2.3 CHANNEL PROFILE DATA COLLECTION

The Study Plan indicated that an Acoustic Doppler Current Profiler would be used to collect channel profile data as part of the study. However, due to the shallow nature of the river at many cross-sections, this method was found to be impractical. As such, two alternate methods were used as described below.

In areas with sufficient depth for boating, a Global Positional System (GPS)/Global Navigation Satellite System (GNSS) rover antenna (Trimble R10) mounted above a 200 kilohertz (kHz) echosounder (CEE-LINE, CEE Hydrosystems) was mounted to a kayak and used to collect river bottom elevations at 1-second intervals as the surveyor paddled in a path across the river channel perpendicular to the flow.

In areas where there was insufficient depth for boating, the GPS/GNSS rover antenna was mounted on a 2-meter survey rod and river bottom elevations were collected manually at approximately 10-foot intervals in a path across the river channel perpendicular to the flow. The average horizontal and vertical accuracy of these survey data was 0.08 feet and 0.15 feet, respectively.

2.4 MODELING

A detailed description of the Hydrologic Engineering Center River Analysis System (HEC-RAS) model is provided in the Operating Curve Change Feasibility Analysis Phase 1 Report

and the Downstream Release Alternatives Phase 1 Report³. To briefly summarize, an existing HEC-RAS model for the Tallapoosa River⁴ was updated using data from 2018 Light Detection and Ranging (LiDAR) data/imagery and 2019 bathymetric surveys. A total of 120 bathymetric cross sections between Wadley and the Martin reservoir were surveyed and incorporated into the HEC-RAS model.

Based on analysis of the unimpaired flow dataset, 2001 was selected as a “normal” water year as inflows to the Harris Project were closest to the median, and hourly flow data was available for that year. Since 2001 pre-dated GP implementation, hourly discharge records for Harris Dam were used to model the PGP scenario. The GP scenario was developed by applying existing GP rules to the PGP releases. The 150 CMF scenario was developed by amending the PGP scenario such that no hourly interval had less than a 150 cfs discharge from Harris Dam. Lateral inflow hydrographs were developed based on USGS gauge data for 2001 from the Wadley and Horseshoe Bend sites to represent tributary inputs.

The HEC-RAS model was used to simulate river conditions between Harris Dam and Jaybird Landing. Hourly outputs of wetted perimeter⁵ and water surface elevation from model simulations of PGP, GP, and 150 CMF were analyzed to determine and compare hourly, daily, and seasonal trends.

³ The Operating Curve Change Feasibility Analysis Phase 1 Report and the Downstream Release Alternatives Phase 1 Report are available on the R.L. Harris Hydroelectric Project Relicensing Website: <http://www.harrisrelicensing.com>.

⁴ The geographic scope of this study is the Tallapoosa River below Harris Dam through Horseshoe Bend. The model was developed to run simulations from Harris Dam to Jaybird Landing (approximately river mile 88) which represents the point where Lake Martin begins.

⁵ Wetted perimeter is the portion of the river bed and banks that is in contact with the water in the channel. More detail on wetted perimeter is included in Section 3.3.

Water Level Logger Locations

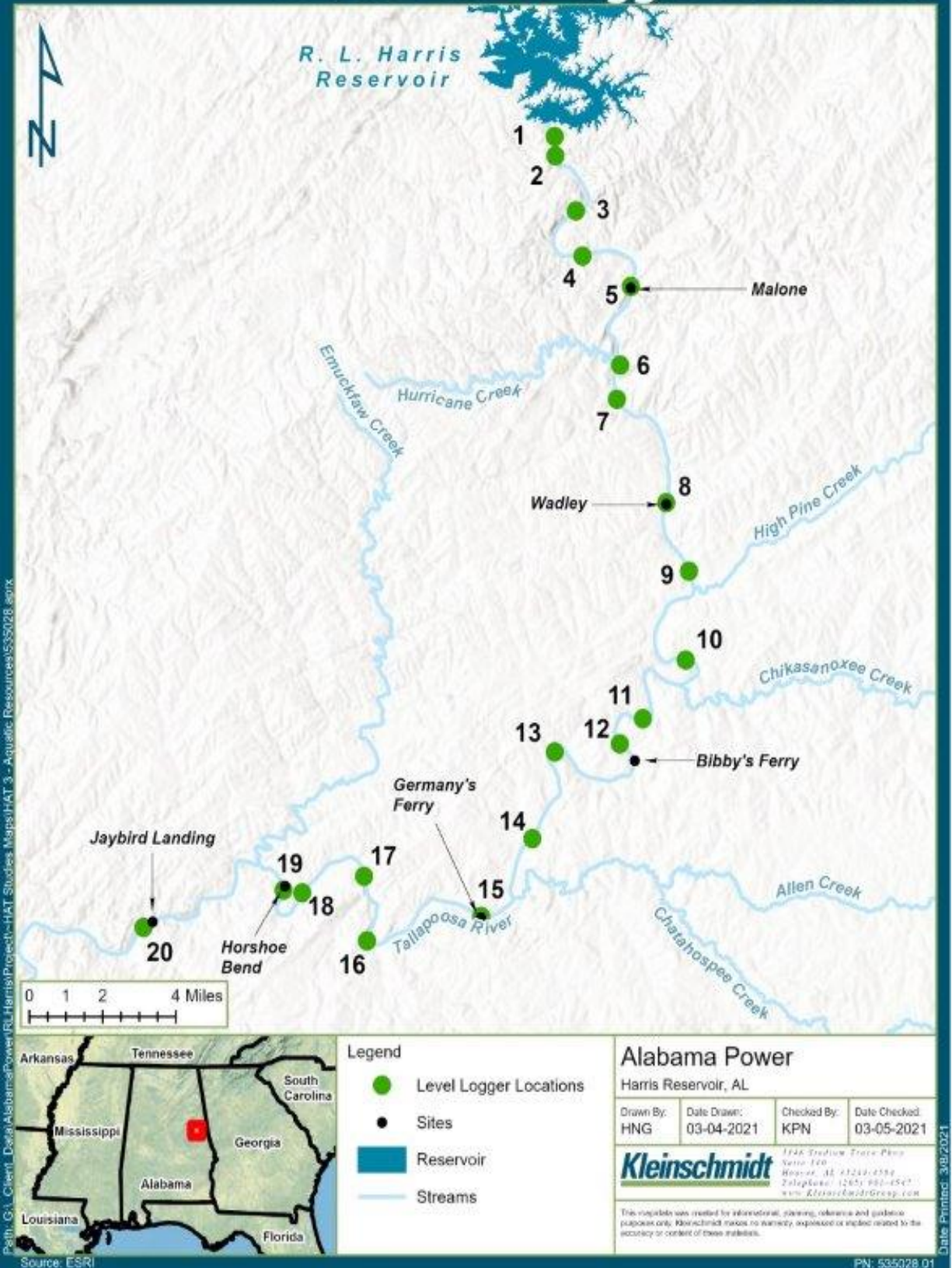


FIGURE 2-1 WATER LEVEL LOGGER LOCATIONS

3.0 RESULTS

3.1 MESOHABITAT ANALYSIS

The desktop mesohabitat analysis indicated that the Tallapoosa River from Harris Dam to Jaybird Landing is comprised of approximately 47 percent pool (366.3 hectare (ha)), 44 percent riffle/shoal (343 ha), and 10 percent run habitat (74.7 ha) (Table 3-1). Pools were the most abundant habitat type in the Malone (Harris Dam to Malone; 7 river miles), Bibby's Ferry (Wadley to Bibby's Ferry; 9 river miles), Germany's Ferry (Bibby's Ferry to Germany's Ferry; 8.5 river miles), and Horseshoe Bend (Germany's Ferry to Horseshoe Bend; 9.5 river miles) reaches. Riffles/shoals were the most abundant habitat type in the Wadley (Malone to Wadley; 7 river miles) and Jaybird Landing (Horseshoe Bend to Jaybird Landing; 6 river miles) reaches, where the density of riffle/shoal habitat was two to four times higher than the other reaches (Figure 3-1). Figures 3-2 to 3-7 provide aerial views of mesohabitat classification.

TABLE 3-1 SUMMARY OF MESOHABITAT ANALYSIS RESULTS

Reach	Habitat Type					
	Pool		Riffle/Shoal		Run	
	ha	%	ha	%	ha	%
Malone	50.7	46%	31.3	28%	28.7	26%
Wadley	20.4	17%	91.9	77%	7.5	6%
Bibby's Ferry	86.3	55%	50.1	32%	19.1	12%
Germany's Ferry	60.3	57%	35.9	34%	10.0	9%
Horseshoe Bend	60.7	75%	18.9	23%	1.1	1%
Jaybird Landing	87.9	42%	114.8	54%	8.2	4%
Study Area Grand Total (ha)	366.3		343.0		74.7	
Study Area Percent of Total	46.7%		43.8%		9.5%	

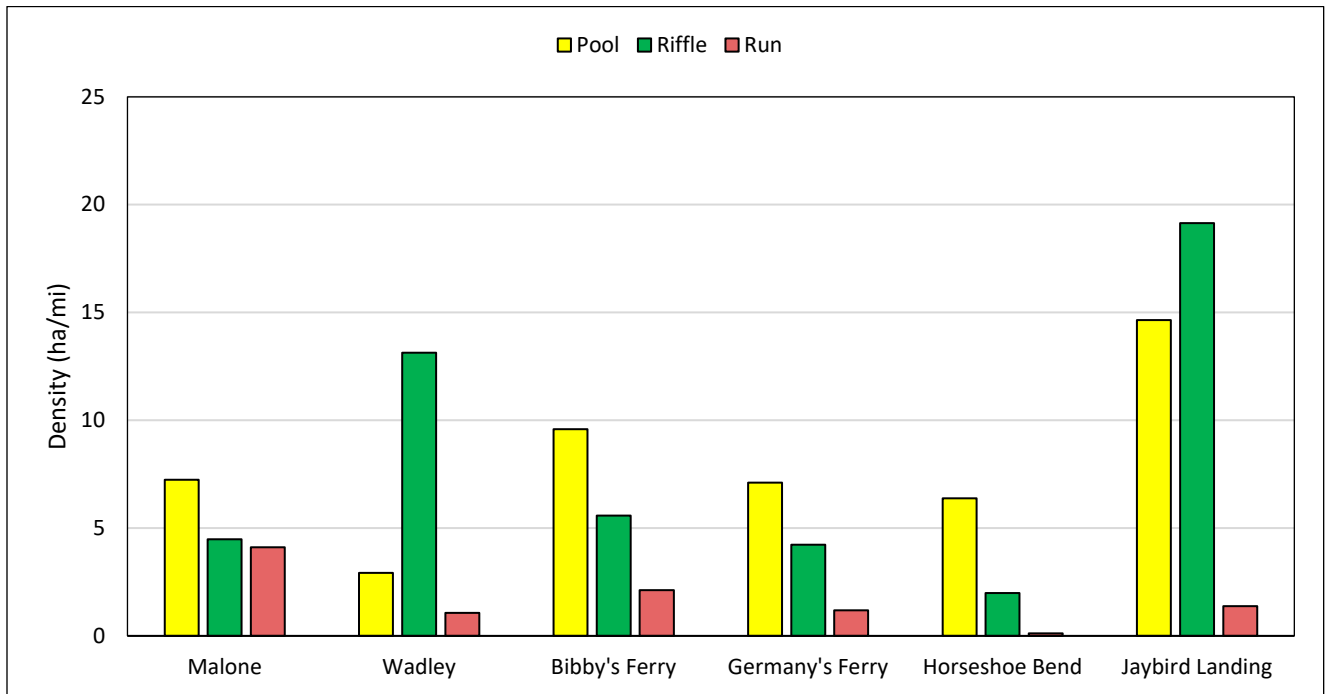


FIGURE 3-1 DENSITY OF MESOHABITAT TYPES BY REACH

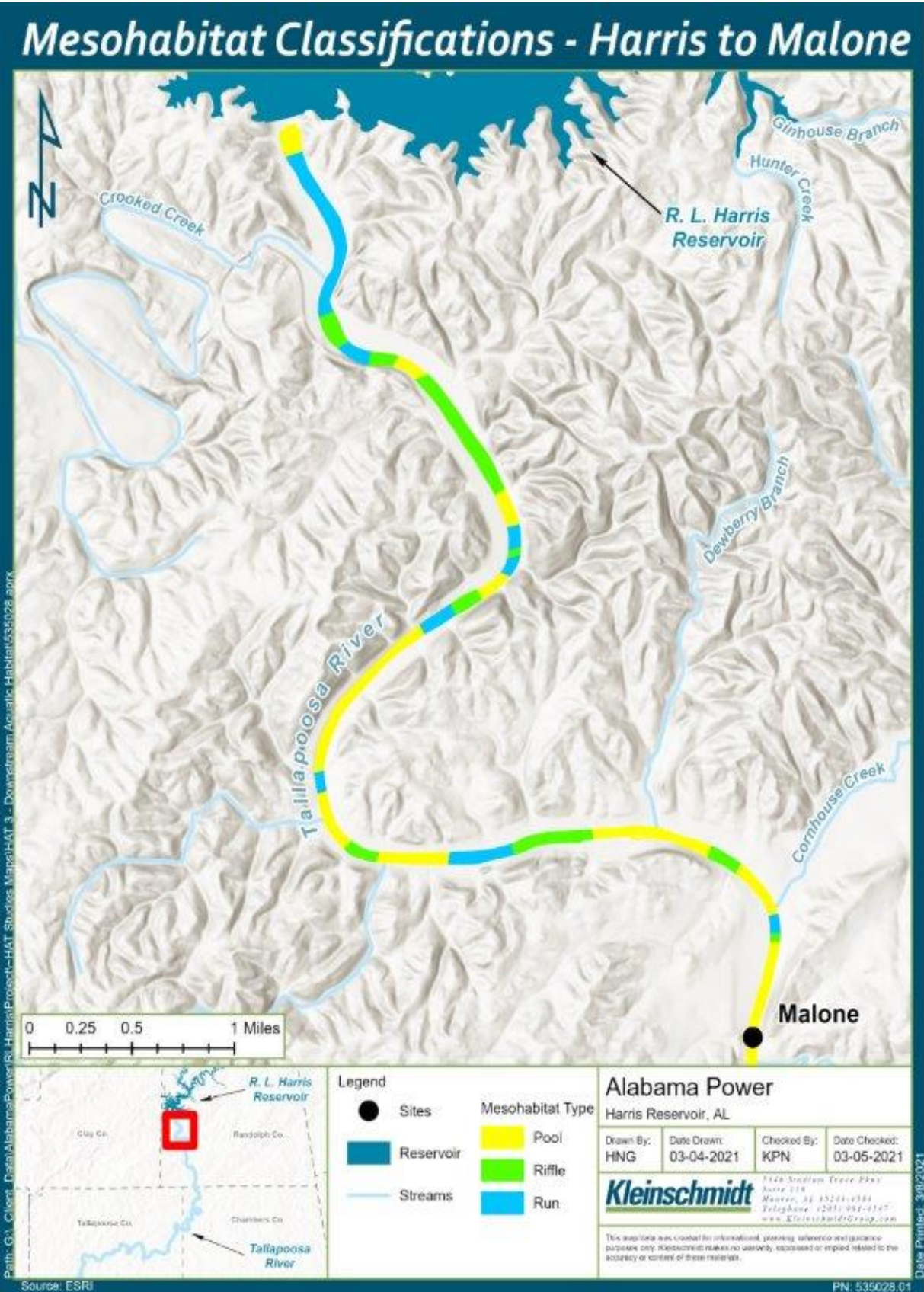


FIGURE 3-2 MESOHABITAT CLASSIFICATIONS – HARRIS DAM TO MALONE

Mesohabitat Classifications - Malone to Wadley

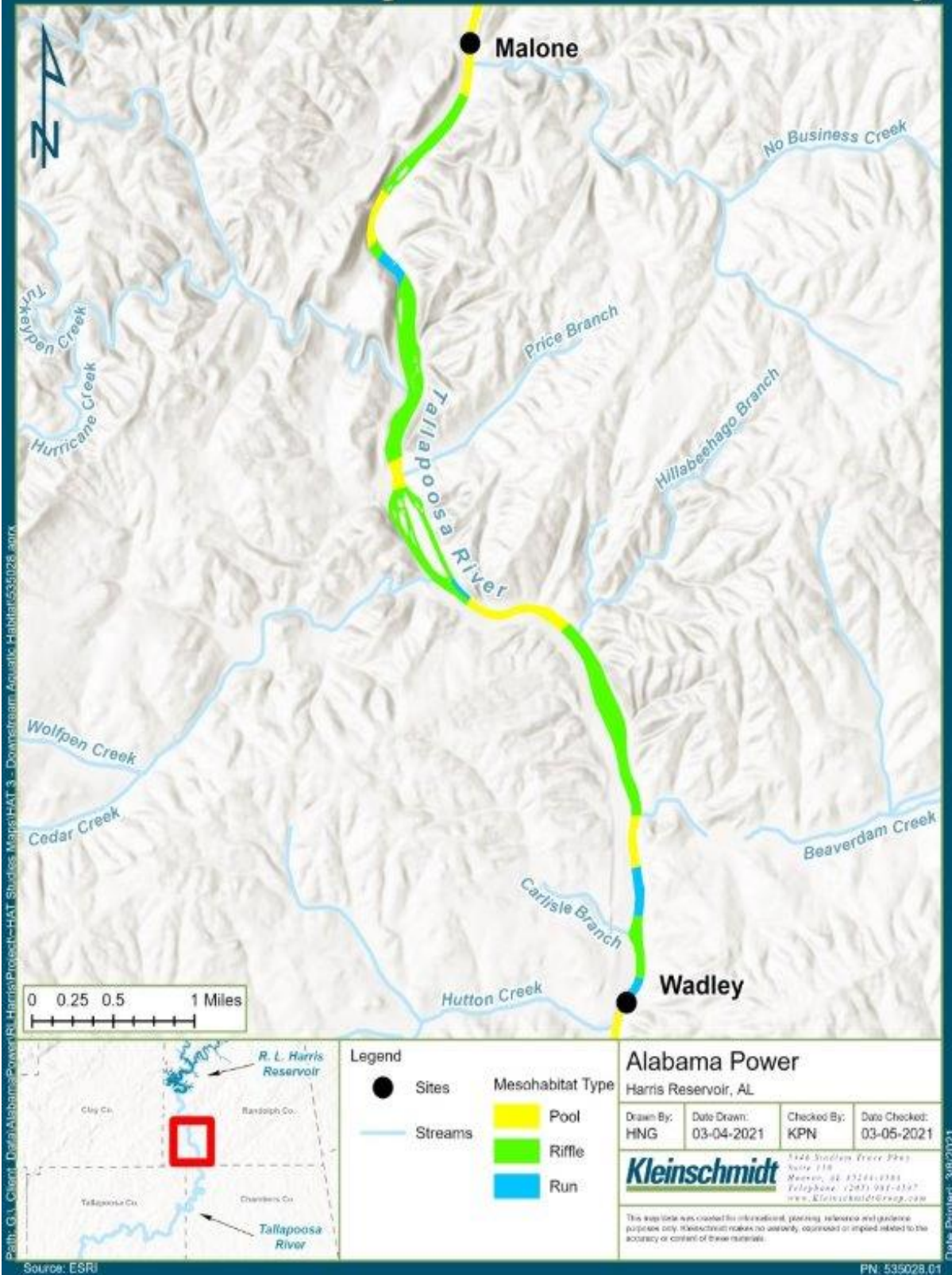


FIGURE 3-3 MESOHABITAT CLASSIFICATIONS – MALONE TO WADLEY

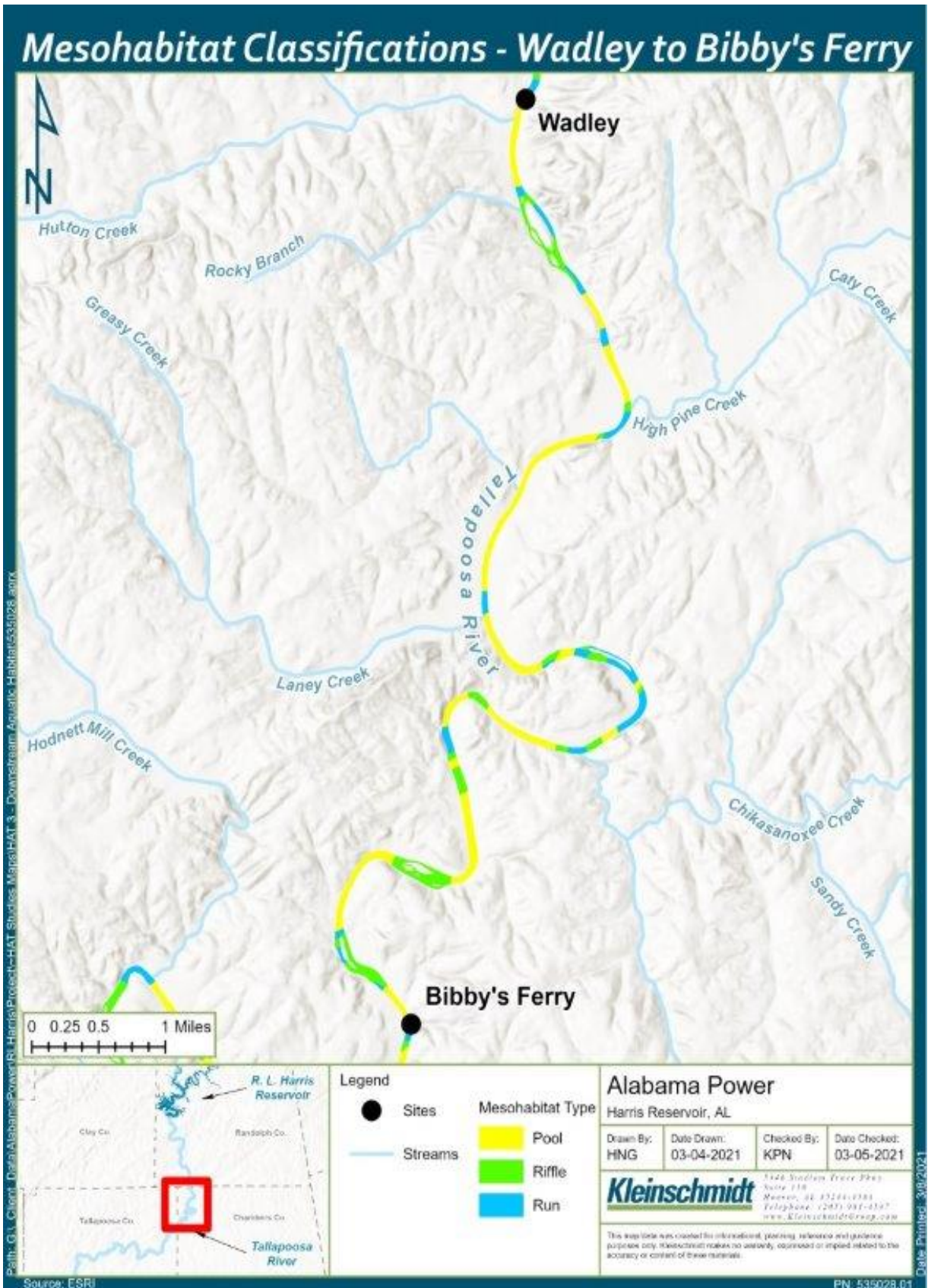


FIGURE 3-4 MESOHABITAT CLASSIFICATIONS – WADLEY TO BIBBY’S FERRY

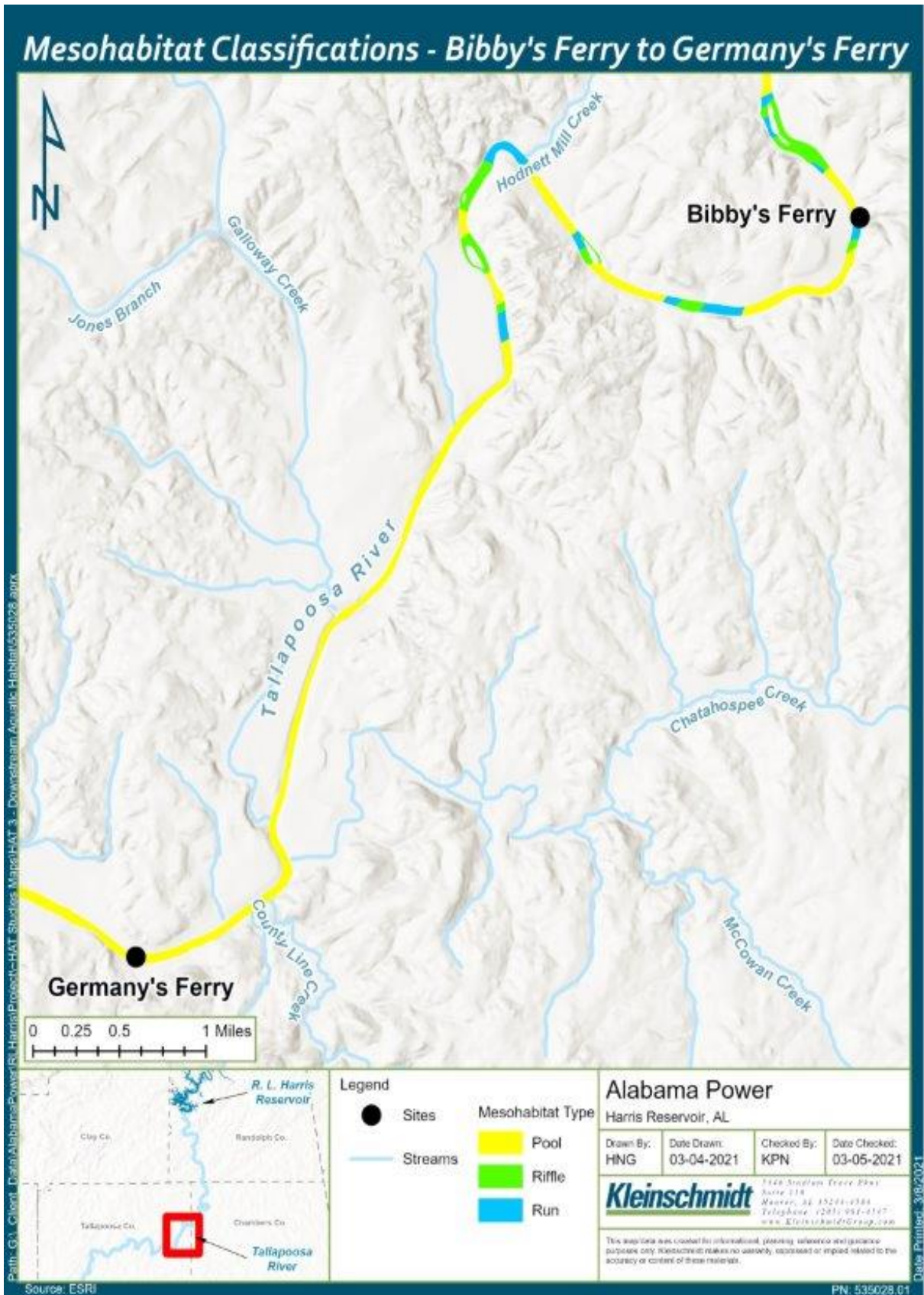


FIGURE 3-5 MESOHABITAT CLASSIFICATIONS – BIBBY’S FERRY TO GERMANY’S FERRY

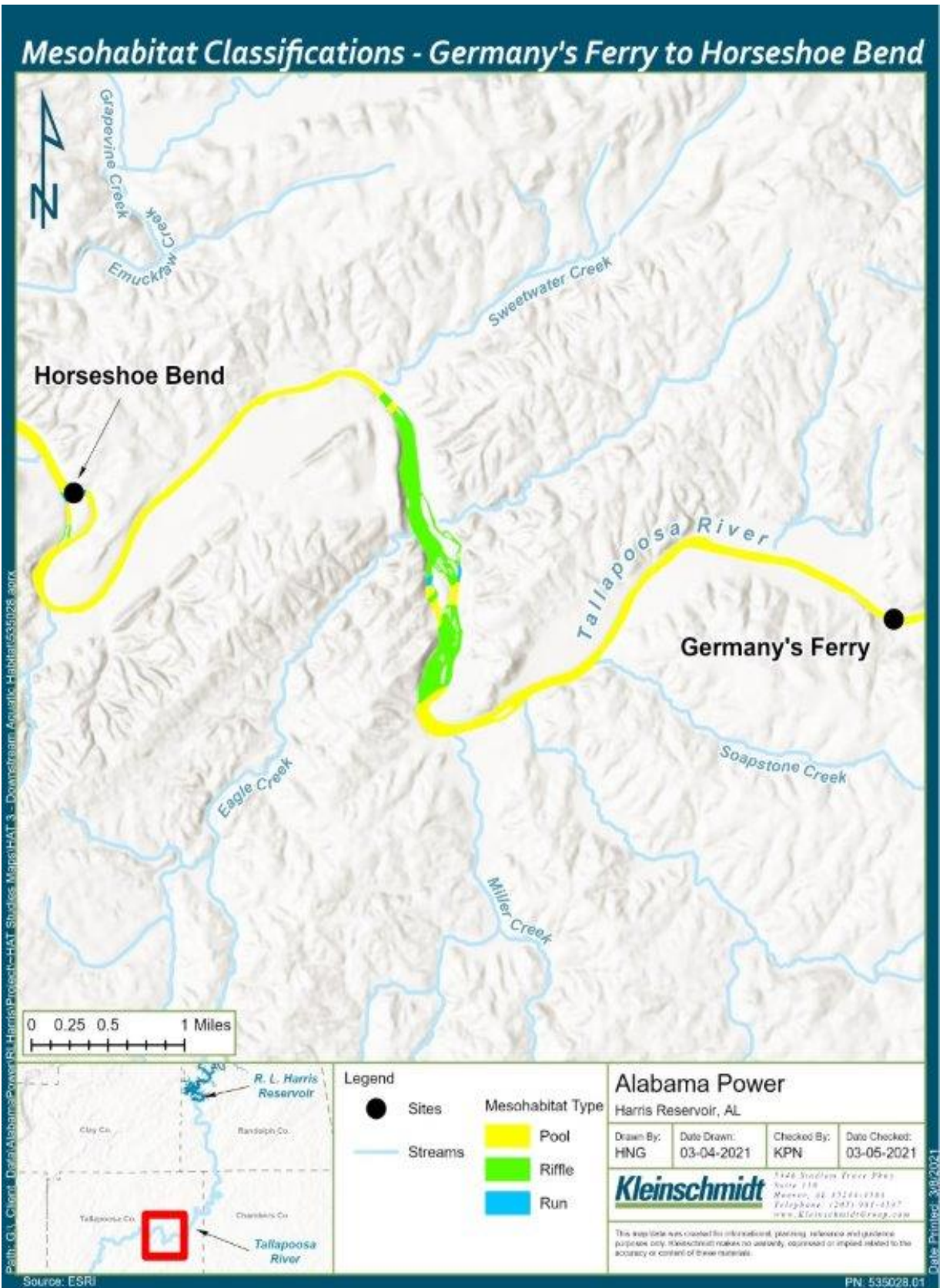


FIGURE 3-6 MESOHABITAT CLASSIFICATIONS – GERMANY’S FERRY TO HORSESHOE BEND

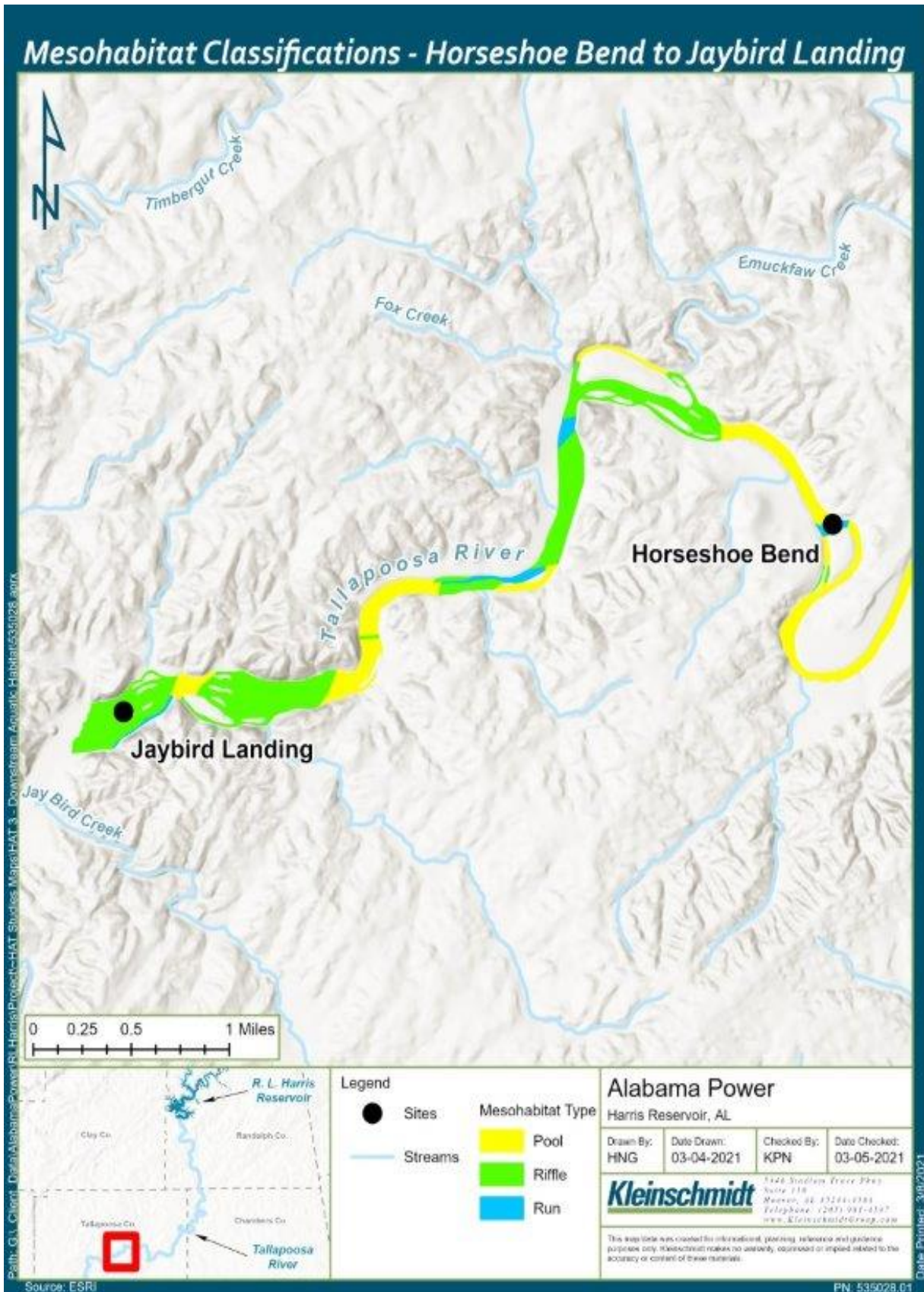
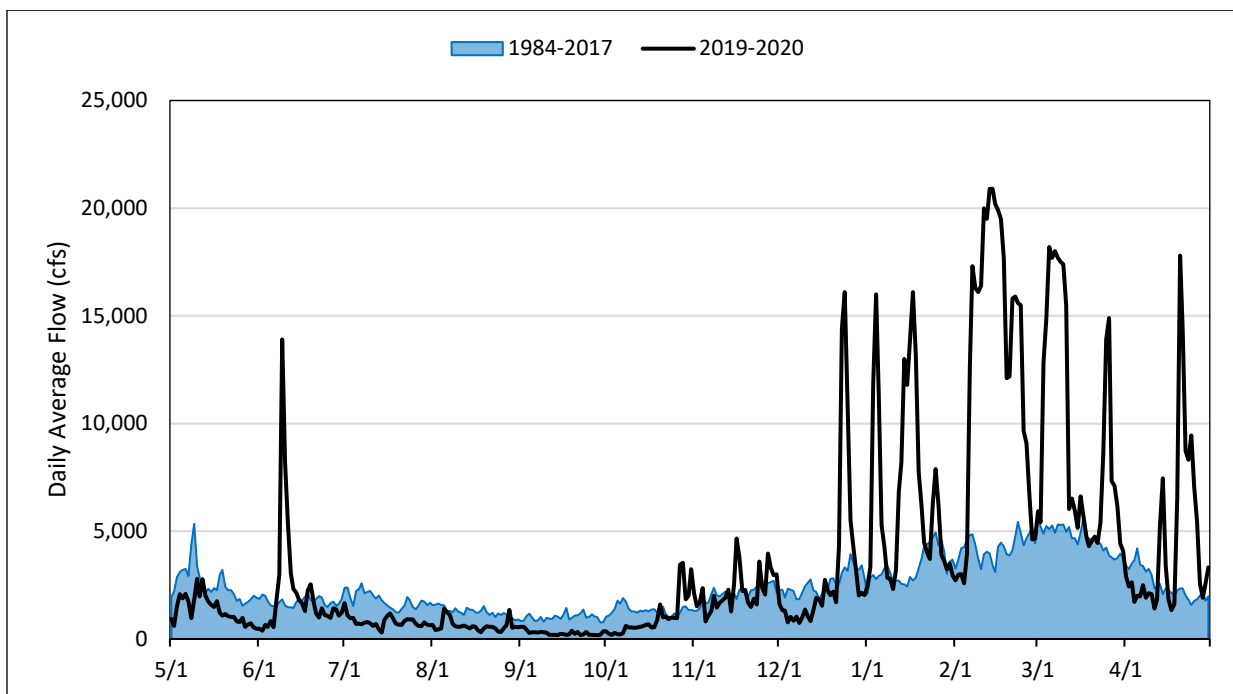


FIGURE 3-7 MESOHABITAT CLASSIFICATIONS – HORSESHOE BEND TO JAYBIRD LANDING

3.2 WATER LEVEL

3.2.1 STUDY PERIOD HYDROLOGY

River flow between May 2019 and April 2020, as measured at the USGS Wadley gauge (Site No. 02414500; USGS 2020), ranged from a maximum of 20,900 cfs (February 13-14, 2020) to a minimum of 181 cfs (September 27, 2019). River flows during August and September 2019 were lower than long-term (1984-2017) averages, and higher in January to March 2020 (Figure 3-8).



Source: USGS 2020

FIGURE 3-8 LONG-TERM AND 2019-2020 DAILY AVERAGE RIVER FLOW AT WADLEY

3.2.2 STUDY AREA HYDROGRAPHY

The 604-square mile (sq mi) drainage area for the Tallapoosa River between Harris Dam and Horseshoe Bend includes 23 named tributaries. Five of these tributaries, Crooked Creek, Cornhouse Creek, High Pine Creek, Chikasanoxee Creek, and Chatahospee Creek, drain 71 percent (428 sq mi) of this area. Table 3-2 provides a summary of the location and drainage area of all 23 named tributaries within the study area.

Figure 3-9 provides a graphical depiction of the mean river bed elevation for the Tallapoosa River from Harris Dam to Horseshoe Bend based on bathymetry data

developed for the HEC-RAS model. Within this study area, the elevation of the river bed decreases approximately 3.5 feet per mile. The reach between Malone and Wadley had the highest bed slope (5.5 feet per mile) and the reach between Bibby's Ferry and Germany's Ferry had the lowest bed slope (1.7 feet per mile).

TABLE 3-2 SUMMARY OF STUDY AREA TRIBUTARY LOCATIONS AND DRAINAGE AREAS

Reach	Tributary	Miles Below Dam	Drainage Area (sq mi)	% Study Area Drainage Area
Malone	Crooked Creek	0.8	98.3	16.3%
	Dewberry Branch	5.8	1.3	0.2%
	Cornhouse Creek	6.5	56.0	9.3%
	UT ¹ /Direct Runoff		10.3	1.7%
	Reach Total			166.0
Wadley	No Business Creek	7.3	6.0	1.0%
	Hurricane Creek	9.5	14.8	2.4%
	Price Branch	10	0.9	0.1%
	Cedar Creek	10.7	10.6	1.7%
	Hillabeehago Branch	11.7	2.0	0.3%
	Beaverdam Creek	12.8	12.5	2.1%
	Carlisle Branch	13.6	1.2	0.2%
	UT/Direct Runoff		7.6	1.3%
Reach Total			55.5	9.2%
Bibby's Ferry	Hutton Creek	14.1	10.4	1.7%
	Rocky Branch	14.7	1.2	0.2%
	High Pine Creek	16.4	78.7	13.0%
	Laney Creek	18.4	4.7	0.8%
	Chikasanoxee Creek	20.7	76.1	12.6%
	UT/Direct Runoff		14.0	2.3%
	Reach Total			185.0
Germany's Ferry	Hodnett Mill Creek	27.8	9.2	1.5%
	Galloway Creek	31	7.0	1.2%
	Chatahospee Creek	32.4	118.8	19.7%
	County Line Creek	32.6	15.7	2.6%
	UT/Direct Runoff		10.3	1.7%
	Reach Total			161.0
Horseshoe Bend	Soapstone Creek	36	1.6	0.3%
	Miller Creek	37	4.8	0.8%
	Eagle Creek	38.5	6.5	1.1%
	Sweetwater Creek	39.5	3.6	0.6%
	UT/Direct Runoff		20.7	3.4%
	Reach Total			37.0
Study Area Total			604	

¹ Unnamed Tributaries

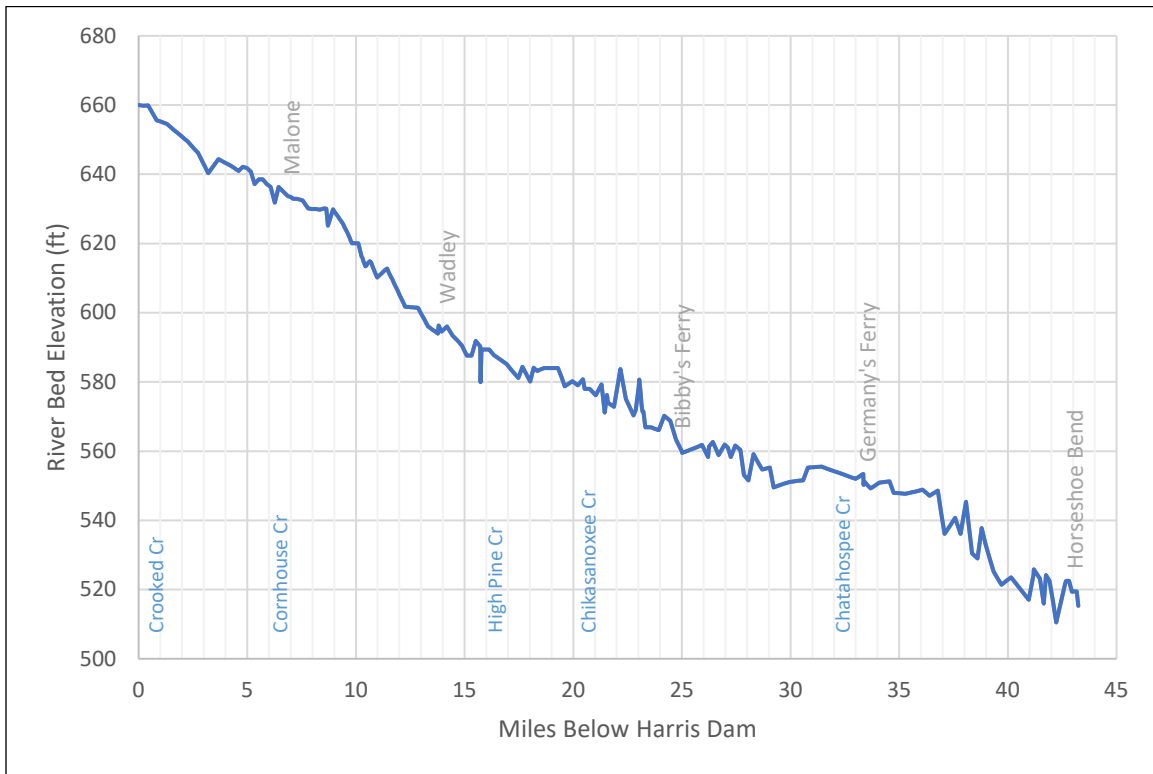


FIGURE 3-9 TALLAPOOSA RIVER BED ELEVATION PROFILE

3.2.3 WATER LEVEL

Water level logger data were analyzed to determine the magnitude of fluctuations at daily and hourly intervals. The difference between the maximum and minimum water levels was calculated for each day between May 1, 2019 and April 30, 2020. Average daily water level fluctuations ranged from 5.0 feet to 0.9 feet and decreased as the flows attenuated with increasing distance from Harris Dam (Figure 3-10; Table 3-3). The difference between the maximum and minimum water level for each hour was calculated for each day between May 1, 2019 and April 30, 2020. Average hourly water level fluctuations ranged from 0.48 feet to 0.06 feet and were inversely related with distance from Harris Dam (Figure 3-11; Table 3-4).

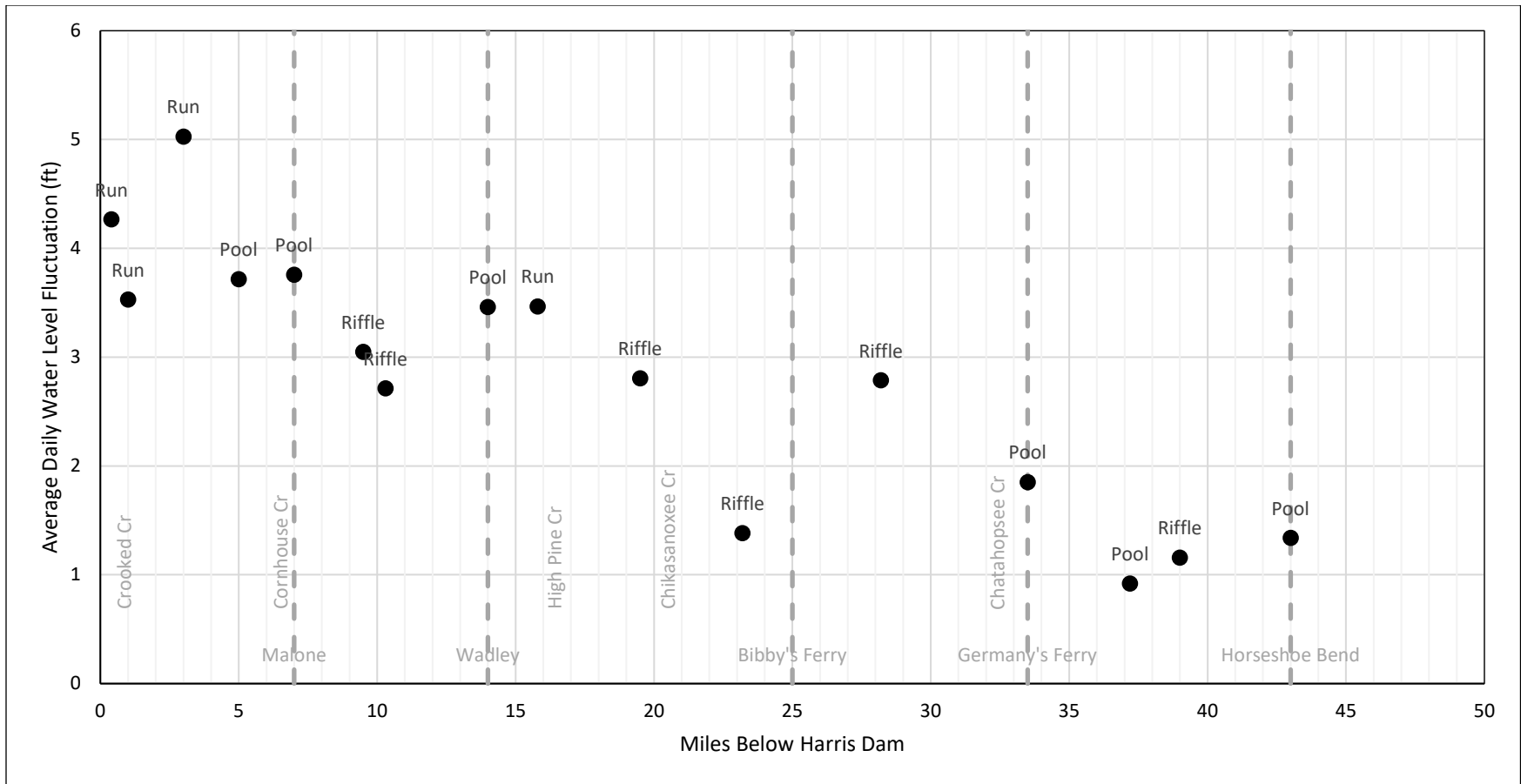


FIGURE 3-10 AVERAGE DAILY WATER LEVEL FLUCTUATION FROM MAY 2019 TO APRIL 2020

TABLE 3-3 SUMMARY OF DAILY WATER LEVEL FLUCTUATIONS

Reach	Miles Below Harris Dam	Logger Number	Mesohabitat Type	Mean ¹ (ft)	Minimum (ft)	Maximum (ft)	Median (ft)	25 th Percentile (ft)	75 th Percentile (ft)
Malone	0.4	1	Run	4.3 (1.4)	0.1	8.4	4.6	4.5	4.8
	1.0	2	Run	3.5 (1.2)	0.1	8.1	3.8	3.6	4.0
	3.0	3	Run	5.0 (2.1)	0.1	12.6	5.9	4.3	6.3
	5.0	4	Pool	3.7 (1.5)	0.1	9.5	4.3	3.1	4.6
	7.0	5	Pool	3.8 (1.7)	0.1	10.1	4.3	2.6	5.0
Wadley	9.5	6	Riffle	3.0 (1.4)	0.1	8.3	3.5	2.2	3.9
	10.3	7	Riffle	2.7 (1.2)	0.1	7.3	3.1	2.0	3.5
	14.0	8	Pool	3.5 (1.6)	0.1	10.6	3.8	2.2	4.7
Bibby's Ferry	15.8	9	Run	3.5 (2.0)	0.2	13.6	3.9	1.6	4.9
	19.5	10	Riffle	2.8 (1.7)	0.2	12.1	2.9	1.3	3.9
	23.2	11	Riffle	1.4 (0.8)	0.1	6.6	1.4	0.8	1.8
Germany's Ferry	28.2	13	Riffle	2.8 (1.8)	0.1	13.7	2.7	1.3	3.9
	33.5	15	Pool	1.9 (1.4)	0.1	9.5	1.7	0.7	2.7
Horseshoe Bend	37.2	16	Pool	0.9 (0.7)	0.1	4.0	0.8	0.4	1.3
	39.0	17	Riffle	1.2 (0.8)	0.1	5.8	1.1	0.5	1.6
	43.0	19	Pool	1.3 (0.9)	0.1	5.6	1.2	0.5	1.9

¹Standard Deviation in Parentheses

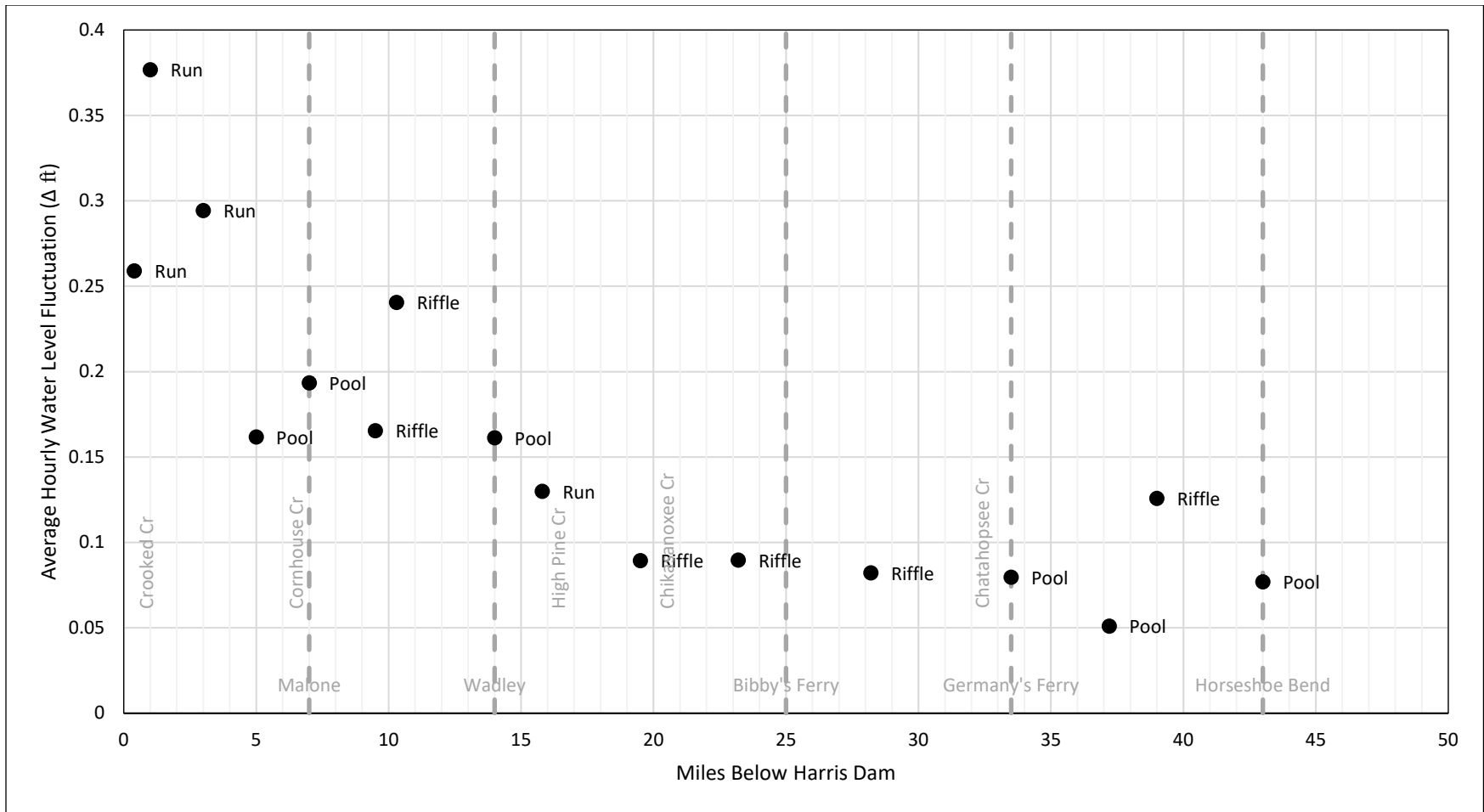


FIGURE 3-11 AVERAGE HOURLY WATER LEVEL FLUCTUATION FROM MAY 2019 TO APRIL 2020

TABLE 3-4 SUMMARY OF HOURLY WATER LEVEL FLUCTUATIONS

Reach	Miles Below Harris Dam	Logger Number	Mesohabitat Type	Mean ¹ (ft)	Minimum (ft)	Maximum (ft)	Median (ft)	25 th Percentile (ft)	75 th Percentile (ft)
Malone	0.4	1	Run	0.45 (0.95)	0.00	6.00	0.04	0.01	0.14
	1.0	2	Run	0.48 (1.07)	0.00	5.40	0.03	0.01	0.14
	3.0	3	Run	0.48 (0.47)	0.00	5.15	0.10	0.02	0.78
	5.0	4	Pool	0.40 (0.62)	0.00	4.38	0.16	0.05	0.45
	7.0	5	Pool	0.38 (0.63)	0.00	5.08	0.15	0.05	0.45
Wadley	9.5	6	Riffle	0.27 (0.44)	0.00	3.87	0.13	0.04	0.31
	10.3	7	Riffle	0.27 (0.48)	0.00	4.00	0.13	0.05	0.27
	14.0	8	Pool	0.29 (0.45)	0.00	4.67	0.14	0.05	0.35
Bibby's Ferry	15.8	9	Run	0.28 (0.46)	0.00	4.82	0.11	0.05	0.31
	19.5	10	Riffle	0.21 (0.28)	0.00	3.09	0.10	0.05	0.25
	23.2	11	Riffle	0.10 (0.13)	0.00	1.24	0.06	0.03	0.12
Germany's Ferry	28.2	13	Riffle	0.20 (0.27)	0.00	2.80	0.10	0.05	0.23
	33.5	15	Pool	0.12 (0.15)	0.00	1.56	0.06	0.03	0.16
Horseshoe Bend	37.2	16	Pool	0.06 (0.08)	0.00	2.02	0.04	0.02	0.08
	39.0	17	Riffle	0.08 (0.09)	0.00	0.96	0.04	0.02	0.10
	43.0	19	Pool	0.09 (0.10)	0.00	1.12	0.05	0.02	0.11

¹Standard Deviation in Parentheses

3.3 WETTED PERIMETER

Detailed hourly outputs of wetted perimeter from HEC-RAS model runs of PGP, GP, and 150 CMF operational scenarios were analyzed and compared. Habitat duration was analyzed by calculating the percent of time a wetted perimeter value was exceeded for each width increment between the maximum and minimum value for selected model cross sections. An example of the calculation and interpretation of this analysis is provided below (Figure 3-12).

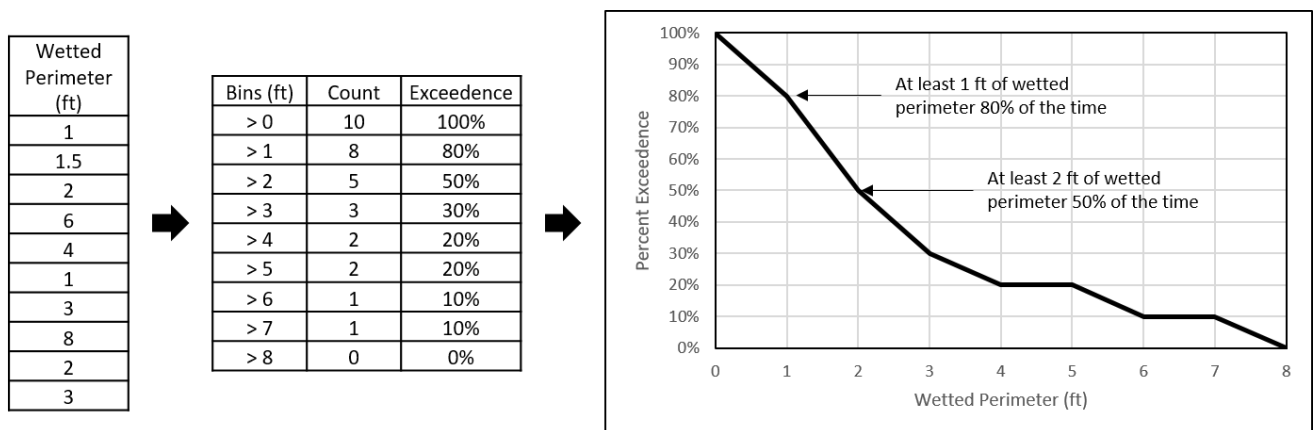


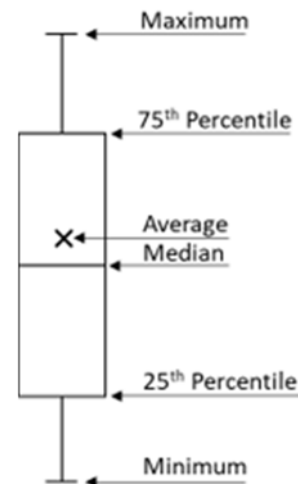
FIGURE 3-12 EXAMPLE OF WETTED PERIMETER DURATION CALCULATION

Results of these analyses are presented in Table 3-5, Figure 3-13, and Figure 3-14. Compared to the PGP scenario, the GP scenario shows modest increases in wetted perimeter at cross sections near the dam (0.25 – 2 miles downstream), with little appreciable difference further downstream. Compared to the GP scenario, the 150 CMF scenario shows an increase in wetted perimeter that becomes smaller with increasing distance from the dam. Comparisons for cross sections greater than 23 miles downstream of Harris Dam (near Bibby’s Ferry) are not presented as there was no difference in habitat duration curves for the three downstream release alternatives.

Seasonal differences in wetted perimeter between the three operational scenarios were examined by aggregating hourly HEC-RAS outputs by season, where:

- Winter = December, January, and February;
- Spring = March, April and May;
- Summer = June, July, and August; and;
- Fall = September, October, and November.

Box plots of seasonal analyses are presented in Figure 3-15 and Figure 3-16. The following legend applies to all box plots in this report, representing maximum, 75th percentile, average median, 25th percentile, and minimum values.



Similar to the habitat duration results, seasonal analysis shows modest increases in median wetted perimeter at cross sections near the dam (0.25 – 2 miles downstream), especially during fall, with little appreciable difference further downstream. Compared to the GP scenario, the 150 CMF scenario shows an increase in wetted perimeter at cross sections near the dam, especially in fall, but only small increases at cross sections greater than 23 miles downstream of the dam.

The amount of daily wetted perimeter fluctuation - the difference between the maximum and minimum value for each day - was determined for each operational scenario. Box plots depicting seasonal daily wetted perimeter fluctuations are presented in Figure 3-17 and Figure 3-18. Results indicate smaller daily fluctuations under the GP scenario compared to the PGP. The 150 CMF had smaller daily fluctuations compared to the GP. At distances greater than 23 miles downstream of the dam, there were no differences in seasonal daily wetted perimeter fluctuations.

TABLE 3-5 SUMMARY OF WETTED PERIMETER RESULTS FROM MODEL SIMULATIONS

Miles Below Harris	Mesohabitat Type	Average Wetted Perimeter (ft)			Average Daily Wetted Perimeter Fluctuation (ft)		
		PGP	GP	150CMF	PGP	GP	150CMF
0.4	Riffle	321(-1.2%)	325	333(+2.5%)	88(-0.9%)	89	71(-20.2%)
1	Riffle	457(-0.5%)	459	462(+0.7%)	77(+3.2%)	75	69(-7.4%)
2	Riffle	346(-2.2%)	354	362(+2.4%)	93(+5.3%)	88	60(-31.5%)
4	Pool	288(-0.2%)	289	289(+0.2%)	16(+12.7%)	14	13(-6.7%)
7	Pool	272(-2.0%)	278	284(+2.3%)	98(+15.9%)	84	75(-11.3%)
10	Riffle	668(-0.3%)	670	673(+0.5%)	90(+5.4%)	85	83(-2.7%)
14	Run-Pool	290(-0.1%)	290	291(+0.3%)	15(+4.2%)	14	14(-4.6%)
19	Riffle-Run	343(-0.6%)	345	348(+0.7%)	134(+1.9%)	131	133(+1.0%)
23	Riffle	236(-0.5%)	238	240(+1.1%)	228(-0.2%)	229	232(+1.3%)
38	Riffle	724(-0.1%)	724	729(+0.6%)	56(+0.9%)	55	53(-3.3%)
43	Pool	506(-0.1%)	506	507(+0.3%)	20(+1.5%)	20	19(-2.2%)

NOTE: Numbers in parentheses represent percent difference from GP (baseline)

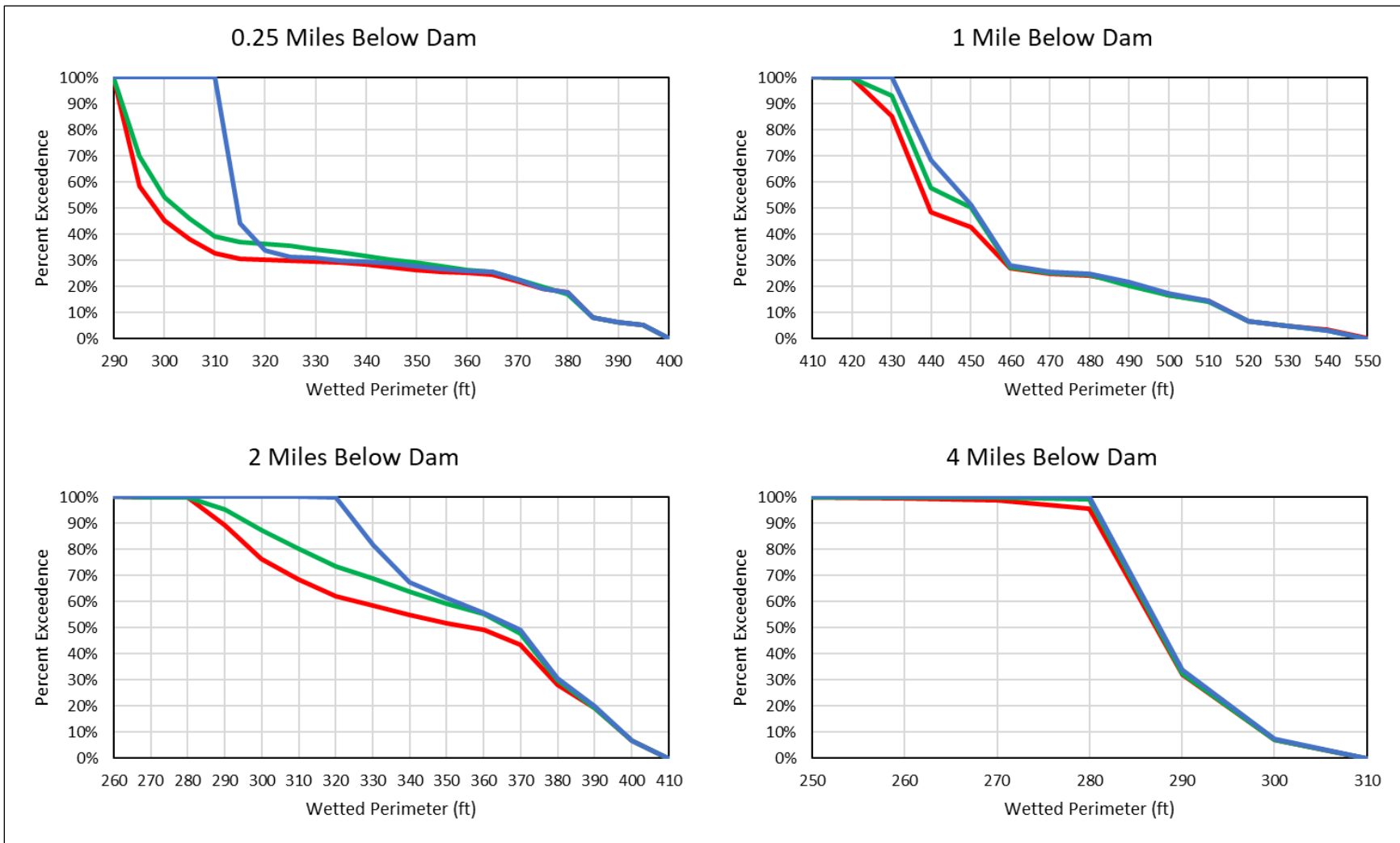


FIGURE 3-13 WETTED PERIMETER DURATION PLOTS OF PGP (RED), GP (GREEN), AND 150 CMF (BLUE) FROM 0.25 TO 4 MILES BELOW HARRIS DAM

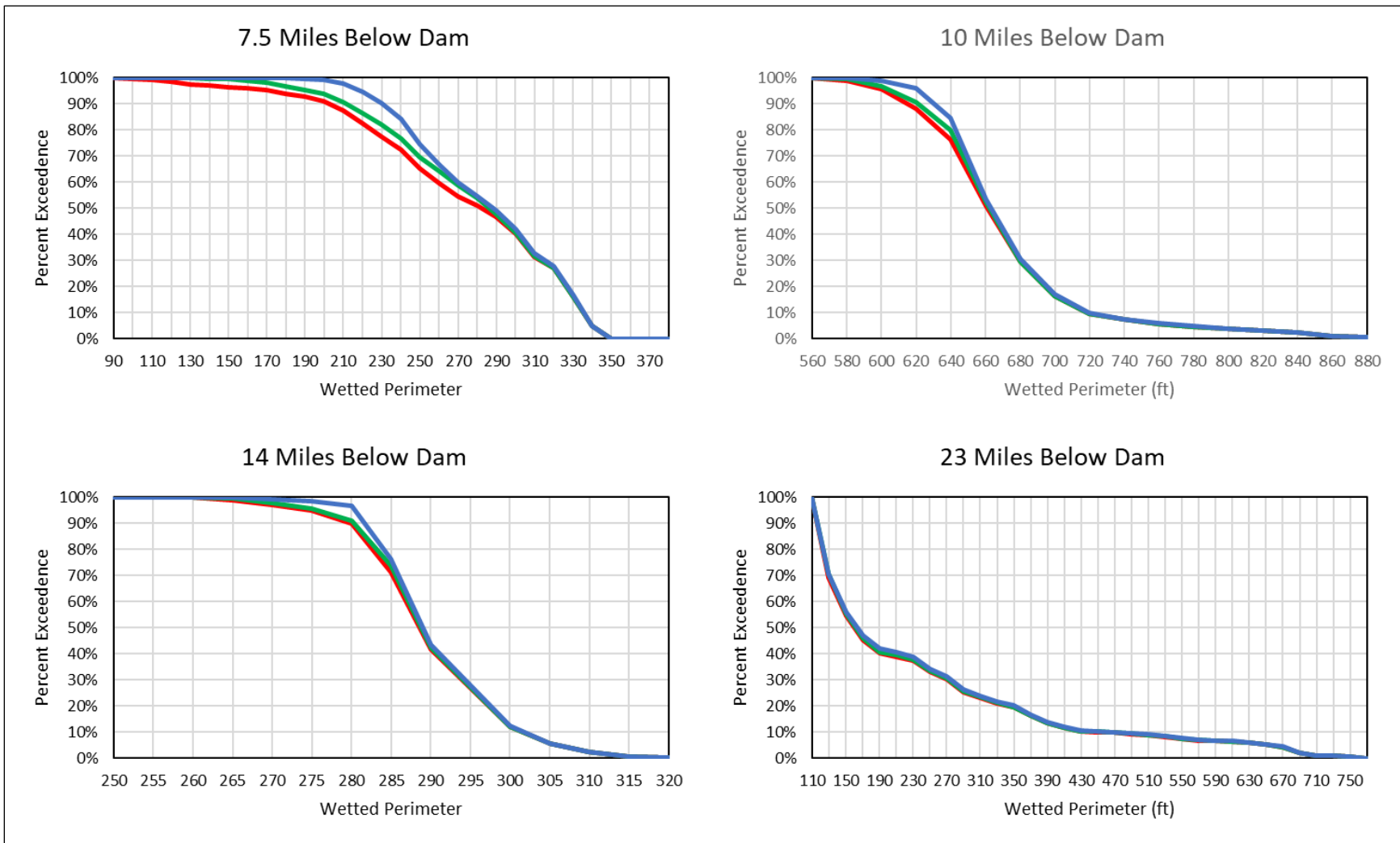


FIGURE 3-14 WETTED PERIMETER DURATION PLOTS OF PGP (RED), GP (GREEN), AND 150 CMF (BLUE) FROM 7.5 TO 23 MILES BELOW HARRIS DAM

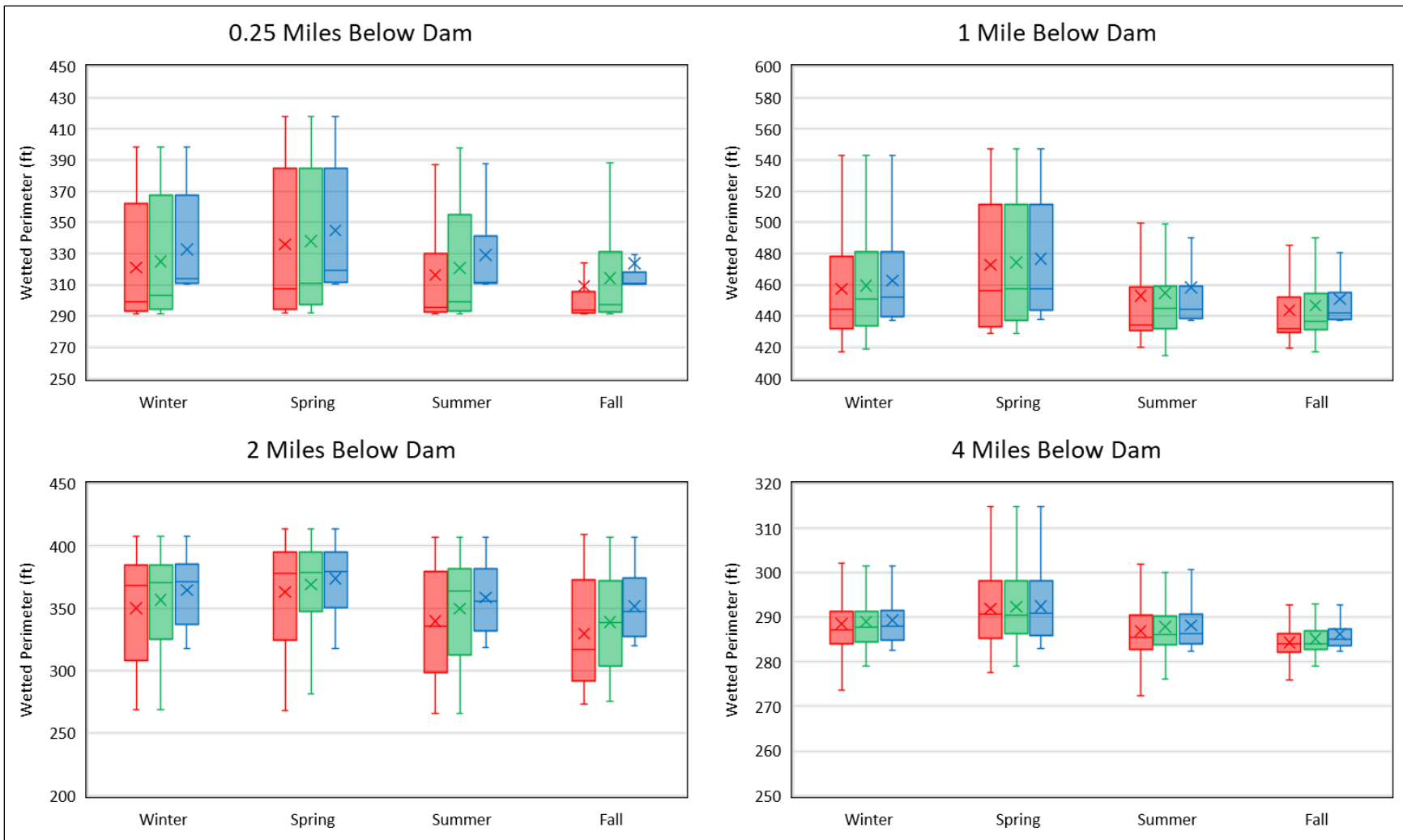


FIGURE 3-15 BOX PLOTS OF SEASONAL WETTED PERIMETER FOR PGP (RED), GP (GREEN), AND 150 CMF (BLUE) FROM 0.25 TO 4 MILES BELOW HARRIS DAM

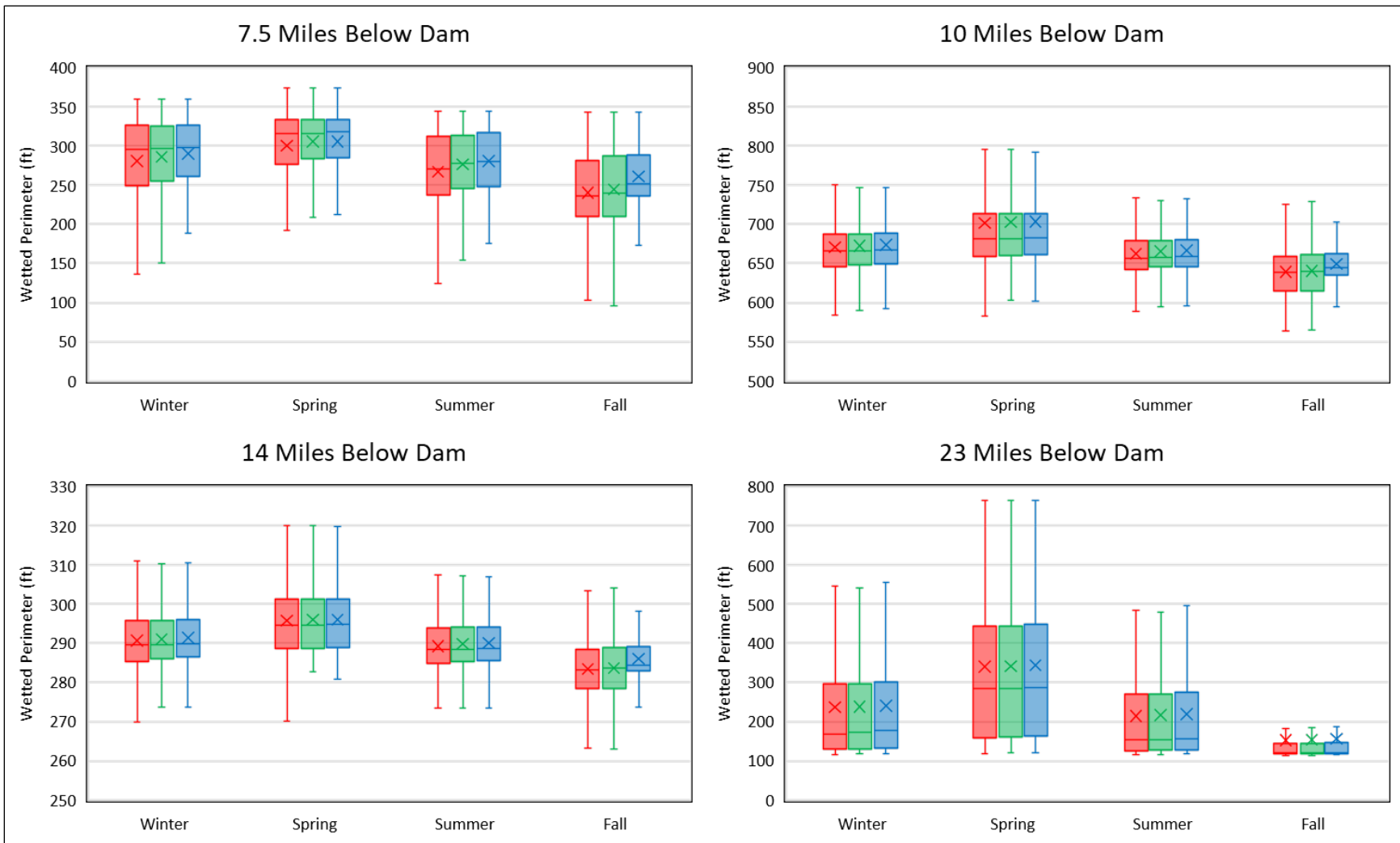


FIGURE 3-16 BOX PLOTS OF SEASONAL WETTED PERIMETER FOR PGP (RED), GP (GREEN), AND 150 CMF (BLUE) FROM 7.5 TO 23 MILES BELOW HARRIS DAM

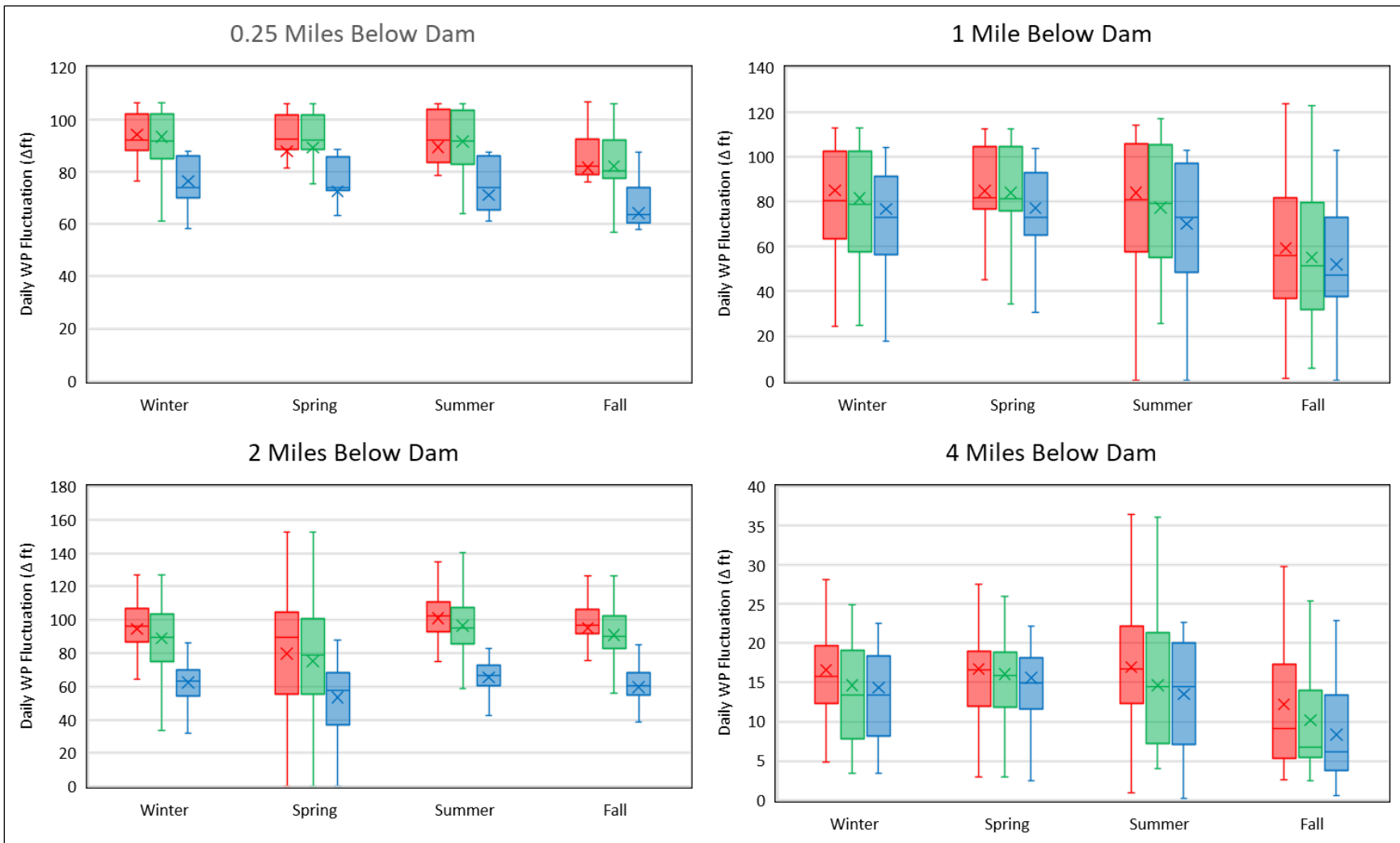


FIGURE 3-17 BOX PLOTS OF DAILY WETTED PERIMETER FLUCTUATIONS BY SEASON FOR PGP (RED), GP (GREEN), AND 150 CMF (BLUE) FROM 0.25 TO 4 MILES BELOW HARRIS DAM

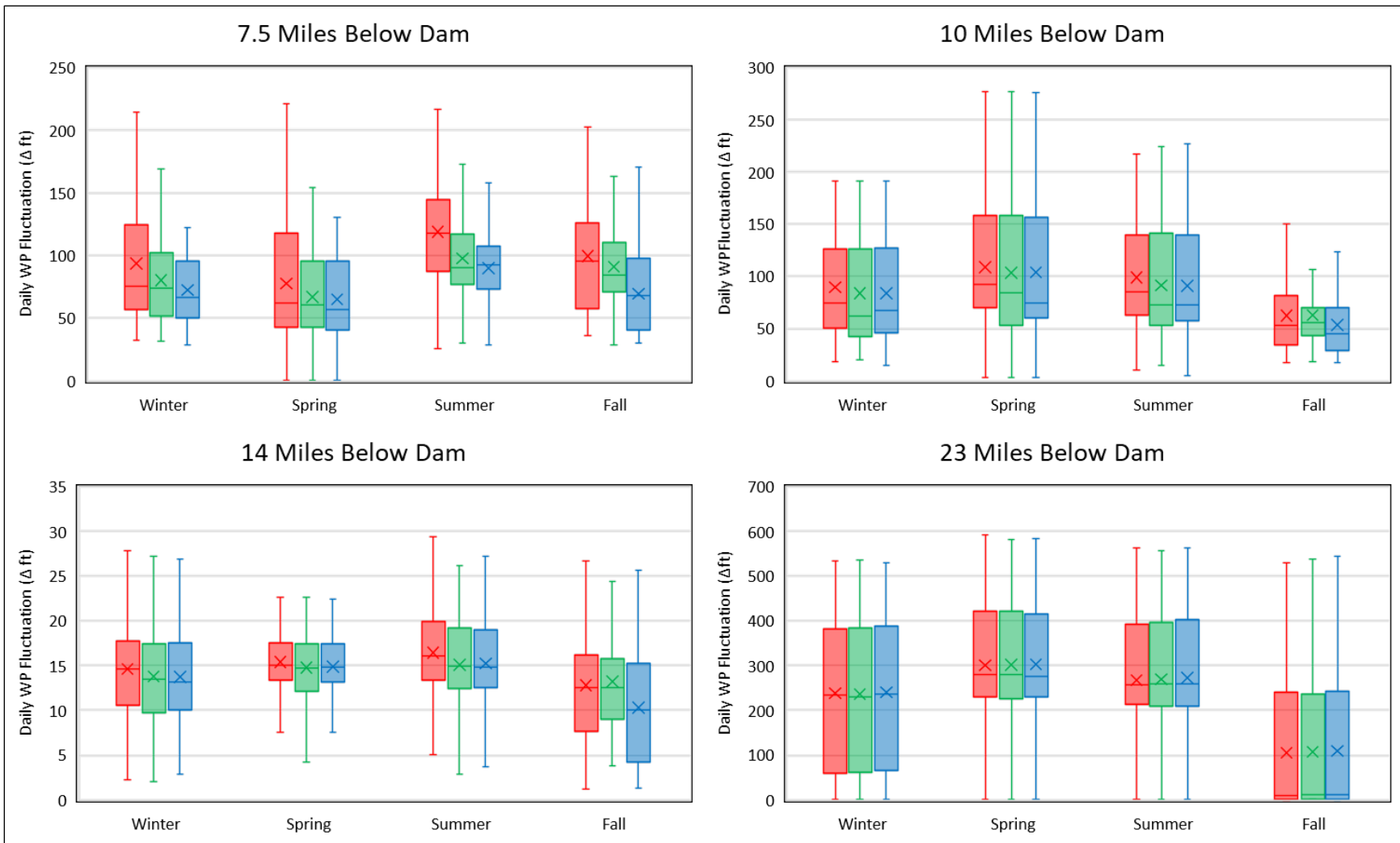


FIGURE 3-18 BOX PLOTS OF DAILY WETTED PERIMETER FLUCTUATION BY SEASON FOR PGP (RED), GP (GREEN), AND 150 CMF (BLUE) FROM 7.5 TO 23 MILES BELOW HARRIS DAM

4.0 DISCUSSION AND CONCLUSION

The goal of this study was to describe the relationship between Harris Project operations and aquatic habitat in the Tallapoosa River from Harris Dam downstream through Horseshoe Bend. As noted in Section 1, Alabama Power removed temperature data, results, and discussion from this downstream aquatic habitat report and incorporated that information into the Aquatic Resources Report and the Downstream Release Alternatives Report-Phase 2 consistent with the FERC approved Study Plan.

The study goal was accomplished by analyzing mesohabitat types, measuring water level at varying distances below the dam, collecting bathymetric measurements of the river bed, and simulating river conditions under the PGP, GP, and 150 CMF operating scenarios using the HEC-RAS model.

Mesohabitat analysis revealed that pools and riffles/shoals are the predominant habitat types within the study area. A large concentration of riffle/shoal habitat is present in the Tallapoosa River between Malone and Wadley, compared to other reaches.

Water level logger data collected between May 2019 and April 2020 provided insight into the frequency and magnitude of water level fluctuations at varying distances from the dam. Results indicate that daily water level fluctuations were greatest near Harris Dam and decreased in a relatively linear trend downstream through Horseshoe Bend. Average hourly water level fluctuations followed a similar trend.

When considering the results, it is important to note that the data includes the effects of inflows from numerous tributaries within the study area. These inflows, especially during localized or widespread storm events, could have considerable effects on water level at individual monitoring sites, depending on the magnitude and duration of the storm/high flow event.

Analysis of HEC-RAS simulation outputs showed relatively small differences in wetted perimeter duration between PGP and GP operations. The 150 CMF scenario showed increases in wetted perimeter duration at cross-sections near Harris Dam (1-7.5 miles downstream) compared with both the PGP and GP scenarios. Analysis of daily wetted perimeter fluctuations revealed smaller fluctuations under the 150 CMF scenario at cross-sections near Harris Dam compared with both the PGP and GP scenarios. Differences in wetted perimeter duration and daily fluctuations between the three operating scenarios

were indistinguishable at distances greater than 23 miles downstream of Harris Dam. Alabama Power will use the HEC-RAS model developed in this study to evaluate impacts to aquatic habitat from other operational scenarios in Phase 2 of the Downstream Release Alternatives Study.

5.0 REFERENCES

Alabama Power. 2018. R.L. Harris Hydroelectric Project Pre-Application Document FERC No. 2626. Alabama Power Company, Birmingham, AL.

United States Geological Survey (USGS). 2020. USGS Surface-Water Daily Data for Alabama. URL: <https://waterdata.usgs.gov/al/nwis/dv?>. Accessed June 3, 2020.

APPENDIX A

ACRONYMS AND ABBREVIATIONS

ACRONYMS AND ABBREVIATIONS

A

A&I	Agricultural and Industrial
ACFWRU	Alabama Cooperative Fish and Wildlife Research Unit
ACF	Apalachicola-Chattahoochee-Flint (River Basin)
ACT	Alabama-Coosa-Tallapoosa (River Basin)
ADCNR	Alabama Department of Conservation and Natural Resources
ADECA	Alabama Department of Economic and Community Affairs
ADEM	Alabama Department of Environmental Management
ADROP	Alabama-ACT Drought Response Operations Plan
AHC	Alabama Historical Commission
Alabama Power	Alabama Power Company
AMP	Adaptive Management Plan
ALNHP	Alabama Natural Heritage Program
APE	Area of Potential Effects
ARA	Alabama Rivers Alliance
ASSF	Alabama State Site File
ATV	All-Terrain Vehicle
AWIC	Alabama Water Improvement Commission
AWW	Alabama Water Watch

B

BA	Biological Assessment
B.A.S.S.	Bass Anglers Sportsmen Society
BCC	Birds of Conservation Concern
BLM	U.S. Bureau of Land Management
BOD	Biological Oxygen Demand

C

°C	Degrees Celsius or Centigrade
CEII	Critical Energy Infrastructure Information
CFR	Code of Federal Regulation
cfs	Cubic Feet per Second
cfu	Colony Forming Unit
CLEAR	Community Livability for the East Alabama Region
CPUE	Catch-per-unit-effort
CWA	Clean Water Act

D

DEM	Digital Elevation Model
DIL	Drought Intensity Level
DO	Dissolved Oxygen
dsf	day-second-feet

E

EAP	Emergency Action Plan
ECOS	Environmental Conservation Online System
EFDC	Environmental Fluid Dynamics Code
EFH	Essential Fish Habitat
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act

F

°F	Degrees Fahrenheit
ft	Feet
F&W	Fish and Wildlife
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FNU	Formazin Nephelometric Unit
FOIA	Freedom of Information Act
FPA	Federal Power Act

G

GCN	Greatest Conservation Need
GIS	Geographic Information System
GNSS	Global Navigation Satellite System
GPS	Global Positioning Systems
GSA	Geological Survey of Alabama

H

Harris Project	R.L. Harris Hydroelectric Project
HAT	Harris Action Team
HEC	Hydrologic Engineering Center
HEC-DSSVue	HEC-Data Storage System and Viewer
HEC-FFA	HEC-Flood Frequency Analysis
HEC-RAS	HEC-River Analysis System
HEC-ResSim	HEC-Reservoir System Simulation Model
HEC-SSP	HEC-Statistical Software Package

HDSS	High Definition Stream Survey
hp	Horsepower
HPMP	Historic Properties Management Plan
HPUE	Harvest-per-unit-effort
HSB	Horseshoe Bend National Military Park

I

IBI	Index of Biological Integrity
IDP	Inadvertent Discovery Plan
IIC	Intercompany Interchange Contract
IVM	Integrated Vegetation Management
ILP	Integrated Licensing Process
IPaC	Information Planning and Conservation
ISR	Initial Study Report

J

JTU	Jackson Turbidity Units
-----	-------------------------

K

kV	Kilovolt
kva	Kilovolt-amp
kHz	Kilohertz

L

LIDAR	Light Detection and Ranging
LWF	Limited Warm-water Fishery
LWPOA	Lake Wedowee Property Owners' Association

M

m	Meter
m ³	Cubic Meter
M&I	Municipal and Industrial
mg/L	Milligrams per liter
ml	Milliliter
mgd	Million Gallons per Day
µg/L	Microgram per liter
µs/cm	Microsiemens per centimeter
mi ²	Square Miles
MOU	Memorandum of Understanding

MPN	Most Probable Number
MRLC	Multi-Resolution Land Characteristics
msl	Mean Sea Level
MW	Megawatt
MWh	Megawatt Hour

N

n	Number of Samples
NEPA	National Environmental Policy Act
NGO	Non-governmental Organization
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanographic and Atmospheric Administration
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NTU	Nephelometric Turbidity Unit
NWI	National Wetlands Inventory

O

OAR	Office of Archaeological Resources
OAW	Outstanding Alabama Water
ORV	Off-road Vehicle
OWR	Office of Water Resources

P

PA	Programmatic Agreement
PAD	Pre-Application Document
PDF	Portable Document Format
pH	Potential of Hydrogen
PID	Preliminary Information Document
PLP	Preliminary Licensing Proposal
Project	R.L. Harris Hydroelectric Project
PUB	Palustrine Unconsolidated Bottom
PURPA	Public Utility Regulatory Policies Act
PWC	Personal Watercraft
PWS	Public Water Supply

Q

QA/QC Quality Assurance/Quality Control

R

RM River Mile
RTE Rare, Threatened and Endangered
RV Recreational Vehicle

S

S Swimming
SCORP State Comprehensive Outdoor Recreation Plan
SCP Shoreline Compliance Program
SD1 Scoping Document 1
SH Shellfish Harvesting
SHPO State Historic Preservation Office
Skyline WMA James D. Martin-Skyline Wildlife Management Area
SMP Shoreline Management Plan
SU Standard Units

T

T&E Threatened and Endangered
TCP Traditional Cultural Properties
TMDL Total Maximum Daily Load
TNC The Nature Conservancy
TRB Tallapoosa River Basin
TSI Trophic State Index
TSS Total Suspended Solids
TVA Tennessee Valley Authority

U

USDA U.S. Department of Agriculture
USGS U.S. Geological Survey
USACE U.S. Army Corps of Engineers
USFWS U.S. Fish and Wildlife Service

W

WCM

WMA

WMP

WQC

Water Control Manual

Wildlife Management Area

Wildlife Management Plan

Water Quality Certification

APPENDIX B

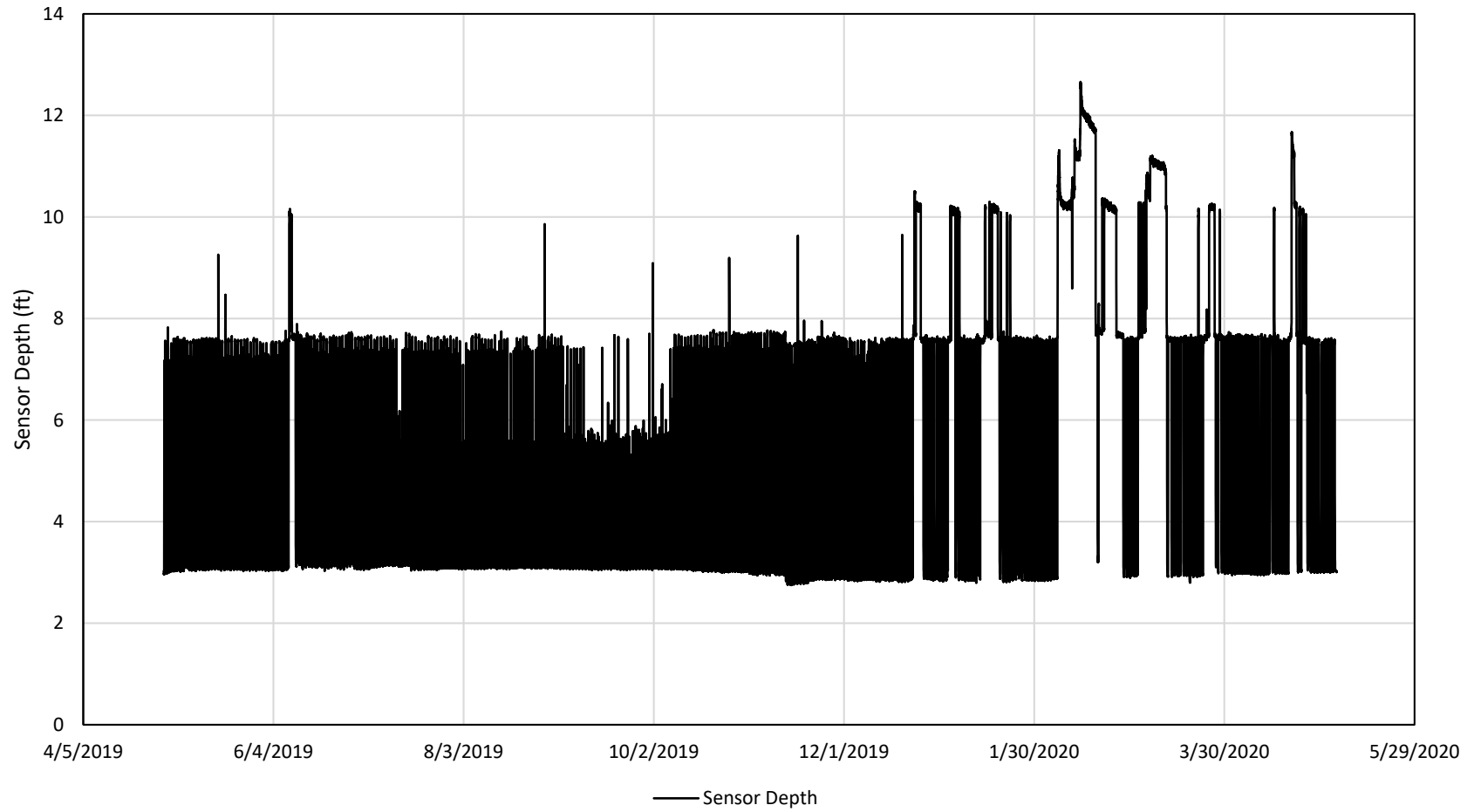
LEVEL LOGGER DATA

(ATTACHED IN MICROSOFT EXCEL SPREADSHEET FORMAT)

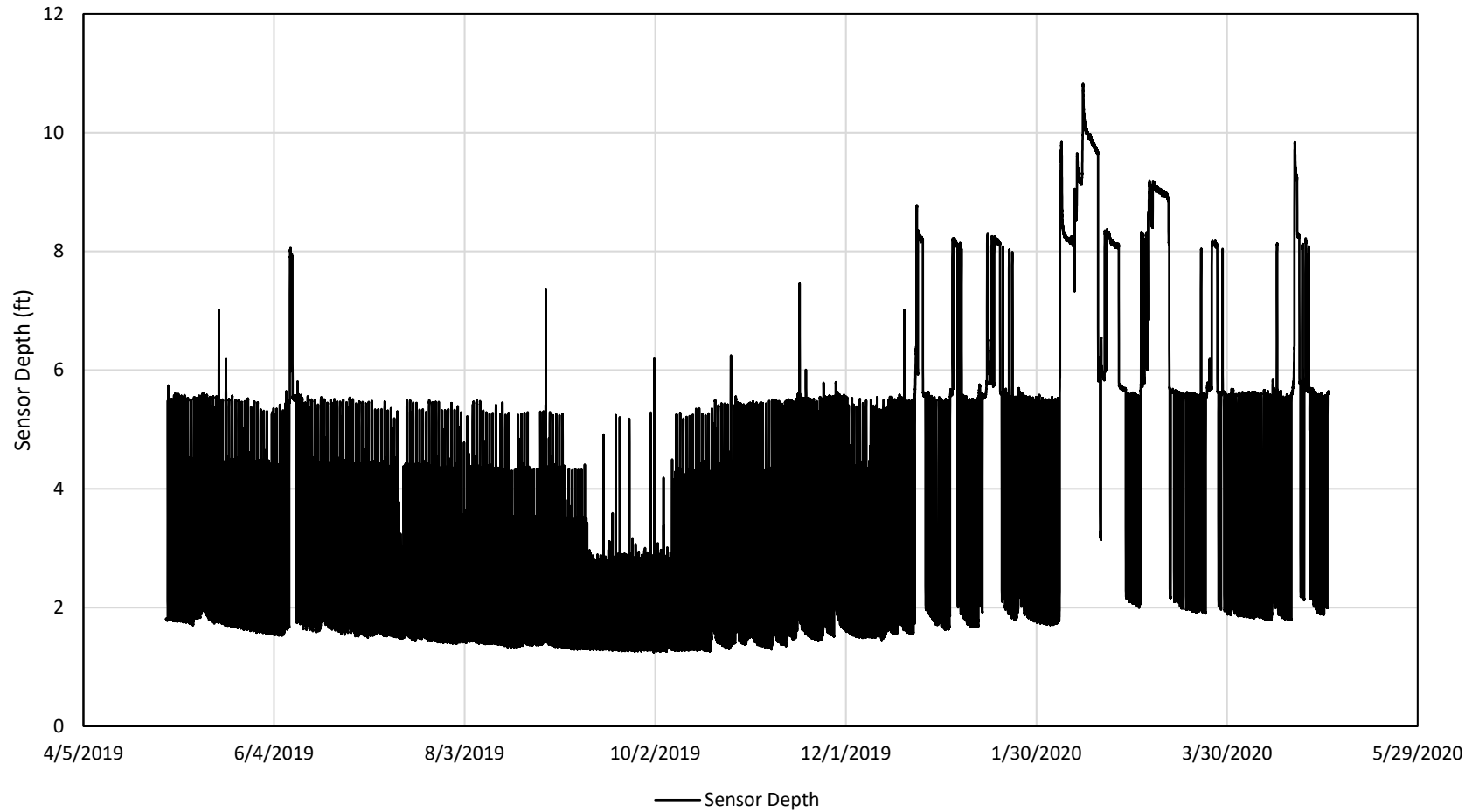
APPENDIX C

LINE PLOTS OF 15-MIN LEVEL LOGGER DATA

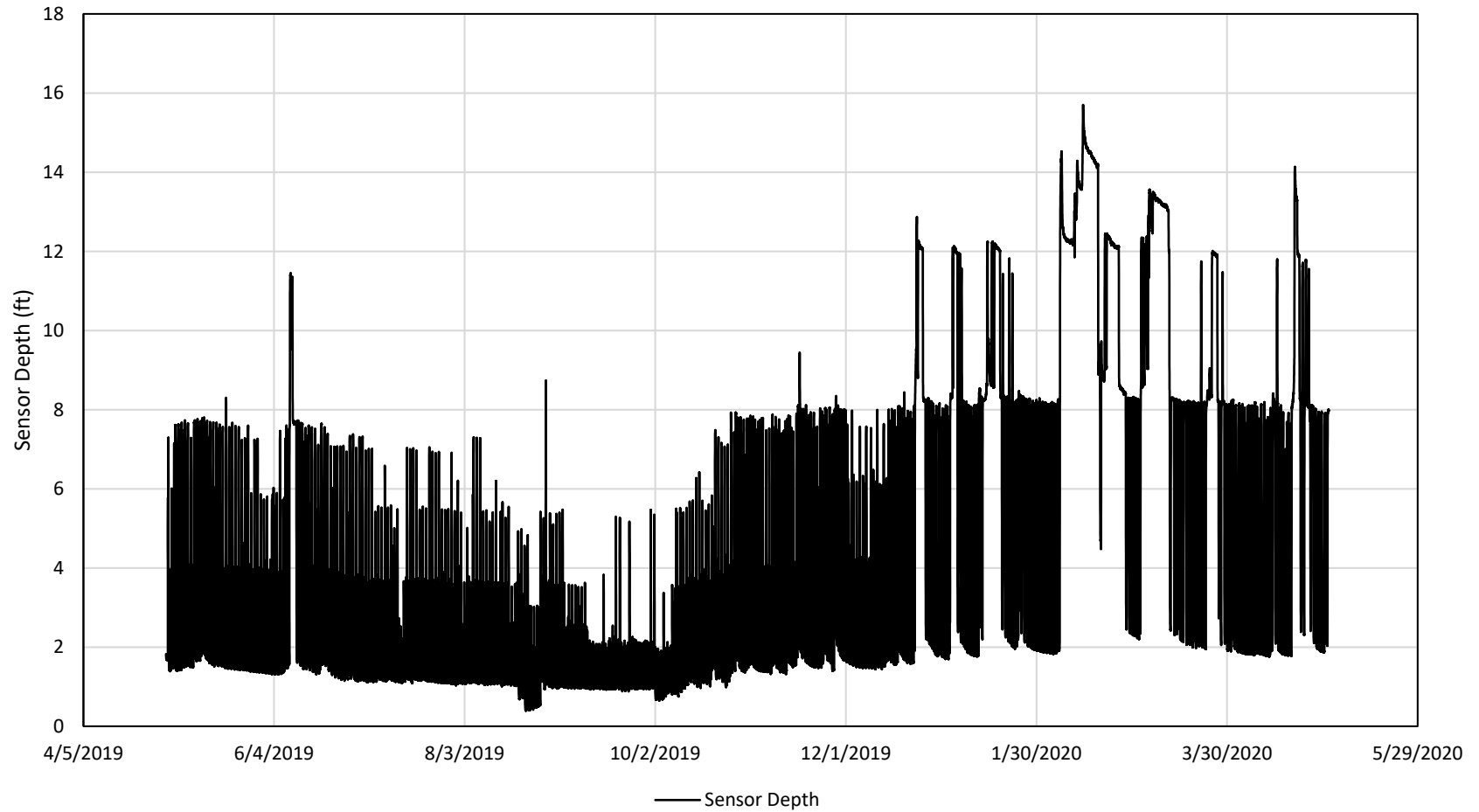
Logger #1 - 0.4 Miles Downstream of Harris Dam



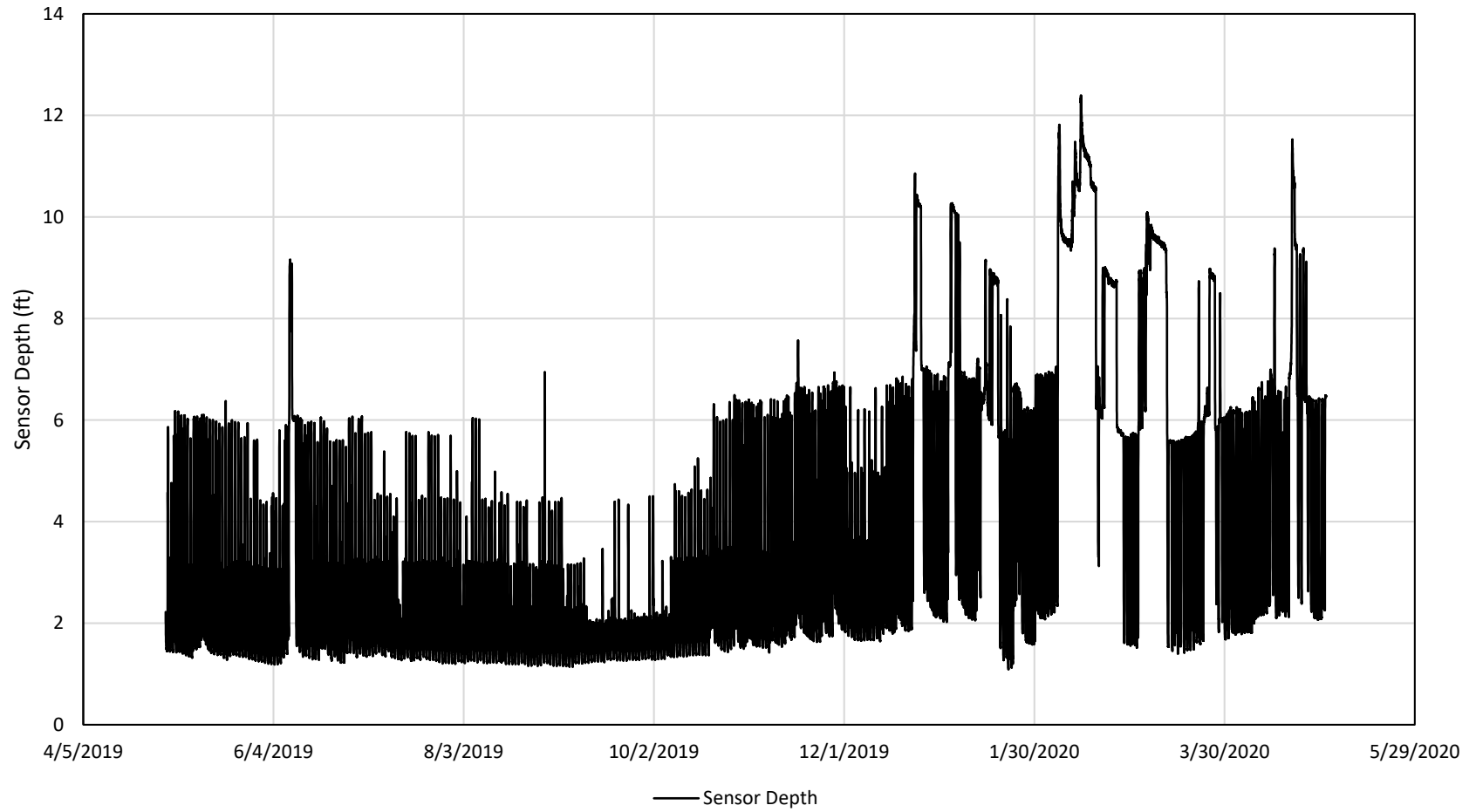
Logger #2 - 1 Mile Downstream of Harris Dam



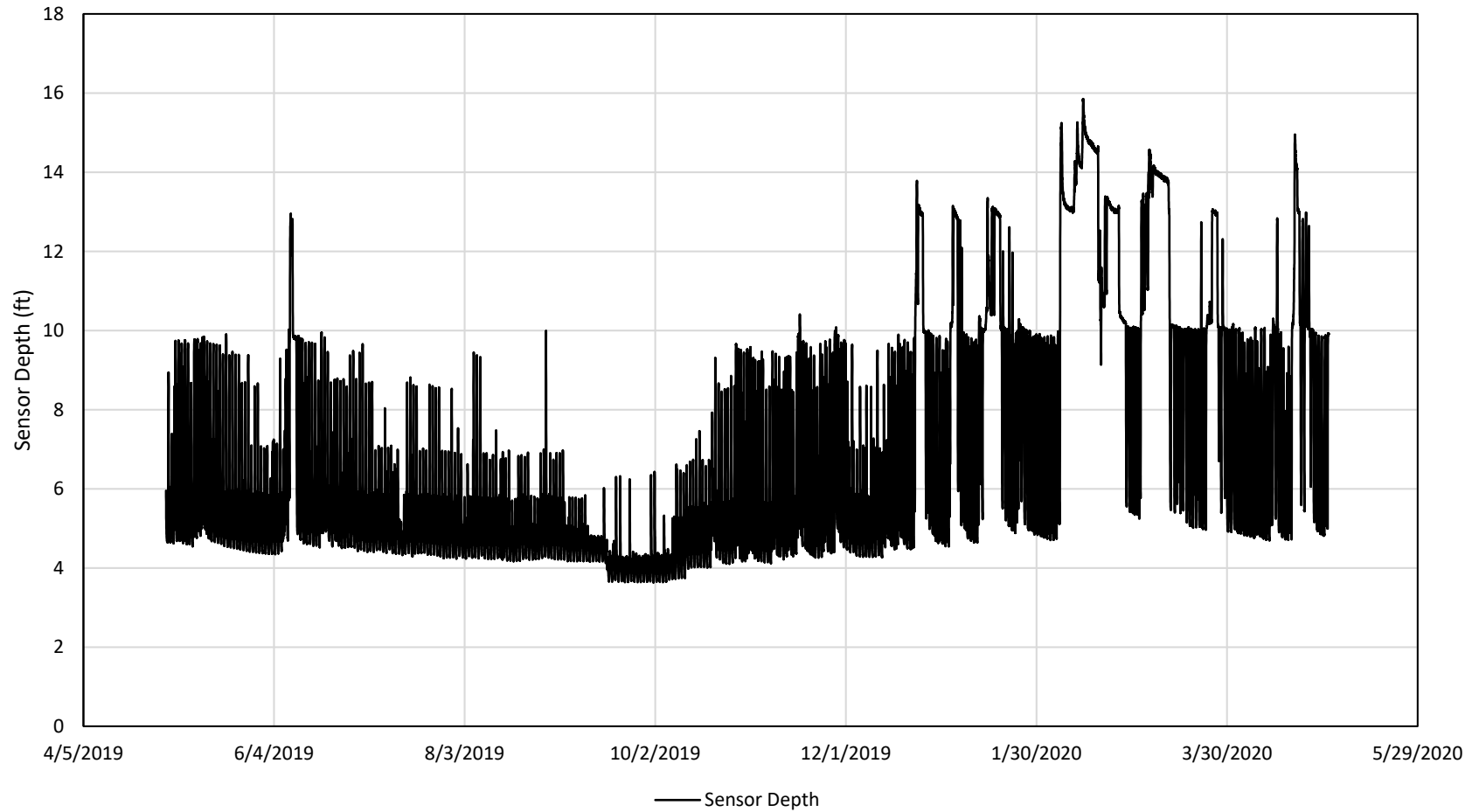
Logger #3 - 3 Miles Downstream of Harris Dam



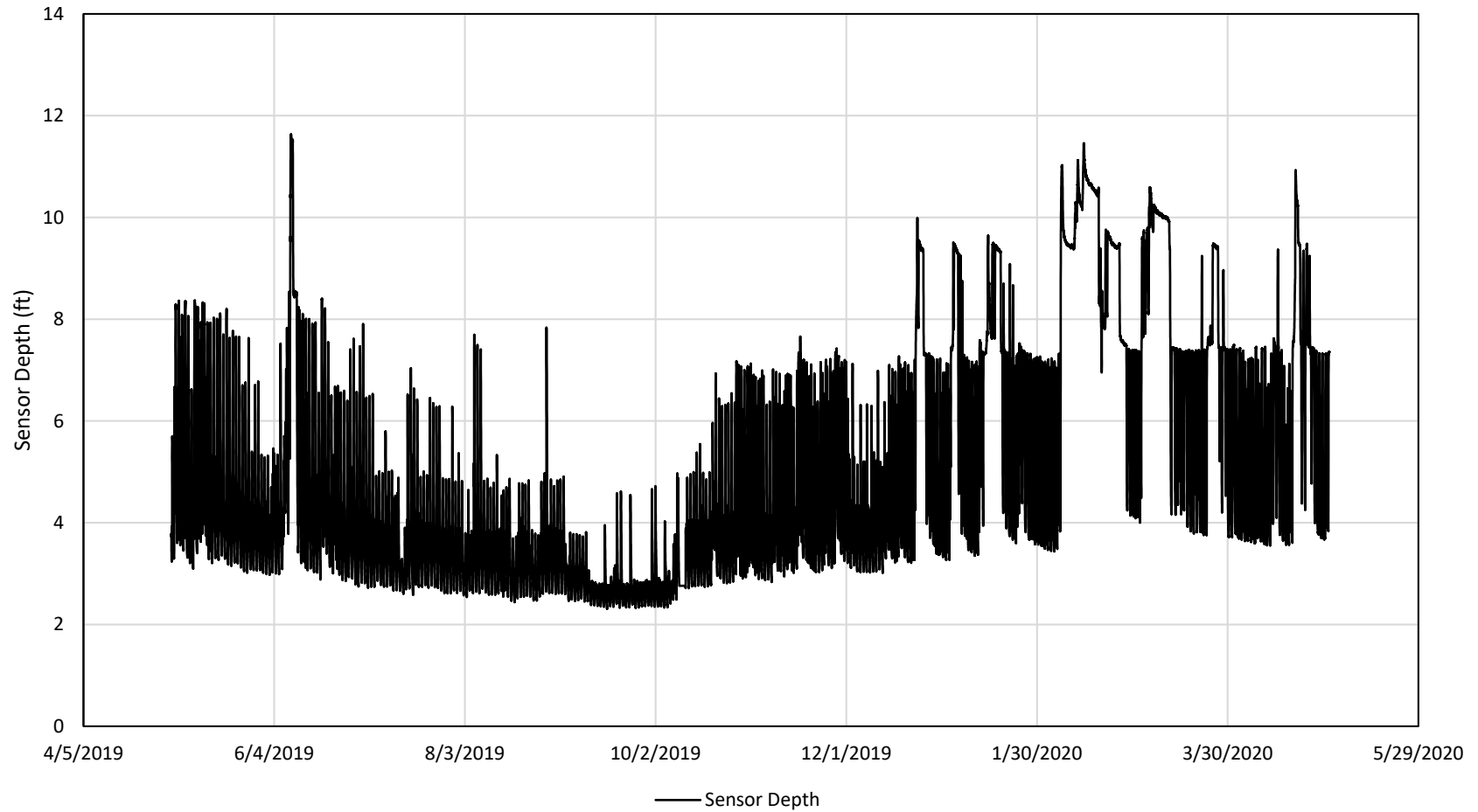
Logger #4 - 5 miles Downstream of Harris Dam



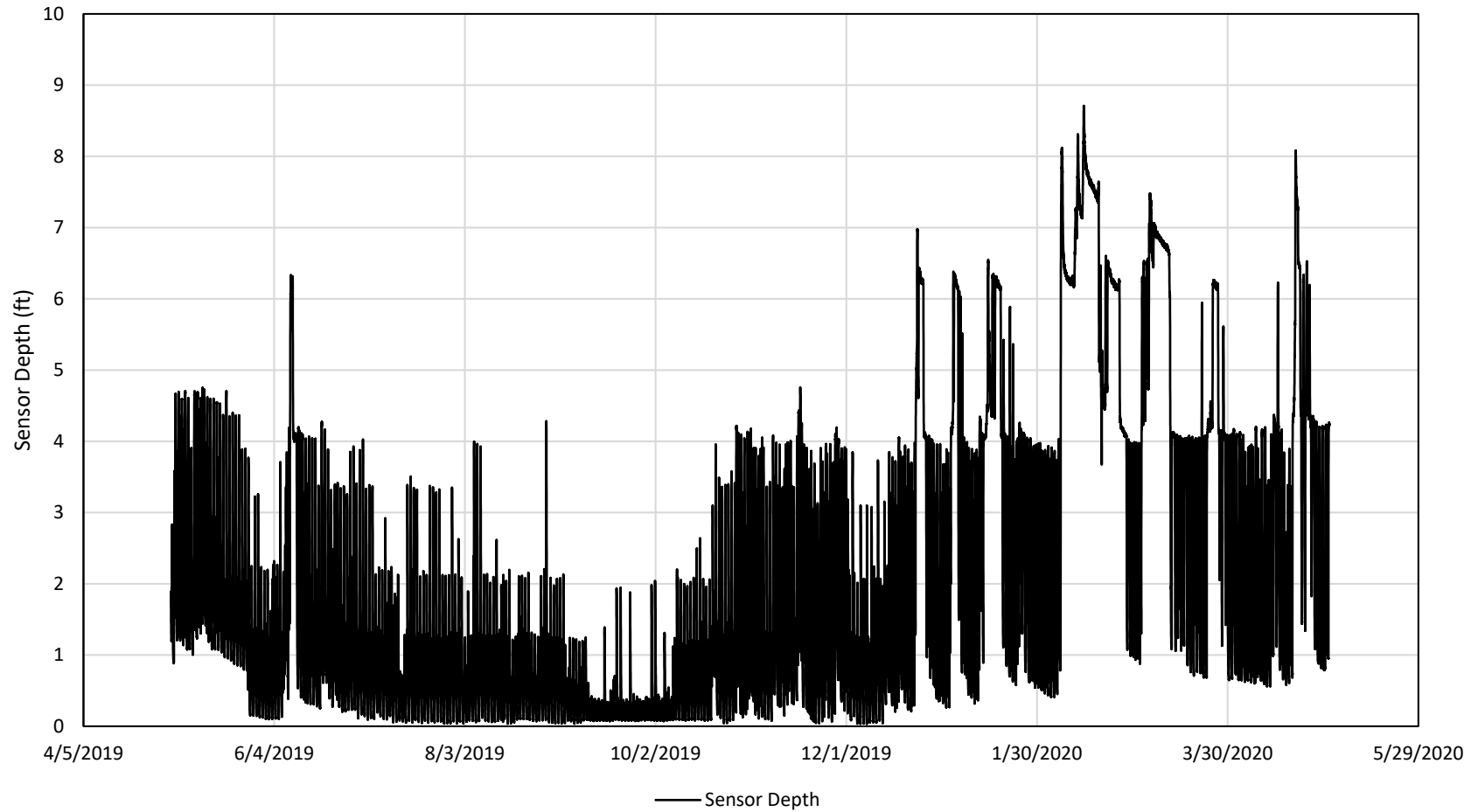
Logger #5 - 7 Miles Downstream of Harris Dam



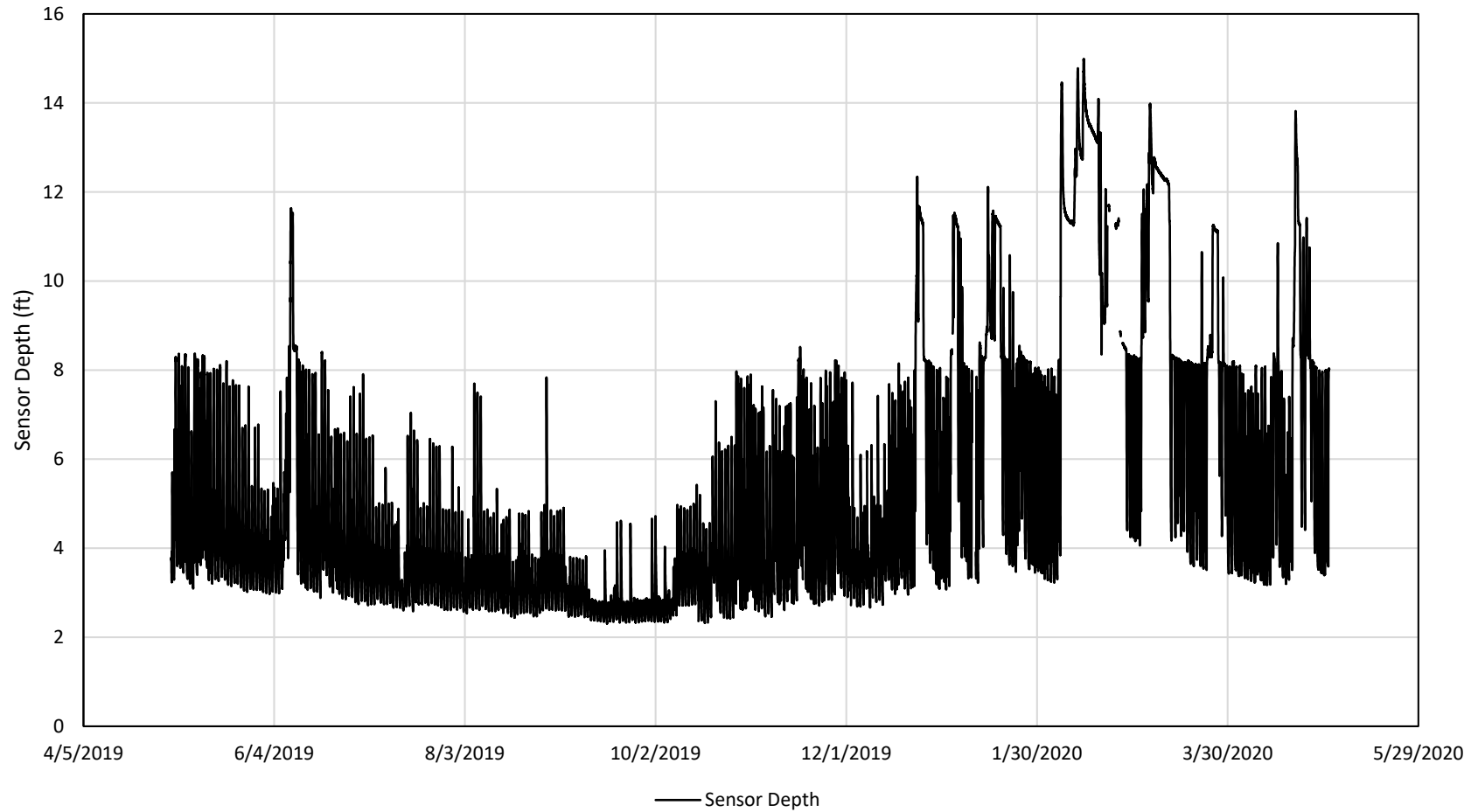
Logger #6 - 9.5 Miles Downstream of Harris Dam



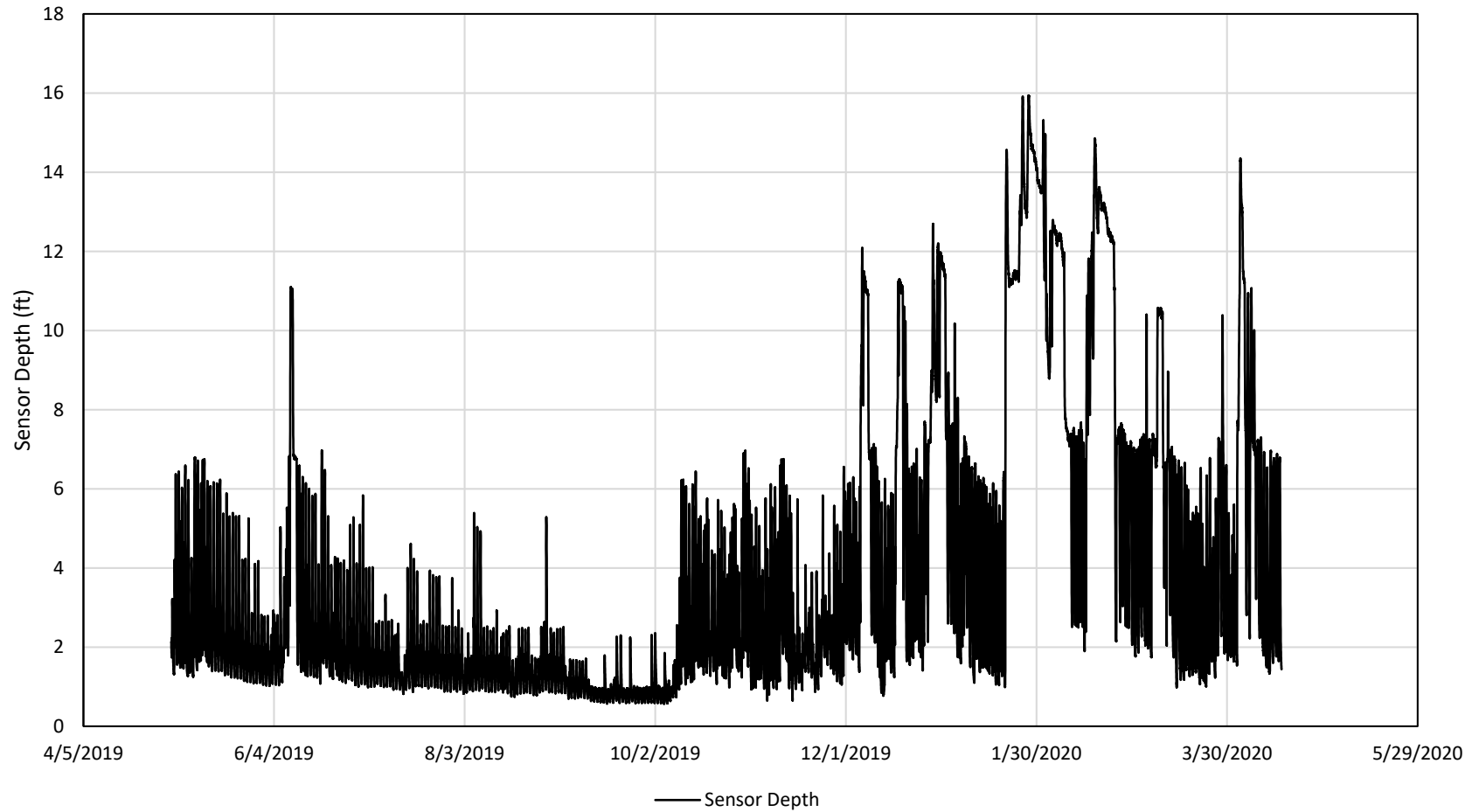
Logger #7 - 10.3 Miles Downstream of Harris



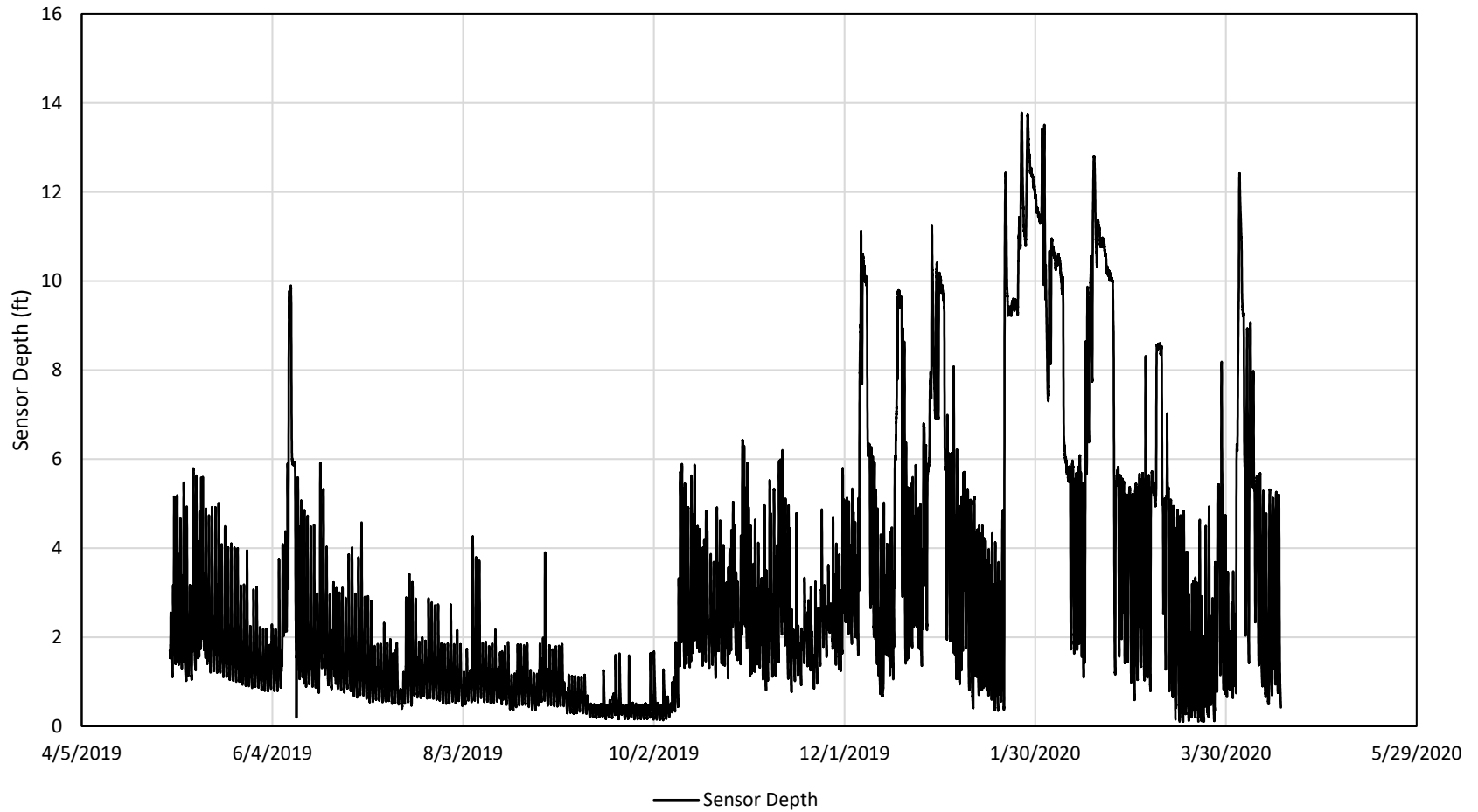
Logger #8 - 14 Miles Downstream of Harris Dam



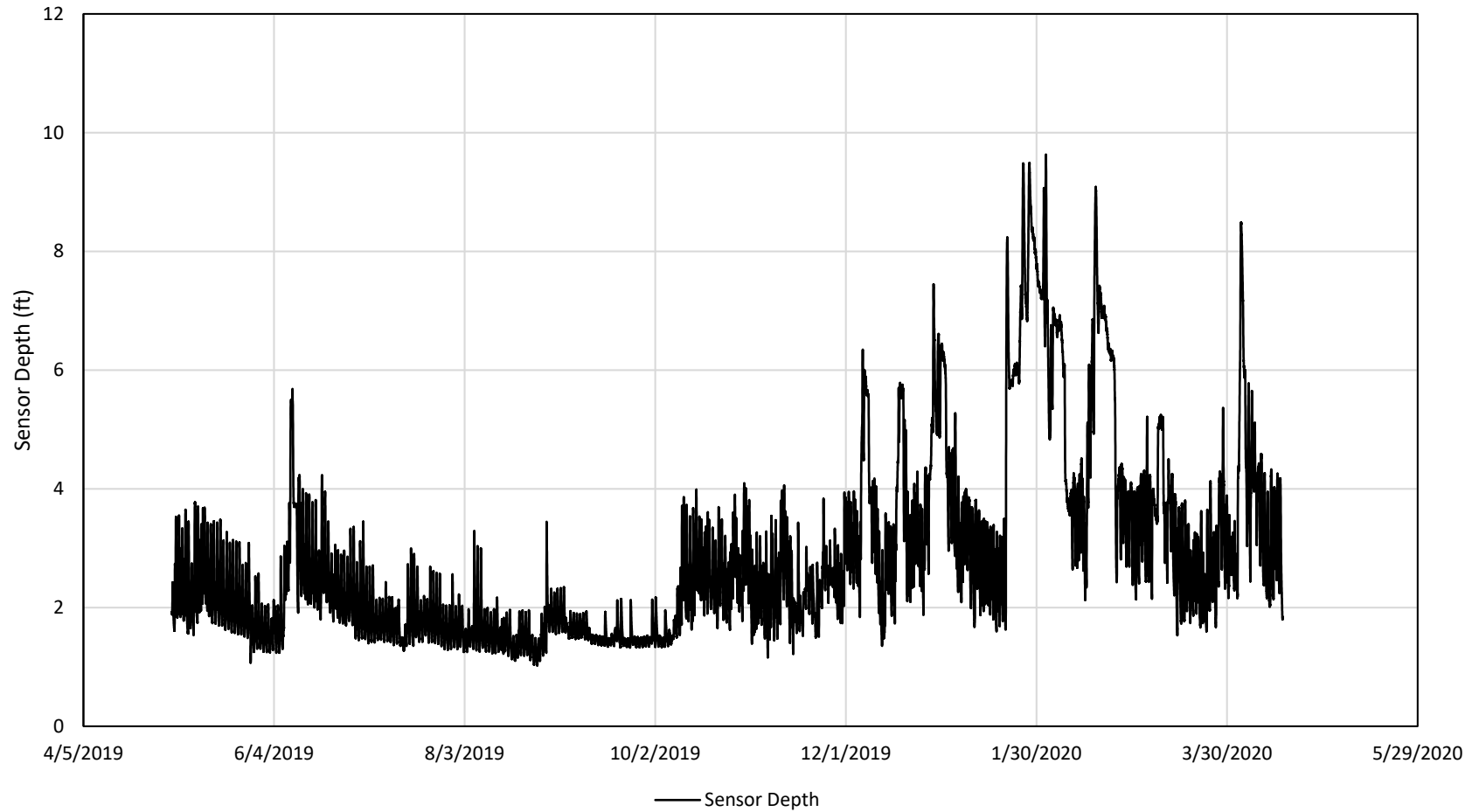
Logger #9 - 15.8 Miles Downstream of Harris Dam



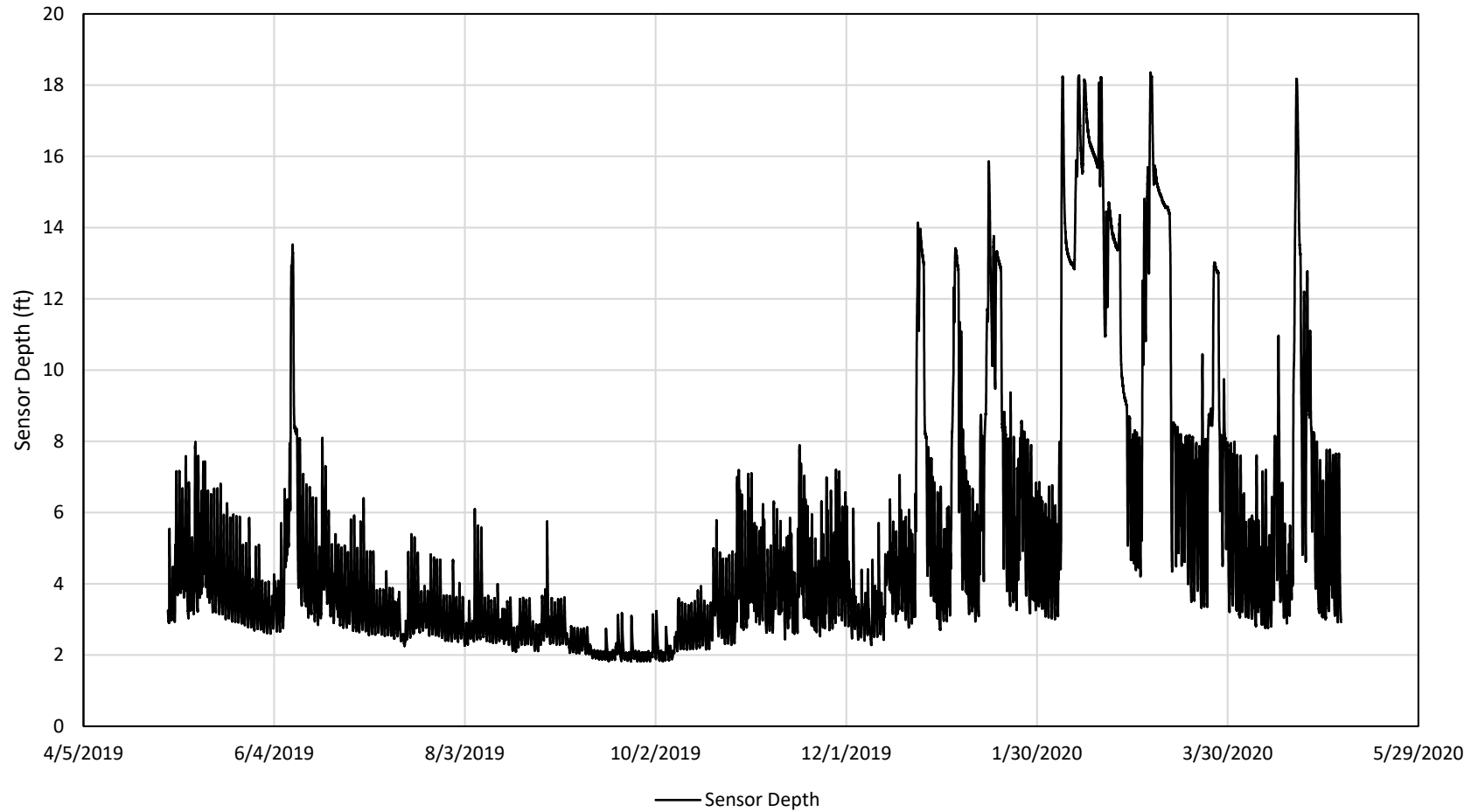
Logger #10 - 19.5 Miles Downstream of Harris Dam



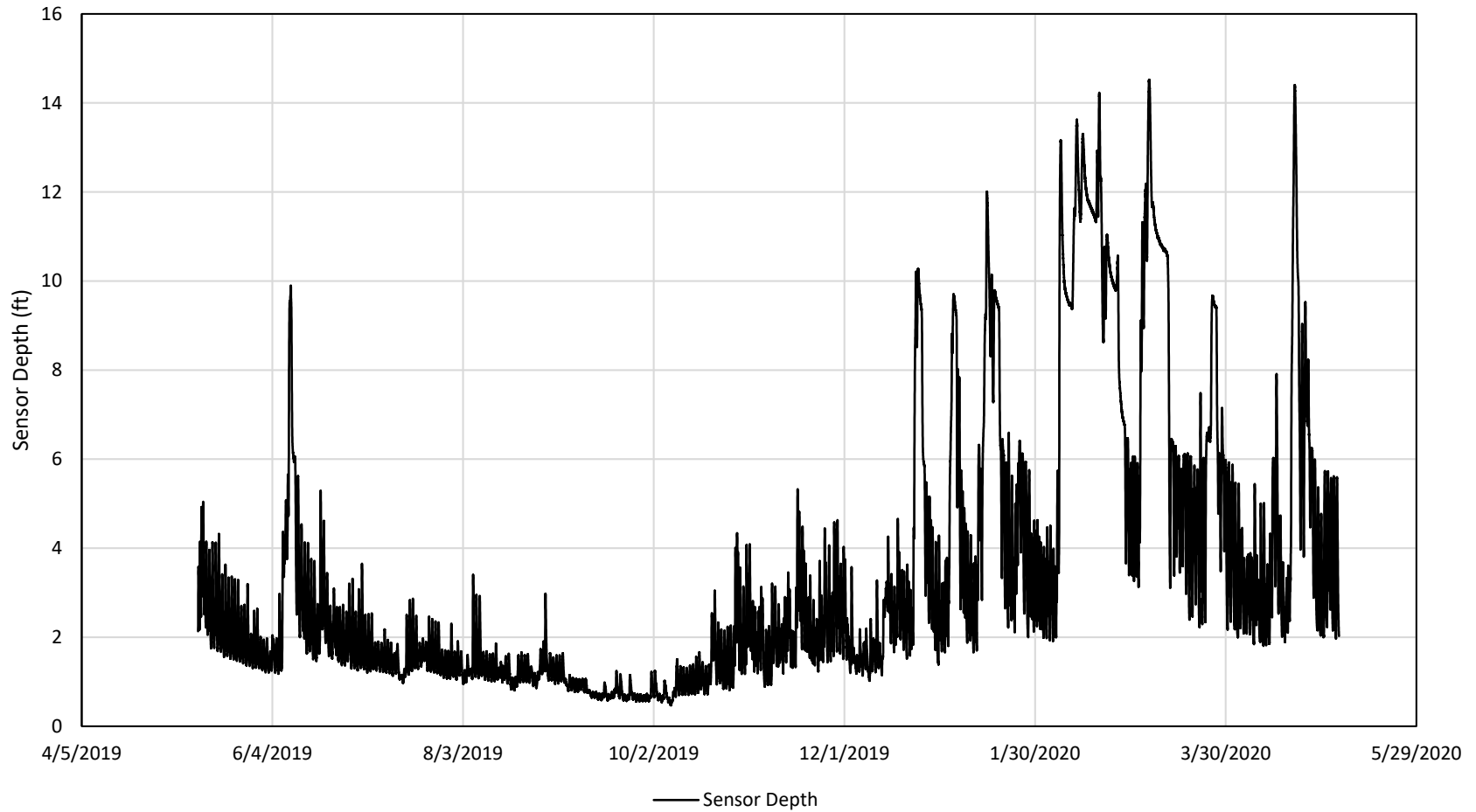
Logger #11 - 23.2 Miles Downstream of Harris Dam



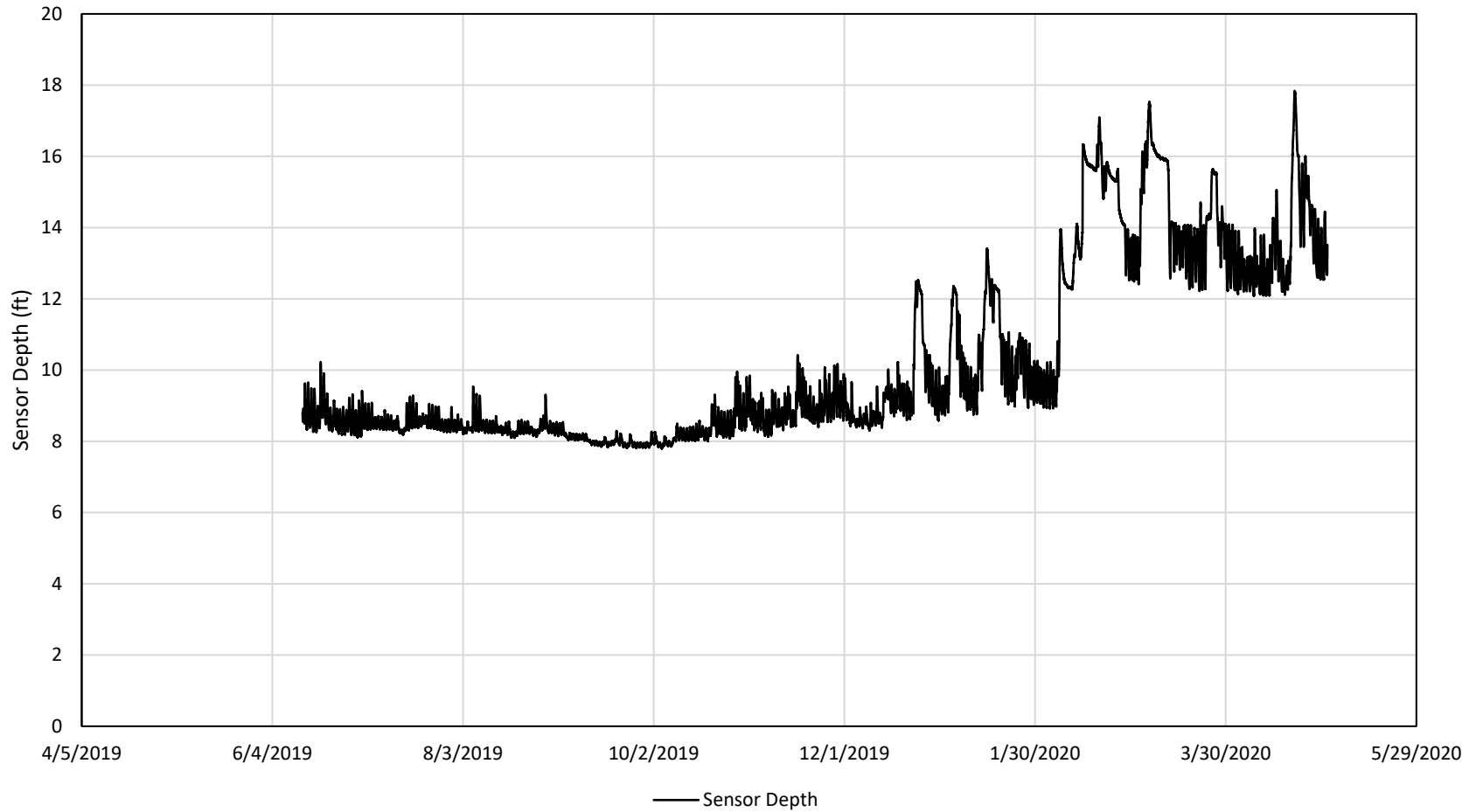
Logger #13 - 28.2 Miles Downstream of Harris Dam



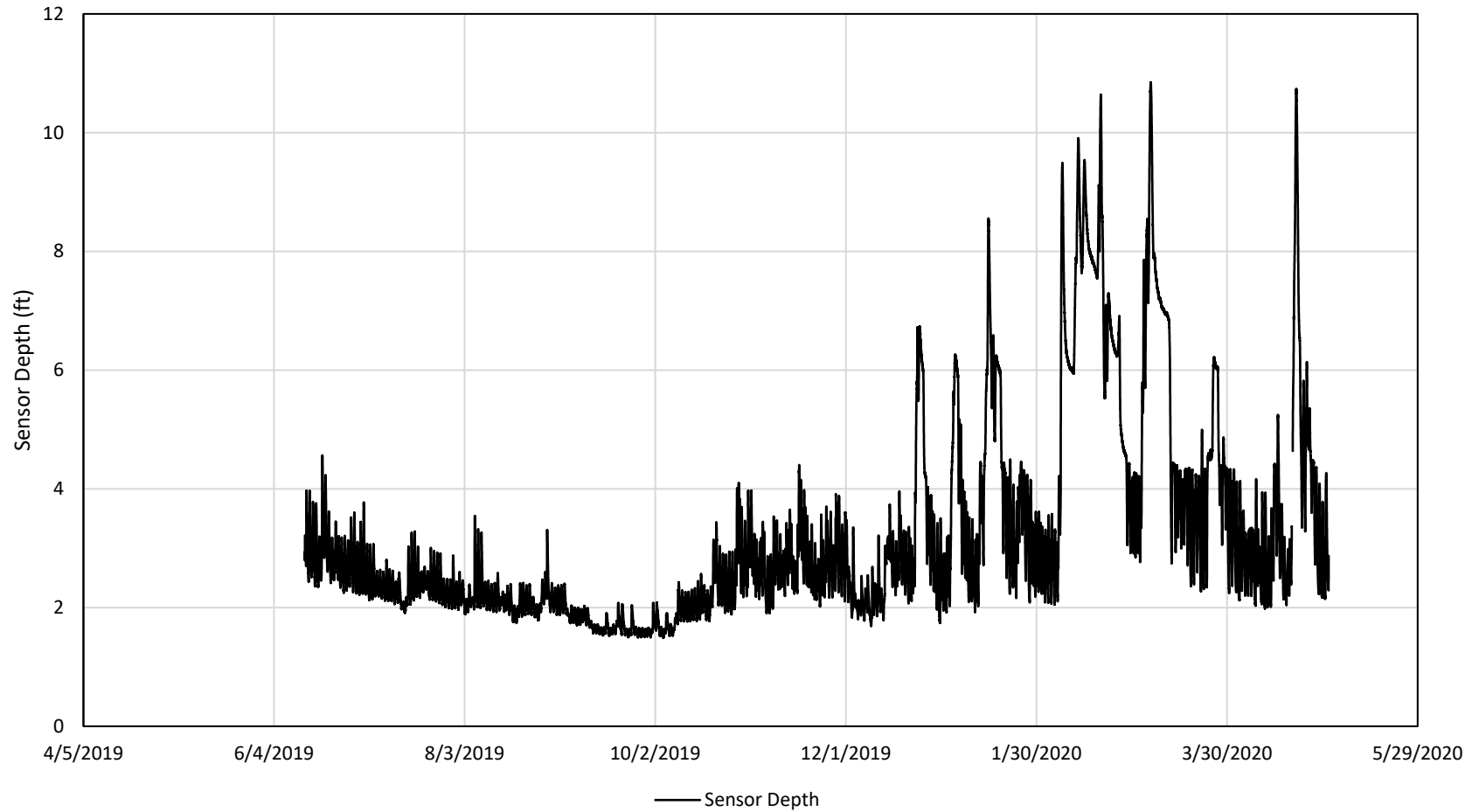
Logger #15 - 33.5 Miles Downstream of Harris Dam



Logger #16 - 37.2 Miles Downstream of Harris Dam



Logger #17 - 39 Miles Downstream of Harris Dam



Logger #19 - 43 Miles Downstream of Harris Dam

