Alabama Power

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

January 29, 2021

VIA ELECTRONIC FILING

Project No. 2628-065
R.L. Harris Hydroelectric Project
Transmittal of the Final Threatened and Endangered Species 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 Determination[1] (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 Threatened and Endangered Species Desktop Assessment (Draft Desktop Assessment) on April 10, 2020[2]. The Draft Desktop Assessment was one portion of the Threatened and Endangered Species Study. Stakeholders were to submit their comments to Alabama Power on the Draft Desktop Assessment by June 11, 2020. The Alabama Department of Conservation and Natural Resources and FERC staff submitted comments on the Draft Desktop Assessment. In addition, the United States Fish and Wildlife Service, Alabama Rivers Alliance, the Alabama Glade Conservation Association, and one stakeholder submitted comments and questions regarding the Draft Desktop Assessment prior to the Initial Study Report Meeting on April 28, 2020.These comments are included in the updated consultation record (May 2019 through January 2021) for this study (Attachment 1) and responses to these comments are provided in Attachment 2. The Final Threatened and Endangered Species Report is contained in Attachment 3.[3]

[1] Accession No 20190412-3000.

[2] Accession No. 20200410-5094

[3] Please note that the style and format of the Harris Project relicensing study reports has changed since submittal of the Draft Desktop Assessment; however, the content of the report has not changed except for the edits made based on stakeholder comments and the results of field surveys for certain threatened and endangered species.

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 – Threatened and Endangered Species Consultation Record (May 2019-January 2021)
Attachment 2 – Comments and Responses on the Draft Threatened and Endangered Species Desktop Assessment
Attachment 3 – Final Threatened and Endangered Species Report

cc: Harris Action Team 3 Stakeholder List

Attachment 1

Threatened and Endangered Species Consultation Record (May 2019-January 2021)

HAT 3 meeting - T&E study plan

APC Harris Relicensing

Mon 7/22/2019 3:09 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>; nick.nichols@dcnr.alabama.gov <nick.nichols@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>; cchaffin@alabamarivers.org <cchaffin@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,

We will have a HAT 3 meeting on August 27th from 10:00 am – 2:00 pm at the Wendell Mitchell Conference Center at Lurleen B. Wallace Community College in Greenville (750 Greenville By-Pass, Greenville, AL 36037). The purpose of this meeting is to discuss the GIS overlays and map and the need for field verification for the T&E Study Plan. Please RSVP by August 20th if you plan to attend.

Thanks,

Angie Anderegg

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

HAT 3 meeting - T&E Study Plan

APC Harris Relicensing

Thu 8/8/2019 5:31 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>; nick.nichols@dcnr.alabama.gov <nick.nichols@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>; cchaffin@alabamarivers.org <cchaffin@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,

Below is call in information if you would prefer to call in for the August 27th meeting. If you plan to attend in person, please RSVP by August 20th so we can get an accurate headcount for lunch.

Thanks,

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

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Thanks,

APC Harris Relicensing

From: APC Harris Relicensing
Sent: Friday, August 9, 2019 8:50 AM
To: Sarah Salazar; APC Harris Relicensing
Cc: Allan Creamer; Rachel McNamara; Monte Terhaar (CTR); Kyrstin Wallach; Stephen Bowler
Subject: RE: HAT 3 meeting - T&E Study Plan

Hi Sarah,

It will be great to have you guys on the phone. The Skype info is in the email below. We will be looking at a Powerpoint and Google Maps, so it would be ideal for you to pull it up on your computer screen as well as be on the phone.

Thanks!

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

From: Sarah Salazar <Sarah.Salazar@ferc.gov>
Sent: Thursday, August 8, 2019 12:49 PM
To: APC Harris Relicensing <g2apchr@southernco.com>
Cc: Allan Creamer <Allan.Creamer@ferc.gov>; Rachel McNamara <Rachel.McNamara@ferc.gov>; Monte Terhaar (CTR) <Monte.Terhaar@ferc.gov>; Kyrstin Wallach <Kyrstin.Wallach@ferc.gov>; Stephen Bowler <Stephen.Bowler@ferc.gov>
Subject: RE: HAT 3 meeting - T&E Study Plan

Good afternoon Angie,

Could you send the call-in information to the FERC staff when you have it? We won't be able to attend in person, but some of us plan to participate by phone.

Thanks in advance,

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: APC Harris Relicensing [mailto:g2apchr@southernco.com]
Sent: Thursday, August 08, 2019 1:32 PM
To: APC Harris Relicensing <g2apchr@southernco.com>
Subject: HAT 3 meeting - T&E Study Plan

HAT 3,

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Thanks,

Angie Anderegg

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

.....

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Thanks,

APC Harris Relicensing

From: Anderegg, Angela Segars
Sent: Wednesday, August 21, 2019 9:13 AM
To: Clark, Maria
Subject: RE: HAT 3 meeting - T&E study plan
Attachments: HAT 3 meeting - T&E Study Plan

Hi Maria,

Attached is the email that went out to HAT 3 with the call in info for August 27th.

Thanks!

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

From: Clark, Maria <Clark.Maria@epa.gov>
Sent: Wednesday, August 21, 2019 8:04 AM
To: Anderegg, Angela Segars <ARSEGARS@southernco.com>
Cc: Clark, Maria <Clark.Maria@epa.gov>
Subject: RE: HAT 3 meeting - T&E study plan
Importance: High

EXTERNAL MAIL: Caution Opening Links or Files

Good morning Angie!

Any news regarding this request? Thank you so much!!
Maria

From: Anderegg, Angela Segars <ARSEGARS@southernco.com>
Sent: Thursday, July 25, 2019 12:39 PM
To: Clark, Maria <Clark.Maria@epa.gov>
Subject: RE: HAT 3 meeting - T&E study plan

Hi Maria,

We're reaching out to the conference center on the best option for calling in. I'll send out info when we hear back.

Thanks!

Angie Anderegg
Hydro Services
(205)257-2251

arsegars@southernco.com

From: Clark, Maria <Clark.Maria@epa.gov>
Sent: Tuesday, July 23, 2019 2:32 PM
To: Anderegg, Angela Segars <ARSEGARS@southernco.com>
Subject: FW: HAT 3 meeting - T&E study plan
Importance: High

EXTERNAL MAIL: Caution Opening Links or Files

Dear Angie,

How are you? I can't believe the summer is almost gone.

Is there any chance to connect via internet and/or phone to attend this meeting?

Thank you!

Maria R. Clark
NEPA Section - Region 4
Strategic Programs Office
U.S. Environmental Protection Agency
61 Forsyth, Street South West
Atlanta, GA 30303
404-562-9513

From: APC Harris Relicensing <g2apchr@southernco.com>
Sent: Monday, July 22, 2019 11:10 AM
To: APC Harris Relicensing <g2apchr@southernco.com>
Subject: HAT 3 meeting - T&E study plan

HAT 3,

We will have a HAT 3 meeting on August 27th from 10:00 am – 2:00 pm at the Wendell Mitchell Conference Center at Lurleen B. Wallace Community College in Greenville (750 Greenville By-Pass, Greenville, AL 36037). The purpose of this meeting is to discuss the GIS overlays and map and the need for field verification for the T&E Study Plan. Please RSVP by August 20th if you plan to attend.

Thanks,

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

RE: HAT 3 meeting - T&E Study Plan

APC Harris Relicensing

Mon 8/26/2019 5:14 PM

To: APC Harris Relicensing <g2apchr@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>; nick.nichols@dcnr.alabama.gov <nick.nichols@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>; Anderegg, Angela Segars <ARSEGARS@southernco.com>; McVicar, Ashley M <AMMcVica@southernco.com>; Anderson, Dave <DKANDERS@SOUTHERNCO.COM>; Carlee, Jason <JCARLEE@southernco.com>; Baker, Jeffery L. <JEFBAKER@southernco.com>; Chandler, Keith Edward <KECHANDL@SOUTHERNCO.COM>; Mills, Tina L. <tlmills@southernco.com>; cggoodma@southernco.com <cggoodma@southernco.com>; clowry@alabamarivers.org <clowry@alabamarivers.org>; cchaffin@alabamarivers.org <cchaffin@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>; Hancock, Jim (Balch) <jhancock@balch.com>; Allen, Leslie G. (Balch) <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>

1 attachments (950 KB)

2019-8-27 HAT 3 T&E Meeting.pdf;

HAT 3,

In case you plan on calling in tomorrow and end up having technical difficulties, attached is the agenda and presentation we will be using.

Thanks,

Angie Anderegg
Hydro Services
(205)257-2251

arsegars@southernco.com

From: APC Harris Relicensing
Sent: Thursday, August 8, 2019 12:32 PM
To: 'harrisrelicensing@southernco.com' <harrisrelicensing@southernco.com>
Subject: HAT 3 meeting - T&E Study Plan

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Thanks,

Meeting Summary
HAT 3 Meeting
August 27, 2019
10:00 am to 12:00 pm
Wendell Mitchell Conference Center, Greenville, AL

Participants:
Angie Anderegg - Alabama Power
Jeff Baker - Alabama Power
Jason Carlee - Alabama Power
Curt Chaffin - Alabama Rivers Alliance (ARA)
Kristie Coffman - Alabama Cooperative Fish and Wildlife Research Unit
Evan Collins - United States Fish and Wildlife Service (USFWS)
Colin Dinken - Kleinschmidt
Taconya Goar - Alabama Department of Conservation of Natural Resources (ADCNR)
Elise Irwin - USGS Alabama Cooperative Fish and Wildlife Research Unit (ACFWRU)
Jason Moak - Kleinschmidt

By Phone:
Dave Anderson - Alabama Power
Chris Goodman - Stakeholder
Donna Matthews - Stakeholder
Ashley McVicar - Alabama Power
Sarah Salazar - Federal Energy Regulatory Commission (FERC)

Action Items:

- Prepare draft meeting notes and distribute to HAT 3 members (will also be available on the Harris Relicensing website – Alabama Power
- Determine the need, extent, and timing of surveys for finelined pocketbook in Tallapoosa River near HWY 431 - Alabama Power and USFWS
- Review existing information on southern pigtoe and Morefield's leather flower to determine if further analysis is warranted - USFWS
- Determine if there is existing data for fish/mussel communities at Little Coon Creek – Alabama Power
- Determine the need, extent, and timing of surveys to assess aquatic habitat in Little Coon Creek – Alabama Power and USFWS

Meeting Summary:

Angie Anderegg (Alabama Power) opened the meeting by explaining where we are in the R.L. Harris Project (Harris Project) relicensing process. Alabama Power filed a revised Study Plan on March 13, 2019, and FERC issued its study plan determination on April 12, 2019. Since the study plan approval, Alabama Power started several studies and will host additional Harris Action Team (HAT) meetings to provide progress updates on the various resource studies.

Jason M. (Kleinschmidt) reviewed the goal, geographic scope, and methods of the Threatened and Endangered (T&E) Species Study Plan. Jason M. then reviewed the study schedule and upcoming October Progress Update. Alabama Power plans to distribute a draft T&E Study Report in February 2020 and file the Initial Study Report with FERC in April 2020. Harris Action Team meetings will be held subsequently as needed, and Alabama Power will file with FERC, an additional Progress Update in October 2020, and an Updated Study Report in April 2021.

At present, there are no listed species known to occur within the Harris Project Boundary. Jason M. reviewed the list of federally threatened and endangered species potentially occurring in Alabama counties within the Harris Project, beginning with the Red-cockaded woodpecker (RCW). Jeff Baker (Alabama Power) reported no RCW habitat has been observed in the Harris Project Boundary during bald eagle surveys and no RCWs have been observed to date.

Curt Chaffin (Alabama Rivers Alliance) mentioned the June 2019 removal of the Howle and Turner Dam on the Tallapoosa River upstream of Lake Harris and asked if there was any chance the removal could affect critical habitat for the finelined pocketbook. Evan Collins (USFWS) replied that given the proximity of the finelined pocketbook's critical habitat to the Project Boundary, some investigation could be warranted. Jason asked where in the mainstem the species occurred, and Evan said he could send Alabama Power a map and that he would not be surprised if finelined pocketbook occurred near the Harris Project Boundary (around HWY 431). Sarah Salazar (FERC) suggested that any mussel assessments should also consider fish species that serve as hosts for mussel larvae.

Jason M. noted that the Southern Pigtoe is endemic to the Coosa River and may have never existed in the Tallapoosa basin, which may warrant removal from further consideration. Sarah noted that Alabama Power should document USFWS concurrence with any decision to remove from consideration any species on the official list.

Jason M. reviewed the Indiana Bat, Northern Long-eared Bat and Gray Bat. He noted that the Alabama Natural Heritage Program did not report any occurrences of these bat species in the Harris Project Boundary. Evan stated it is likely that all three bat species occur at Skyline. Jason Carlee (Alabama Power) confirmed that timber harvest activities follow appropriate Best Management Practices (BMPs), including leaving snag tree and preferred habitat trees and delaying timber harvest during sensitive time periods. Some forestry BMPs have been expanded but have not been incorporated into the existing license. Sarah noted that it appears that all project counties occur within the White Nose Syndrome Zone.

Jason M. reviewed threatened and endangered plants, beginning with Little Amphianthus (Pool Sprite). One occurrence was reported within the Harris Project Boundary in Flat Rock Park in March 17, 1995. The group discussed the possibility of changing the land use classification of some lands from Recreation to Natural/Undeveloped and noted that surveys at Flat Rock Park occurred in Fall 2018 and Spring 2019. An additional survey is scheduled for Fall 2019. Taconya Goar (ADCNR) asked Alabama Power to clarify what it means to reclassify land as Natural/Undeveloped. Angie commented that the 20-acre parcel of land where the botanical inventory is taking place is currently classified as Recreation. The American Glade Conservation Coalition (AGCC) has recommended that Alabama Power reclassify the 20-acres to provide additional protection for the rare habitat types present there. Jeff Baker (Alabama Power) mentioned the BioBlitz held at that site in Fall 2018. Evan asked if the AGCC were looking for

suitable habitat in addition to the species themselves. Jason Carlee noted that the ongoing survey efforts will document both the species and habitats currently present on the parcel.

Jason M. reviewed the White Fringeless Orchid and stated that Alabama Power may use Geographic Information System (GIS) data to determine if habitat requirements align with potential habitat available within the Project Boundary. Jason M. reviewed the Price's Potato-bean and stated that Alabama Power may further investigate this species since it is known to be present within the Skyline Wildlife Management Area. Jason M. also reviewed the Morefield's Leather Flower. Sarah asked if there would be a complete set of maps for the Project Update and stated that Morefield's Leather Flower is not in the Information for Planning and Consultation (IPaC) species list. Angie asked why this species wasn't in the IPaC or Natural Heritage Program list but is in the Study Plan. Evan commented that the IPaC data is on a finer scale than a county and that he would look through USFWS data.

Evan commented on some of the different requirements of certain mussel species and fish: the *Notropis* species (Palezone Shiner) may be present in some of the lower reaches of Tennessee River tributaries. Jeff offered to make an inquiry with ADEM to determine if/where they have performed fish surveys on Little Coon Creek at Skyline. Evan suggested that Little Coon Creek would need to be investigated further to determine the type and extent of available habitat and whether it is suitable for aquatic species listed in the study plan.

Jason M. reiterated the need to investigate the likelihood of some of the study plan species occurring within the Harris Project. Jason C. pointed out that most of the field verification work could be performed fairly quickly. Evan will take a closer look at the distributions of some plant species such as Morefield's Leather Flower to see if they should remain in the Study Plan. Evan asked how the habitat assessment was going to be performed. Jason M. replied that Alabama Power is consulting with subject matter experts that are familiar with these areas and looking at the possibility of field surveys for confirmation. Jason C. discussed existing protection and enhancement measures performed by Alabama Power, including BMPs, animal boxes, and future discussion items such as the Wildlife Management Plan.

Jason M. noted Kleinschmidt will prepare the T&E Species report, which will focus on life history requirements and distributions of study plan species within the geographic scope. Alabama Power will host a HAT 3 meeting in the Spring of 2020, but a phone meeting may be scheduled earlier if needed.

R.L. Harris Project Relicensing

HAT 3 – Threatened & Endangered Species Study

August 27, 2019

HARRIS DAM
RELICENSING

Safety Moment

In case of an emergency…..

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

HARRIS DAM
RELICENSING

Meeting Agenda

- Introductions and Process Overview
- Review Study Plan & Species List
- Timeline for Desktop Assessment
- Discuss need for Field Surveys
- Discuss Existing Protection and Enhancement Programs
- Review Action Items
- Adjourn

HARRIS DAM
RELICENSING

Process Update

March 13 - Revised Study Plans Filed

April 12 - FERC Study Plan Determination

Summer/Fall 2019 – Various HAT meetings

T & E Species Study

Goal

Determine if listed species occur in the Project Area and identify potential project impacts

Geographic Scope

Harris Project Boundary (Lake Harris and Skyline), and Tallapoosa River from Harris Dam through Horseshoe Bend

Study Components

- Compile a list of T&E species and critical habitats documented.
- 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

T & E Species Study Schedule

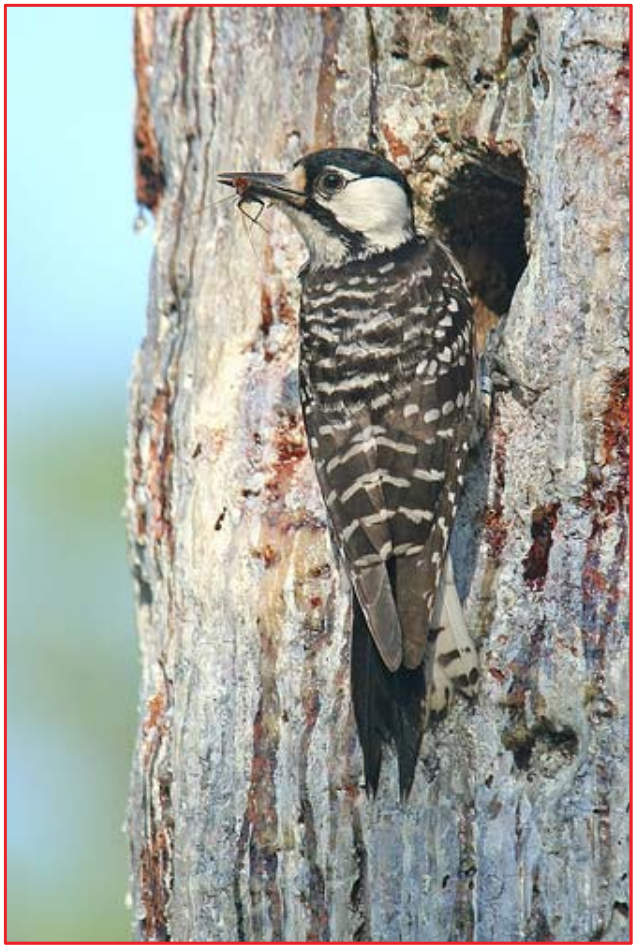


Task/Milestone	2019 APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	2020 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	2021 JAN	FEB	MAR	APR
Develop GIS Overlays and Maps																									
Discuss GIS and need for field verification																									
Progress Update																									
Field Verification, if required																									
Draft T&E study report to HAT 3																									
Initial Study Report																									
Initial Study Report Meeting																									
HAT 3 Meeting(s), as needed,																									
Progress Update																									
Final T&E study report to HAT 3																									
Updated Study Report																									
Updated Study Report Meeting																									

SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS	STATE PROTECTED	COUNTY(IES) OF OCCURRENCE	OCCURRENCE	DOCUMENTED HISTORIC RANGE IN AL
Picoides borealis	Red-Cockaded Woodpecker	E	Yes	Clay & Randolph		Statewide in appropriate habitat
Notropis albizonatus	Palezone Shiner	E	Yes	Jackson		Tennessee River system
Erimonax monachus	Spotfin Chub	T	Yes	Jackson		Tennessee River system
Hamiota altilis	Fine-lined Pocketbook mussel	T		Cleburne	Yes	Coosa, Tallapoosa, Cahaba River systems
Lampsilis virescens	Alabama Lampmussel	E		Jackson		Tennessee River system
Villosa trabalis	Cumberland Bean	E		Jackson		Tennessee River system
Fusconaia cuneolus	Finerayed Pigtoe	E		Jackson		Tennessee River system
Toxolasma cylindrellus	Pale Lilliput	E		Jackson		Tennessee River system
Quadrula cylindrica	Rabbitsfoot	T		Jackson		Tennessee River system
Fusconaia cuneolus	Shiny Pigtoe	E		Jackson		Tennessee River system
Epioblasma triquetra	Snuffbox	E		Jackson		Tennessee River system
Pleurobema georgianum	Southern Pigtoe	E		Clay		Coosa River system
Pleuronaia dolabelloides	Slabside Pearlymussel	E		Jackson		Tennessee River system
Myotis sodalis	Indiana Bat	E	Yes	Clay, Cleburne, Randolph, Chambers, Tallapoosa, & Jackson	Yes	Statewide in appropriate habitat
Myotis septentrionalis	Northern Long-eared Bat	T	Yes	Clay, Cleburne, Randolph, Chambers, Tallapoosa, & Jackson	Yes	Piedmont and Cumberland regions
Myotis grisescens	Gray Bat	E	Yes	Jackson	Yes	Statewide in appropriate habitat
Amphianthus pusillus	Little Amphianthus	T		Randolph, Chambers, & Tallapoosa	Yes	Piedmont region (Bridges 1988)
Platanthera integrilabia	White Fringeless Orchid	T		Clay, Cleburne, Jackson, Chambers, & Tallapoosa		Talladega National Forest
Apios priceana	Price's Potato-bean	T		Jackson	Yes	Statewide in appropriate habitat
Clematis morefieldii	Morefield's Leather Flower	E		Jackson		Northern regions of state (USFWS 2007)

Red-Cockaded Woodpecker

Federal Status	Endangered
Habitat	Open pine woodlands and savannas with large, old pines (preferably longleaf) and abundant native bunchgrass and groundcovers. Little or not mid or over-story hardwoods.
Potential Occurrence	Clay and Randolph counties



Palezone Shiner

Federal Status	Endangered
Habitat	Runs and pools of large creeks and small rivers with clean bedrock, cobble, gravel, and sand
Potential Occurrence	Jackson County
Known Populations	Paint Rock River



Spotfin Chub

Federal Status	Threatened
Habitat	Clear, large creeks and medium-sized rivers with moderate current over bedrock and gravel substrates
Potential Occurrence	Jackson County
Known Populations	Presumed extirpated in AL



Finelined Pocketbook

Federal Status	Threatened
Habitat	Small to large streams above Fall Line having stable sand, gravel, and cobble substrates and moderate to swift current
Potential Occurrence	Cleburne County
Known Populations	Little Cane Creek, Cane Creek and Muscadine Creek (Tallapoosa River tributaries upstream of Lake Harris in Cleburne County)
Critical Habitat	100-mile reach of Tallapoosa River extending upstream from US HWY 431



Alabama Lampmussel

Federal Status	Endangered
Habitat	Shoals of small and medium rivers
Potential Occurrence	Jackson County
Known Populations	Paint Rock River



Cumberland Bean

Federal Status	Endangered
Habitat	Swift riffles of small rivers and streams with gravel/sand
Potential Occurrence	Jackson County
Known Populations	None reported in Alabama since impoundment of the Tennessee River



Finerayed pigtoe

Federal Status	Endangered
Habitat	Shoals of medium to large rivers with sand to cobble substrates
Potential Occurrence	Jackson County
Known Populations	Paint Rock River



Pale lilliput

Federal Status	Endangered
Habitat	Large creeks and small rivers with moderate current over gravel
Potential Occurrence	Jackson County
Known Populations	Paint Rock River



Rabbitsfoot

Federal Status	Threatened
Habitat	Creeks and small rivers along margins of riffles and runs; sometimes lotic reaches of large rivers
Potential Occurrence	Jackson County
Known Populations	Paint Rock River



Shiny pigtoe

Federal Status	Endangered
Habitat	Shoals and riffles of medium to large rivers
Potential Occurrence	Jackson County
Known Populations	Paint Rock River



Southern pigtoe

Federal Status	Endangered
Habitat	Sand/gravel/cobble shoals and runs in small rivers and large streams
Potential Occurrence	Cleburne County
Known Populations	Shoal Creek
Notes	Species is endemic to Coosa River basin; no records indicate it has ever occurred in the Tallapoosa River basin



Slabside pearlymussel

Federal Status	Endangered
Habitat	Large creeks and rivers in shallow riffles with sand, gravel, and cobble substrates and moderate current
Potential Occurrence	Jackson County
Known Populations	Larkin Fork, Estill Fork, Hurricane Creek, and Paint Rock River
Critical Habitat	Larkin Fork (7 mi), Estill Fork (8 mi), Hurricane Creek (10 mi), Paint Rock River (53 mi)



Indiana Bat

Federal Status	Endangered
Habitat	Hibernates in caves; maternal colonies roost in tree hollows and behind loose bark
Potential Occurrence	Jackson, Clay, Cleburne, Randolph, Chambers, and Tallapoosa counties



Northern Long-eared Bat

Federal Status	Threatened
Habitat	Hibernates in caves or cave-like structures; roosts in cavities, under bark, or in hollows of live or dead trees
Potential Occurrence	Jackson, Clay, Cleburne, Randolph, Chambers, and Tallapoosa counties



Gray Bat

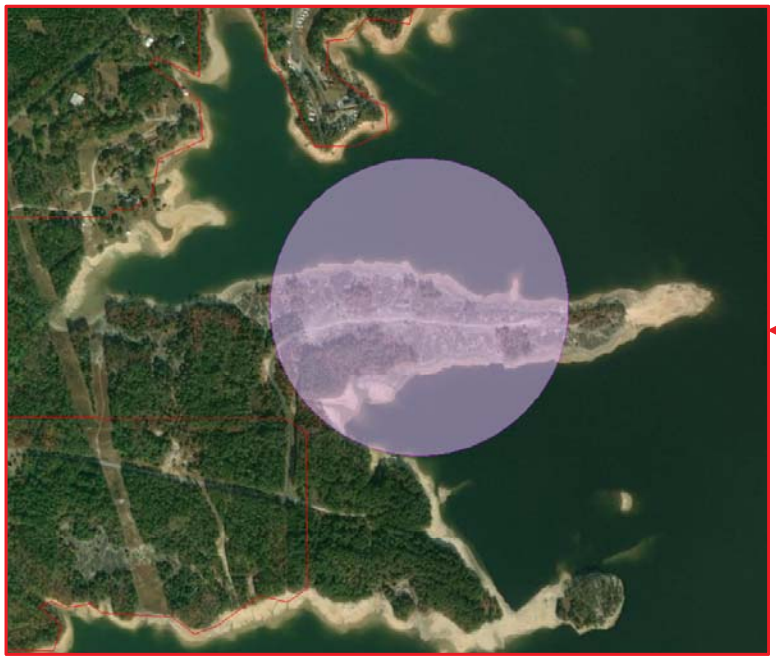
Federal Status	Endangered
Habitat	Uses caves for both summer roosting and winter hibernation
Potential Occurrence	Jackson County



Little Amphianthus

Federal Status	Threatened
Habitat	Vernal pools on granite outcrops in the southeastern Piedmont
Potential Occurrence	Randolph, Chambers, and Tallapoosa counties
Know Populations	Randolph (two sites), Chambers (one site)





Last observed on 3/17/1995

White Fringeless Orchid

Federal Status	Threatened
Habitat	Wet, flat, or boggy areas with acidic muck or sand in partially shaded areas at the head of streams or seepage slopes
Potential Occurrence	Clay, Cleburne, Chambers, Tallapoosa, and Jackson counties
Know Populations	Talladega National Forest (Clay County)



Price's Potato-bean

Federal Status	Threatened
Habitat	Open bottom areas near or along the banks of streams and rivers, sometimes near the base of limestone bluffs
Potential Occurrence	Jackson County
Know Populations	Sauta Cave NWR, Little Coon Creek in Skyline WMA



Morefield's Leather Flower

Federal Status	Endangered
Habitat	Near seeps and springs in rocky limestone woods on south and southwest facing slopes of mountains
Potential Occurrence	Jackson County
Know Populations	Jackson County



APC Harris Relicensing

From: Anderegg, Angela Segars
Sent: Wednesday, August 28, 2019 12:36 PM
To: Sarah Salazar
Subject: RE: HAT 1 meeting - September 11, 2019

Hi Sarah,

I completely agree that it will be beneficial to document our consultation with FWS on what species should continue to be reviewed, which require field verification vs desktop analysis, protocols to use, etc.

I apologize again for the phone issues yesterday. We are going to make every effort to avoid that happening again!

Thanks,

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

From: Sarah Salazar <Sarah.Salazar@ferc.gov>
Sent: Tuesday, August 27, 2019 11:54 AM
To: Anderegg, Angela Segars <ARSEGARS@southernco.com>
Subject: RE: HAT 1 meeting - September 11, 2019

EXTERNAL MAIL: Caution Opening Links or Files

Hi Angie,

I have a quick follow-up comment/clarification for the HAT 3 meeting for consideration as we move forward in the first study season. When you consult with FWS, it would be really helpful if you could get their explicit comments not only regarding which species should continue to be reviewed (i.e., as our official T&E species list for the Harris Reservoir area and Skyline), but also their comments about whether or not field surveys are needed for each of the species on the list. If FWS comments that surveys are needed for any of the species, it would be ideal for them to also provide the species-specific survey protocol(s), if available, that would facilitate their review under ESA. Having all of these types of comments on our record would facilitate ESA consultation throughout the licensing process. Feel free to call if you have any questions about this follow-up comment.

Thanks again for the opportunity to participate in the meeting today!

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: Anderegg, Angela Segars [mailto:ARSEGARS@southernco.com]
Sent: Monday, August 26, 2019 1:04 PM
To: Sarah Salazar <Sarah.Salazar@ferc.gov>
Cc: Allan Creamer <Allan.Creamer@ferc.gov>; Rachel McNamara <Rachel.McNamara@ferc.gov>; Monte Terhaar (CTR)

<Monte.Terhaar@ferc.gov>; Kyrstin Wallach <Kyrstin.Wallach@ferc.gov>; Stephen Bowler <Stephen.Bowler@ferc.gov>; Anderson, Dave <DKANDERS@SOUTHERNCO.COM>
Subject: RE: HAT 1 meeting - September 11, 2019

Hey Sarah,

Yes, if you have any technical difficulties call Dave Anderson (205-257-1398). He has the most experience in our group working out snags with Skype.

Talk to you tomorrow!

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

From: Sarah Salazar <Sarah.Salazar@ferc.gov>
Sent: Monday, August 26, 2019 10:36 AM
To: Anderegg, Angela Segars <ARSEGARS@southernco.com>
Cc: Allan Creamer <Allan.Creamer@ferc.gov>; Rachel McNamara <Rachel.McNamara@ferc.gov>; Monte Terhaar (CTR) <Monte.Terhaar@ferc.gov>; Kyrstin Wallach <Kyrstin.Wallach@ferc.gov>; Stephen Bowler <Stephen.Bowler@ferc.gov>
Subject: RE: HAT 1 meeting - September 11, 2019

EXTERNAL MAIL: Caution Opening Links or Files

Ok, thank you for the heads up Angie. We can call in for the audio. I will try to connect 5 or 10 min. before the mtg. starts. Is there a preferred number we should call if we experience any technical difficulties?

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: Anderegg, Angela Segars [mailto:ARSEGARS@southernco.com]
Sent: Thursday, August 15, 2019 4:28 PM
To: Sarah Salazar <Sarah.Salazar@ferc.gov>
Cc: Allan Creamer <Allan.Creamer@ferc.gov>; Rachel McNamara <Rachel.McNamara@ferc.gov>; Monte Terhaar (CTR) <Monte.Terhaar@ferc.gov>; Kyrstin Wallach <Kyrstin.Wallach@ferc.gov>; Stephen Bowler <Stephen.Bowler@ferc.gov>
Subject: RE: HAT 1 meeting - September 11, 2019

We have found that Skype works best if you have it call your desk or cell phone, in lieu of using the speakers on your computer. An alternative is to call the number directly from your phone. Then click on the link and choose “Don’t join audio.” Hopefully one of these will work!

Thanks!

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

From: Sarah Salazar <Sarah.Salazar@ferc.gov>
Sent: Tuesday, August 13, 2019 1:55 PM
To: Anderegg, Angela Segars <ARSEGARS@southernco.com>
Cc: Allan Creamer <Allan.Creamer@ferc.gov>; Rachel McNamara <Rachel.McNamara@ferc.gov>; Monte Terhaar (CTR) <Monte.Terhaar@ferc.gov>; Kyrstin Wallach <Kyrstin.Wallach@ferc.gov>; Stephen Bowler <Stephen.Bowler@ferc.gov>
Subject: RE: HAT 1 meeting - September 11, 2019

EXTERNAL MAIL: Caution Opening Links or Files

Good afternoon Angie,

Thank you for the information about the HAT 1 & 2 meetings in September. As with the HAT 3 mtg., we won't be able to attend in person, but some of us plan to participate by phone. I meant to confirm that I saw the call-in and skype info. in your previous email too. We will join by phone and/or Skype so that we can follow along with the slides as you present. I say and/or because sometimes our Skype sound works and other times it doesn't. We look forward to the meetings!

Thanks again,

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: Anderegg, Angela Segars [mailto:ARSEGARS@southernco.com]
Sent: Tuesday, August 13, 2019 2:19 PM
To: APC Harris Relicensing <g2apchr@southernco.com>
Subject: HAT 1 meeting - September 11, 2019

HAT 1,

Alabama Power Company will be hosting a series of HAT meetings on **Wednesday, September 11, 2019 at the Oxford Civic Center,** 401 Mccullars Ln, Oxford, AL 36203. The HAT 1 meeting will be from **9:00 to 11:00**. The purpose of the HAT 1 meeting is to review the models, model assumptions, inputs and scenarios, and to review the schedule for deliverables and respond to stakeholder questions on the models. This is for both the Operating Curve Change Feasibility Analysis and the Downstream Release Alternatives studies. Note that Alabama Power will not be presenting results of any of the modeling efforts at this meeting; however we will be explaining how the analyses will provide results.

Please RSVP by Friday, September 6, 2019. Lunch will be provided (~11:45) so please indicate any food allergies or vegetarian preferences on or before September 6, 2019. 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.

Join Skype Meeting [meet.lync.com]

Trouble Joining? Try Skype Web App [meet.lync.com]

Join by phone

Toll number: +1 (207) 248-8024

Find a local number [dialin.lync.com]

Conference ID: 892052380

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

HAT 3 - 8/27 meeting notes

Anderegg, Angela Segars

Wed 9/25/2019 7:43 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>; cchaffin@alabamarivers.org <cchaffin@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>

Good afternoon HAT 3,

The meeting notes and presentation for the August 27 HAT 3 meeting can be found on the Harris relicensing website:
2019-8-27 HAT 3 meeting notes.

Thanks,

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

Level logger information

APC Harris Relicensing

Mon 10/14/2019 6:34 PM

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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,

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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] (in the Relicensing Documents folder).

Thanks,

Angie Anderegg

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

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Alabama Power

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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,

Angie Anderegg
Harris Relicensing Project Manager

Attachments (2)

cc: Harris Stakeholder List

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Attachment A
October 2019 Harris Project Progress Update

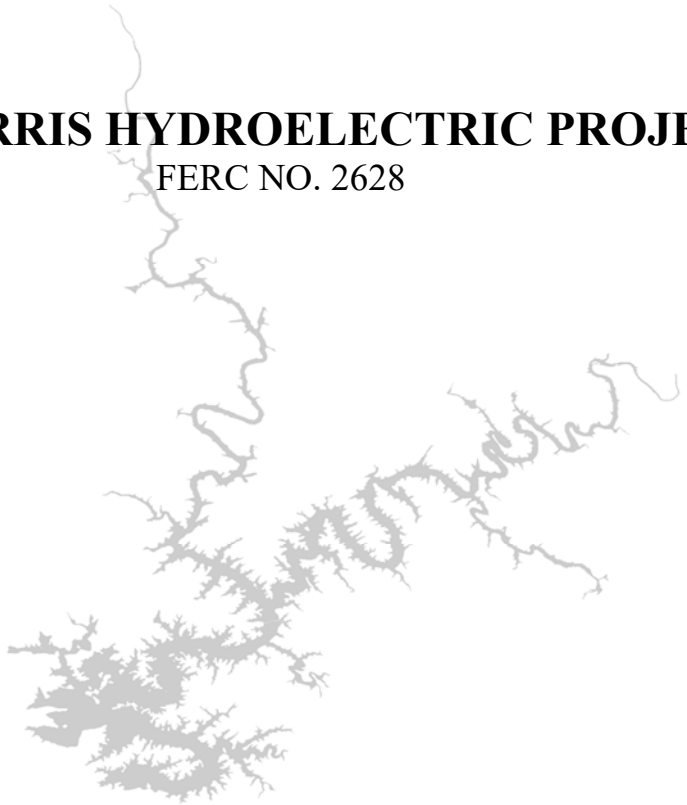
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HARRIS DAM
RELICENSING

PROGRESS UPDATE

R. L. HARRIS HYDROELECTRIC PROJECT

FERC NO. 2628



Prepared by:

ALABAMA POWER COMPANY
BIRMINGHAM, ALABAMA

Alabama Power

October 2019

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ALABAMA POWER COMPANY
BIRMINGHAM, ALABAMA

R. L. HARRIS HYDROELECTRIC PROJECT
FERC NO. 2628

PROGRESS UPDATE

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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 Project[1].

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, 2019[2]. 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

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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.

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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.

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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.

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- 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.

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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.

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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.

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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 Resources[3].
- 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.

20191030-5053 FERC PDF (Unofficial) 10/30/2019 10:16:30 AM

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 Proection 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 Proection 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 Proection 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 Proection 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

APC Harris Relicensing

From: Anderegg, Angela Segars
Sent: Thursday, November 7, 2019 10:39 AM
To: 'Evan Collins'
Cc: Baker, Jeffery L.; Jason Moak
Subject: Harris T&E survey
Attachments: 2019-10-21 Harris Finelined Pocketbook Survey Plan DRAFT.docx

Importance: High

Evan,

Jason Moak at Kleinschmidt informed me that you and Jeff Baker had worked out a plan to survey some areas around Lake Harris next week to determine if Finelined Pocketbook are present. I wanted to thank you for working with Jason and Jeff to hash out the details of this work. Jason prepared a survey plan for this effort based on your recommendations, which I've attached to this email.

I wanted to make sure we document your concurrence with the plan prior to performing the work. Can you send a brief reply if you are okay with it? If you have any suggestions or edits, please include those in your response and we'll be sure to update the document accordingly.

If you have any questions, please give me a call.

Thank You!

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

APC Harris Relicensing

From: Anderegg, Angela Segars
Sent: Monday, November 18, 2019 3:36 PM
To: Collins, Evan
Cc: Baker, Jeffery L.; Jason Moak; Powell, Jeff; 'Taconya Goar'
Subject: RE: [EXTERNAL] Harris T&E survey
Attachments: 2019-11-18 Harris Finelined Pocketbook Survey Plan DRAFT 2.docx

Attached is a new version of the survey plan with revisions based on your comments. Please let me know if you concur with the plan as revised. I believe the survey work is scheduled for this Thursday. Taconya, please let me know if you have any questions.

Thanks!

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

From: Collins, Evan <evan_collins@fws.gov>
Sent: Thursday, November 7, 2019 5:08 PM
To: Anderegg, Angela Segars <ARSEGARS@southernco.com>
Cc: Baker, Jeffery L. <JEFBAKER@southernco.com>; Jason Moak <jason.moak@kleinschmidtgroup.com>; Powell, Jeff <jeff_powell@fws.gov>
Subject: Re: [EXTERNAL] Harris T&E survey

EXTERNAL MAIL: Caution Opening Links or Files

Hi, Angie. Thanks for sending over the survey plan. I think it is important to remember that this survey plan begins to provide the documentation that will demonstrate an adequate effort was put forth to assess possible effects to the finelined pocketbook from operation of the project. Therefore, the logic and reasoning behind the methods should be clearly laid out. I'd specifically like to see a bit more information as to why tributaries into the reservoir were or were not selected for survey. I think that clearly elaborating on the methods and providing repeatable and justifiable methods will help to ensure that this is a scientifically defensible document.

Thanks!
Evan

On Thu, Nov 7, 2019 at 10:41 AM Anderegg, Angela Segars <ARSEGARS@southernco.com> wrote:

> Evan,
>
> Jason Moak at Kleinschmidt informed me that you and Jeff Baker had worked out a plan to survey some areas around Lake Harris next week to determine if Finelined Pocketbook are present. I wanted to thank you for working with Jason

and Jeff to hash out the details of this work. Jason prepared a survey plan for this effort based on your recommendations, which I've attached to this email.

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If you have any questions, please give me a call.

Thank You!

Angie Anderegg

Hydro Services

(205)257-2251

arsegars@southernco.com

--
Evan Collins
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Alabama Ecological Services Field Office
1208-B Main Street
Daphne, AL 36526
251-441-5837 (phone)
251-441-6222 (fax)
evan_collins@fws.gov

NOTE: This email correspondence and any attachments to and from this sender is subject to the Freedom of Information Act (FOIA) and may be disclosed to third parties.

APC Harris Relicensing

From: Anderegg, Angela Segars
Sent: Tuesday, November 19, 2019 3:35 PM
To: Collins, Evan
Cc: Baker, Jeffery L.; Jason Moak; Powell, Jeff; Taconya Goar
Subject: RE: [EXTERNAL] Harris T&E survey
Attachments: 2019-11-19 Harris Finelined Pocketbook Survey Plan DRAFT.docx

Hi Evan,

Jeff B and Jason added some language to address your question. Please let me know if you're good with the attached version.

Thanks!

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

From: Collins, Evan <evan_collins@fws.gov>
Sent: Monday, November 18, 2019 4:56 PM
To: Anderegg, Angela Segars <ARSEGARS@southernco.com>
Cc: Baker, Jeffery L. <JEFBAKER@southernco.com>; Jason Moak <jason.moak@kleinschmidtgroup.com>; Powell, Jeff <jeff_powell@fws.gov>; Taconya Goar <taconya.goar@dcnr.alabama.gov>
Subject: Re: [EXTERNAL] Harris T&E survey

EXTERNAL MAIL: Caution Opening Links or Files

Hi, Angie. Thanks for sending over the revised plan. I think this is heading in the right direction. However, I'm still a little unclear about the heuristic that was used to identify survey reaches. It appears that a stream reach length threshold was used. If so, can the threshold be explicitly stated in the document? Also, it would be worth stating the logic behind implementing that threshold.

Thanks again!
Evan

On Mon, Nov 18, 2019 at 3:41 PM Anderegg, Angela Segars <ARSEGARS@southernco.com> wrote:

> Attached is a new version of the survey plan with revisions based on your comments. Please let me know if you concur with the plan as revised. I believe the survey work is scheduled for this Thursday. Taconya, please let me know if you have any questions.
>
> Thanks!

Angie Anderegg

Hydro Services

(205)257-2251

arsegars@southernco.com

From: Collins, Evan <evan_collins@fws.gov>
Sent: Thursday, November 7, 2019 5:08 PM
To: Anderegg, Angela Segars <ARSEGARS@southernco.com>
Cc: Baker, Jeffery L. <JEFBAKER@southernco.com>; Jason Moak <jason.moak@kleinschmidtgroup.com>; Powell, Jeff <jeff_powell@fws.gov>
Subject: Re: [EXTERNAL] Harris T&E survey

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Hi, Angie. Thanks for sending over the survey plan. I think it is important to remember that this survey plan begins to provide the documentation that will demonstrate an adequate effort was put forth to assess possible effects to the finelined pocketbook from operation of the project. Therefore, the logic and reasoning behind the methods should be clearly laid out. I'd specifically like to see a bit more information as to why tributaries into the reservoir were or were not selected for survey. I think that clearly elaborating on the methods and providing repeatable and justifiable methods will help to ensure that this is a scientifically defensible document.

Thanks!

Evan

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> Evan,
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I wanted to make sure we document your concurrence with the plan prior to performing the work. Can you send a brief reply if you are okay with it? If you have any suggestions or edits, please include those in your response and we'll be sure to update the document accordingly.

If you have any questions, please give me a call.

Thank You!

Angie Anderegg

Hydro Services

(205)257-2251

arsegars@southernco.com

--

Evan Collins

Fish and Wildlife Biologist

U.S. Fish and Wildlife Service

Alabama Ecological Services Field Office
1208-B Main Street
Daphne, AL 36526
251-441-5837 (phone)

251-441-6222 (fax)

evan_collins@fws.gov

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--

Evan Collins
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Alabama Ecological Services Field Office
1208-B Main Street
Daphne, AL 36526
251-441-5837 (phone)
251-441-6222 (fax)
evan_collins@fws.gov

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APC Harris Relicensing

From: Collins, Evan <evan_collins@fws.gov>
Sent: Wednesday, November 20, 2019 12:41 PM
To: Anderegg, Angela Segars
Cc: Baker, Jeffery L.; Jason Moak; Powell, Jeff; Taconya Goar
Subject: Re: [EXTERNAL] Harris T&E survey

EXTERNAL MAIL: Caution Opening Links or Files

Thanks for continuing to work on this document! I think the transparency and repeatability is improving. However, I'm still uncertain regarding a couple points. There appears to be an assumption behind using a 1200ft threshold. I think the logic and that assumption should be explicitly stated (i.e, why 1200 and 1000 or 100ft?). Furthermore, Is there a reason why the mussels wouldn't be found in those smaller reaches? If so, that reasoning should probably be stated. Additionally, two sentences later, the following statement is used: "these represent the tributary reaches with the greatest potential to have available habitat." Can there be more clarification as to why these reaches are the best? I think it's important to be very clear about site selection to demonstrate that an unbiased approach was used. Let me know if you'd like to discuss this further.

-Evan

On Tue, Nov 19, 2019 at 3:38 PM Anderegg, Angela Segars <ARSEGARS@southernco.com> wrote:

> Hi Evan,
>
> Jeff B and Jason added some language to address your question. Please let me know if you're good with the attached version.
>
> Thanks!
>
> **Angie Anderegg**
>
> Hydro Services
>
> (205)257-2251
>
> arsegars@southernco.com
>
> ---
>
> **From:** Collins, Evan <evan_collins@fws.gov>
> **Sent:** Monday, November 18, 2019 4:56 PM

To: Anderegg, Angela Segars <ARSEGARS@southernco.com>
Cc: Baker, Jeffery L. <JEFBAKER@southernco.com>; Jason Moak <jason.moak@kleinschmidtgroup.com>; Powell, Jeff <jeff_powell@fws.gov>; Taconya Goar <taconya.goar@dcnr.alabama.gov>
Subject: Re: [EXTERNAL] Harris T&E survey

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Thanks again!

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On Mon, Nov 18, 2019 at 3:41 PM Anderegg, Angela Segars <ARSEGARS@southernco.com> wrote:

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>
> Thanks!
>
> **Angie Anderegg**
>
> Hydro Services
>
> (205)257-2251
>
> arsegars@southernco.com
>
> ---
>
> **From:** Collins, Evan <evan_collins@fws.gov>
> **Sent:** Thursday, November 7, 2019 5:08 PM
> **To:** Anderegg, Angela Segars <ARSEGARS@southernco.com>
> **Cc:** Baker, Jeffery L. <JEFBAKER@southernco.com>; Jason Moak <jason.moak@kleinschmidtgroup.com>; Powell, Jeff

<jeff_powell@fws.gov>
Subject: Re: [EXTERNAL] Harris T&E survey

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> I wanted to make sure we document your concurrence with the plan prior to performing the work. Can you send a brief reply if you are okay with it? If you have any suggestions or edits, please include those in your response and we'll be sure to update the document accordingly.
>
> If you have any questions, please give me a call.
>
> Thank You!

Angie Anderegg

Hydro Services

(205)257-2251

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Evan Collins

Fish and Wildlife Biologist

U.S. Fish and Wildlife Service

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Evan Collins

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Evan Collins
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Alabama Ecological Services Field Office
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Daphne, AL 36526
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HARRIS DAM
RELICENSING

FINE-LINED POCKETBOOK SURVEY PLAN

R. L. HARRIS HYDROELECTRIC PROJECT

FERC NO. 2628

Prepared by:

ALABAMA POWER COMPANY
BIRMINGHAM, ALABAMA

Alabama Power

NOVEMBER 2019

ALABAMA POWER COMPANY
BIRMINGHAM, ALABAMA

R. L. HARRIS HYDROELECTRIC PROJECT
FERC NO. 2628

FINE-LINED POCKETBOOK SURVEY PLAN

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FINE-LINED POCKETBOOK SURVEY PLAN

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 Project.

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, 2019. On August 27, 2019, the Harris Action Team (HAT) 3 (Fish & Wildlife) met to discuss components of the Threatened and Endangered Species Study Plan (TESS). At that meeting, the U.S. Fish and Wildlife Service (FWS) noted that finelined pocketbook (*Hamiota altilis*), a federally threatened mussel species, occurs in the Tallapoosa River and its tributaries upstream of the Harris Project boundary. The FWS subsequently recommended that Alabama Power perform surveys to determine if finelined pocketbook occur within or near the Project boundary in major tributaries to Harris Reservoir.

The finelined pocketbook is a suboval shaped mussel that has a maximum length of approximately 3⅜ inches (Mirarchi et al. 2004). This mussel lives in large to small streams in habitats above the fall line having stable sand/gravel/cobble substrates and moderate to swift currents. Historically, this mussel was found in the Alabama, Tombigbee, Black Warrior, Cahaba, Tallapoosa, and Coosa Rivers, and their tributaries (USFWS 2004). Regarding reproduction, the finelined pocketbook mussel releases glochidia as a super-conglutinate from March through June, and confirmed host species include blackspotted topminnow, redeye bass, spotted bass, largemouth bass, and green sunfish (Mirarchi et al. 2004). Reasons for the decline and status of the species include habitat modification, sedimentation, eutrophication, and water quality degradation (USFWS 2000).

This survey plan identifies the goals and methods that Alabama Power will use to assess the occurrence of fine-lined pocketbook in the study area.

2.0 GOALS AND OBJECTIVES

The goal of this study is to determine if fine-lined pocketbook occurs in the vicinity of the Project boundary. Alabama Power will employ standard qualitative and quantitative survey methods to achieve this goal.

3.0 STUDY AREA

There are a total of 23 named tributaries to Harris Reservoir, which has a full (summer pool) level of 793 ft and a winter pool level of 785 ft (8 foot drawdown). When the reservoir is at winter pool, tributary reaches that are normally backwatered under summer pool conditions may become marginally suitable for finelined pocketbook. A Geographic Information System (GIS) was used to examine reach length of Harris Reservoir tributaries between the summer and winter pool elevations. Only four tributaries had affected reach lengths greater than 1,200 ft. Approximately 3 miles of the Tallapoosa River, 2.75 miles of the Little Tallapoosa River, and 1 mile on both Ketchepedrakee (Tallapoosa R. tributary) and Pineywood (Little Tallapoosa R. tributary) Creeks lie within the zone between summer and winter pool (Figure 1). These represent the tributary reaches with the greatest potential to have available habitat and were therefore selected to determine if finelined pocketbook are present within or near the project boundary.

The FWS specifically identified the Tallapoosa River reach for further investigation during the August 27, 2019 HAT 3 meeting. The Little Tallapoosa River, Ketchepedrakee Creek, and Pineywood Creek survey areas were delineated based on the rationale described in the previous paragraph, and with the intent to include roughly equal lengths of stream within and upstream of the Project boundary. Surveyors may make slight modifications to extent of these survey areas based on professional judgement and practical considerations (e.g., safety, access, etc.), especially with respect to ensuring that areas that could potentially be affected by Project operations are adequately assessed.

The Tallapoosa River study area includes approximately 4.5 miles, from 4 miles upstream to 0.5 miles downstream of the Highway 431 bridge (Figure 2). The area downstream of the bridge is included in the Harris Project boundary. The area upstream of the bridge is part of a 100-mile long section designated as critical habitat for fine-lined pocketbook. Finelined pocketbook has

previously been collected in the mainstem and tributaries to the Tallapoosa River upstream of Harris Reservoir (Johnson and DeVries 1997). Surveys associated with the 2019 removal of the Howle and Turner Dam approximately 4.5 miles upstream of the Highway 431 bridge did not indicate the presence of finelined pocketbook at that location.

The Little Tallapoosa River study area includes an approximately 2.5-mile reach located between Old US 431 and Hwy 59 (Figure 3). The Ketchepedrakee Creek study area extends approximately 1.5 miles upstream of County Road 201. The Pineywood Creek study area extends approximately 0.2 miles downstream of HWY 431 to approximately 0.3 miles upstream of County Road 270.

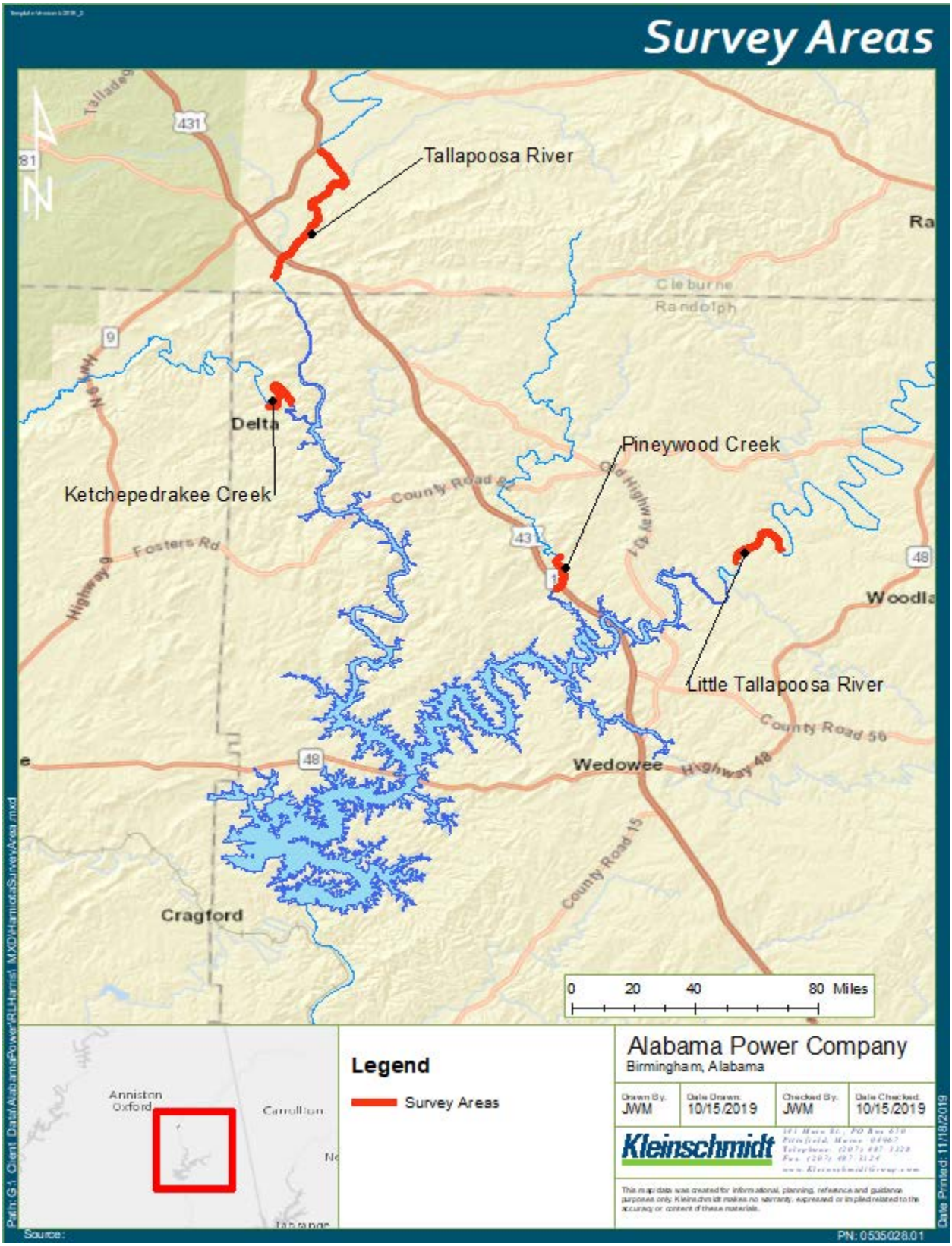


Figure 1. Survey Area Overview Map

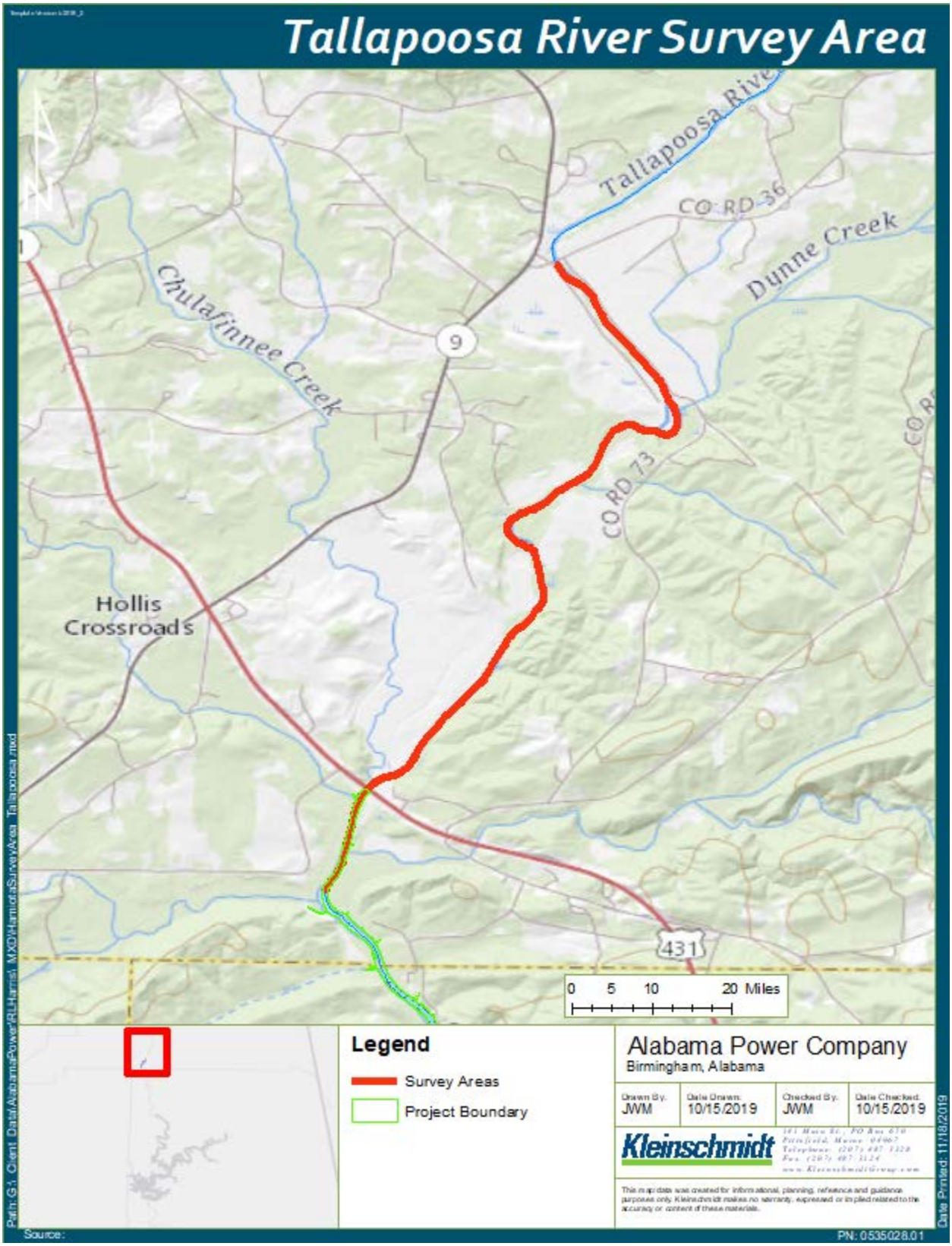


Figure 2. Tallapoosa River Survey Area

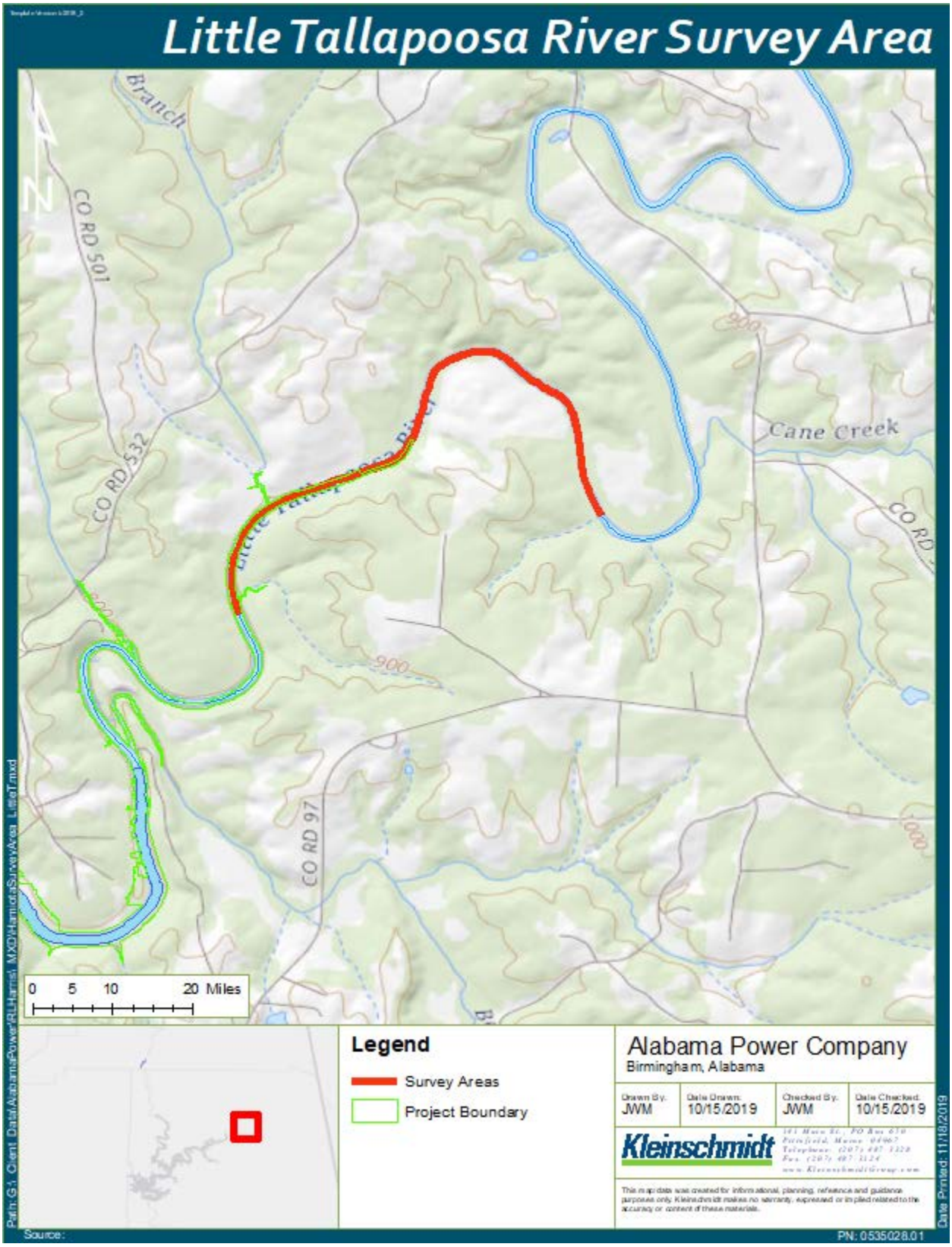


Figure 3. Little Tallapoosa River Survey Area

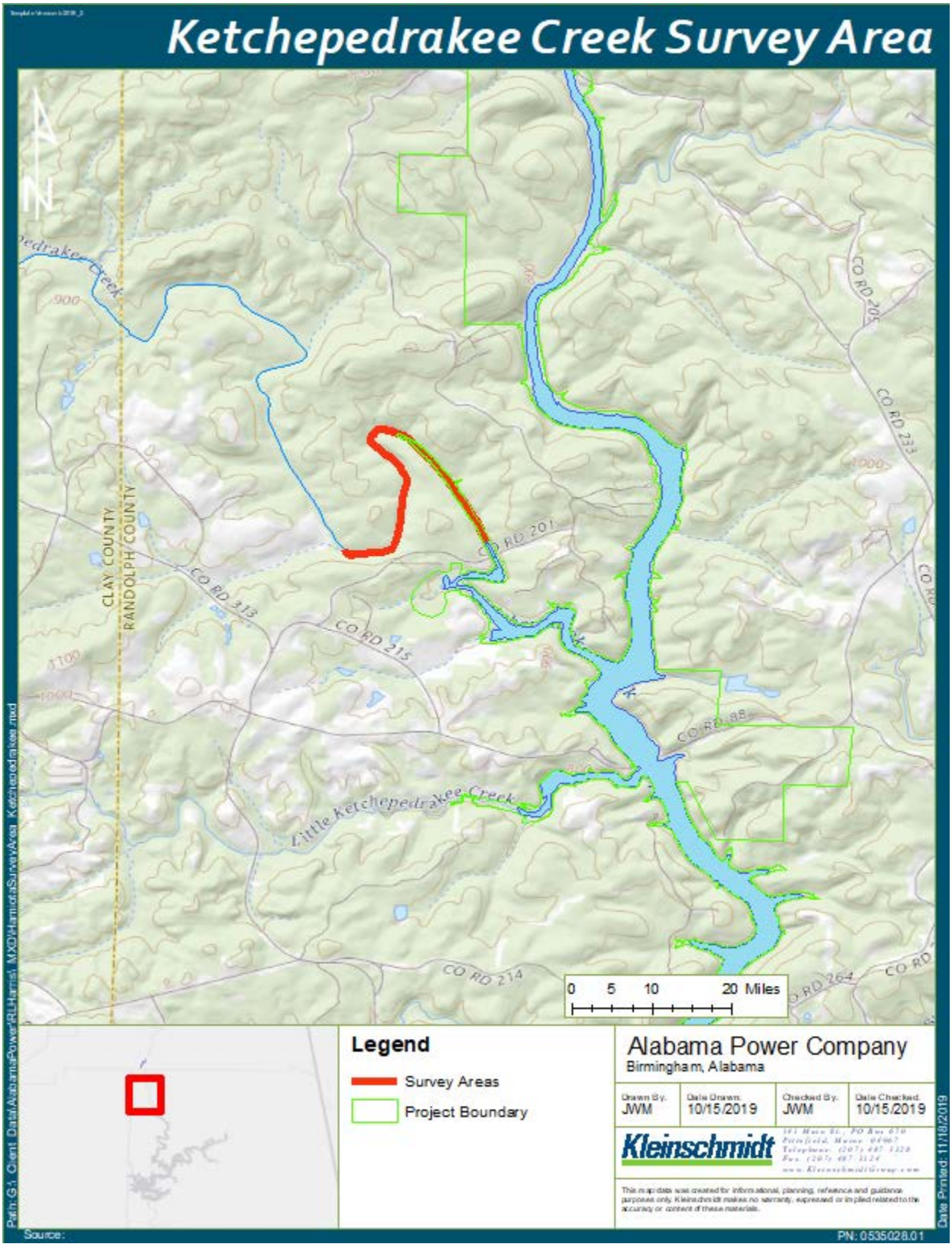


Figure 4. Ketchepedrakee Creek Survey Area

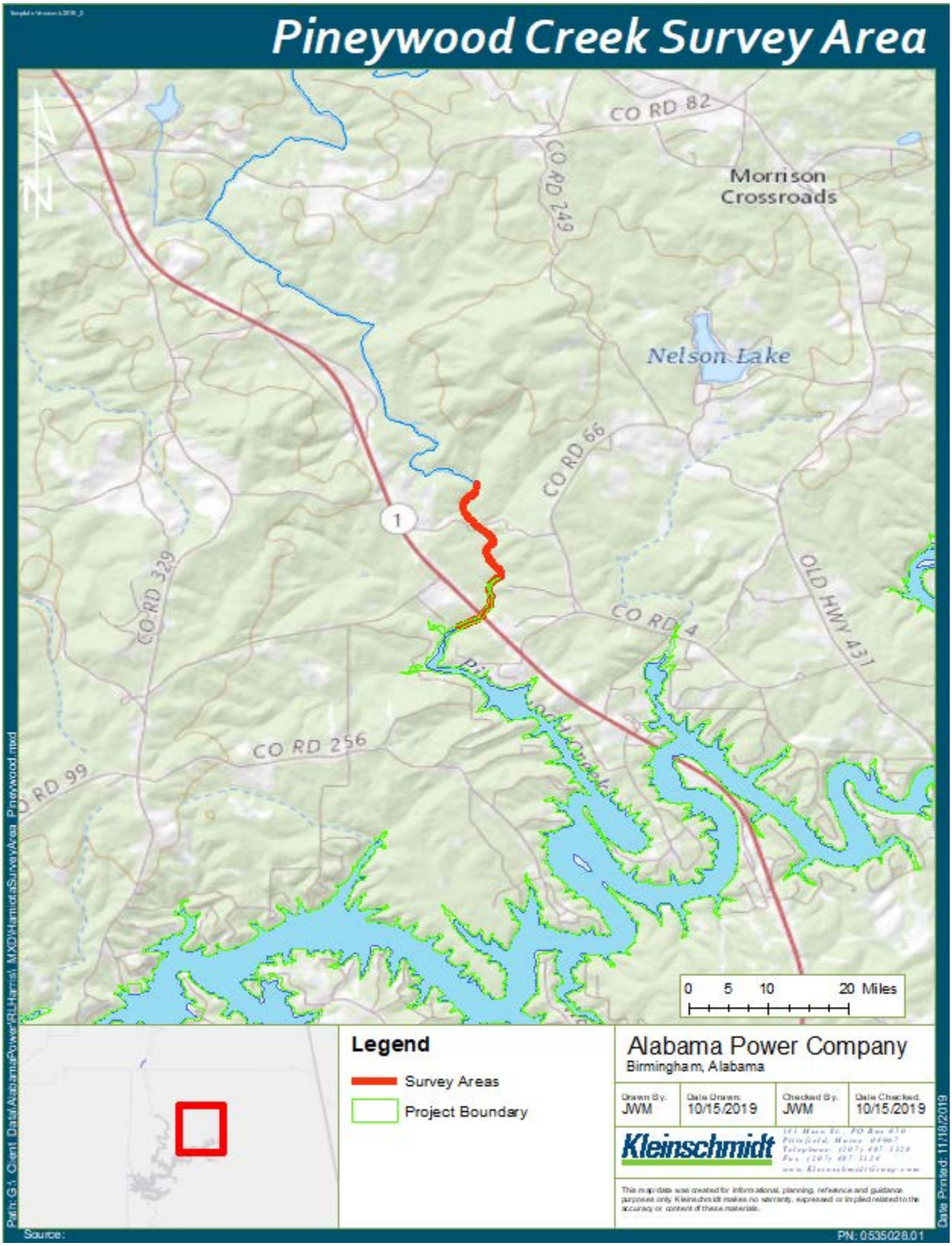


Figure 5. Ketchepedrakee Creek Survey Area

4.0 METHODS

Surveys will take place during a period of low flow when water clarity/visibility is generally greatest. Surveys will consist of both quantitative and qualitative methods according to Strayer and Smith (2003). Surveyors will perform an initial reconnaissance sweep of the survey areas to categorize the types of habitat (i.e., substrate and flow conditions) available. Based on the reconnaissance assessment, surveyors will perform qualitative surveys using appropriate techniques (e.g., snorkeling, SCUBA, etc.). In each survey area, at least one hour of qualitative survey effort will be expended per mile of river/creek. Any mussels encountered during qualitative surveys will be identified, photographed, and returned to the site of capture. In each survey area, if congregations of mussels (i.e. mussel beds) are located, surveyors will perform quantitative surveys using a ¼ meter quadrat sample. All mussels within the quadrat will be identified, enumerated, and photographed. Locations of sites where quantitative surveys are performed will be recorded using a geographic positioning system (GPS) unit. Surveyors will also record the dominant types of habitat present within the reach (e.g., silt, sand, gravel, etc.).

5.0 REPORTING

Results of the qualitative and quantitative surveys will be summarized in tabular format and presented in a brief report. The report will include descriptions of the dominant habitat types available in each survey area and will include maps depicting the locations of mussel beds identified during the survey.

6.0 REFERENCES

Johnson, Judith A. and D. R. DeVries. 1997. The freshwater mussel and snail species of the Tallapoosa River drainage, Alabama, U.S.A. *Walkerana* 9(22):121-137.

Mirarchi, Ralph E., ed. 2004. Alabama Wildlife, Volume One. A Checklist of Vertebrates and Selected Invertebrates: Aquatic Mollusks, Fishes, Amphibians, Reptiles, Birds and Mammals. The University of Alabama Press, Tuscaloosa, AL.

Strayer, David L. and D. R. Smith. 2003. A guide to sampling freshwater mussel populations. American Fisheries Society, Monograph 8, Bethesda, Maryland.

U.S. Fish and Wildlife Service (USFWS). 2004. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Three Threatened Mussels and Eight Endangered Mussels in the Mobile River Basin. Federal Register 69:40083-40171.

U.S. Fish and Wildlife Service (USFWS). 2000. Mobile River Basin Aquatic Ecosystem Recovery Plan. U.S. Fish and Wildlife Service, Atlanta, GA.

From:	Anderegg, Angela Segars
To:	"Evan Collins"
Cc:	Baker, Jeffery L.; Chandler, Keith Edward; Jason Moak; Colin Dinken
Subject:	Harris relicensing - T&E field notes
Date:	Friday, December 13, 2019 11:06:27 AM
Attachments:	2019-11-21 TE field notes.doc 2018-7-31 FERC Scoping Notice.docx

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Hi Evan,

Attached are field notes from the November 21 fine-lined pocketbook survey. Let me know if you have edits or anything to add. As we discussed on the phone, I've also attached, for your files, the scoping notice from last year where FERC designates APC as the non-federal rep for Section 7 consultation.

Thanks,

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

Threatened and Endangered Species: Fine-lined Pocketbook Survey
November 21, 2019
8:30 am to 3:00 pm
Tallapoosa River Upstream of Harris Reservoir

Participants:
Hunter Gibson – Aerotek
Jeff Baker – Alabama Power
Dylan Shaw – Alabama Power
Kate Cosnahan – Kleinschmidt
Colin Dinken – Kleinschmidt
Evan Collins – United States Fish and Wildlife Service (USFWS)

Six surveyors searched for fine-lined pocketbook on a ~3.75 mile stretch of the Tallapoosa River starting from the County 36 bridge and extending to the shoal below the Highway 431 bridge. This endpoint was selected because surveyors could see downstream of the shoal for approximately another half mile and only pool habitat was available, which is not ideal for this species. Focus was mostly directed toward habitat with gravel/cobble or sandy substrate, but some silty areas and piles of empty shells (relics) left by muskrats and raccoons were also searched. Roughly 20 minutes to an hour was spent at each survey site (~6 total sites) searching for suitable habitat and subsequent target species for a minimum of 2 hours total of qualitative effort. Most of what was encountered during the survey were relics of an invasive species of clam (*Corbicula* spp.) and live freshwater snails. An Alabama Power employee found an empty mussel shell that did not appear to be the target species, but this could not be confirmed at the time. Evan Collins (USFWS) took the relic with him to inspect it further and determine whether it was the target species. By the end of the survey, Evan suggested an additional effort should be made in the spring in case colder conditions caused the mussels to bury themselves too deep to be detected and Alabama Power agreed. Water levels were also fairly high, making it difficult to search for mussels in certain areas. Three sites were identified as having suitable habitat that warrant the additional effort during warmer conditions. Two of these sites are upstream of the Highway 431 bridge crossing and are comprised of shallow run, shoal habitat with cobble/gravel/sand substrate. A similar site was identified just downstream of the Highway 431 bridge crossing. The remaining tributaries outlined for survey in the Study Plan will be surveyed during warmer weather in early 2020. After the additional survey, Evan believes an adequate effort will have been made and Jeff Baker (Alabama Power) agreed.

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Alabama Power Company Project No. 2628-065

NOTICE OF INTENT TO FILE LICENSE APPLICATION, FILING OF PRE-APPLICATION DOCUMENT (PAD), COMMENCEMENT OF PRE-FILING PROCESS, AND SCOPING; REQUEST FOR COMMENTS ON THE PAD AND SCOPING DOCUMENT, AND IDENTIFICATION OF ISSUES AND ASSOCIATED STUDY REQUESTS

(July 31, 2018)

a. Type of Filing: Notice of Intent to File License Application for a New License and Commencing Pre-filing Process

b. Project No.: 2628-065

c. Dated Filed: June 1, 2018

d. Submitted By: Alabama Power Company (Alabama Power)

e. Name of Project: R.L. Harris Hydroelectric Project (Harris Project)

f. Location: The project is located on the Tallapoosa River the City of Lineville in Randolph, Clay, and Cleburne Counties, Alabama. The project occupies 4.90 acres of federal land administered by the Bureau of Land Management.

g. Filed Pursuant to: 18 CFR Part 5 of the Commission's Regulations

h. Potential Applicant Contact: Angie Anderegg, Harris Relicensing Project Manager, Alabama Power Company, 600 18th Street, Birmingham, AL 35203; (205) 257-2251 or ARSEGARS@southernco.com.

i. FERC Contact: Sarah Salazar at (202) 502-6863 or e-mail at sarah.salazar@ferc.gov.

j. Cooperating agencies: Federal, state, local, and tribal agencies with jurisdiction and/or special expertise with respect to environmental issues that wish to cooperate in the preparation of the environmental document should follow the instructions for filing such requests described in item o below. Cooperating agencies should note the Commission's policy that

agencies that cooperate in the preparation of the environmental document cannot also intervene. *See* 94 FERC ¶ 61,076 (2001).

k. With this notice, we are initiating informal consultation with: (a) the U.S. Fish and Wildlife Service and/or NOAA Fisheries under section 7 of the Endangered Species Act and the joint agency regulations thereunder at 50 CFR, Part 402 and (b) the State Historic Preservation Officer, as required by section 106, National Historic Preservation Act, and the implementing regulations of the Advisory Council on Historic Preservation at 36 CFR 800.2.

l. With this notice, we are designating Alabama Power as the Commission's non-federal representative for carrying out informal consultation, pursuant to section 7 of the Endangered Species Act and section 106 of the National Historic Preservation Act.

m. Alabama Power filed with the Commission a Pre-Application Document (PAD; including a proposed process plan and schedule), pursuant to 18 CFR 5.6 of the Commission's regulations.

n. A copy of the PAD is available for review at the Commission in the Public Reference Room or may be viewed on the Commission's website (http://www.ferc.gov), using the "eLibrary" link. Enter the docket number, excluding the last three digits in the docket number field to access the document. For assistance, contact FERC Online Support at FERCOnlineSupport@ferc.gov, (866) 208-3676 (toll free), or (202) 502-8659 (TTY). A copy is also available for inspection and reproduction at the address in paragraph h.

Register online at http://www.ferc.gov/docs-filing/esubscription.asp to be notified via e-mail of new filing and issuances related to this or other pending projects. For assistance, contact FERC Online Support.

o. With this notice, we are soliciting comments on the PAD and Commission staff's Scoping Document 1 (SD1), as well as study requests. All comments on the PAD and SD1, and study requests should be sent to the address above in paragraph h. In addition, all comments on the PAD and SD1, study requests, requests for cooperating agency status, and all communications to and from Commission staff related to the merits of the potential application must be filed with the Commission.

The Commission strongly encourages electronic filing. Please file all documents using the Commission's eFiling system at

http://www.ferc.gov/docs-filing/efiling.asp. Commenters can submit brief comments up to 6,000 characters, without prior registration, using the eComment system at http://www.ferc.gov/docs-filing/ecomment.asp. You must include your name and contact information at the end of your comments. For assistance, please contact FERC Online Support at FERCOnlineSupport@ferc.gov. In lieu of electronic filing, please send a paper copy to: Secretary, Federal Energy Regulatory Commission, 888 First Street, NE, Washington, DC 20426. The first page of any filing should include docket number P-2628-065.

All filings with the Commission must bear the appropriate heading: "Comments on Pre-Application Document," "Study Requests," "Comments on Scoping Document 1," "Request for Cooperating Agency Status," or "Communications to and from Commission Staff." Any individual or entity interested in submitting study requests, commenting on the PAD or SD1, and any agency requesting cooperating status must do so by September 29, 2018.

p. We intend to prepare either an environmental assessment (EA) or Environmental Impact Statement (EIS). The meetings listed below will satisfy the NEPA scoping requirements, irrespective of whether an EA or EIS is issued by the Commission.

Scoping Meetings

Commission staff will hold two scoping meetings in the vicinity of the project at the times and places noted below. The daytime meeting will focus on resource agency, Indian tribes, and non-governmental organization concerns, while the evening meeting is primarily for receiving input from the public. We invite all interested individuals, organizations, and agencies to attend one or both of the meetings, and to assist staff in identifying particular study needs, as well as the scope of environmental issues to be addressed in the environmental document. The times and locations of these meetings are as follows:

Evening Scoping Meeting – Lineville, Alabama

Date & Time:	Tuesday, August 28, 2018 at 6:30 p.m.
Location:	Wedowee Marine South 9681 Highway 48 Lineville, Alabama 36266 (770) 843-3054

Daytime Scoping Meeting – Lineville, Alabama

Date & Time:	Wednesday, August 29, 2018 at 9 a.m.
Location:	Wedowee Marine South 9681 Highway 48 Lineville, Alabama 36266 (770) 843-3054

Please RSVP to harrisrelicensing@southernco.com, or call Cecile Jones at 205-257-1701, on or before August 15, 2018, if you plan to attend one of the scoping meetings in Lineville. Directions to Wedowee Marine South are available at www.harrisrelicensing.com and in Appendix C of the Commission's Scoping Document 1, described below.

Scoping Document 1 (SD1), which outlines the subject areas to be addressed in the environmental document, was mailed to the individuals and entities on the Commission's mailing list. Copies of SD1 will be available at the scoping meetings, or may be viewed on the web at http://www.ferc.gov, using the "eLibrary" link. Follow the directions for accessing information in paragraph n. Based on all oral and written comments, a Scoping Document 2 (SD2) may be issued. SD2 may include a revised process plan and schedule, as well as a list of issues, identified through the scoping process.

Environmental Site Review

The potential applicant and Commission staff will conduct an Environmental Site Review (site visit) of the project on Tuesday, August 28, 2018, starting at 9:00 a.m., and ending at or about 4:30 p.m. All participants should meet at the R.L. Harris Dam located at 2761 County Road 100, Lineville, AL 36266. Directions to the R.L. Harris Dam are available at www.harrisrelicensing.com and in Appendix C of the Commission's SD1. Participants must notify Cecile Jones at (205) 257-1701 or www.harrisrelicensing.com, on or before August 15, 2018, if they plan to attend the environmental site review.

Meeting Objectives

At the scoping meetings, staff will: (1) initiate scoping of the issues; (2) review and discuss existing conditions and resource management objectives; (3) review and discuss existing information and identify preliminary information and study needs; (4) review and discuss the process plan and schedule for pre-filing activity that incorporates the time frames provided for in Part 5 of the Commission's regulations and, to the

extent possible, maximizes coordination of federal, state, and tribal permitting and certification processes; and (5) discuss the appropriateness of any federal or state agency or Indian tribe acting as a cooperating agency for development of an environmental document.

Meeting participants should come prepared to discuss their issues and/or concerns. Please review the PAD in preparation for the scoping meetings. Directions on how to obtain a copy of the PAD and SD1 are included in item n. of this document.

Meeting Procedures

The meetings will be recorded by a stenographer and will be placed in the public records of the project.

Nathaniel J. Davis, Sr.,
Deputy Secretary.

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; ken.wills@jcdh.org; arsegars@southernco.com; ammcvica@southernco.com; dkanders@southernco.com; jcarlee@southernco.com; jefbaker@southernco.com; kechandl@southernco.com; tlmills@southernco.com; cggoodma@southernco.com; clowry@alabamarivers.org; mhunter@alabamarivers.org; gjobsis@americanrivers.org; devridr@auburn.edu; irwiner@auburn.edu; kmo0025@auburn.edu; wrighr2@aces.edu; jhancock@balch.com; lgallen@balch.com; chrisoberholster@birminghamaudubon.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@russelllands.com; lgarland68@aol.com; Barry Morris - Lake Wedowee Property Owners Association (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; "Morris, Barry"; devridr@auburn.edu; Russell Wright
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.

Join Skype Meeting

+1 (205) 257-2663

Conference ID: 3660816

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

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; ken.wills@jcdh.org; arsegars@southernco.com; ammcvica@southernco.com; dkanders@southernco.com; jcarlee@southernco.com; jefbaker@southernco.com; kechandl@southernco.com; tlmills@southernco.com; cggoodma@southernco.com; clowry@alabamarivers.org; mhunter@alabamarivers.org; gjobsis@americanrivers.org; devridr@auburn.edu; irwiner@auburn.edu; kmo0025@auburn.edu; wrighr2@aces.edu; jhancock@balch.com; lgallen@balch.com; chrisoberholster@birminghamaudubon.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@russelllands.com; lgarland68@aol.com; Barry Morris - Lake Wedowee Property Owners Association (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:	HAT 3 - T&E Species Desktop Assessment
Date:	Monday, February 24, 2020 9:20:49 AM
Attachments:	2020-02-21 HAT 3 - TE Species Desktop Assessment.pdf

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HAT 3,

Attached is the Threatened and Endangered (T&E) Species Desktop Assessment, which is one portion of the FERC-approved T&E species study plan. This assessment can also be found at www.harrisrelicensing.com. In the study plan, Alabama Power committed to distributing this assessment to HAT 3 participants in February. Please review and bring any comments or questions to the March 19, 2020 HAT 3 meeting. As you may recall, Alabama Power will file the Initial Study Report (ISR) in April 2020, which will include reports such as this T&E Species Desktop Assessment as well as other draft study reports. At that time, Alabama Power will request official comments on this assessment, the ISR, and draft study reports.

If you have any questions, please contact me at 205-257-2251 or ARSEGARS@southernco.com.
Thank you,

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

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; kechandl@southernco.com; tlmills@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; wrighr2@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@russelllands.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.

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.

Join Skype Meeting

+1 (205) 257-2663

Conference ID: 3660816

Angie Anderegg
Hydro Services
(205)257-2251
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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; Anderegg, Angela Segars; McVicar, Ashley M; Anderson, Dave; Carlee, Jason; Baker, Jeffery L.; Chandler, Keith Edward; Mills, Tina L.; Goodman, Chris G.; clowry@alabamarivers.org; mhunter@alabamarivers.org; jwest@alabamarivers.org; gjobsis@americanrivers.org; devridr@auburn.edu; irwiner@auburn.edu; kmo0025@auburn.edu; wrighr2@aces.edu; Hancock, Jim (Balch); Allen, Leslie G. (Balch); 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@russelllands.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; Jack West
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
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From: APC Harris Relicensing

To: "harrisrelicensing@southernco.com"

Bcc: Robin Crockett; "Lydia Mayo"; 1942jthompson420@gmail.com; 9sling@charter.net; alcondir@aol.com; allan.creamer@ferc.gov; alpeeple@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_roby@msn.com; baxterchip@yahoo.com; bboozer6@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@randolphcountyeda.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@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.lakewedoweedocks@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; jessecunningham@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; jthroneberry@tnc.org; judymcrealtor@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; lakewedoweedocks@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; mhpwedowee@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@lakewedowee.org; rosoweka@mcn-nsn.gov; russtown@nc-cherokee.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@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; taconya.goar@dcnr.alabama.gov; 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; wrighr2@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; alpeeple@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_roby@msn.com; baxterchip@yahoo.com; bboozer6@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@randolphcountyeda.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; 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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; jessecunningham@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; jthroneberry@tnc.org; judymcrealtor@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; lakewedoweedocks@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; mhpwedowee@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@lakewedowee.org; rosoweka@mcn-nsn.gov; russtown@nc-cherokee.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@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; 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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
arsegars@southernco.com

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

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: APC Harris Relicensing

To: "harrisrelicensing@southernco.com"

Bcc: 1942jthompson420@gmail.com; 9sling@charter.net; alcondir@aol.com; allan.creamer@ferc.gov; alpeeple@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_roby@msn.com; baxterchip@yahoo.com; bboozer6@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@randolphcountyeda.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; 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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@lakewedowee.org; rosoweka@mcn-nsn.gov; russtown@nc-cherokee.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@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@unq.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: 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
Hydro Services
(205)257-2251
arsegars@southernco.com

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Alabama Power

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Birmingham, AL 35203
205 257 2251 tel
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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

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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 2020[3]. 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

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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

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Attachment
Initial Study Report

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HARRIS DAM
RELICENSING

INITIAL STUDY REPORT

R. L. HARRIS PROJECT

FERC NO. 2628

Prepared by:

ALABAMA POWER COMPANY
BIRMINGHAM, ALABAMA

Alabama Power

APRIL 2020

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INITIAL STUDY REPORT

R. L. HARRIS PROJECT
FERC NO. 2628

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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-feet 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-feet msl or 50-horizontal-feet from 793-feet msl, whichever is less, but never less than 795-feet msl).

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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.

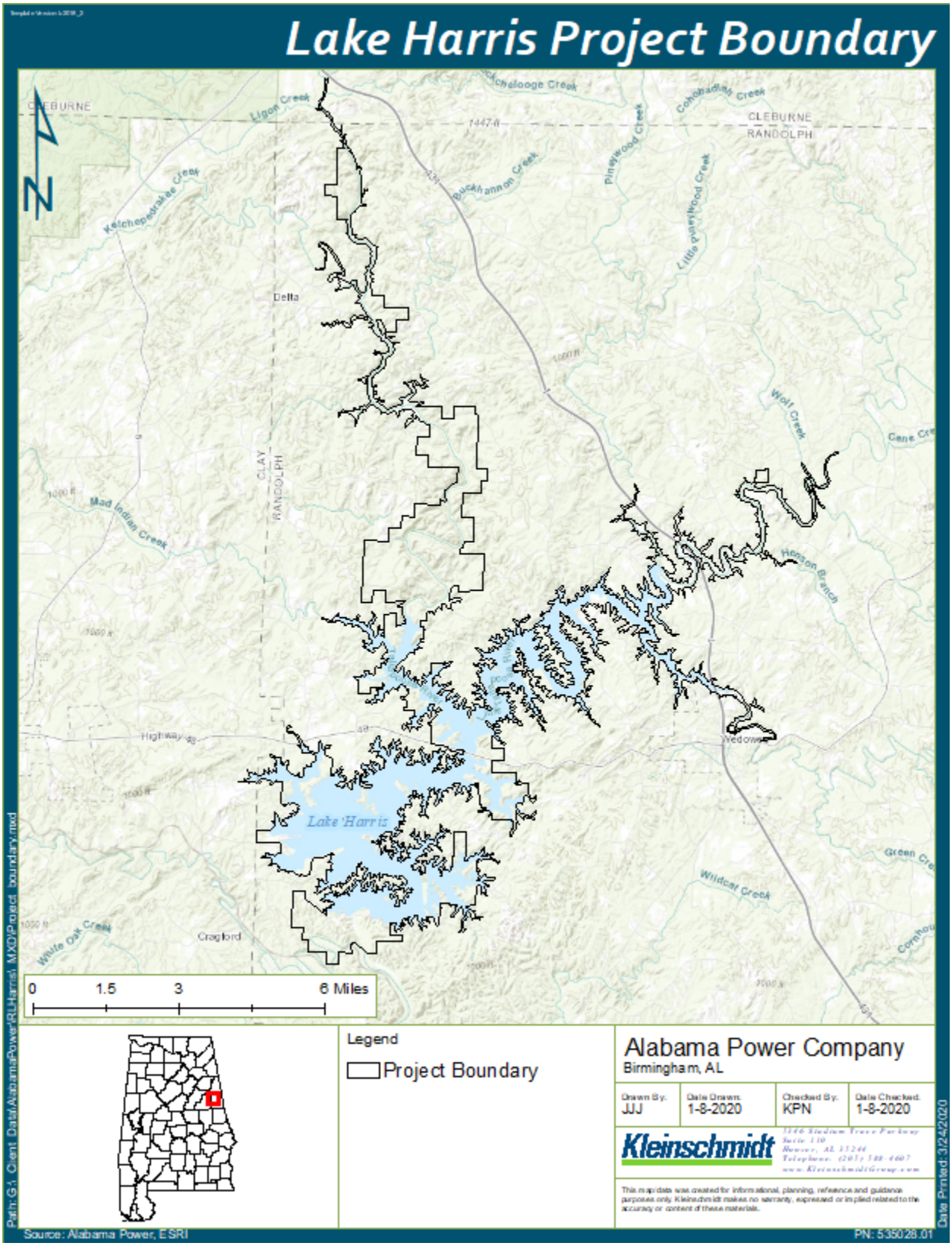


FIGURE 1 LAKE HARRIS PROJECT BOUNDARY

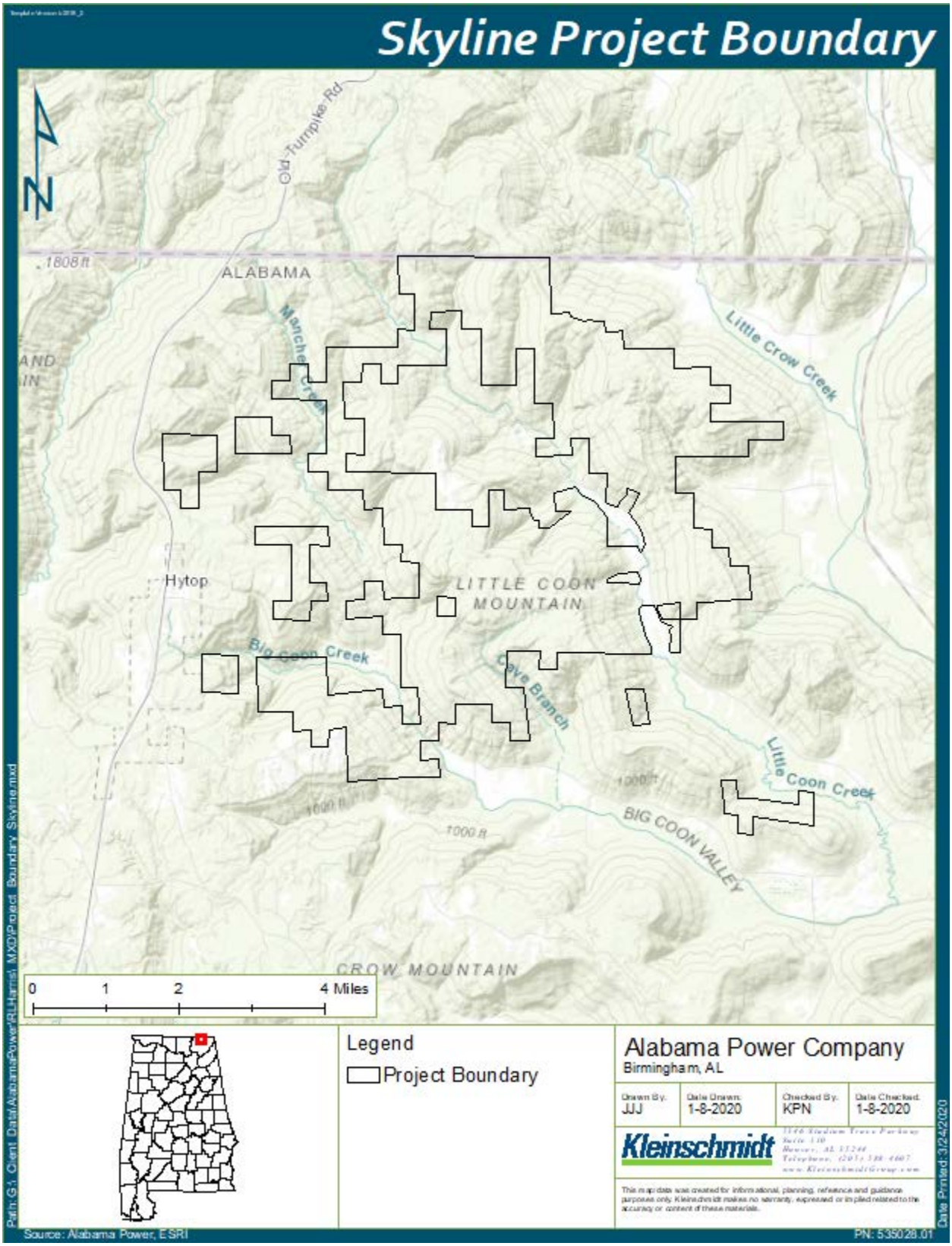


FIGURE 2 SKYLINE PROJECT BOUNDARY

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 Meetings[2] 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, 2019[4]. 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 2020[5]. 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.

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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 operation[7] (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.

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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.

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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.

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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.

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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 Plan[8] 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^{o}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 model[9] 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 (finelined pocketbook, Indiana bat, rabbitsfoot, slabside pearlymussel, 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 lampmussel, fine-rayed pigtoe, pale lilliput, rabbitsfoot, snuffbox, shiny pigtoe, and slabside pearlymussel), 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 mussels 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.

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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 2020[11] 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 Plan[12].

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 sites[13].

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 retained[14].

Alabama Power is also surveying landowners downstream of Harris Dam[15] 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 sites[17], 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.

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12.0 CULTURAL RESOURCES STUDY

12.1 STUDY PURPOSE AND SUMMARY OF METHODS

The Harris Project Cultural Resources[18] 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 tribes[19]) 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) Nation[20]. 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 assessments[21] 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.

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APPENDIX A

ACRONYMS AND ABBREVIATIONS

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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 Centrigrade
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

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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

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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

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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 Soils
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

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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"

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chimneycove@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.lakewedoweedocks@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; jessecunningham@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; jthroneberry@tnc.org; judymcrealtor@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; lakewedoweedocks@gmail.com; leeanne.wofford@ahc.alabama.gov; 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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; robinwaldrep@yahoo.com; roger.mcneil@noaa.gov; ron@lakewedowee.org; rosoweka@mcn-nsn.gov; russtown@nc-cherokee.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@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@unq.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: 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

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"

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chimneycove@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.lakewedoweedocks@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; jessecunningham@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; jthroneberry@tnc.org; judymcrealtor@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; lakewedoweedocks@gmail.com; leeanne.wofford@ahc.alabama.gov; 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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; robinwaldrep@yahoo.com; roger.mcneil@noaa.gov; ron@lakewedowee.org; rosoweka@mcn-nsn.gov; russtown@nc-cherokee.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@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@unq.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.

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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

From:	Sarah Salazar
To:	Anderegg, Angela Segars
Cc:	Allan Creamer; Rachel McNamara; Monte Terhaar (CTR)
Subject:	RE: Harris Relicensing - Initial Study Report meeting agenda and call-in details
Date:	Monday, April 27, 2020 5:21:04 PM
Attachments:	FERC-prelim-ISR-Comments+Questions_4-27-20.docx

EXTERNAL MAIL: Caution Opening Links or Files

Hi Angie,

Thanks for the information below about the Skype option for the meeting and for the call back today. As I mentioned, I'm forwarding the attached list of some preliminary (informal) questions we put together for the ISR mtg. tomorrow. We didn't label whose questions they were, but they are generally grouped by study report/topic. So for the most part the questions originate from our team member who is covering that resource area during relicensing. Feel free to call me tomorrow before the meeting if you have any follow-up questions or concerns.

Thanks again,

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: APC Harris Relicensing <g2apchr@southernco.com>
Sent: Monday, April 27, 2020 10:51 AM
To: APC Harris Relicensing <g2apchr@southernco.com>
Subject: FW: Harris Relicensing - Initial Study Report meeting agenda and call-in details

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 [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.

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

4/27/20

R.L. Harris Initial Study Report (ISR):

FERC Licensing Team's Preliminary Comments and Questions

General Comments and Questions:

1. 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.

2. 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.

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

Draft Operating Curve Change Feasibility Analysis (Phase 1) Report:

1. 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 that 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?

2. 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?

3. 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.

Draft Downstream Release Alternatives (Phase 1) Report:

1. 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?

Draft Erosion and Sedimentation Report:

1. 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?

2. 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.

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

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

5. 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.

6. 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?

7. 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?

8. 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.

9. 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?

10. 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?

11. 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.

12. 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.

13. 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?

Draft Water Quality Report:

1. 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.

2. 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?

3. 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 HAT2 members that 1 year of monitoring at the downstream station includes a worst-case scenario?

Draft T&E Species Report:

1. 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.

2. 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 FWS'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.

3. Page 7 lists the sources for the ESA species information. The sources included FWS'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?

4. 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 assess the suitability for red cockaded woodpecker?

5. 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.).

6. 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?

7. 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.

8. 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.

9. 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 FWS'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").[1]

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).

10. 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?

11. 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?

12. 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.

13. 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

[1] 81 Fed. Reg. 1902 (January 14, 2016).

requirements associated with this buffer. Please include this information in the final T&E species study report.

14. In the August 27, 2019, HAT 3 meeting summary, please clarify the following:
    a. How does Alabama Power define terms such as "sensitive time periods" in the context of timber harvesting?
    b. 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.

Draft Lands Evaluation (Phase 1) Report:

1. 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 SMP?

2. 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?

3. 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.

4. 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?

5. 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 quails, relative to the project boundary at Skyline WMA?

6. 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.

   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?

   Also, it would be helpful if the map of area A6 included the existing birding trail and the proposed extension of the trail.

7. 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?

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

Draft Inadvertent Discovery Protocol (IDP)

1. Section 2.3.1 of the IDP includes provisions for previously unidentified human remains and or historic properties.

    a. 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.

    b. 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.

Draft Traditional Cultural Property Identification Plan

2. No specific comments.

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Alabama Power

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

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,

Angie Anderegg
Harris Relicensing Project Manager

Attachment - Initial Study Report Meeting Summary

cc: Harris Stakeholder List

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Meeting Summary

Initial Study Report Meeting via Conference Call

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

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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 A[1]. 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 meeting[2]. 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.

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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.

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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

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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.

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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 that 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.

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- 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.

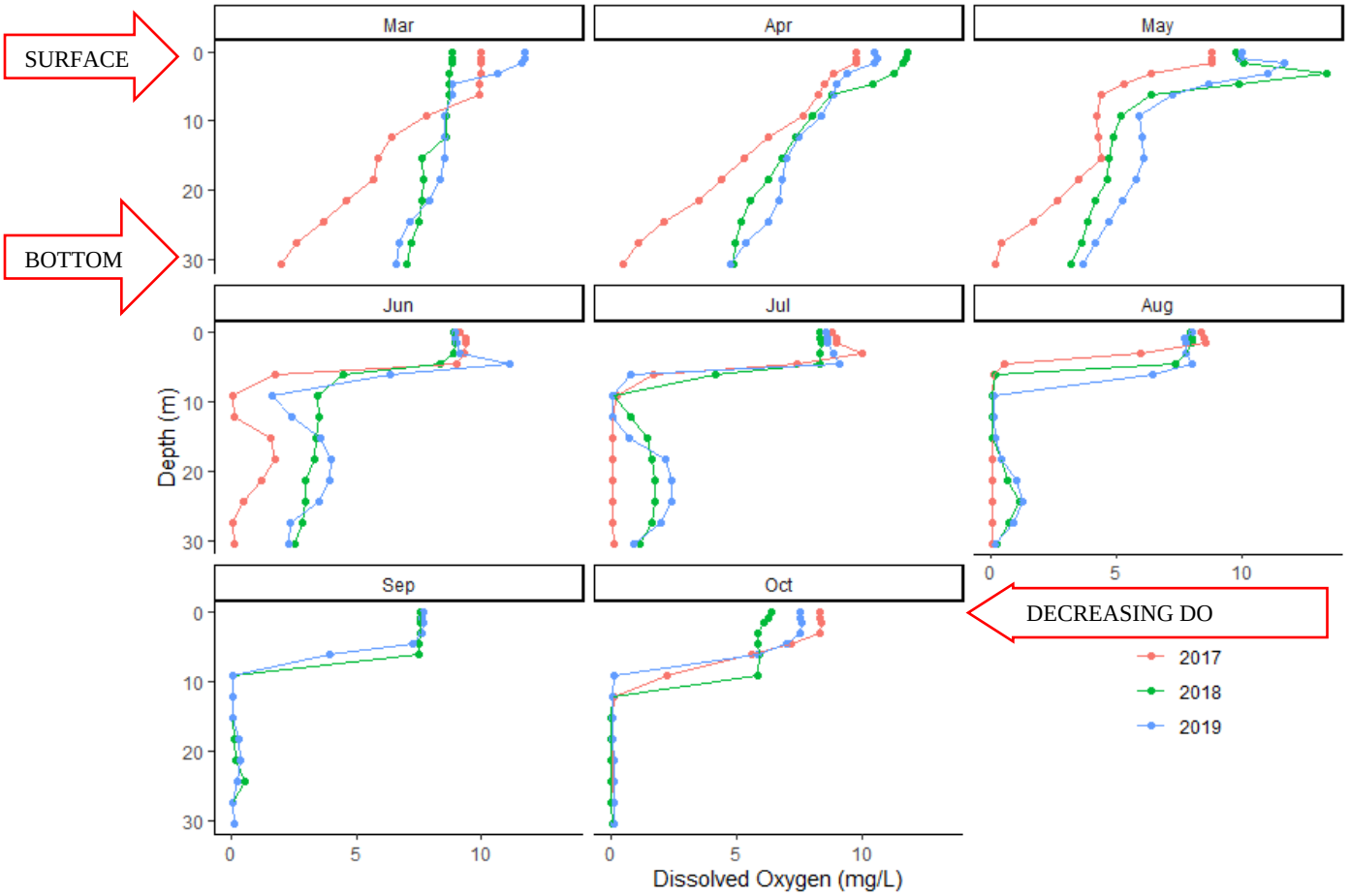
7 WATER QUALITY STUDY

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.

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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.

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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 date 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.

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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.

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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).

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APPENDIX A

ISR Meeting Participants

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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

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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

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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

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APPENDIX B

ISR Meeting Presentation

R.L. Harris Dam Relicensing
FERC No. 2628

Initial Study Report Meeting
April 28, 2020

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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

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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

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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

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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?

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HAT 5 Recreation Evaluation



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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

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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



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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



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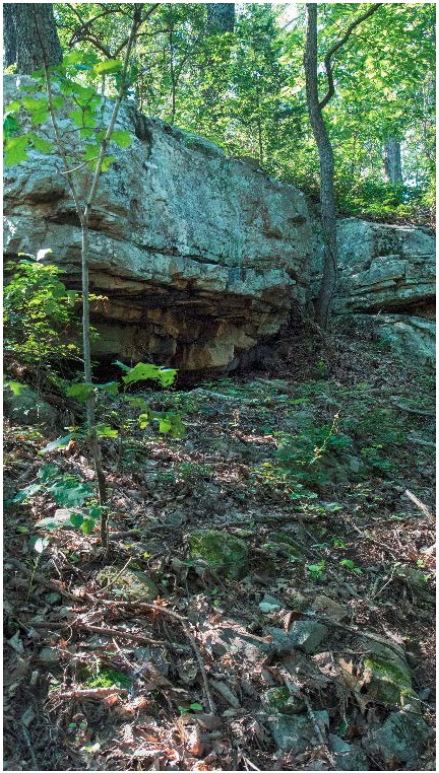
Recreation Evaluation – Tallapoosa River User, Methods

- 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

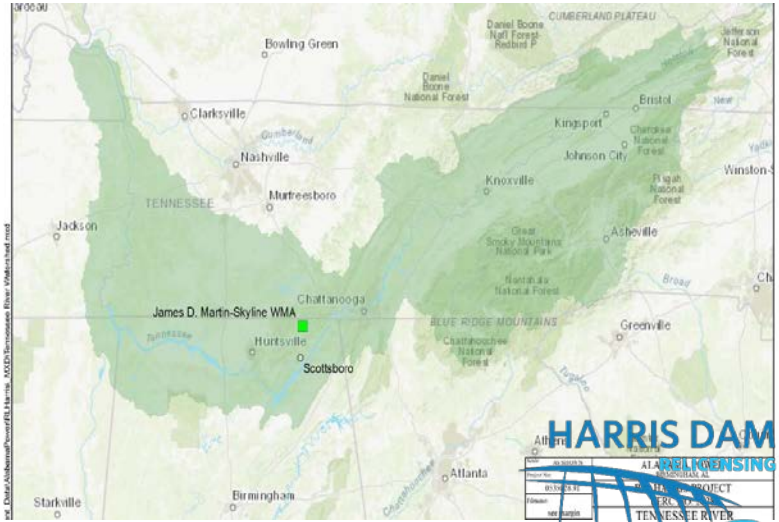


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Recreation Evaluation- Skyline Use Data (ADCNR)







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



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

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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?

HARRIS DAM RELICENSING

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)

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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?

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HAT 1 Project Operations

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

Operating Curve Change Feasibility Analysis

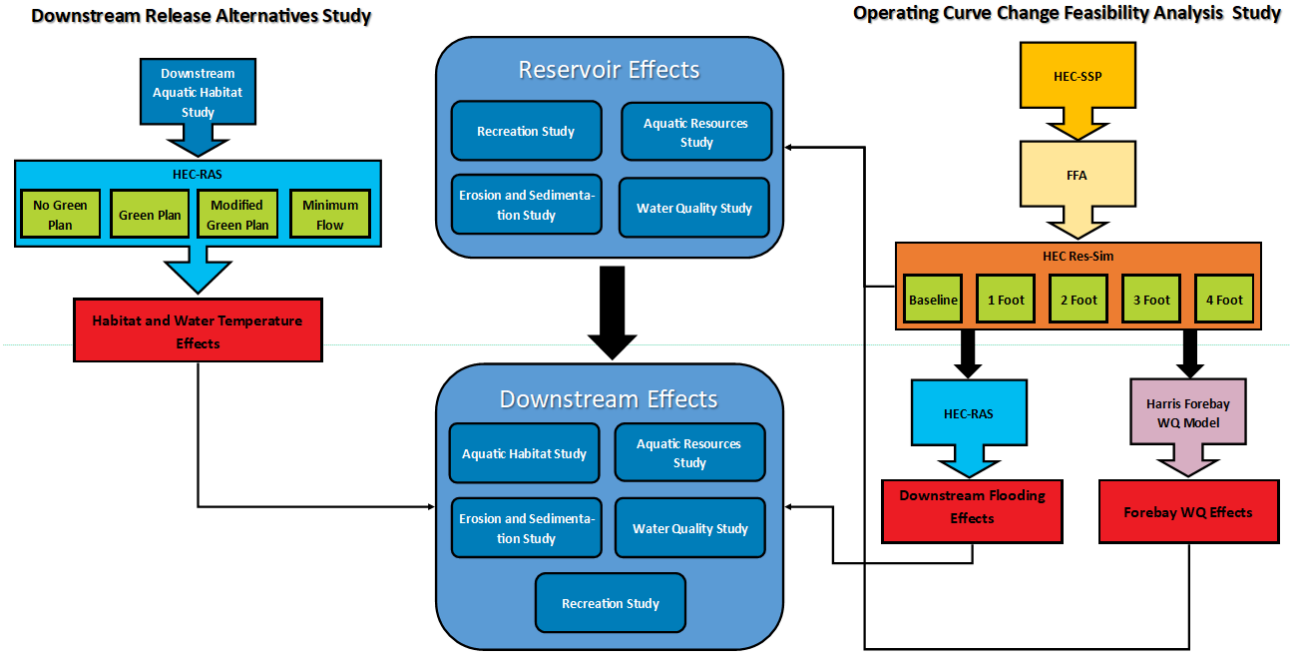
Study Purpose and Methods Summary

- ❑ 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

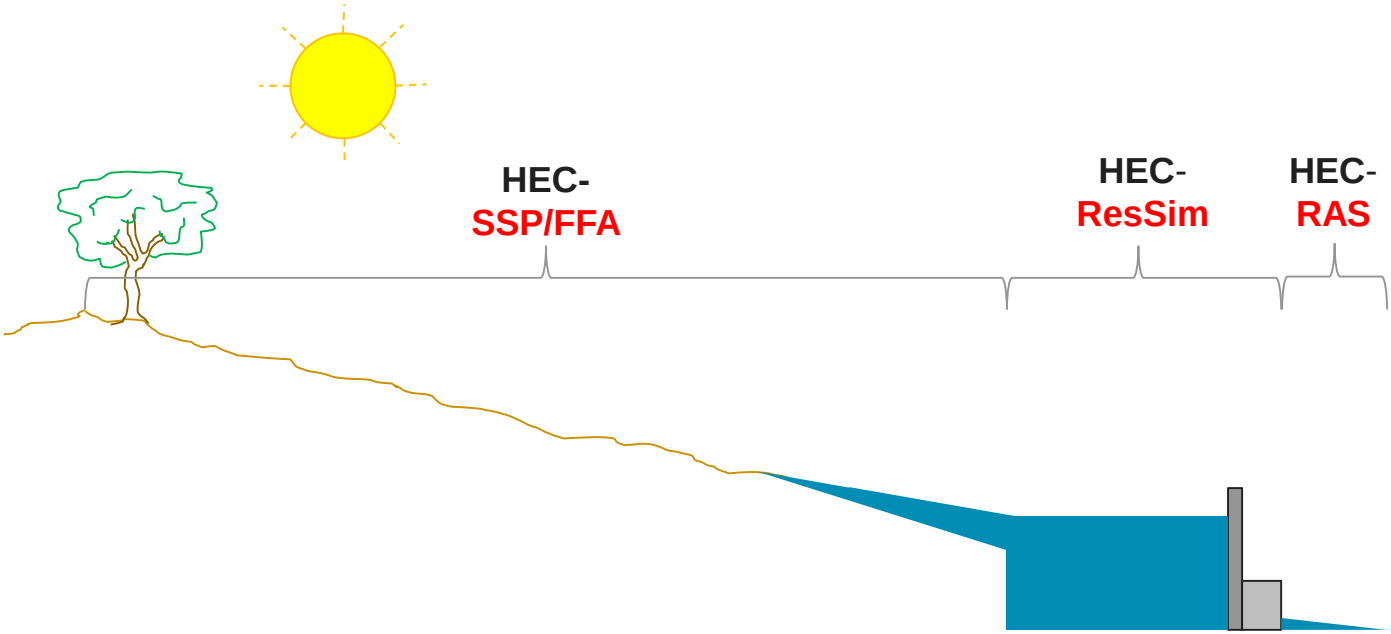
- ❑ RES-Sim outflow hydrographs developed
- ❑ HEC-RAS model complete; all four winter curve changes have been modeled with design flood
- ❑ Navigation, ADROP and Hydrobudget analyses
- ❑ Flood frequency analysis
- ❑ Draft report distributed to stakeholders

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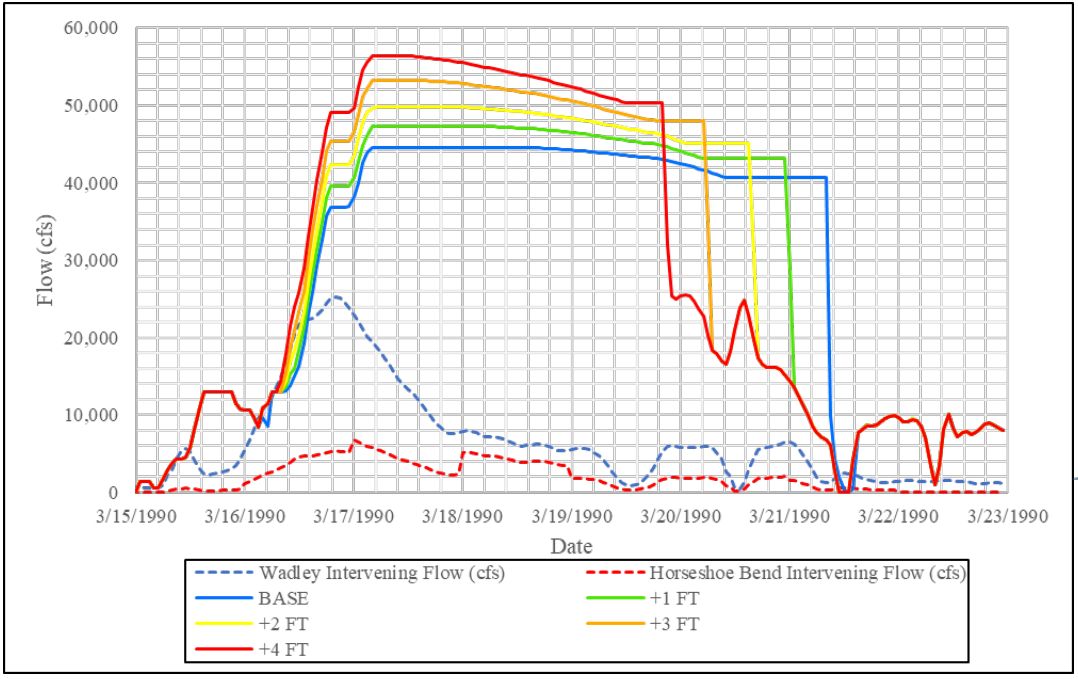
Where the models are used…



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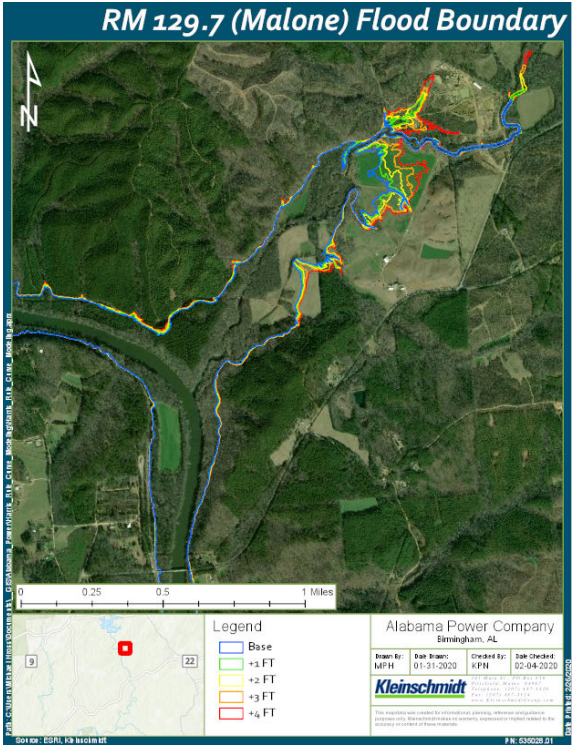
HEC-RAS – MODELED FLOWS

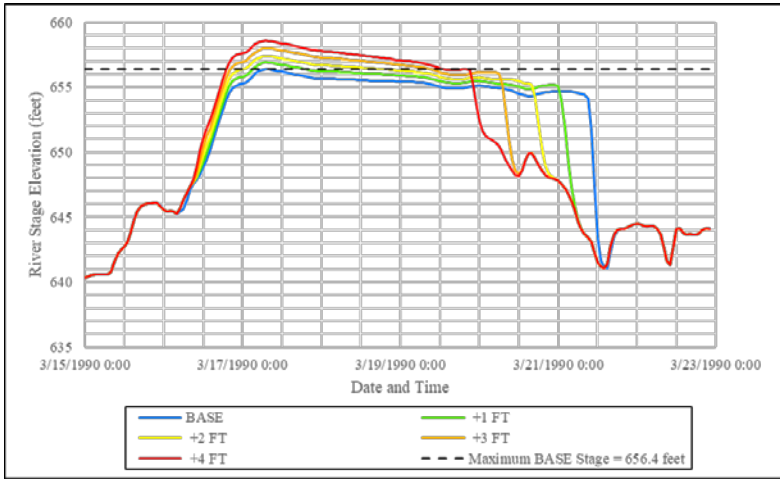
- Base scenario (i.e., existing) and 4 rule curve simulations
  - +1 ft, +2 ft, +3 ft, +4ft
- Intervening flows included in model
  - Flows contributed to river by watershed downstream of the dam
  - Between Harris Dam and Wadley, AL
  - Between Wadley, AL and Horseshoe Bend



HARRIS DAM RELICENSING

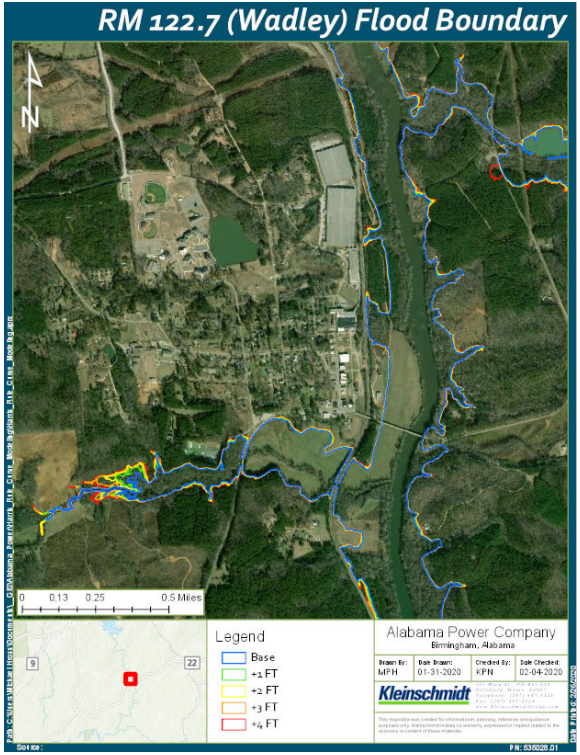
HEC-RAS – MODELING RESULTS

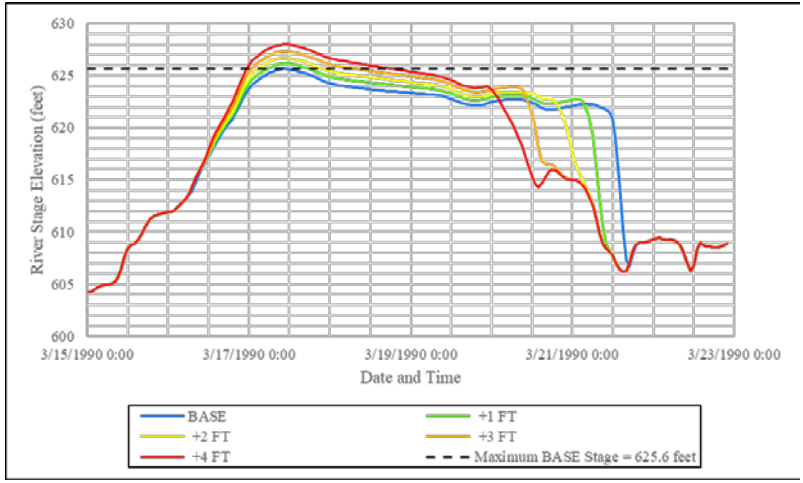




HARRIS DAM
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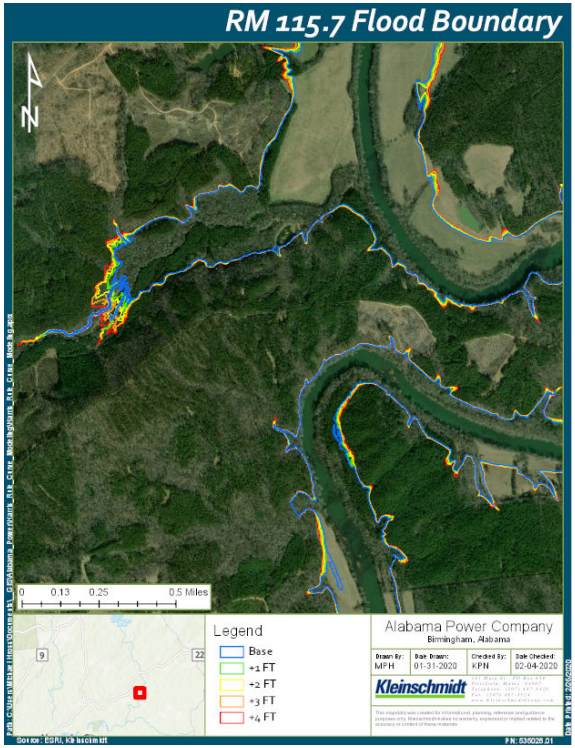
HEC-RAS – MODELING RESULTS

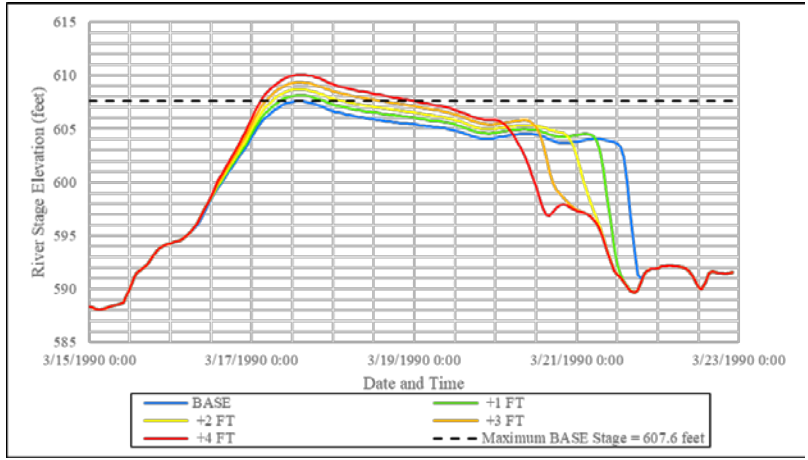




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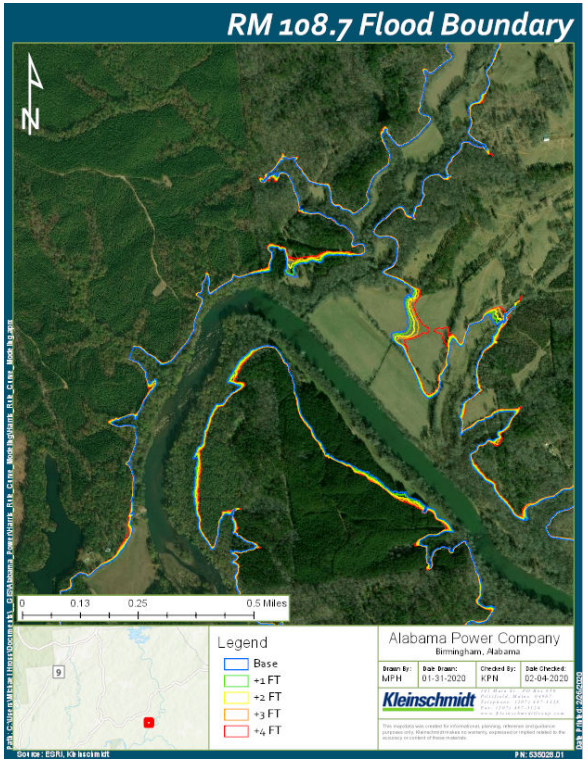
HEC-RAS – MODELING RESULTS

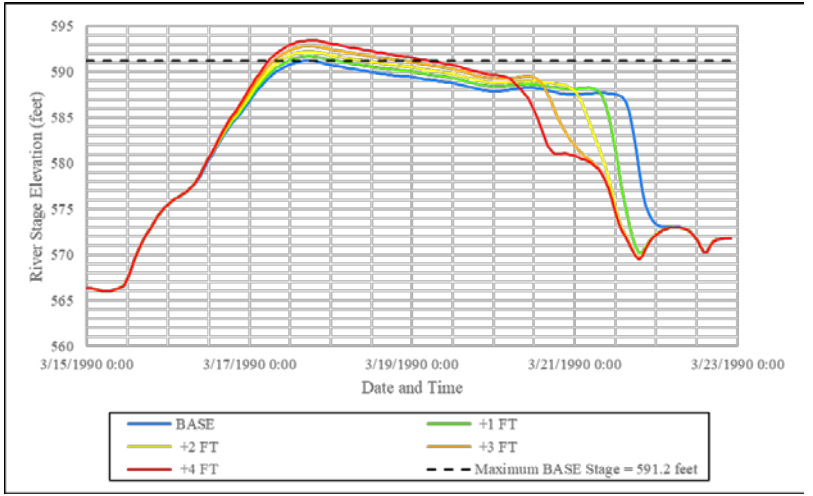




HARRIS DAM RELICENSING

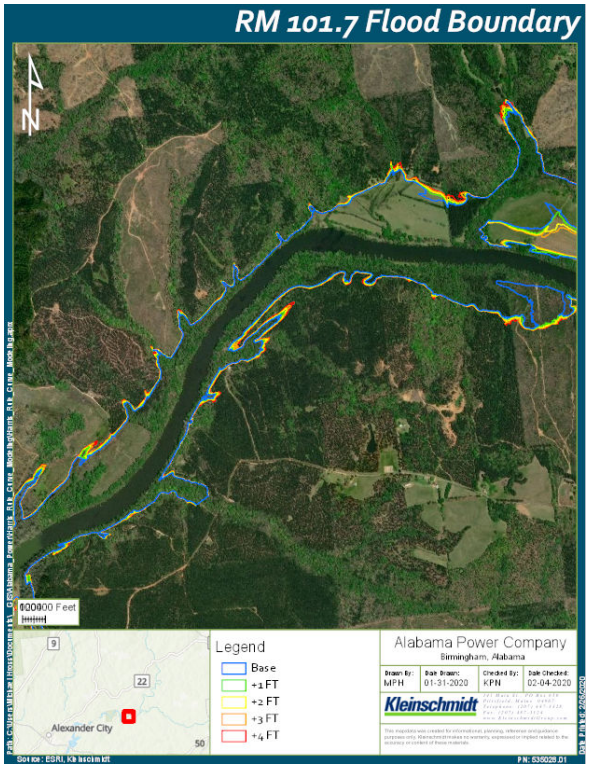
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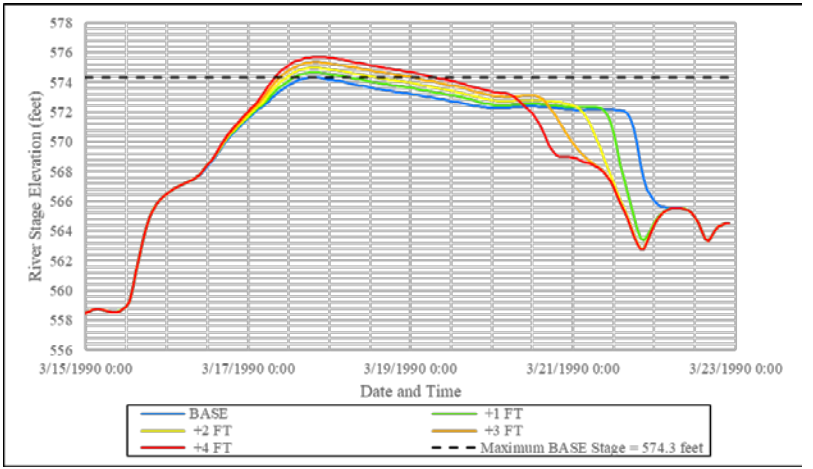




HARRIS DAM
RELICENSING

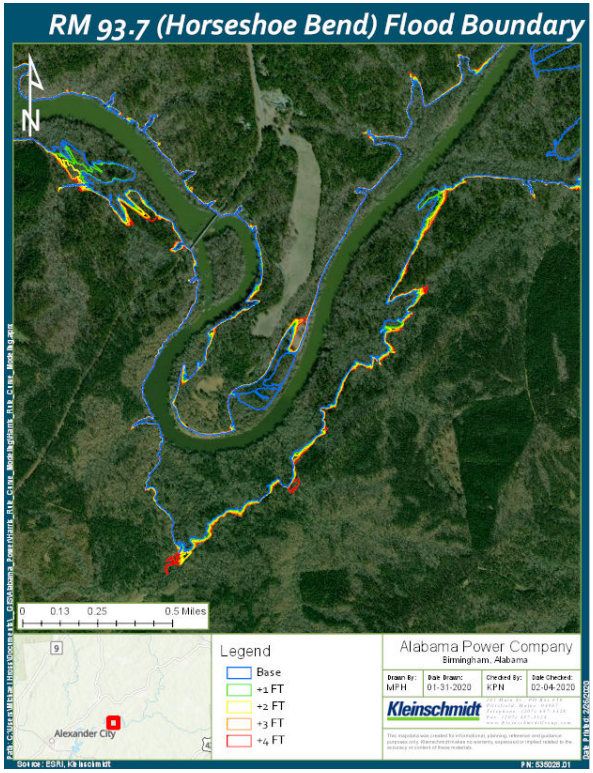
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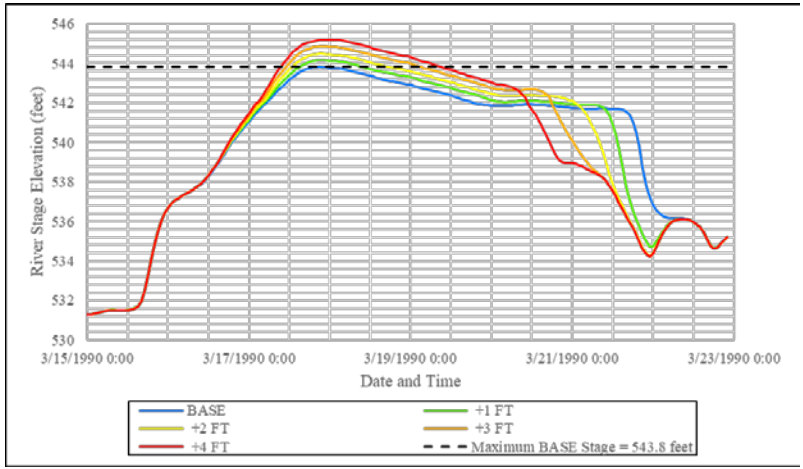




HARRIS DAM
RELICENSING

HEC-RAS – MODELING RESULTS





HARRIS DAM RELICENSING

HEC-RAS – MODEL RESULTS

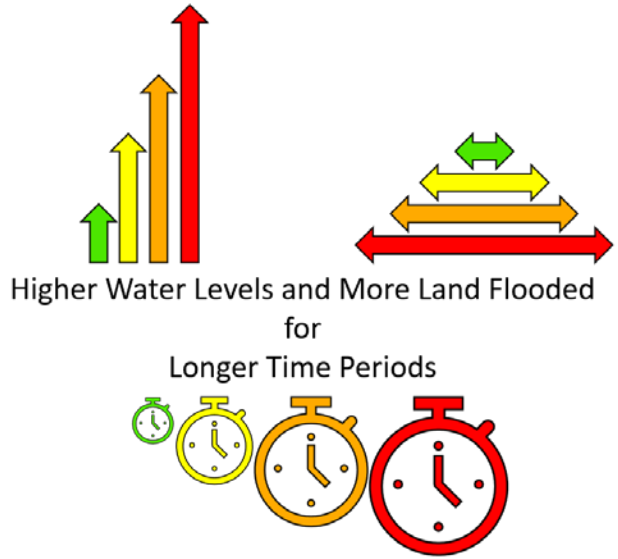
Location	Distance from Dam (miles)	Max Water Surface Rise (feet)			
		+ 1 foot	+ 2 feet	+ 3 feet	+ 4 feet
RM 129.7 (Malone, AL)	7	0.5	1.0	1.6	2.2
RM 122.7 (Wadley, AL)	14	0.5	1.1	1.7	2.4
RM 115.7	21	0.6	1.1	1.8	2.5
RM 108.7	28	0.5	1.0	1.6	2.2
RM 101.7	35	0.4	0.7	1.1	1.4
RM 93.7 (Horseshoe Bend)	43	0.3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

HARRIS DAM
RELICENSING

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



HARRIS DAM
RELICENSING

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?

HARRIS DAM RELICENSING

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

HARRIS DAM RELICENSING

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

HARRIS DAM RELICENSING

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

HARRIS DAM
RELICENSING

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?

HARRIS DAM RELICENSING

HAT 2 Water Quality and Use

- ❑ Water Quality Study
- ❑ Erosion and Sedimentation Study

HARRIS DAM
RELICENSING

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

HARRIS DAM RELICENSING

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?

HARRIS DAM RELICENSING

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

HARRIS DAM RELICENSING

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).





HARRIS DAM RELICENSING

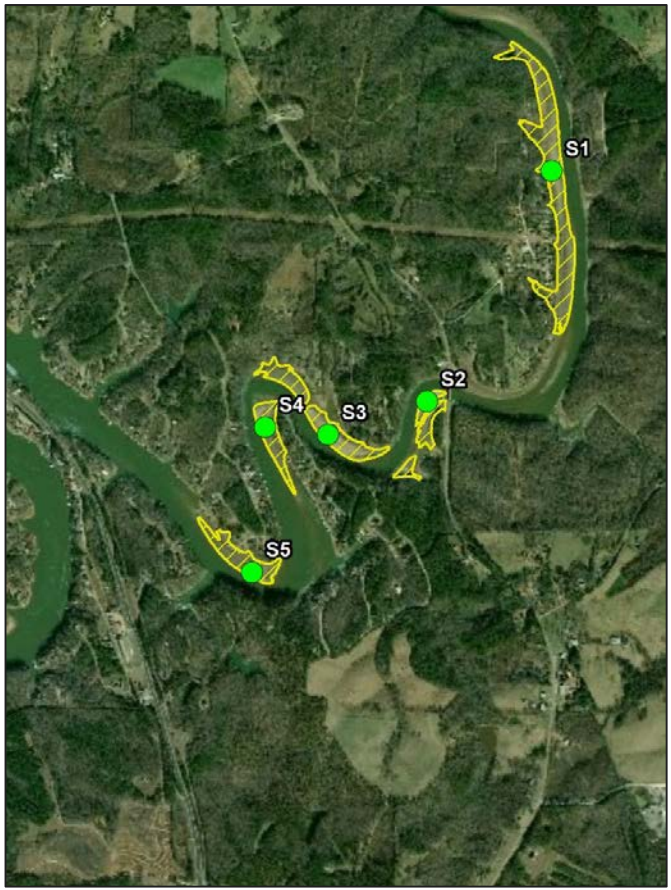
Erosion and Sedimentation

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.		

HARRIS DAM RELICENSING

Erosion and Sedimentation





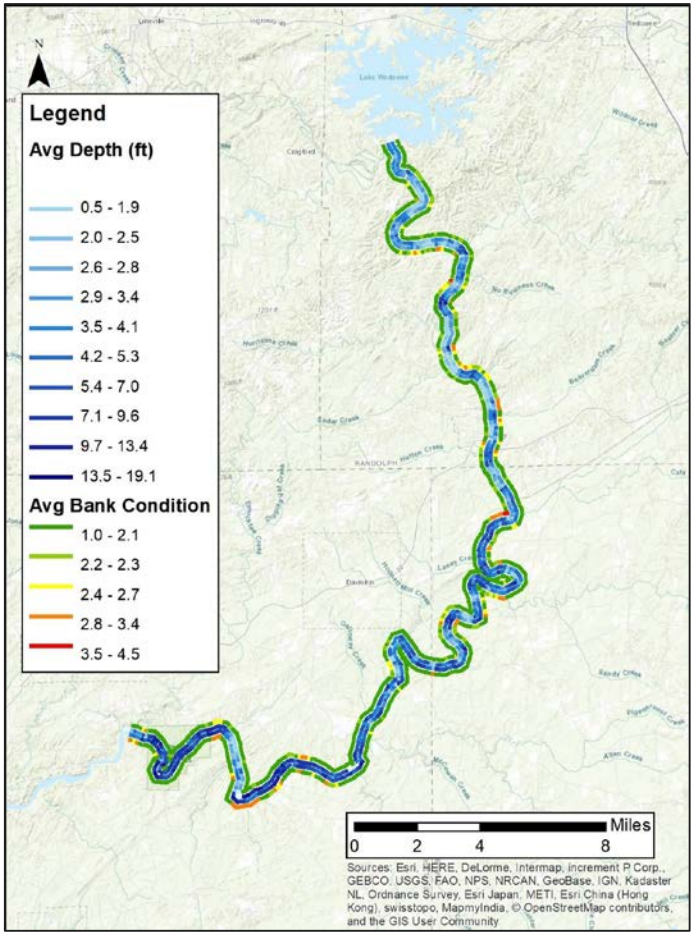


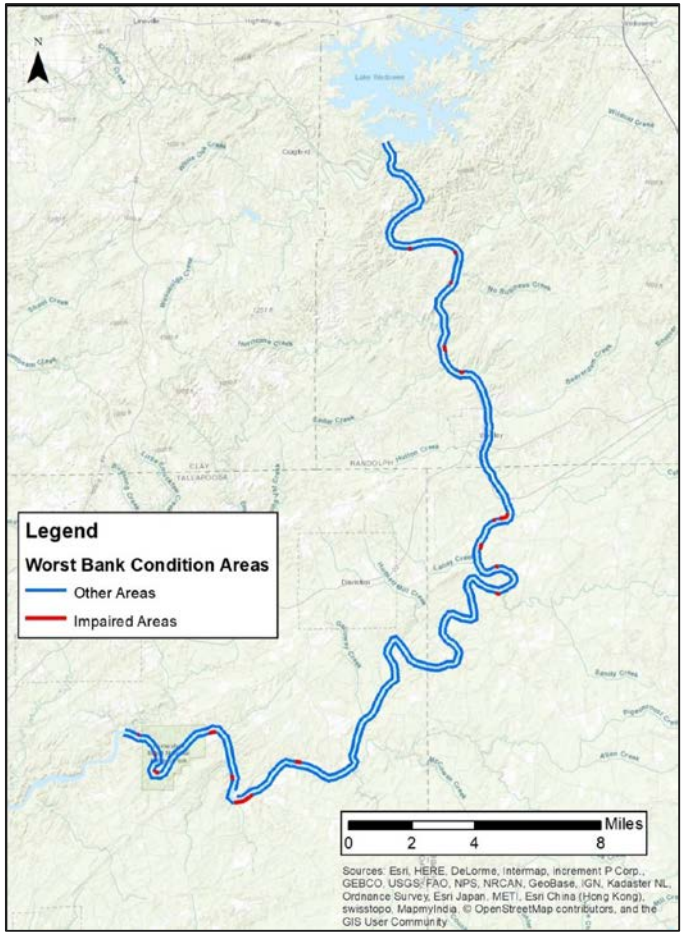




HARRIS DAM
RELICENSING

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?

HARRIS DAM RELICENSING

HAT 3 Fish and Wildlife

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

HARRIS DAM
RELICENSING

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

HARRIS DAM RELICENSING

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

HARRIS DAM RELICENSING

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		✓

HARRIS DAM RELICENSING

THREATENED & ENDANGERED DESKTOP STUDY

USFWS Designated Critical Habitat

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

HARRIS DAM RELICENSING

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?

HARRIS DAM RELICENSING

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

HARRIS DAM RELICENSING

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?

HARRIS DAM RELICENSING

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

HARRIS DAM RELICENSING

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

HARRIS DAM RELICENSING

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?

HARRIS DAM RELICENSING

Next Steps



HARRIS DAM
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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**

HARRIS DAM RELICENSING

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


HARRIS DAM
RELICENSING
Alabama Power

From: APC Harris Relicensing

To: "harrisrelicensing@southernco.com"

Bcc: eddieplemons@charter.net; 1942jthompson420@gmail.com; 9sling@charter.net; alcondir@aol.com; allan.creamer@ferc.gov; alpeeple@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_roby@msn.com; baxterchip@yahoo.com; bboozer6@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@randolphcountyeda.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@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.lakewedoweedocks@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; jessecunningham@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; jthroneberry@tnc.org; judymcrealtor@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; lakewedoweedocks@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; mhpwedowee@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; 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; robinwaldrep@yahoo.com; roger.mcneil@noaa.gov; ron@lakewedowee.org; rosoweka@mcn-nsn.gov; russtown@nc-cherokee.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@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@unq.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: 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
(205)257-2251
arsegars@southernco.com

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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

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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 Study[1] 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.

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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.

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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

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[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 cfsm) 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.

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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

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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[5] 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.

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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 orchid[9]) 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.

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[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.

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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.

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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

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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.

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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	

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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

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STATE OF ALABAMA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
WILDLIFE AND FRESHWATER FISHERIES DIVISION

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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

June 11, 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) including Project Lands Evaluation, Operating Curve Change Feasibility, Downstream Release Alternatives Study, Water Quality Study, Erosion and Sedimentation Study, Threatened and Endangered Species Desktop Assessment, Cultural Resources Programmatic Agreement and Historic Properties, Management Plan Study, Area of Potential Effects (APE) and Harris Relicensing Initial Study Report Meeting April 28, 2020 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 filed Harris Project Initial Study Report (ISR) in regards to the relicensing of R.L. Harris Hydroelectric Project No. 2628 and submits the following comments and recommendations for your consideration:

Initial Study Report (ISR)

- 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.

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- On page 12, section 4.2 of Initial Study Report, remove the descriptive words "slight" and "worse" when detailing if alternatives will increase or decrease average annual economic costs to Alabama Power customers and provide estimated amount ranges for each alternative. If, "there are currently too many unknowns at this time to generate accurate and reliable Hydro Budget results", please explain how an assumption of whether it will be "same" or "worse" can be made. For comparisons of alternatives, additional details are recommended to provide how a Pre-Green Plan peaking operation with a 150 cfs continuous minimum flow regardless of generation or no generation to produce the minimum flow would not be a significant economic gain, if not evaluating capital and O&M costs into the equation.

- On page 15, section 5.2 of Initial Study Report, remove "well' in statement, "showed dissolved oxygen levels were well above 5 mg/L during each of their sampling events."

- On page 15, section 5.2 of Initial Study Report, additional data, evidence or other alternatives should be provided to make the statement that "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." On page 17, Figure 3-7 of the Water Quality Study does not indicate that temperature stratification occurred differently in 2017 verses 2018 or 2019. Year 2017 data, on page 37, Figure 4-4, and downstream water quality data on page 46, Figure 6-1 of the Water Quality Study disputes the theory that conditions were caused by previous year conditions. Inflows were above average during 2017, which means discharge was higher. This is another reason low dissolved oxygen could have been more pronounced in 2017. This same scenario has been observed in Lake Martin, where higher spring/summer rainfall leads to increased discharge, which leads to poorer water quality below the thermocline (Sammons and Glover, 2013). If a dam is drawing from the hypolimnion under these conditions, it can lead to a discharge of lower oxygenated water during a high precipitation spring/summer. In addition to evaluating potential causes of the 2017 low dissolved oxygen events, changes and improvements that can be made to detect, adjust and improve operations to prevent another 2017 event from occurring again should be considered and evaluated for the sustained benefit of downstream aquatic resources.

- On page 17, section 6.1 of Initial Study Report delete "likely" and insert, "potential" prior to cause(s).

- On page 18, section 6.2.1 of Initial Study Report, include additional details of how causes of erosion were determined. Methods primarily cover how sites of erosion were identified, not caused.

- On page 18, section 6.2.1 of Initial Study Report, verify and confirm accuracy of statement "Twenty-five percent of the Little Tallapoosa River basin has been converted to hay/pasture fields (MRLC 2019)". Table 2-3, of the Erosion and Sedimentation Study, indicate a net loss of Hay/Pasture in the Little Tallapoosa River Basin of -8,815.1 acres from 2001 to 2016. These two statements appear to be contradictory.

- On page 19, section 6.2.2 of Initial Study Report, it states "Notably, only one area scored as impaired to non-functional (located on the right bank between river mile [RM] 16.3 to 16.9)." On page 33, Figure 21 of Appendix E Downstream Bank Stability Study Report of the Erosion and Sedimentation Study, a red section is downstream of No Business Creek within the 3.5-5 range appears present. Explain and verify that this area is not considered a second impaired site.

- On page 19, section 6.2.2 of Initial Study Report, "primarily caused" should be changed to "potentially caused". Remove "natural riverine processes" and replace with "regulated riverine processes" or define how natural riverine processes are defined in this context and occur below a controlled and regulated tailrace.

- On page 19 section 6.2.2. of Initial Study Report. Providing the dissolved oxygen percent of measurements greater than 5 milligrams per liter is correct but misleading in regards to aquatic resources protection. It is important to note when presenting this data that it only takes a single incident of depleted dissolved oxygen to cause an aquatic species kill event. A caveat or footnote is recommended to address this fact.

- On page 19, section 6.2.2 of Initial Study Report, it states, "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

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Project on these aquatic species and is performing an assessment of the Harris Project's potential effects on species mobility and population health." There are currently records of mussel species Under Review for federal listing with substantial 90-day findings that occur and occurred historically in the Tallapoosa River and its tributaries. Alabama Spike (*Elliptio arca*) and Delicate Spike (*Ellipto arctata*) are currently state protected species and Under Review by United States Fish and Wildlife Service (USFWS) with a substantial 90-day finding. Threatened and Endangered Species study plan states in the methods that additional species of concern may be added at the request of USFWS and/or ADCNR if determined to be appropriate. Please provide details on what specific mollusks and crayfish species will be evaluated. A list of state protected species currently being evaluated during the relicensing process is recommended.

- Page 27, section 9.1 of Initial Study Report, there are additional state protected species that are not T&E. The final report may not address all state protected species and a statement should be included to clarify. The Initial Study Report plan used the term "and/or".

Draft Phase 1 Project Lands Evaluation Study Report

- Appendix B includes Figure of Maps and Supporting Information of Proposed Changes of the Project Lands Evaluation Study Report. These maps indicate there are several recreational properties which are being re-classified away from recreation (net loss of 600 acres- page 14, Table 6-1). In addition to the acreages provided, it would be beneficial to provide and understand the amount of linear feet of shoreline for each parcel being proposed for addition, re-classification or removal. Undisturbed natural shorelines and shorelines designated for recreational use benefit wildlife and aquatic resources and also provide recreational opportunities for anglers and hunters. Impacts to shoreline habitat in Lake Harris can negatively impact aquatic, semi-aquatic, and terrestrial species. Studies have shown that undeveloped shoreline areas provide the most suitable habitat for maintaining abundance, diversity, and species richness of aquatic, semi-aquatic, and terrestrial species. We recommend that natural vegetated shorelines remain undisturbed as much as possible when evaluating land classifications and future shoreline land use. When evaluating classification changes, linear lake front footage would be a useful metric to provide. ADCNR would like to ensure a suitable site(s) is(are) identified and reserved for future construction of an appropriately sized boating access facility(ies). Future boating demand on Lake Harris is currently unknown for the entire duration of the license, therefore ADCNR continues to request consultation with Alabama Power in the selection of future recreational sites to safeguard they are located in suitable areas for anglers and boaters. The sites need to be large enough to suit any future demand of boaters and anglers and the sites need to meet the engineering requirements for an appropriately sized facility. We recommend any suitable identified property continue to be classified as recreational. The distribution of public boat ramps in the lake should be fully evaluated when considering reclassifying recreation zoned areas. In areas of the lake with few public boating access points or high boat ramp usage, there should be recreational zoned properties for future boat ramp additions available to meet angler demand.

- Appendix B, Figures R1-R6 of the Project Lands Evaluation Study Report, indicates that these acreages are not suitable for recreation due to their location within areas of the lake with limited demand for public recreation opportunities. ADCNR requests the opportunity to evaluate the results from the Recreation Evaluation Study prior to this determination for these zoning reclassifications.

- On page 9, of the Project Lands Evaluation Study Report, the third bullet named Project Operations (formerly titled Prohibited Access) states "For security, the allowable uses in this classification are primarily restricted to Alabama Power personnel; however, in some cases, such as guided public tours, limited public access is available." ADCNR recommends that bank fishing be included in the "some cases" exemptions statement for these areas. Canoe or kayak access points should also be evaluated in these areas during the relicensing process, since they are currently nonexistent.

Draft Operating Curve Change Feasibility Analysis Phase1 Report

- On page 6, section 2.1.1.5 Lower Tallapoosa River of the Operation Curve Change Feasibility Analysis Study discusses downstream gages. Include years of discharge and stage data for these gages, similar to previous gages years of discharge and stage data discussed and included in the document.

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- On pages 45-50, Figures 5-7 through 5-12 of the Operation Curve Change Feasibility Analysis Study visually indicate inundation boundaries for the baseline of four winter pool alternatives. Include a Table with calculated totals of inundated acreages for the baseline and four winter pool increase alternatives to assist with the quantitative evaluation of inundation effects downstream of the dam.

Draft Downstream Release Alternatives Phase 1 Report

- The Downstream Release Alternatives Study as is, 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. Throughout the document the "Pre-Green Plan operation with a 150 cfs continuous minimum flow", is often referenced as "continuous minimum flow of 150 cfs". When referencing this downstream release alternative in the document it would be helpful to use the full "Pre-Green Plan operation with a 150 cfs continuous minimum flow" to clarify and fully identify the alternative. If a modified Green Plan, details pending, is evaluated with a continuous minimum flow, the addition will assist in differentiating the alternatives.

- A fourth Modified Green Plan downstream release alternative was included to be evaluated in the initial Study Plan for the Downstream Release Alternatives Study. ADCNR maintains its recommendation for a fourth alternative Modified Green Plan be fully evaluated. Details and design of a Modified Green Plan alternative are pending results from the Aquatic Resources Study. For a complete Downstream Release Alternative Study comparing four release alternatives, the Modified Green Plan alternative should be completed and included in this study or Phase 2. ADCNR requests the opportunity to provide specific recommendations for the Modified Green Plan alternative after assessing all of the planned study reports. ADCNR has consistently stated and provided published peer reviewed references that support recommendations for downstream flows to mimic a natural flow regime with an adaptive management of flows that follows state dissolved oxygen guidelines and provides natural temperature regimes, at all times for the sustained long term benefit and conservation of aquatic species (See *ADCNR*, P-2628-005 FERC ¶ 20181002-5006).

- On page 1, section 1.0 of the Downstream Release Alternatives Study, replace "However, some stakeholders noted that the temperature of the turbine releases could have potential effects on aquatic resources in the Tallapoosa River below Harris Dam." with "However, some stakeholders noted that the temperature of the turbine releases has documented negative impacts on aquatic resources in the Tallapoosa River below Harris Dam." (See *ADCNR*, P-2628-005 FERC ¶ 20181002-5006).

- On page 2, section 1.1, of the Downstream Release Alternatives Study, change "*i.e.*" to "*e.g.*" It should be "for example" not "that is" if an Aquatic Resources Study is required to evaluate and design the alternative to be studied as stated in footnote of the page. Downstream Aquatic Habitat Study and Recreational Evaluation Study results should be considered as inclusions in the footnote as prerequisites to fully evaluate and recommend an alternative Modified Green Plan to be modeled and evaluated as a downstream release alternative.

- On page 21, section 4.3.3 Model Flow Data of the Downstream Release Alternatives Study, ADCNR recommends re-stating that the Modified Green Plan alternative is not included in this model section pending results from additional studies and will be evaluated in Phase 2. This section states why 2001 data was used and presented but does not specify why the date range of 1/1/01-1/31/01 was specifically selected from the entire year data. ADCNR recommends including why this month was selected and providing additional figures similar to Fig. 4-3. showing a months' worth of data at four 1-month intervals covering spring, summer and fall sample portions of hydrographs to fully illustrate model flow data throughout the year.

- On page 25, section 5.2 of the Downstream Release Alternatives Study, remove the descriptive words "slight" and "worse" when detailing if alternatives will increase or decrease average annual economic costs to Alabama Power customers and provide estimated amount ranges for each alternative. If, "there are currently too many unknowns at this time to generate accurate and reliable Hydro Budget results", please explain how an assumption of whether it will be "same" or "worse" can be made. For comparisons of alternatives,

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additional details should be provided describing how a Pre-Green Plan peaking operation with a 150 cfs continuous minimum flow, regardless of generation or no generation to produce the minimum flow, would not be a significant economic gain, if not evaluating capital and O&M costs into the equation.

- On page 27, section 6.0 Conclusions of the Downstream Release Alternatives Study, a space between "results indicate" should be included.

Draft Water Quality Study Report

- On pages ii-iv., Table of Contents, of the Water Quality Study, some of the page numbering does not coincide with the document contents. For example, Lake Levels and Hydrology page 7 of Table of Contents is on page 8.

- On page 3, section 1.1, of the Water Quality Study, after "A summary of data sources for this report is provided in" a large space creates and extra page that appears to be unnecessary and should be removed.

- On page 8, section 2.0, of the Water Quality Study "October of 2107" should be changed to 2017.

- On page 9, Figure 2-2 of the Water Quality Study, specify if the 1987-2016 data is a monthly average or long-term average in the figure key or label.

- On page 22, Table 3-2 of the Water Quality Study, include minimum and maximum ranges of data to this Table, if available.

- On page 25, Figure 4-1 of the Water Quality Study, provide major tributary names and periodic river mile markings to aid in location descriptions.

- On page 27, Table 4-3 of the Water Quality Study, include minimum and maximum ranges of data to this Table, if available.

- On page 39, of the Water Quality Study, "Error! Reference source not found?" should be removed or corrected.

- On page 42, Table 4-11 of the Water Quality Study, if available, separate and provide this data into Pre-Green Plan and Post-Green Plan implementation year groupings to further examine if operational differences affect water quality.

- On page 46, section 6.2 of the Water Quality Study, additional data, evidence or other alternatives should be provided to make the statement that "The low dissolved oxygen events in 2017 may be attributed to conditions in Harris Reservoir that were impacted by severe drought in the summer and fall of 2016, where inflows to the lake were at historic lows (Figure 6-1)" On page 17, Figure 3-7 of the Water Quality Study does not indicate that temperature stratification occurred differently in 2017 versus 2018 or 2019. Year 2017 data, on page 37, Figure 4-4, and downstream water quality data on page 46, Figure 6-1 of the Water Quality Study disputes the theory that conditions were caused by previous year conditions. Inflows were above average during 2017, which means discharge was higher. This is another reason low dissolved oxygen could have been more pronounced in 2017. This same scenario has been observed in Lake Martin, where higher spring/summer rainfall leads to increased discharge, which leads to poorer water quality below the thermocline (Sammons and Glover 2013). If a dam is drawing from the hypolimnion under these conditions, it can lead to a discharge of lower oxygenated water during a high precipitation spring/summer. In addition to evaluating potential causes of the 2017 low dissolved oxygen events, changes and improvements that can be made to detect, adjust and improve operations to prevent another 2017 event from occurring again should be considered and evaluated for the sustained benefit of downstream aquatic resources.

Draft Erosion and Sedimentation Study Report

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- Throughout the Erosion and Sedimentation Study when referencing "cause of erosion" change to "potential cause(s) of erosion/sedimentation." On page 2, section 2.0 Goals and Objectives in the Erosion and Sedimentation Study Plan it states, "The goals of this study are to identify any problematic erosion sites and sedimentation areas and determine the likely causes." "Once areas are identified, Alabama Power will perform assessments and collect additional information, as necessary, to describe and categorize each area according to its severity and potential cause(s)."

- On page 6, section 2.0 Lake Harris, 2.1 Methods in the Erosion and Sedimentation Study, replace, "determine the cause of erosion:" with "determine areas of erosion and potential cause(s):" For the potential cause(s) categories considered, provide a definition of each and additional details into the methods utilized to characterize how each cause was determined and differentiated. The methods described appear to detail how areas of erosion were identified but do not detail how potential cause(s) were determined. A reference to the Erosion and Sedimentation Study Plan Study Plan methods or inclusion of section 4.1 study plan methods should be provided.

- On page 12, section 2.2 Results, 2.2.1 Erosion Survey in the Erosion and Sedimentation Study insert "potential cause(s)" into "Each site was photographed and examined to determine the cause of erosion."

- On page 20, section, of the Erosion and Sedimentation Study, verify and confirm accuracy that Table 2-3 indicates a net loss of Hay/Pasture in the Little Tallapoosa River Basin of -8,815.1 acres from 2001 to 2016. Text indicates a "Twenty-five percent of the Little Tallapoosa River basin has been converted to hay/pasture fields (MRLC 2019)" These two statements appear to be contradictory.

- On page 24, section 3.2 Results of the Erosion and Sedimentation Study, change "primarily caused" to "potentially caused". Remove "natural riverine processes" and replace with "regulated riverine processes" or define how natural riverine processes are defined in this context and occur below a controlled and regulated tailrace.

- On page 25, Table 3-2 of the Erosion and Sedimentation Study, add score ranges (minimum and maximum scores) in addition to the means. If previous sites E22 and E23 are included in this Table, provide an asterisk and footnote specifying which ones they are. Include in discussion section how this scoring method compared to the method used at sites E22 and E23.

- On page 26, Figure 3-1 of the Erosion and Sedimentation Study, include site numbers from Table 3-2 into this map or provide incremental river mile markers.

- On page, Table 4-1 of the Erosion and Sedimentation Study indicates a 592.1 acreage increase in deciduous forest. Deciduous forest stream buffers have been shown to reduce nitrogen, phosphorous and sedimentation from surface water runoff into streams, lakes and estuaries. This could be included in the discussion section as a positive observed land use trend in the area (Klapproth and Johnson 2009; Roy *et al.* 2006).

- On page 31, Section 5.0 Discussion and Conclusions of the Erosion and Sedimentation Study, provide additional information on definitions and methodology in how cause(s) were determined before the conclusion that erosion was a result of anthropogenic and/or natural processes independent of project operations. As is, the use of the word "potential" should be included. Provide the current definition of "project operations" for this study and include it prior to other document "project operations" statements. If referring to "fluctuations" from project operations, this should be clearly stated throughout Erosion and Sedimentation Study. Among Study plans there appears to be variations in the provided definition of "Project operations" and "project related impacts". For example, on page 4 the Erosion and Sedimentation Study Plan states "Project operations" as "(*i.e.*, water level fluctuations or construction/maintenance activities on/at Project facilities or lands)", but on page 2 of the Threatened and Endangered Species Study Plan it states "project related impacts" as "(*i.e.*, lake fluctuations, downstream flows, recreation and shoreline management activities, timber management, etc.)". Providing consistency of these definitions among studies would be beneficial during the relicensing evaluation process. In addition, including "etc." which indicates that "further, similar items are included" after using "*i.e.*" or "that is" is a contradictory use of the terms.

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- On page 31, section 5.0 Discussion and Conclusions of the Erosion and Sedimentation Study, replace "extremely small" with "relatively small".

- On page 31, section 5.0 Discussion and Conclusions of the Erosion and Sedimentation Study, insert "potentially" prior to "affected"

- On page 31, section 5.0 Discussion and Conclusions of the Erosion and Sedimentation Study, insert "potentially" prior to "clear-cut". Reword sentence to read: "The observed erosion at the these sites is the potential result of adjacent land use and clearing of riparian plant cover destabilizing soils along the affected banks, although erosion at these sites may have been initially caused or exacerbated as result of altered flow releases from Harris Dam."

- On page 31, section 5.0 Discussion and Conclusions of the Erosion and Sedimentation Study, insert "in the reservoir" after decrease in "Sedimentation in Lake Harris is most pronounced in the Little Tallapoosa River arm where sediment transported from upstream settles out of the water column as water velocities decrease" statement.

- In Appendix E Downstream Bank Stability Study Report of the Erosion and Sedimentation Study, include periodic river mile markers and corresponding segment numbers in figures of the study.

- On page 33, Figure 21 of Appendix E Downstream Bank Stability Study Report of the Erosion and Sedimentation Study, a red section in downstream of No Business Creek within the 3.5-5 range appears present. In results or discussion explain how this area is not included as a second impaired site.

- On page 34, Table 3 of Appendix E Downstream Bank Stability Study Report of the Erosion and Sedimentation Study, if available, include ranges (minimum and maximum scores) with segment data.

- On page 43, Conclusions section of Appendix E Downstream Bank Stability Study Report of the Erosion and Sedimentation Study include a definition and discussion about the potential for head cutting in tributaries due to main river channel operations. Head cutting is a process by which the upstream portion of a stream channel becomes destabilized and erodes progressively in an upstream direction. Accelerated velocities can lead to an increase in head cutting upstream from affected areas (Annear *et al.* 2002).

Draft Threatened and Endangered Species Desktop Assessment

- Throughout the Threatened and Endangered Species Desktop Assessment, capitalize species common names. When a species is first used in the document, include the scientific name in parentheses. The common name can then be used in the remaining sections of the document.

- Range Figures included in the Threatened and Endangered Species Desktop Assessment illustrating aquatic species habitat ranges, include the tributaries and streams names on the maps.

- On page 6, Table 1-1 of the Threatened and Endangered Species Desktop Assessment in Scientific names column change "*Villosa trabalis*" to "*Venustaconcha trabalis*", "*Quadrula cylindrica*" to "*Theliderma cylindrica*". Correct error for scientific name of Shiny Pigtoe to "*Fusconaia cor*" (Williams *et al.* 2017).

- On page 6, Table 1-1 of the Threatened and Endangered Species Desktop Assessment all of the species listed in this table are now State Protected, see Alabama Regulations relating to game, fish and furbearing animals. 2019-2020. Alabama Department of Conservation and Natural Resources, with the exception of the plant species listed, Little Amphianthus, White Fringeless Orchid, Price's Potato-bean and Morefield's Leather Flower.

- On page 6, Table 1-1 of the Threatened and Endangered Species Desktop Assessment change column heading "Occurrence" column to "Recent Documented Occurrence in Harris Project Boundary". Within the

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document "Recent" should be defined, for example, "In this report any documented occurrence within the past 25 years will be classified as a Recent Documented Occurrence".

- On page 6, Table 1-1 of the Threatened and Endangered Species Desktop Assessment, Williams *et al.* (2008) is cited but this resource is not utilized anywhere else in the document. Recommend including the most up to date resources in the following species descriptions.

- On Page 9, 3.2 Palezone Shiner section of the Threatened and Endangered Species Desktop Assessment if an updated survey is proposed for this species suggest including and discussing or note that it will be included in an additional Phase 2 study report.

- On page 10, 3.4 Finelined Pocketbook section of the Threatened and Endangered Species Desktop Assessment, include "primarily" in the statement, "this mussel lives in large to small streams in habitats "primarily" above the fall line." See Williams *et al.* 2008 distribution map and distribution descriptions.

- On page 10, 3.4 Finelined Pocketbook section of the Threatened and Endangered Species Desktop Assessment, include, if any, the last mussel survey completed in the Tallapoosa Harris Tailrace and tributaries. Include a statement indicating if a mollusk tailrace study has been considered in the study plan development process and why it was not deemed necessary for this species.

- On page 10, 3.4 Finelined Pocketbook section of the Threatened and Endangered Species Desktop Assessment, a statement should be included notifying that ADCNR and USFWS are currently reintroducing the Finelined Pocketbook into suitable historical habitats within the state (USFWS 2019).

- On page 10, 3.4 Finelined Pocketbook section of the Threatened and Endangered Species Desktop Assessment, the reasons for decline could be updated and improved by summarizing statements from USFWS (2019), Nine Mobile River Basin mussels (Finelined Pocketbook (*Hamiota (=Lampsilis) altilis*), Orangenacre Mucket (*Hamiota (=Lampsilis) perovalis*), Alabama Moccasinshell, (*Medionidus acutissimus*), Coosa Moccasinshell (*Medionidus parvulus*), Southern Clubshell (*Pleurobema decisum*), Dark Pigtoe *(Pleurobema furvum*), Southern Pigtoe (*Pleurobema georgianum*), Ovate Clubshell (*Pleurobema perovatum*), Triangular Kidneyshell (*Ptychobranchus greenii*)) 5-year review. This review states that suitable habitats and water quality, free of excessive sedimentation and other pollutants, are required for Finelined Pocketbook. The primary cause of curtailment of range and fragmentation of habitat for these mussel species has been contributed to the historic construction of dams and impoundment of large reaches of major river channels (Federal Register 58 FR 14330). Although most of these actions took place in the past, the impacted conditions and habitat continue to affect the species. In recent years, some improvements have been made to improve riverine conditions. For example, flow improvements have been made below Weiss Dam on the Coosa River that benefit existing populations of Southern Clubshell. Watershed-specific threats continue to negatively impact the species. These threats include: 1) coal mining activities 2) oil and gas exploration 3) water withdrawal 4) hypolimnetic discharges 5) poor water quality due to insufficient releases from dams 6) instream aggregate mining 7) navigation channel maintenance activities (8) agricultural practices that degrade water quality by increasing nutrients, herbicide/surfactant compounds, and hormones in surface waters; (9) hydropeaking dams that alter downstream flow conditions, water temperatures, and dissolved oxygen (10) increasing urban development that degrades water quality and stream geomorphology; and (11) climate change, which is expected to result in more frequent and extreme dry and wet years in the Southeast over the next century.

- On page 10, 3.4 Finelined Pocketbook section of the Threatened and Endangered Species Desktop Assessment, change statement "No populations were identified within the Project Boundary at Lake Harris, but future surveys have been proposed by Alabama Power." to "To date, no populations were identified within the Project Boundary at Lake Harris, but surveys focused on the 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 are currently being conducted by Alabama Power and USFWS."

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- On page 11, 3.5 Alabama Lampmussel section of the Threatened and Endangered Species Desktop Assessment, a statement should be included notifying that ADCNR and USFWS is currently reintroducing the Alabama Lampmussel into suitable historical habitats within the state (USFWS 2012).

- On page 11, 3.5 Alabama Lampmussel section of the Threatened and Endangered Species Desktop Assessment, reasons for imperilment should be updated and improved summarizing statements from USFWS released a Five-Year Review for the species (USFWS 2012).

- On page 11, 3.5 Alabama Lampmussel section of the Threatened and Endangered Species Desktop Assessment, include that in laboratory trials Alabama Lampmussel glochidia have been found to utilize Rock Bass (*Ambloplites rupestris*), Green Sunfish (*Lepomis cyanellus*), Bluegill (*Lepomis macrochirus*), Smallmouth Bass (*Micropterus dolomieu*), Spotted Bass (*Micropterus punctulatus*), Largemouth Bass (*Micropterus salmoides*), and Redeye Bass (*Micropterus coosae*) as host fish and that Banded Sculpin (Cottus carolinae) appear to be marginal hosts (Williams et. Al. 2008).

- On page 12, 3.6 Cumberland Bean section of the Threatened and Endangered Species Desktop Assessment, a statement should be included notifying that ADCNR and USFWS is currently reintroducing the Cumberland Bean into suitable historical habitats within the state (USFWS 2020).

- On page 12, 3.6 Cumberland Bean section of the Threatened and Endangered Species Desktop Assessment, reasons for imperilment should be updated and improved summarizing statements from USFWS released a Five-Year Review for the species (USFWS 2020).

- On page 12, 3.7 Fine-Rayed Pigtoe section of the Threatened and Endangered Species Desktop Assessment, reasons for species decline should be updated and improved summarizing statements from USFWS released a Five-Year Review for the species (USFWS 2013b).

- On page 13, 3.8 Pale Lilliput section of the Threatened and Endangered Species Desktop Assessment, a statement should be included notifying that ADCNR and USFWS is currently reintroducing the Pale Lilliput Mussel into suitable historical habitats within the state (USFWS 2011).

- On page 13, 3.8 Pale Lilliput section of the Threatened and Endangered Species Desktop Assessment, reasons for imperilment should be updated and improved summarizing statements from USFWS released a Five-Year Review for the species (USFWS 2011).

- On page 13, 3.8 Pale Lilliput section of the Threatened and Endangered Species Desktop Assessment, include, in laboratory trials by ADCNR, Pale Lilliput glochidia have been found to utilize Northern Studfish (*Fundulus catenatus*), Blackspotted Topminnow (*Fundulus olivaceus*) and Blackstripe Topminnow (*Fundulus notatus*) as primary hosts. (Fobian *et al.* 2015)

- On page 13, 3.9 Rabbitsfoot section of the Threatened and Endangered Species Desktop Assessment, a statement should be included notifying that ADCNR and USFWS is currently reintroducing the Rabbitsfoot into suitable historical habitats statewide.

- On page 13, 3.9 Rabbitsfoot section of the Threatened and Endangered Species Desktop Assessment, include, suitable fish hosts for Rabbitsfoot populations west of the Mississippi River include Blacktail Shiner (*Cyprinella venusta*) from the Black and Little rivers and Cardinal Shiner (*Luxilus cardinalis*), Red Shiner (*Cyprinella lutrensis*), Spotfin Shiner (*Cyprinella spiloptera*), and Bluntface Shiner (*Cyprinella camura*) from the Spring River, but host suitability information is lacking for most of the eastern range (Fobian 2007). A host study by ADCNR in 2011, found Scarlet Shiner (*Lythrurus fasciolari*), Whitetail Shiner (*Cyprinella galactura*) and Striped Shiner (*Luxilus chrysocephalus*) to be sympatric hosts with Rabbitsfoot from Paint Rock River, AL. Marginal minnow hosts from studies have included Central Stoneroller (*Campostoma anomalum*), Emerald Shiner (*Notropis atherinoides*), Rosyface Shiner (*Notropis rubellus*), Bullhead Minnow (*Pimephales vigilax*) and Rainbow Darter (*Etheostoma caeruleum*), but not in all stream populations tested (Fobian 2007, Watters *et al.* 2005).

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- On page 14, 3.10 Snuffbox section of the Threatened and Endangered Species Desktop Assessment, update and include that in 2019, USFWS released a Five-Year Review for the species (USFWS 2019b). Reasons for imperilment could be added and improved summarizing statements from this document as well.

- On page 15, 3.11 Shiny Pigtoe Mussel section of the Threatened and Endangered Species Desktop Assessment, reasons for imperilment should be updated and improved summarizing statements from USFWS released a Five-Year Review for the species (USFWS 2013c).

- On page 16, 3.12 Southern Pigtoe section of the Threatened and Endangered Species Desktop Assessment, change "finelined pocketbook mussel" to "Southern Pigtoe".

- On page 16, 3.12 Southern Pigtoe section of the Threatened and Endangered Species Desktop Assessment, the reasons for decline could be updated and improved by summarizing statements from USFWS (2019), Nine Mobile River Basin mussels (Finelined Pocketbook (*Hamiota (=Lampsilis) altilis*), Orangenacre Mucket (*Hamiota (=Lampsilis) perovalis*), Alabama Moccasinshell, (*Medionidus acutissimus*), Coosa Moccasinshell (*Medionidus parvulus*), Southern Clubshell (*Pleurobema decisum*), Dark Pigtoe *(Pleurobema furvum*), Southern Pigtoe (*Pleurobema georgianum*), Ovate Clubshell (*Pleurobema perovatum*), Triangular Kidneyshell (*Ptychobranchus greenii*)) 5-year review. This review states that suitable habitats and water quality, free of excessive sedimentation and other pollutants, are required for Southern Pigtoe. The primary cause of curtailment of range and fragmentation of habitat for mussel species has been contributed to the historic construction of dams and impoundment of large reaches of major river channels (Federal Register 58 FR 14330). Although most of these actions took place in the past, the impacted conditions and habitat continue to affect the species. In recent years, some improvements have been made to improve riverine conditions. For example, flow improvements have been made below Weiss Dam on the Coosa River that benefit existing populations of Southern Clubshell. Watershed-specific threats continue to negatively impact the species. These threats include: 1) coal mining activities 2) oil and gas exploration 3) water withdrawal 4) hypolimnetic discharges 5) poor water quality due to insufficient releases from dams 6) instream aggregate mining 7) navigation channel maintenance activities (8) agricultural practices that degrade water quality by increasing nutrients, herbicide/surfactant compounds, and hormones in surface waters; (9) hydropeaking dams that alter downstream flow conditions, water temperatures, and dissolved oxygen (10) increasing urban development that degrades water quality and stream geomorphology; and (11) climate change, which is expected to result in more frequent and extreme dry and wet years in the Southeast over the next century.

- On page 17, 3.13 Slabside Pearlymussel section of the Threatened and Endangered Species Desktop Assessment, include that in 2013, USFWS designated critical habitat for the species (Federal Register 78:59555-59620). A statement similar to the Rabbitsfoot section could be included for consistency.

- On page 25, Discussion and Conclusions: section of the Threatened and Endangered Species Desktop Assessment, include a caveat statement or footnote reiterating that this is a desktop assessment and that to be certain of species occurrence, surveys should be conducted by qualified biologists to determine if a sensitive species occurs within a project area. Species not listed for a specific area does not imply that they do not occur there, only that their occurrence there is as yet unrecorded by state or federal agencies. This assessment is currently under review and reflects only our current understanding of species distributions.

- On page 25, Discussion and Conclusions: section of the Threatened and Endangered Species Desktop Assessment, change "…extant populations of 20 federal and state protected T&E species (Appendix B)." to "….extant populations of 20 federally T&E species of which 16 are state protected (Appendix B)."

- Appendix B Species Habitat Range Maps of the Threatened and Endangered Species Desktop Assessment, all figures with "extant population" shown. change to "Recent Documented Occurrence". In addition, make sure "Current Range" and "Documented Historic Range" terminology is defined in the assessment. As is, all Figure Titles in Appendix B should have "Current" inserted before Habitat Range and after the Species name.

- Figure 3.12-1 Appendix B of the Threatened and Endangered Species Desktop Assessment, Southern Pigtoe does not occur in the Tennessee River system. It does not have critical habitat in the Paint Rock River system. This map appears to be inaccurate and should be deleted.

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- Figure 3.13-1 Appendix B of the Threatened and Endangered Species Desktop Assessment, The Paint Rock River has designated critical habitat for this species. See Federal Register 78:59555-59620 for critical habitat details that should be included.

Cultural Resources Programmatic Agreement and Historic Properties, Management Plan Study

- ADCNR has no comments or recommendations at this time.

Area of Potential Effects (APE)

- ADCNR has no comments or recommendations at this time.

Harris Relicensing Initial Study Report Meeting April 28, 2020

- Recreational Evaluation Study discussion. Recreation use data was collected at recreational facilities from March to December 2019, however questionnaires were only filled out from May to December 2019. The Questionnaires missed an active time for anglers. ADCNR is concerned that recreational anglers may not be adequately represented in this data. ADCNR would like to make sure that anglers are adequately represented in the survey since it asks specific questions about specific facilities.

- Downstream Release Alternatives Study discussion. A fourth alternative is proposed in the study plan. It was to be a Modified Green Plan. Aquatic Resources Study is required to evaluate and design the alternative to be studied as stated in the footnotes.

- Erosion and Sedimentation Study discussion. ADCNR recommends including the APC response statement "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." into the discussion section of the study.

- Threatened and Endangered Species Desktop Assessment discussion. APC stated that "No listed species have been documented in the Tallapoosa River below the Harris Dam." Should be changed to "No listed species have recently been documented in the Tallapoosa River between Harris Dam and Lake Martin." The Documented Historic Range for Finelined Pocketbook includes the Tallapoosa River.

Thank you for the opportunity to comment on the R.L. Harris Hydroelectric Project relicensing filed Harris Project Initial Study Report (ISR). 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

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U.S. Fish and Wildlife Service. 2013c. Shiny Pigtoe (*Fusconaia cor*), 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service, Asheville, North Carolina. 22 pp.

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U.S. Fish and Wildlife Service. 2020. Cumberland Bean (Villosa trabalis), 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service, Frankfort, Kentucky. 29 pp.

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Document Content(s)

HarrisProject InitialStudy Report(ISR)ADCNRFinal.PDF.....1-13

From: Holbrook, Shannon <shannon_holbrook@fws.gov>
Sent: Tuesday, June 23, 2020 3:01 PM
To: Baker, Jeffery L.; Collins, Evan R
Cc: Anderegg, Angela Segars; Jason Moak
Subject: Re: [EXTERNAL] NLEB Streamlined Consultation

Jeff

You are correct. Completion of the streamlined consultation wouldn't be appropriate since the range of the Indiana bat, which is not covered under the 4d rule, overlaps with the range of the NLEB. Thank you for coordinating with us on this issue.

Shannon

****

Shannon Holbrook
Alabama Ecological Services Field Office
U. S. Fish and Wildlife Service
1208-B Main Street
Daphne, AL 36526
Office: (251) 441-5871 Fax: (251) 441-6222
shannon_holbrook@fws.gov

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From: Baker, Jeffery L. <JEFBAKER@southernco.com>
Sent: Monday, June 22, 2020 9:42 AM
To: Holbrook, Shannon <shannon_holbrook@fws.gov>; Collins, Evan R <evan_collins@fws.gov>
Cc: Anderegg, Angela Segars <ARSEGARS@southernco.com>; Jason Moak <jason.moak@kleinschmidtgroup.com>
Subject: [EXTERNAL] NLEB Streamlined Consultation

Shannon and Evan,

Thank you discussing the recent request by FERC for Alabama Power to complete the streamlined consultation process for Northern Long-eared Bat (NLEB) as part of the ongoing Harris re-licensing process. Based on our discussion, USFWS would not recommend completion of the streamlined consultation due the overlap in range, specifically within the Harris project boundary, of the Indiana Bat with the NLEB. Evan, thank you for suggesting I discuss this issue with Shannon to confirm this position. Shannon, could you please confirm this response so that it can be documented. Please feel free to call if you have any questions.

Thanks,

Jeff Baker

Biologist
Alabama Power
Environmental Affairs
744 Highway 87
GSC #8
Calera, AL, 35040
Tel 205-351-1631
jefbaker@southernco.com



APC Harris Relicensing

From: Baker, Jeffery L.
Sent: Tuesday, June 23, 2020 10:21 AM
To: Collins, Evan; Fobian, Todd; Anderegg, Angela Segars
Cc: Carlee, Jason; Jason Moak
Subject: Fine-lined pocketbook surveys
Attachments: Proposed sample locations.docx

Evan,

Thank you for working with us to sample tributaries of Lake Harris for fine-lined pocketbook. We wish you could join us but we understand the current need for caution concerning overnight travel. Based on our discussions last year, while surveying areas in the mainstem Tallapoosa for suitable fine-lined pocketbook habitat, we plan to sample the locations described below. Furthermore, we will focus our efforts in the mainstem Tallapoosa River, downstream of the Co Rd 36 crossing, to those suitable areas identified during last year's survey effort.

See the attached map showing proposed fine-lined pocketbook survey locations for:

1. the mainstem Tallapoosa River from Co Rd 36 (33.550745, -85.609274) to Hwy 431 (33.509628, -85.624566).
2. Ketchepedrakee Creek: areas upstream and downstream of Co Rd 201 (33.451611, -85.619928)
3. Little Tallapoosa River : 2.5 miles between Co Rd 59 (33.414079, -85.432259) and Old Hwy 431 (33.420481, -85.627730)
4. Pineywood Creek from Co Rd 270 (33.389430, -85.516747) to approximately Hwy 431 (33.381906, -85.516448)

As we discussed, we will also sample two of the following tributaries described below. Tributaries of the mainstem Tallapoosa River were chosen because of the known occurrence of fine-lined pocket in portions of the river upstream of the project boundary. Selection will be based on suitability of habitat and logistical considerations such as access. Those potential tributaries are:

Sandy Creek at Co Rd 7 (33.403985, -85.568055)
Mad Indian Creek at Co Rd 113 (33.350009, -85.635460) or some private property owned by Servants in Faith and Technology (still need to make contact with them)
Little Ketchepedrakee Creek at Co Rd 313 (33.432489, -85.635134)
Lost Creek at Co Rd 313 (33.420481, -85.627730).

Based on the draft study plan, we will perform at least one hour of qualitative effort per mile of stream. This effort will be focused in areas with suitable habitat. All mussels will be identified, photographed, and returned to the site of capture. If congregations of mussels are identified, quantitative surveys, using ¼ meter quadrats, will be performed. Dominant habitat will also be recorded for each sample reach.

If weather permits, we may survey some of the smaller tributaries this week but will target the mainstem Tallapoosa River and the larger tributaries starting the week of June 29. Please let us know if you have additional suggestions.

Todd,

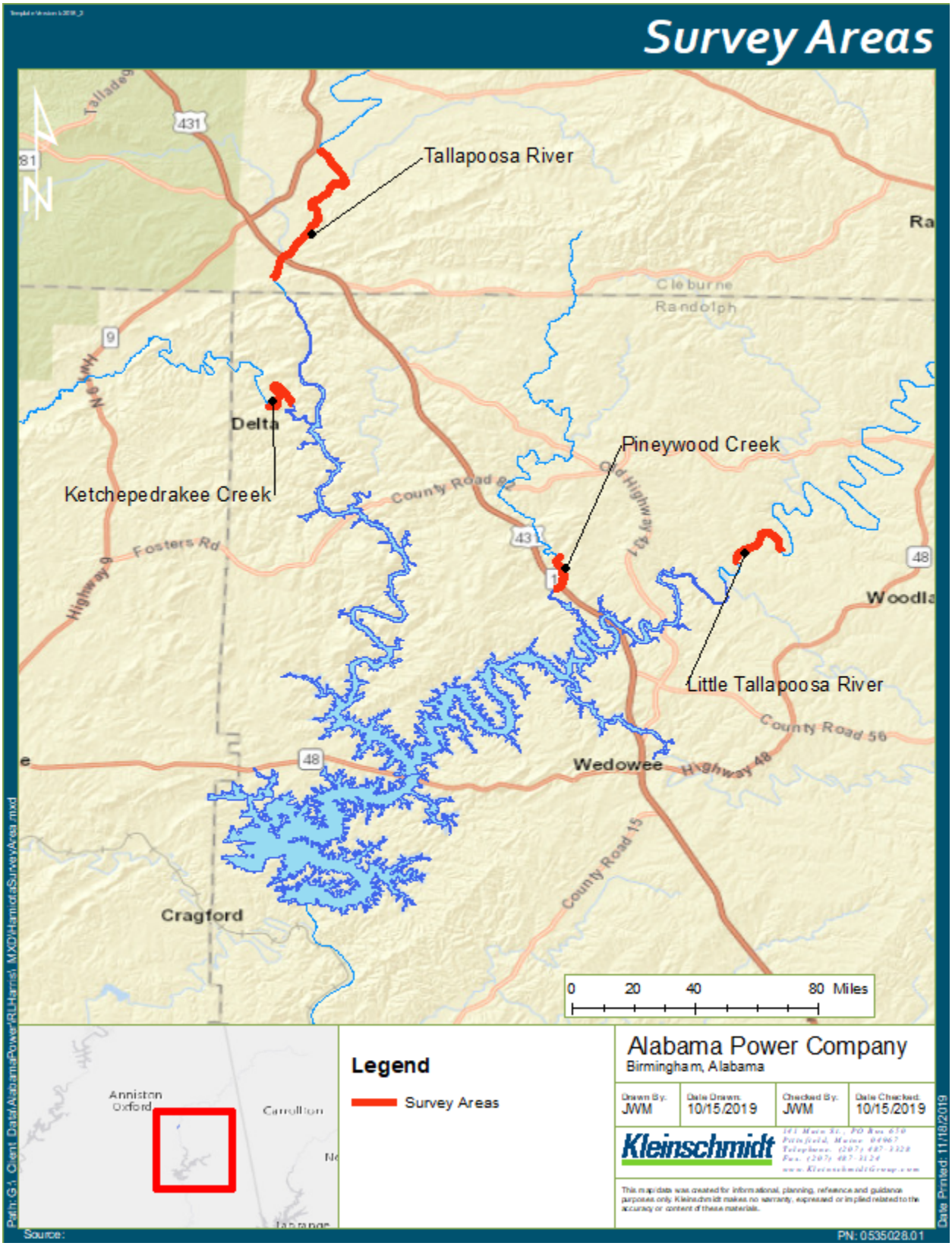
Thanks for your interest in joining the field sampling. Please let me know if you are available to join us. If you are interested, but not available next week, let us know that as well and we will attempt to accommodate your schedule so that you can join us in the field.

Thanks,

Jeff Baker
Biologist
Alabama Power
Environmental Affairs
744 Highway 87
GSC #8
Calera, AL, 35040
Tel 205-351-1631
jefbaker@southernco.com



Survey Areas



Legend

Survey Areas

Alabama Power Company
Birmingham, Alabama

Drawn By:	Date Drawn:	Checked By:	Date Checked:
JWM	10/15/2019	JWM	10/15/2019

Kleinschmidt

141 Main St., PO Box 630
Pittsfield, Maine 04967
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Date Printed: 11/18/2019

APC Harris Relicensing

From: Collins, Evan R <evan_collins@fws.gov>
Sent: Thursday, June 25, 2020 2:02 PM
To: Baker, Jeffery L.; Fobian, Todd; Anderegg, Angela Segars
Cc: Carlee, Jason; Jason Moak
Subject: Re: [EXTERNAL] Fine-lined pocketbook surveys

EXTERNAL MAIL: Caution Opening Links or Files

Hi, Jeff. Thanks for notifying me of the upcoming surveys for the finelined pocketbook. I'm sorry I won't be able to join you. I recall our discussions last year regarding the site selection and have no further comment on that. I support your survey methods. One question: do you have an approximate definition for mussel congregation? It may be worth articulating an approximate range that would trigger quantitative surveys.

Good luck!
Evan

--
Evan Collins
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Alabama Ecological Services Field Office
1208-B Main Street
Daphne, AL 36526
251-441-5837 (phone)
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NOTE: This email correspondence and any attachments to and from this sender is subject to the Freedom of Information Act (FOIA) and may be disclosed to third parties.

From: Baker, Jeffery L. <JEFBAKER@southernco.com>
Sent: Tuesday, June 23, 2020 10:21 AM
To: Collins, Evan R <evan_collins@fws.gov>; Fobian, Todd <Todd.Fobian@dcnr.alabama.gov>; Anderegg, Angela Segars <ARSEGARS@southernco.com>
Cc: Carlee, Jason <JCARLEE@southernco.com>; Jason Moak <jason.moak@kleinschmidtgroup.com>
Subject: [EXTERNAL] Fine-lined pocketbook surveys

Evan,

Thank you for working with us to sample tributaries of Lake Harris for fine-lined pocketbook. We wish you could join us but we understand the current need for caution concerning overnight travel. Based on our discussions last year, while surveying areas in the mainstem Tallapoosa for suitable fine-lined pocketbook habitat, we plan to sample the locations described below. Furthermore, we will focus our efforts in the mainstem Tallapoosa River, downstream of the Co Rd 36 crossing, to those suitable areas identified during last year's survey effort.

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4. Pineywood Creek from Co Rd 270 (33.389430, -85.516747) to approximately Hwy 431 (33.381906, -85.516448)

As we discussed, we will also sample two of the following tributaries described below. Tributaries of the mainstem Tallapoosa River were chosen because of the known occurrence of fine-lined pocket in portions of the river upstream of the project boundary. Selection will be based on suitability of habitat and logistical considerations such as access. Those potential tributaries are:

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Lost Creek at Co Rd 313 (33.420481, -85.627730).

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If weather permits, we may survey some of the smaller tributaries this week but will target the mainstem Tallapoosa River and the larger tributaries starting the week of June 29. Please let us know if you have additional suggestions.

Todd,

Thanks for your interest in joining the field sampling. Please let me know if you are available to join us. If you are interested, but not available next week, let us know that as well and we will attempt to accommodate your schedule so that you can join us in the field.

Thanks,

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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 UGSG 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 comments[3], 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 UGSG 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 cavitation[5] initiation. The best way to minimize cavitation and its associated detrimental vibrations is to quickly move the wickets 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 Denman[7] 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 Matthews[8] 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>; alpeeple@southernco.com <alpeeple@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_roby@msn.com <bart_roby@msn.com>; baxterchip@yahoo.com <baxterchip@yahoo.com>; bboozer6@gmail.com <bboozer6@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: Anderegg, Angela Segars
Sent: Friday, July 24, 2020 4:10 PM
To: 'Evan Collins'; Al Schotz (ars0002@auburn.edu); todd.fobian@dcnr.alabama.gov
Cc: Baker, Jeffery L.; Chandler, Keith Edward; Carlee, Jason; Jason Moak; APC Harris Relicensing
Subject: Harris relicensing - T&E Species
Attachments: 2020-07-24 Palezone Shiner Survey Report.pdf

Good afternoon,

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 Company (Alabama Power) is relicensing the 135- megawatt (MW) Harris Project, and the existing license expires in 2023. As part of phase one of the FERC-approved Threatened and Endangered Species Study Plan, Alabama Power conducted a desktop assessment of threatened and endangered species (**T&E Species Desktop Assessment**). The desktop assessment includes a description and maps of the project, reviews of existing information, and maps depicting known ranges and habitat.

While preparing the desktop assessment, Alabama Power determined it is unclear if some species or their suitable habitats occur within the Harris Project Boundary (maps of the Project Boundary can be found in the T&E Species Desktop Assessment – Figures 1-1 and 1-2). Based on guidance from U.S. Fish and Wildlife Service (FWS), Alabama Power has already begun performing surveys to determine if some of these species occur within the Harris Project Boundary. Surveys were recently performed for Palezone Shiner in Little Coon Creek at Skyline. Attached is a brief report of this survey. Surveys for Fine-lined Pocketbook were performed in Fall 2019 and will be completed in Summer 2020.

Alabama Power is seeking your guidance as resource managers and experts as to whether surveys for four species or assessments of habitat suitability are advised. The following sections describe these species and the areas where Alabama Power lacks enough information. Bolded text are questions we would appreciate your assistance in answering. Due to the relatively rigid deadlines involved in the FERC relicensing process, we would appreciate your response by **August 7th**.

Red-cockaded Woodpecker (*Picoides borealis*)
This species is listed as potentially occurring in Clay and Randolph counties. This woodpecker requires open pine woodlands and savannahs with large, mature pines for nesting and roosting habitat. Mature pines, preferably longleaf pine, are required as cavity trees. The cavity trees are located in open stands with little or no hardwood mid-story and few or no over-story hardwoods. The

woodpeckers require abundant native bunchgrass and groundcovers suitable for foraging within their habitat. Land use analysis indicates the Harris Project Boundary at Lake Harris contains 3,068 acres of coniferous forest; however, the data is not specific enough to determine if these forests contain the more specific habitat characteristics required by Red-cockaded Woodpecker.

Are you aware of any occurrence of Red-cockaded Woodpecker within or near the Harris Project Boundary?

Are you aware of any suitable habitat for Red-cockaded Woodpecker within or near the Harris Project Boundary?

Pool Sprite (*Amphianthus pusilis*)

Limited populations of this species are known to occur in Randolph and Chambers counties. This species is a small, ephemeral aquatic annual herb with floating and submerged leaves whose entire life cycles lasts approximately one month, typically in early spring. This species occurs in very specific habitat that is restricted to vernal pools on granite outcrops in the southeastern Piedmont. Optimal habitat has been described as a shallow, flat-bottomed pool with a rock rim. A single occurrence within the Harris Project Boundary at Flat Rock was noted in 1995. Recent surveys commissioned by Alabama Power have failed to detect the Pool Sprite at Flat Rock. The granite outcrops at Flat Rock appear to be the only potentially suitable habitat within the Harris Project Boundary.

Are you aware of any additional survey work that might have documented the presence/absence of Pool Sprite and/or suitable habitats within the Harris Project Boundary?

White Fringeless Orchid (*Platanthera integrilabia*)

This species is a slender, erect, perennial herb that grows in colonies. The orchid blooms from late July to early September with fruits maturing in October. White Fringeless Orchid typically occurs in wet, flat, or boggy areas with acidic muck or sand. This plant prefers partially shaded areas at the head of streams or seepage slopes. Two extant populations have been identified in Clay and Cleburne in Talladega National Forest. According to FWS, this species' habitat range includes portions of the Harris Project Boundary at both Skyline and Lake Harris.

Are you aware of any occurrence of White Fringeless Orchid within the Harris Project Boundary at Lake Harris or Skyline?

Are you aware of any suitable habitat for White Fringeless Orchid within the Harris Project Boundary at Lake Harris or Skyline?

Price's Potato Bean (*Apios priceana)*

Price's Potato Bean is a twining, herbaceous, perennial vine that grows from a tuber and has greenish-white or brownish-pink flowers. This species is found in open, bottom areas near or along the banks of streams and rivers, sometimes near the base of limestone bluffs. There are approximately 46 miles of stream bottoms with the Harris Project Boundary at Skyline. According to the most recent 5-year review (2016), there is a known population which occurs near Little Coon Creek in the Skyline WMA.

Can you provide the exact location of the population(s) at Skyline WMA so we can determine their proximity to the Harris Project Boundary?

Have any surveys for this species been performed within the Harris Project Boundary?

Do you believe there are areas within the Harris Project Boundary where this species may potentially occur and should be surveyed?

Thank you,

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

Palezone Shiner (*Notropis albizonatus*) Survey Report

R.L. Harris Project

FERC No. 2628



Prepared for:

Alabama Power Company

Prepared by:

Kleinschmidt Associates

July 2020

Kleinschmidtgroup.com

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Appendix A Field Forms

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 Project.

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, 2019. On August 27, 2019, the Harris Action Team (HAT) 3 (Fish & Wildlife) met to discuss components of the Threatened and Endangered Species Study Plan (TESS). At that meeting, the U.S. Fish and Wildlife Service (FWS) noted that Palezone Shiner (*Notropis albizonatus*), a federally endangered fish species, occurs in tributaries of the Tennessee River near the Project boundary at Skyline in Jackson County, Alabama. The FWS subsequently recommended that Alabama Power perform surveys to determine if Palezone Shiner occur within or near the Project boundary in Little Coon Creek.

The Palezone Shiner is a small, slender minnow species with a pointed snout and large eyes. It has a small, dark, wedge-shaped spot at the base of the caudal fin and may exhibit a light yellow color at the base of its pectoral fins during breeding. Historically, this species was found in the Tennessee and Cumberland River systems; however, the only know extant populations occur in the Paint Rock River watershed (Tennessee River tributary), and the Little South Fork of the Cumberland River (ADCNR 2020). Palezone Shiner are found in runs and pools of large creeks and small rivers with clean bedrock, cobble, gravel, and sand. Spawning likely occurs between May and July, peaking in June.

This survey report describes the methods that Alabama Power used to assess the occurrence of Palezone Shiner in the study area.

2.0 METHODS

Alabama Power performed surveys at four locations on Little Coon Creek. Little Coon Creek flows into Big Coon Creek before entering the Tennessee River. The locations were selected based on accessibility, proximity to the Skyline Project boundary, and proximity to locations at which the Alabama Department of Environmental Management (ADEM) performs periodic water quality and biota assessments.

Table 2-1 Palezone Shiner Survey Locations

Site Number	Miles Upstream of Mouth	Description
1	1.8	County Road 53
2	7.0	County Road 566
3	8.6	County Road 567
4	10.8	County Road 54

Surveyors from Alabama Power and ADEM performed fish Index of Biotic Integrity (IBI) sampling according to methods in O'Neil and Shepard (2010). Sites were sampled by backpack electrofishing and seining and stratified over riffle, run, pool, and shoreline habitats. Ten sampling efforts were expended proportionally in each of the riffle, run, and pool habitat types and two efforts were expended along stream shorelines. All captured fish were identified to species and released.

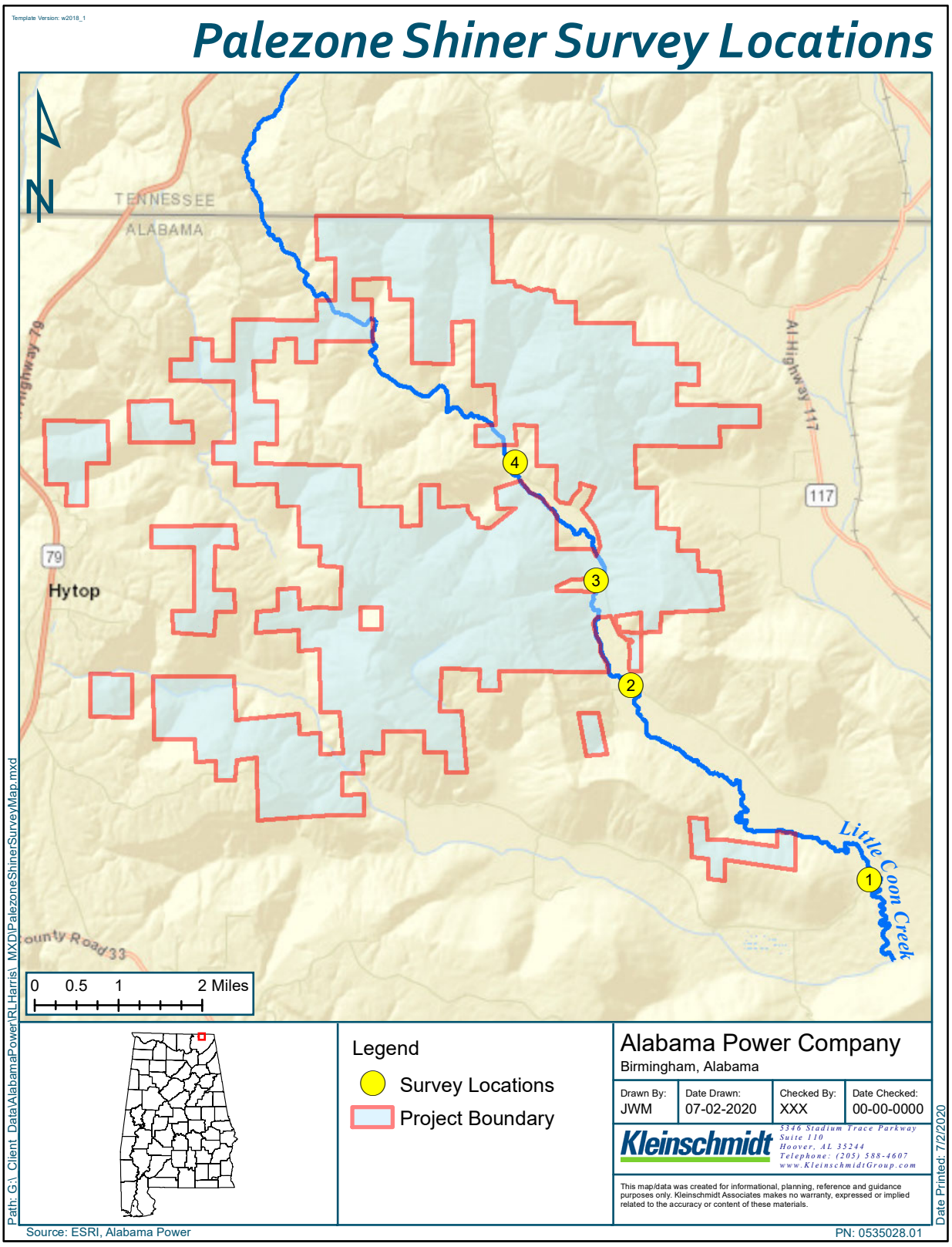


Figure 2-1 Palezone Shiner Survey Location Map

3.0 RESULTS

Surveys were conducted on June 10-11, 2020. No Palezone Shiners were collected or observed at any of the four survey sites. The following is a description of the results by site.

3.1 Site 1

Site 1, located downstream of the Skyline Management Area, has been channelized and was extremely turbid on the day of sampling. Loose, shifting, sand and silt was present across the entire channel. Sampling at this site was aborted due to extremely low catch rate and instream conditions. Furthermore, habitat is highly degraded at this site. However, Geological Survey of Alabama (GSA) does have historical sample records for this site and the Palezone Shiner has not been collected.

3.2 Site 2

Site 2 is very near the project boundary. Heavy siltation was observed throughout the sample reach at this site as well. The entire channel has been altered by severe siltation and sand deposits. A complete IBI sample, resulting in a "poor" score of 28, was performed but no Palezone Shiners were collected. A total of 15 species from seven families were collected. Banded sculpin (*Cottus carolinae*) was the most commonly encountered species. Bluegill (*Lepomis macrochirus*) was the next most commonly encountered species at this site (Table 3-1). GSA also has records of historical sampling at this site, but Palezone Shiners have not been collected. Aerial imagery of the site indicated a relatively narrow riparian area between the stream and the surrounding pasture. Field observations confirmed this and the ADEM Physical Characterization Field Data Sheet indicated that the riparian zone scored in the marginal range (Appendix A).

3.3 Site 3

Site 3 site was within the Skyline project boundary. Substrate conditions were much improved at this site, but the fish community was similar to the degraded Site 2. A total of 16 species form six families were collected. Like Site 2, banded sculpin was the most commonly collected species. Other relatively common species included Striped shiner (*Luxilus chrysocephalus*), Bluntnose minnow (*Pimephales notatus*), and bluegill. A complete fish IBI was performed, but Palezone Shiners were not collected. IBI scores for Site 3 resulted in a score of 26, putting it in the "very poor" range (Table 3-1). Like Site 2, aerial

imagery of the site indicated a relatively narrow riparian area between the stream and the surrounding pasture. Field observations confirmed this and the ADEM Physical Characterization Field Data Sheet indicated that the riparian zone scored in the sub-optimal range (Appendix A).

3.4 Site 4

Site 4 was narrow compared to downstream sample reaches and appeared to be more typical of a headwater stream. A complete IBI was not performed due to the low number of fish collected. Neither mollusks nor aquatic macroinvertebrates were observed at this site. This section of Little Coon Creek and sections upstream of this point may be intermittent, going seasonally dry in summer and/or fall.

Table 3-1 Adult Fishes Collected in Little Coon Creek

Scientific Name	Common Name	Site 2	Site 3	Totals
Campostoma oligolepis	Largescale Stoneroller	9	2	**11**
Hemitremia flammea	Flame Chub	5		**5**
Luxilus chrysocephalus	Striped Shiner	3	36	**39**
Lythrurus fasciolaris	Scarlet Shiner	1	12	**13**
Pimephales notatus	Bluntnose Minnow	4	24	**28**
Rhinichthus atratulus	Blacknose Dace	7	4	**11**
Catostomus commersoni	White Sucker		1	**1**
Moxostoma erythrurum	Golden Redhorse	1	1	**2**
Ameiurus natalis	Yellow Bullhead	1		**1**
Fundulus olivaceus	Blackspotted Topminnow	12	5	**17**
Cottus carolinae	Banded Sculpin	78	102	**180**
Lepomis auratus	Redbreast Sunfish		1	**1**
Lepomis cyanellus	Green Sunfish	2	6	**8**
Lepomis gulosus	Warmouth	1		**1**
Lepomis macrochirus	Bluegill	14	23	**37**
Lepomis microlophus	Redear Sunfish		1	**1**
Etheostoma duryi	Black Darter	2	12	**14**
Perca flavescens	Yellow Perch		1	**1**
Percina kathae	Mobile Logperch	1	3	**4**
	Total	**141**	**234**	**375**
	IBI Score	**28**	**26**	
	IBI Range	**Poor**	**Very Poor**	



Figure 3-1 View Looking Upstream at Site 2



Figure 3-2 View Looking Downstream at Site 2



Figure 3-3 View Looking Upstream at Site 3



Figure 3-4 View Looking Downstream at Site 3



Figure 3-5 View Looking Upstream at Site 4



Figure 3-6 View Looking Downstream at Site 4

4.0 SUMMARY AND CONCLUSIONS

A total of 19 species, from seven families, were collected at sites 2 and 3. Banded sculpin was by far the most commonly encountered species; followed by striped shiner, bluegill, and bluntnose minnow. Much of the stream substrate in this section of Little Coon Creek is degraded. The surrounding land use and narrow riparian buffers likely contribute to the substrate conditions. Conditions improve as you move up the watershed, but the stream becomes more typical of a headwater stream and may be seasonally dry in areas. The absence of historical records for Palezone Shiner in Little Coon Creek, substrate conditions throughout much of the stream, and the failure to detect this species during this collection effort indicate that it is unlikely that the species occurs in Little Coon Creek.

5.0 REFERENCES

Alabama Department of Conservation and Natural Resources (ADCNR). 2020. Palezone Shiner. Available at: https://www.outdooralabama.com/shiners/palezone. Accessed July 2, 2020.

O'Neil, P.E. and T.E. Shepard. 2010. Calibration of the Index of Biotic Integrity for the Tennessee Valley Ichthyoregion in Alabama. Open-File Report 1004. Geological Survey of Alabama, Tuscaloosa, Alabama.

APPENDIX A

FIELD FORMS

ADEM - FIELD OPERATIONS DIVISION

PHYSICAL CHARACTERIZATION FIELD DATA SHEET W/DATALOGGER IMPORT

Trip Name 2020 HARRIS DAM MITIGATION PROJECT *Station #* LITTLE CANOE CR. D CAVE SPRINGS AL

Visit Date 10 Sept 2020 *Visit Time* 1100 *Collector Names* [illegible]/APCO CREW - BIDS/ICT

Trip Comments:

STATION VISIT COMMENTS (REACH DESCRIPTION)

(For COC Purposes: D.O =) WATER SITTATION IMPAIRMENT - 2020 LOSS AND NORM STATUS

IN STREAM, NO RIFFLES PRESENT DUE TO LARGE SILT AND SAND DEPOSITS

ALAWADR/ BIOWADR STATION VISIT ACTIVITIES (*ACTIVITY TIMES ONLY NEEDED IF DIFFERENT FROM STATION VISIT TIME)

	Activity Time* (24hrs):		Replicate Time (24hrs):	Activity Conducted?
☑ Field Form: *Phys Char Form*		☐ *Rep 1*		☐ Activity Not Conducted
☑ Field Form: *Substrate Composition & Habitat Assessment Form*				☐ Activity Not Conducted
☐ Datalogger Import		☐ *Rep 1*		☐ Activity Not Conducted
☐ MB-I Inverts		☐ *Rep 1*		☐ Activity Not Conducted
☐ Peri Chl *a*		☐ *Rep 1*		☐ Activity Not Conducted
☑ Fish IBI		☐ *Rep 1*		☐ Activity Not Conducted

If any activity is not conducted, Why? ☐ No Flow ☐ Intermittent Pools ☐ Too Deep ☐ Too Turbid ☐ Dry Streambed ☐ Equipment Malfunctioned ☐ Inaccessible ☐ Dangerous Flow ☐ Dangerous Weather ☐ Other: Note in Comments

☑ Pictures Taken (Notes:)

RIPARIAN LANDUSE & VEGETATION

Land use at Reach (Check all): ☐ Pasture ☐ Fields ☐ CAFO ☑ Crops ☐ Residential ☐ Industrial ☐ Forest ☐ Commercial ☐ Mixed Urban ☐ silviculture

Dominant Riparian Vegetation Present Select Only One: ☒ Trees ☐ Herbaceous ☐ Shrubs ☐ Grasses

Canopy Cover: ☐ Open 0-20% ☐ Mostly Open 20-40% ☐ Est 50/50 40-60% ☒ Mostly Shaded 60-80% ☐ Shaded 80-100%

Type: ☒ Deciduous ☐ Coniferous ☐ Mixed

INSTREAM FEATURES

Stream Morphology Est.

Reach Length 300 ft

Stream Width 15 ft

Bank Height: High 10 ft

Low 4 ft

High Water Mark 10 ft

Channelized? ☑ Yes ☐ No

% of Total Reach (Must add up to 100%)

Riffle Habitat	0 %
Rootbank Habitat	5 %
Rock/log Habitat	50 %
CPOM Habitat	0 %
Sand Habitat	30 %
Macro Habitat	0 %
Unsuitable Substrates	5 %

Stream Depth

Riffle 0 ft

Run 100 ft

Pool 175 ft

Proportion of

Riffle 0 %

Run 90 %

Pool 10 %

Dam Present ☒ No ☐ Yes

Relation to Reach: ☐ Above ☐ Below ☐ Within

If Yes, Kind?: ☐ Beaver ☐ Debris ☐ Low-head ☐ Mill ☐ Culvert ☐ Hydropower

Est. Gradient (Over 300ft): ☒ Low <1ft ☐ High >3ft ☐ Moderate 1-3 ft

AQUATIC VEGETATION

Total % of wetted reach with aquatic vegetation present 0 %

For species list see plant guide of common species of AL

Dominant Vegetation Type (Select only one): ☐ Rooted Emergent ☐ Rooted Submergent ☐ Floating Algae ☐ Rooted Floating ☐ Attached Algae ☐ Free Floating

(Optional) Type	*% of Wetted Reach*	*Species*	*Type*	*% of Wetted Reach*	*Species*
Rooted Emergent	___ %		Attached Algae	___ %	
Rooted Floating	___ %		Floating Algae	___ %	
Rooted Submergent	___ %		Free Floating	___ %	

SEDIMENT / SUBSTRATE

Sediment Odors (Select One): ☐ None ☐ Chemical ☐ Sewage ☑ Anaerobic ☐ Petroleum ☐ Fishy

Oils (Select One): ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

Deposits (Select One): ☐ None ☐ Paper Fiber ☑ Silt ☐ Sand ☐ Gravel ☐ Sawdust ☐ Sludge ☐ Coal Fines

Looking at stones that are not deeply embedded, are the undersides black in color? ☐ Yes ☐ No ☒ N/A

WATER QUALITY INDICATORS

Water Odors (Select One): ☑ Normal/None ☐ Chemical ☐ Raw Sewage ☐ Treated Sewage ☐ Fishy ☐ Anaerobic ☐ Petroleum

Surface Oils: ☑ None ☐ Flecks ☐ Sheen ☐ Slick ☐ Globs

Water Color (Select One): ☐ Clear/No Color ☐ Grey ☐ Green ☐ Purple ☒ Brown (Mud) ☐ Red (Dye) ☐ Chalky White ☐ Blue ☐ Lt .Tannic ☐ Dk. Tannic

Biological Indicators (Select all): ☐ Mussels ☒ Fish ☑ Crayfish ☐ Snails ☐ Macroinvertebrates ☑ Fresh Beaver Sticks

Cave Spring Rd

VISIT OBSERVATIONS AND MEASUREMENTS

Was Flow Measured?	☐ Yes - ADEM: Abbrev Meter (*cfs*)	☐ No - Not wadeable (too deep)	☒ No - Not Required	☐ No - Meter Malfunctioned
	☐ Yes - USGS: Gauge (*cfs*)	☐ No - Flow conditions hazardous	☐ No - Flow not visible	☐ Data Collected but Lost or Corrupted
	☐ Yes - Facility (*mgd*)	☐ No - Visible but not measurable	☐ No - Braided/Swamp	
	USGS Gage # or Flow--Meter #:		**Flow (*cfs*) or (*mgd*):**	

Now	***Weather***	*Past 24 hrs*
☐	Clear / Cloudless	☐
☐	Partly Cloudy	☒
☐	Mostly Cloudy	☐
☐	Cloudy	☐
☐	Fog	☐
☐	Light Rain / Drizzle	☐
☐	Rain	☐
☐	Thunderstorms	☐
☐	Freezing Precipitation	☐

Flow Stage
- ☐ Flood (out of banks)
- ☐ Above Normal
- ☐ Normal
- ☐ Low

Heavy Rain in last 7 Days?
☐ Yes ☐ No

Velocity
- ☐ Swift >3 ft / Sec
- ☐ Moderate 1.5 – 3 ft / Sec
- ☐ Slow <1.5 ft / Sec

Parameter	***Value***	***Replicate***	***Unit***
Datalogger Serial#		*N/A*	#
Total Depth @ FM Pt			*ft*
Air Temp.		*N/A*	*°C*
Turbidity Meter #		*N/A*	#
Turbidity			*NTU*
Depth of Turbidity:	☐ Surface ☐ Mid-Depth ☐ _____ ft		

SUBSTRATE COMPOSITION & HABITAT ASSESSMENT FORM

Index To Use:
- ☒ High Gradient
- ☐ Low Gradient

Est. % Composition In Sampling Area

Type	Diameter	Percent	Stable
Bedrock		0	1/2
Hardpan Clay		0	1/2
Boulder	>10 in.	0	Yes
Cobble	2.5 - 10 in.	0	Yes
Gravel	0.1 - 2.5 in.	5	Yes
Sand	Gritty	35	
Silt		10	
Clay	Slick	5	
Detritus	Stick/Wood	35	Yes
	CPOM	10	
Muck	Fine Org.		
	Total	100%	

	Name of Collector / **Riffle / Run HA**	*Collector 1* Score (LB/RB)	*Collector 2* Score (LB/RB)
1	Instream Cover	12	11
2	Epifaunal surface	3	3
3	Embeddedness	5	4
4	Velocity/Depth	0	0
5	Channel Alteration	12	13
6	Sediment Deposition	5	3
7	Frequency of Riffles	2	2
8	Channel Flow Status	10	11
9	Condition of Banks	9	7
10	Bank Veg. Protection	7/7	7/7
11	Disruptive Pressure	0/0	0/0
12	Riparian Veg. zone	5/5	6/6
13	Rip Veg Zone Quality	3/3	5/5

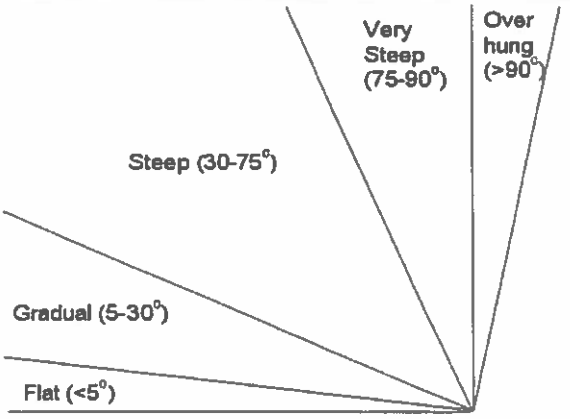
	Name of Collector / **Glide / Pool HA**	*Collector 1* Score (LB/RB)	*Collector 2* Score (LB/RB)
1	Instream Cover		
2	Pool Substrate Char.		
3	Pool Variability		
4	Channel Alteration		
5	Sediment Deposition		
6	Channel Sinuosity		
7	Channel Flow Status		
8	Condition of Banks		
9	Bank Veg. Protection	/	/
10	Disruptive Pressure	/	/
11	Riparian Veg. Zone	/	/
12	Rip Veg Zone Quality	/	/

Frequency of Riffles/ Bends (Distance between riffles/bends ÷ stream width)

Computer Measurement	<5	5	6	7	8	9	11	13	15	16	18	21	23	25	26	28	30	32	34	≥35

Check One for each Bank:

Left Bank Angle	☐ Flat	☐ Gradual	☐ Steep	☒ Very Steep	☐ Overhung
Right Bank Angle	☐ Flat	☐ Gradual	☐ Steep	☒ Very Steep	☐ Overhung



ADEM - FIELD OPERATIONS DIVISION

PHYSICAL CHARACTERIZATION FIELD DATA SHEET W/DATALOGGER IMPORT

Trip Name APCO HARRIS DAM RELICENSING PROJECT *Station #* LITTLE COON CREEK @ JACKSON CO HWY 9

Visit Date 11 JUN 2020 *Visit Time* 930 *Collector Names* CG/APCO CREW JB/DS/CF

Trip Comments:

STATION VISIT COMMENTS (REACH DESCRIPTION)

(For COC Purposes: D.O =) BETTER HABITAT THAN D/S SAMPLE @ CAVE SPRING

LOW SILTATION. WORKED D/S OF BRIDGE AND FINISHED SAMPLE IN Ø RIFFLE @ BRIDGE

ALAWADR/ BIOWADR STATION VISIT ACTIVITIES (*ACTIVITY TIMES ONLY NEEDED IF DIFFERENT FROM STATION VISIT TIME)

	Activity Time* (24hrs):		Replicate Time (24hrs):	Activity Conducted?
☒ Field Form: *Phys Char Form*		☐ *Rep 1*		☐ Activity Not Conducted
☒ Field Form: *Substrate Composition & Habitat Assessment Form*				☐ Activity Not Conducted
☐ Datalogger Import		☐ *Rep 1*		☐ Activity Not Conducted
☐ MB-I Inverts		☐ *Rep 1*		☐ Activity Not Conducted
☐ Peri Chl *a*		☐ *Rep 1*		☐ Activity Not Conducted
☒ Fish IBI		☐ *Rep 1*		☐ Activity Not Conducted

If any activity is not conducted, Why? ☐ No Flow ☐ Intermittent Pools ☐ Too Deep ☐ Too Turbid ☐ Dry Streambed ☐ Equipment Malfunctioned ☐ Inaccessible ☐ Dangerous Flow ☐ Dangerous Weather ☐ Other: Note in Comments

☒ Pictures Taken (Notes:)

RIPARIAN LANDUSE & VEGETATION

Land use at Reach (Check all): ☒ Pasture ☐ Fields ☐ CAFO ☐ Industrial ☐ Crops ☐ Residential ☐ Mixed Urban ☒ Forest ☐ Commercial ☐ silviculture

Dominant Riparian Vegetation Present (Select Only One): ☒ Trees ☐ Herbaceous ☐ Shrubs ☐ Grasses

Canopy Cover: ☐ Open 0-20% ☐ Mostly Open 20-40% ☐ Est 50/50 40-60% ☒ Mostly Shaded 60-80% ☐ Shaded 80-100%

Type: ☒ Deciduous ☐ Coniferous ☐ Mixed

INSTREAM FEATURES

Stream Morphology Est.

Reach Length 1200 ft
Stream Width 35 ft
Bank Height: High 10 ft
Low 4 ft
High Water Mark 12 ft

Channelized? ☐ Yes ☒ No

% of Total Reach (Must add up to 100%)

Riffle Habitat	5 %
Rootbank Habitat	7 %
Rock/log Habitat	53 %
CPOM Habitat	10 %
Sand Habitat	20 %
Macro Habitat	3 %
Unsuitable Substrates	7 %

Stream Depth

Riffle .50 ft
Run 1.25 ft
Pool 1.75 ft

Proportion of

Riffle 5 %
Run 50 %
Pool 45 %

Dam Present ☒ No ☐ Yes

Relation to Reach: ☐ Above ☐ Below ☐ Within

Est. Gradient (Over 300ft): ☐ Low <1ft ☐ High >3ft ☒ Moderate 1-3 ft

If Yes, Kind?: ☐ Beaver ☐ Debris ☐ Low-head ☐ Mill ☐ Culvert ☐ Hydropower

AQUATIC VEGETATION

Total % of wetted reach with aquatic vegetation present 3 % — *For species list see plant guide of common species of AL*

Dominant Vegetation Type: (Select only one) ☐ Rooted Emergent ☒ Rooted Floating ☐ Rooted Submergent ☐ Attached Algae ☐ Floating Algae ☐ Free Floating

(Optional) Type	*% of Wetted Reach*	*Species*	*Type*	*% of Wetted Reach*	*Species*
Rooted Emergent	____ %		Attached Algae	____ %	
Rooted Floating	____ %		Floating Algae	____ %	
Rooted Submergent	____ %		Free Floating	____ %	

SEDIMENT / SUBSTRATE

Sediment Odors (Select One): ☒ None ☐ Chemical ☐ Sewage ☐ Anaerobic ☐ Petroleum ☐ Fishy

Oils (Select One): ☒ Absent ☐ Moderate ☐ Slight ☐ Profuse

Deposits (Select One): ☒ None ☐ Paper Fiber ☐ Silt ☐ Sand ☐ Gravel ☐ Sawdust ☐ Sludge ☐ Coal Fines

Looking at stones that are not deeply embedded, are the undersides black in color? ☐ Yes ☐ No ☒ N/A

WATER QUALITY INDICATORS

Water Odors (Select One): ☒ Normal/None ☐ Chemical ☐ Raw Sewage ☐ Treated Sewage ☐ Fishy ☐ Anaerobic ☐ Petroleum

Surface Oils: ☒ None ☐ Flecks ☐ Sheen ☐ Slick ☐ Globs

Water Color (Select One): ☒ Clear/No Color ☐ Grey ☐ Green ☐ Purple ☐ Brown (Mud) ☐ Red (Dye) ☐ Chalky White ☐ Blue ☐ Lt .Tannic ☐ Dk. Tannic

Biological Indicators (Select all): ☐ Mussels ☒ Fish ☒ Crayfish ☐ Snails ☒ Macroinvertebrates ☐ Fresh Beaver Sticks

CR 567

VISIT OBSERVATIONS AND MEASUREMENTS

Was Flow Measured?	☐ Yes - ADEM: Abbrev Meter (*cfs*)	☐ No - Not wadeable (too deep)	☒ No - Not Required	☐ No - Meter Malfunctioned
	☐ Yes - USGS: Gauge (*cfs*)	☐ No - Flow conditions hazardous	☐ No - Flow not visible	☐ Data Collected but Lost or Corrupted
	☐ Yes - Facility (*mgd*)	☐ No - Visible but not measurable	☐ No - Braided/Swamp	
	USGS Gage # or Flow--Meter #:		**Flow (*cfs*) or (*mgd*):**	

Now	*Weather*	*Past 24 hrs*
☐	Clear / Cloudless	☐
☒	Partly Cloudy	☒
☐	Mostly Cloudy	☐
☐	Cloudy	☐
☐	Fog	☐
☐	Light Rain / Drizzle	☐
☐	Rain	☐
☐	Thunderstorms	☐
☐	Freezing Precipitation	☐

Flow Stage
- ☐ Flood (out of banks)
- ☐ Above Normal
- ☒ Normal
- ☐ Low

Heavy Rain in last 7 Days?
- ☐ Yes
- ☒ No

Velocity
- ☐ Swift >3 ft / Sec
- ☐ Moderate 1.5 – 3 ft / Sec
- ☒ Slow ≤1.5 ft / Sec

Parameter	*Value*	*Replicate*	*Unit*
Datalogger Serial#		*N/A*	#
Total Depth @ FM Pt			*ft*
Air Temp.		*N/A*	℃
Turbidity Meter #		*N/A*	#
Turbidity			*NTU*
Depth of Turbidity:	☐ Surface ☐ Mid-Depth ☐ _____ ft		

SUBSTRATE COMPOSITION & HABITAT ASSESSMENT FORM

Index To Use:
- ☒ High Gradient
- ☐ Low Gradient

Est. % Composition In Sampling Area

Type	Diameter	Percent	Stable
Bedrock		0	1/2
Hardpan Clay		0	1/2
Boulder	>10 in.	2	Yes
Cobble	2.5 - 10 in.	3	Yes
Gravel	0.1 - 2.5 in.	20	Yes
Sand	Gritty	30	
Silt		0	
Clay	Slick	5	
Detritus	Stick/Wood	30	Yes
	CPOM	10	
Muck	Fine Org.	0	
	Total	100%	

	Name of Collector / Riffle / Run HA	Collector 1 Score (LB/RB)	Collector 2 Score (LB/RB)
	Name of Collector	CS	JB
1	Instream Cover	17	17
2	Epifaunal surface	11	12
3	Embeddedness	16	16
4	Velocity/Depth	17	18
5	Channel Alteration	15	15
6	Sediment Deposition	16	17
7	Frequency of Riffles	8	7
8	Channel Flow Status	18	19
9	Condition of Banks	13	14
10	Bank Veg. Protection	8 / 6	9 / 7
11	Disruptive Pressure	9 / 9	9 / 9
12	Riparian Veg. zone	8 16	8 / 7
13	Rip Veg Zone Quality	6 / 6	7 / 7

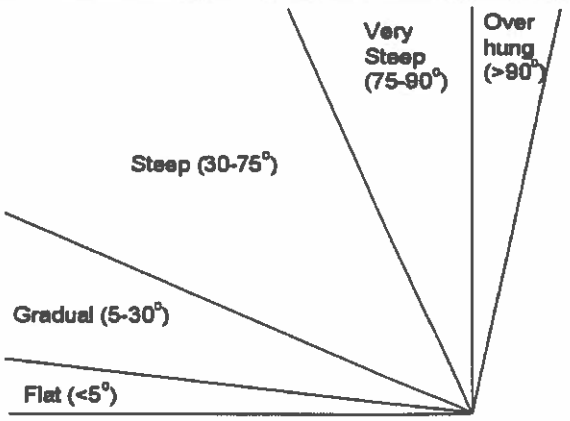
	Name of Collector / Glide / Pool HA	Collector 1 Score (LB/RB)	Collector 2 Score (LB/RB)
	Name of Collector		
1	Instream Cover		
2	Pool Substrate Char.		
3	Pool Variability		
4	Channel Alteration		
5	Sediment Deposition		
6	Channel Sinuosity		
7	Channel Flow Status		
8	Condition of Banks		
9	Bank Veg. Protection	/	/
10	Disruptive Pressure	/	/
11	Riparian Veg. Zone	/	/
12	Rip Veg Zone Quality	/	/

Frequency of Riffles/ Bends (Distance between riffles/bends ÷ stream width)

Computer Measurement	<5	5	6	7	8	9	11	13	15	16	18	21	23	25	26	28	30	32	34	≥35

Check One for each Bank:

Left Bank Angle	☐ Flat	☐ Gradual	☐ Steep	☒ Very Steep	☐ Overhung
Right Bank Angle	☐ Flat	☐ Gradual	☐ Steep	☒ Very Steep	☐ Overhung



APC Harris Relicensing

From: Anderegg, Angela Segars
Sent: Wednesday, August 5, 2020 12:47 PM
To: Alfred Schotz
Subject: RE: Harris relicensing - T&E Species

Thanks, Al! We'll read through your response and let you know if we have any follow up questions.

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

From: Alfred Schotz <ars0002@auburn.edu>
Sent: Tuesday, August 4, 2020 9:34 PM
To: Anderegg, Angela Segars <ARSEGARS@southernco.com>
Subject: Re: Harris relicensing - T&E Species

EXTERNAL MAIL: Caution Opening Links or Files

Dear Angela,

I apologize for the delayed reply to your message. I've been out of the office attending to family matters. I've answered the questions related to plants. As you will noticed below, I placed the question followed by my reply.

Please feel free to let me know if you have any questions regarding my feedback below.

Thanks,
Al Schotz

Are you aware of any additional survey work that might have documented the presence/absence of Pool Sprite and/or suitable habitats within the Harris Project Boundary?

I am not aware of any additional work that has documented the presence/absence of the pool sprite within the Harris Project Boundary. Suitable habitat currently exists, warranting field investigations.

Are you aware of any occurrence of White Fringeless Orchid within the Harris Project Boundary at Lake Harris or Skyline?

I am not aware of any occurrence of the white fringeless orchid within either the boundary of the Harris Project or Skyline.

Are you aware of any suitable habitat for White Fringeless Orchid within the Harris Project Boundary at Lake Harris or Skyline?

Suitable habitat for the white fringeless orchid is present within both the Harris Project and Skyline boundaries. Potential habitat is likely plentiful at Skyline where the species has been documented just off the property boundary.

Can you provide the exact location of the population(s) at Skyline WMA so we can determine their proximity to the Harris Project Boundary?

Yes, we can provide the exact location of Price's potato-bean at Skyline WMA.

Have any surveys for this species been performed within the Harris Project Boundary? No

Do you believe there are areas within the Harris Project Boundary where this species may potentially occur and should be surveyed?

No, there is no suitable habitat for Price's potato-bean within the Harris Project Boundary

---

From: Anderegg, Angela Segars <ARSEGARS@southernco.com>
Sent: Friday, July 24, 2020 4:09 PM
To: 'Evan Collins' <evan_collins@fws.gov>; Alfred Schotz <ars0002@auburn.edu>; todd.fobian@dcnr.alabama.gov <todd.fobian@dcnr.alabama.gov>
Cc: Baker, Jeffery L. <JEFBAKER@southernco.com>; Chandler, Keith Edward <KECHANDL@SOUTHERNCO.COM>; Carlee, Jason <JCARLEE@southernco.com>; Jason Moak <jason.moak@kleinschmidtgroup.com>; APC Harris Relicensing <g2apchr@southernco.com>
Subject: Harris relicensing - T&E Species

Good afternoon,

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 Company (Alabama Power) is relicensing the 135- megawatt (MW) Harris Project, and the existing license expires in 2023. As part of phase one of the FERC-approved Threatened and Endangered Species Study Plan, Alabama Power conducted a desktop assessment of threatened and endangered species (**T&E Species Desktop Assessment [harrisrelicensing.com]**). The desktop assessment includes a description and maps of the project, reviews of existing information, and maps depicting known ranges and habitat.

While preparing the desktop assessment, Alabama Power determined it is unclear if some species or their suitable habitats occur within the Harris Project Boundary (maps of the Project Boundary can be found in the T&E Species Desktop Assessment – Figures 1-1 and 1-2). Based on guidance from U.S.

Fish and Wildlife Service (FWS), Alabama Power has already begun performing surveys to determine if some of these species occur within the Harris Project Boundary. Surveys were recently performed for Palezone Shiner in Little Coon Creek at Skyline. Attached is a brief report of this survey. Surveys for Fine-lined Pocketbook were performed in Fall 2019 and will be completed in Summer 2020.

Alabama Power is seeking your guidance as resource managers and experts as to whether surveys for four species or assessments of habitat suitability are advised. The following sections describe these species and the areas where Alabama Power lacks enough information. Bolded text are questions we would appreciate your assistance in answering. Due to the relatively rigid deadlines involved in the FERC relicensing process, we would appreciate your response by **August 7th**.

Red-cockaded Woodpecker (*Picoides borealis*)

This species is listed as potentially occurring in Clay and Randolph counties. This woodpecker requires open pine woodlands and savannahs with large, mature pines for nesting and roosting habitat. Mature pines, preferably longleaf pine, are required as cavity trees. The cavity trees are located in open stands with little or no hardwood mid-story and few or no over-story hardwoods. The woodpeckers require abundant native bunchgrass and groundcovers suitable for foraging within their habitat. Land use analysis indicates the Harris Project Boundary at Lake Harris contains 3,068 acres of coniferous forest; however, the data is not specific enough to determine if these forests contain the more specific habitat characteristics required by Red-cockaded Woodpecker.

Are you aware of any occurrence of Red-cockaded Woodpecker within or near the Harris Project Boundary?

Are you aware of any suitable habitat for Red-cockaded Woodpecker within or near the Harris Project Boundary?

Pool Sprite (*Amphianthus pusilis*)

Limited populations of this species are known to occur in Randolph and Chambers counties. This species is a small, ephemeral aquatic annual herb with floating and submerged leaves whose entire life cycles lasts approximately one month, typically in early spring. This species occurs in very specific habitat that is restricted to vernal pools on granite outcrops in the southeastern Piedmont. Optimal habitat has been described as a shallow, flat-bottomed pool with a rock rim. A single occurrence within the Harris Project Boundary at Flat Rock was noted in 1995. Recent surveys commissioned by Alabama Power have failed to detect the Pool Sprite at Flat Rock. The granite outcrops at Flat Rock appear to be the only potentially suitable habitat within the Harris Project Boundary.

Are you aware of any additional survey work that might have documented the presence/absence of Pool Sprite and/or suitable habitats within the Harris Project Boundary?

White Fringeless Orchid (*Platanthera integrilabia*)

This species is a slender, erect, perennial herb that grows in colonies. The orchid blooms from late July to early September with fruits maturing in October. White Fringeless Orchid typically occurs in wet, flat, or boggy areas with acidic muck or sand. This plant prefers partially shaded areas at the head of streams or seepage slopes. Two extant populations have been identified in Clay and Cleburne in Talladega National Forest. According to FWS, this species' habitat range includes portions of the Harris Project Boundary at both Skyline and Lake Harris.

Are you aware of any occurrence of White Fringeless Orchid within the Harris Project Boundary at Lake Harris or Skyline?

Are you aware of any suitable habitat for White Fringeless Orchid within the Harris Project Boundary at Lake Harris or Skyline?

Price's Potato Bean (*Apios priceana)*

Price's Potato Bean is a twining, herbaceous, perennial vine that grows from a tuber and has greenish-white or brownish-pink flowers. This species is found in open, bottom areas near or along the banks of streams and rivers, sometimes near the base of limestone bluffs. There are approximately 46 miles of stream bottoms with the Harris Project Boundary at Skyline. According to the most recent 5-year review (2016), there is a known population which occurs near Little Coon Creek in the Skyline WMA.

Can you provide the exact location of the population(s) at Skyline WMA so we can determine their proximity to the Harris Project Boundary?

Have any surveys for this species been performed within the Harris Project Boundary?

Do you believe there are areas within the Harris Project Boundary where this species may potentially occur and should be surveyed?

Thank you,

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

APC Harris Relicensing

From: Anderegg, Angela Segars
Sent: Friday, August 7, 2020 10:44 AM
To: Fobian, Todd; 'Evan Collins'; Al Schotz (ars0002@auburn.edu)
Cc: Baker, Jeffery L.; Chandler, Keith Edward; Carlee, Jason; Jason Moak; APC Harris Relicensing; Gauldin, Keith; Marshall, Matthew; Greene, Chris
Subject: RE: Harris relicensing - T&E Species

Thanks, Todd!

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

From: Fobian, Todd <Todd.Fobian@dcnr.alabama.gov>
Sent: Friday, August 7, 2020 10:13 AM
To: Anderegg, Angela Segars <ARSEGARS@southernco.com>; 'Evan Collins' <evan_collins@fws.gov>; Al Schotz (ars0002@auburn.edu) <ars0002@auburn.edu>
Cc: Baker, Jeffery L. <JEFBAKER@southernco.com>; Chandler, Keith Edward <KECHANDL@SOUTHERNCO.COM>; Carlee, Jason <JCARLEE@southernco.com>; Jason Moak <jason.moak@kleinschmidtgroup.com>; APC Harris Relicensing <g2apchr@southernco.com>; Gauldin, Keith <Keith.Gauldin@dcnr.alabama.gov>; Marshall, Matthew <Matthew.Marshall@dcnr.alabama.gov>; Greene, Chris <Chris.Greene@dcnr.alabama.gov>
Subject: RE: Harris relicensing - T&E Species

EXTERNAL MAIL: Caution Opening Links or Files

Good morning,

Regarding Alabama Power's resource management guidance questions as to whether surveys for four species (Red-cockaded Woodpecker (*Picoides borealis*), White Fringeless Orchid (*Platanthera integrilabia*), Price's Potato Bean (*Apios priceana*) and Price's Potato Bean (*Apios priceana*)) or assessments of habitat suitability are advised.

Are you aware of any occurrence of Red-cockaded Woodpecker within or near the Harris Project Boundary?
The Division of Wildlife and Freshwater Fisheries, Department of Conservation and Natural Resources (ADCNR) is not aware of any known occurrences of Red-cockaded Woodpeckers in the Harris Project Boundary. Federally-protected species are under the jurisdiction of the U. S. Fish and Wildlife Service (USFWS) and note that you are contacting that agency regarding potential impacts to federally-protected species.

Are you aware of any suitable habitat for Red-cockaded Woodpecker within or near the Harris Project Boundary?
The closest known locations of Red-cockaded Woodpeckers in our database are over 15 miles away, within the Talladega National Forest in Clay county. Given the proximity to known populations of Red-cockaded Woodpeckers in Talladega National Forest, any upland, mature pine stand within the Harris Boundary could have the potential for becoming suitable habitat if managed for an open understory.

ADCNR does not have any information or comments to provide regarding the additional questions.

We appreciate the opportunity to comment on this project. Please contact me if we may be of further assistance (334-353-7484).

Todd Fobian
Environmental Affairs Supervisor
Alabama Wildlife and Freshwater Fisheries Division
64 N. Union Street, Suite 551
Montgomery, AL 36130
Office: 334-353-7484
Cell: 334-850-3798
Todd.Fobian@dcnr.alabama.gov

From: Anderegg, Angela Segars <ARSEGARS@southernco.com>
Sent: Friday, July 24, 2020 4:10 PM
To: 'Evan Collins' <evan_collins@fws.gov>; Al Schotz (ars0002@auburn.edu) <ars0002@auburn.edu>; Fobian, Todd <Todd.Fobian@dcnr.alabama.gov>
Cc: Jeff Baker <jefbaker@southernco.com>; Chandler, Keith Edward <KECHANDL@SOUTHERNCO.COM>; Carlee, Jason <JCARLEE@southernco.com>; Jason Moak <jason.moak@kleinschmidtgroup.com>; APC Harris Relicensing <g2apchr@southernco.com>
Subject: Harris relicensing - T&E Species

Good afternoon,

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While preparing the desktop assessment, Alabama Power determined it is unclear if some species or their suitable habitats occur within the Harris Project Boundary (maps of the Project Boundary can be found in the T&E Species Desktop Assessment – Figures 1-1 and 1-2). Based on guidance from U.S. Fish and Wildlife Service (FWS), Alabama Power has already begun performing surveys to determine if some of these species occur within the Harris Project Boundary. Surveys were recently performed for Palezone Shiner in Little Coon Creek at Skyline. Attached is a brief report of this survey. Surveys for Fine-lined Pocketbook were performed in Fall 2019 and will be completed in Summer 2020.

Alabama Power is seeking your guidance as resource managers and experts as to whether surveys for four species or assessments of habitat suitability are advised. The following sections describe these species and the areas where Alabama Power lacks enough information. Bolded text are questions we

would appreciate your assistance in answering. Due to the relatively rigid deadlines involved in the FERC relicensing process, we would appreciate your response by **August 7th**.

Red-cockaded Woodpecker (*Picoides borealis*)

This species is listed as potentially occurring in Clay and Randolph counties. This woodpecker requires open pine woodlands and savannahs with large, mature pines for nesting and roosting habitat. Mature pines, preferably longleaf pine, are required as cavity trees. The cavity trees are located in open stands with little or no hardwood mid-story and few or no over-story hardwoods. The woodpeckers require abundant native bunchgrass and groundcovers suitable for foraging within their habitat. Land use analysis indicates the Harris Project Boundary at Lake Harris contains 3,068 acres of coniferous forest; however, the data is not specific enough to determine if these forests contain the more specific habitat characteristics required by Red-cockaded Woodpecker.

Are you aware of any occurrence of Red-cockaded Woodpecker within or near the Harris Project Boundary?

Are you aware of any suitable habitat for Red-cockaded Woodpecker within or near the Harris Project Boundary?

Pool Sprite (*Amphianthus pusilis*)

Limited populations of this species are known to occur in Randolph and Chambers counties. This species is a small, ephemeral aquatic annual herb with floating and submerged leaves whose entire life cycles lasts approximately one month, typically in early spring. This species occurs in very specific habitat that is restricted to vernal pools on granite outcrops in the southeastern Piedmont. Optimal habitat has been described as a shallow, flat-bottomed pool with a rock rim. A single occurrence within the Harris Project Boundary at Flat Rock was noted in 1995. Recent surveys commissioned by Alabama Power have failed to detect the Pool Sprite at Flat Rock. The granite outcrops at Flat Rock appear to be the only potentially suitable habitat within the Harris Project Boundary.

Are you aware of any additional survey work that might have documented the presence/absence of Pool Sprite and/or suitable habitats within the Harris Project Boundary?

White Fringeless Orchid (*Platanthera integrilabia*)

This species is a slender, erect, perennial herb that grows in colonies. The orchid blooms from late July to early September with fruits maturing in October. White Fringeless Orchid typically occurs in wet, flat, or boggy areas with acidic muck or sand. This plant prefers partially shaded areas at the head of streams or seepage slopes. Two extant populations have been identified in Clay and Cleburne in

Talladega National Forest. According to FWS, this species' habitat range includes portions of the Harris Project Boundary at both Skyline and Lake Harris.

Are you aware of any occurrence of White Fringeless Orchid within the Harris Project Boundary at Lake Harris or Skyline?

Are you aware of any suitable habitat for White Fringeless Orchid within the Harris Project Boundary at Lake Harris or Skyline?

Price's Potato Bean (*Apios priceana)*

Price's Potato Bean is a twining, herbaceous, perennial vine that grows from a tuber and has greenish-white or brownish-pink flowers. This species is found in open, bottom areas near or along the banks of streams and rivers, sometimes near the base of limestone bluffs. There are approximately 46 miles of stream bottoms with the Harris Project Boundary at Skyline. According to the most recent 5-year review (2016), there is a known population which occurs near Little Coon Creek in the Skyline WMA.

Can you provide the exact location of the population(s) at Skyline WMA so we can determine their proximity to the Harris Project Boundary?

Have any surveys for this species been performed within the Harris Project Boundary?

Do you believe there are areas within the Harris Project Boundary where this species may potentially occur and should be surveyed?

Thank you,

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

APC Harris Relicensing

From: Collins, Evan R <evan_collins@fws.gov>
Sent: Friday, August 7, 2020 4:57 PM
To: Anderegg, Angela Segars; Fobian, Todd; Al Schotz (ars0002@auburn.edu)
Cc: Baker, Jeffery L.; Chandler, Keith Edward; Carlee, Jason; Jason Moak; APC Harris Relicensing; Keith.Gauldin@dcnr.alabama.gov; Marshall, Matthew; Greene, Chris
Subject: Re: [EXTERNAL] RE: Harris relicensing - T&E Species

Good afternoon, Angie.

Are you aware of any occurrence of Red-cockaded Woodpecker within or near the Harris Project Boundary?
Our office has no record of Red-cockaded woodpecker within or near the Harris Project Boundary.

Are you aware of any suitable habitat for Red-cockaded Woodpecker within or near the Harris Project Boundary?
I am not aware of suitable habitat for the Red-cockaded woodpecker within the Harris Project boundary. However, I agree that any upland, mature pine stand within the Harris Boundary could have the potential for becoming suitable habitat if managed for an open understory.

Are you aware of any additional survey work that might have documented the presence/absence of Pool Sprite and/or suitable habitats within the Harris Project Boundary?
I am not aware of any additional survey work for Pool Sprite or suitable habitat within the Harris Project Boundary.

Are you aware of any occurrence of White Fringeless Orchid within the Harris Project Boundary at Lake Harris or Skyline?
Our office as no records of the White Fringeless Orchid within the Harris Project Boundary at Lake Harris or Skyline.

Are you aware of any suitable habitat for White Fringeless Orchid within the Harris Project Boundary at Lake Harris or Skyline?
I am not aware of any suitable habitat for the White Fringeless Orchid within the Harris Project Boundary at Lake Harris or Skyline.

Price's Potato Bean

Can you provide the exact location of the population(s) at Skyline WMA so we can determine their proximity to the Harris Project Boundary?
Our office has a record for Price's potato bean consisting of several plants within Skyline WMA along Little Coon Creek. The record is approximately located approximately 4000 ft south of the Tennessee State boundary and was reported to occur on the "west side of dirt road" (potentially CR 54). Please contact me individually to discuss whether a more specific location is necessary.

Have any surveys for this species been performed within the Harris Project Boundary?

I am not aware of any surveys for the species within the Harris Project Boundary.

Do you believe there are areas within the Harris Project Boundary where this species may potentially occur and should be surveyed?
I do not believe there are areas within the Harris Project Boundary (excluding Skyline WMA) where Price's Potato Bean may potentially occur.

--
Evan Collins
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Alabama Ecological Services Field Office
1208-B Main Street
Daphne, AL 36526
251-441-5837 (phone)
251-441-6222 (fax)
evan_collins@fws.gov

NOTE: This email correspondence and any attachments to and from this sender is subject to the Freedom of Information Act (FOIA) and may be disclosed to third parties.

From: Anderegg, Angela Segars <ARSEGARS@southernco.com>
Sent: Friday, August 7, 2020 10:43 AM
To: Fobian, Todd <Todd.Fobian@dcnr.alabama.gov>; Collins, Evan R <evan_collins@fws.gov>; Al Schotz (ars0002@auburn.edu) <ars0002@auburn.edu>
Cc: Baker, Jeffery L. <JEFBAKER@southernco.com>; Chandler, Keith Edward <KECHANDL@SOUTHERNCO.COM>; Carlee, Jason <JCARLEE@southernco.com>; Jason Moak <jason.moak@kleinschmidtgroup.com>; APC Harris Relicensing <g2apchr@southernco.com>; Keith.Gauldin@dcnr.alabama.gov <Keith.Gauldin@dcnr.alabama.gov>; Marshall, Matthew <Matthew.Marshall@dcnr.alabama.gov>; Greene, Chris <Chris.Greene@dcnr.alabama.gov>
Subject: [EXTERNAL] RE: Harris relicensing - T&E Species

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Thanks, Todd!

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

From: Fobian, Todd <Todd.Fobian@dcnr.alabama.gov>
Sent: Friday, August 7, 2020 10:13 AM
To: Anderegg, Angela Segars <ARSEGARS@southernco.com>; 'Evan Collins' <evan_collins@fws.gov>; Al Schotz (ars0002@auburn.edu) <ars0002@auburn.edu>
Cc: Baker, Jeffery L. <JEFBAKER@southernco.com>; Chandler, Keith Edward <KECHANDL@SOUTHERNCO.COM>; Carlee,

Jason <JCARLEE@southernco.com>; Jason Moak <jason.moak@kleinschmidtgroup.com>; APC Harris Relicensing <g2apchr@southernco.com>; Gauldin, Keith <Keith.Gauldin@dcnr.alabama.gov>; Marshall, Matthew <Matthew.Marshall@dcnr.alabama.gov>; Greene, Chris <Chris.Greene@dcnr.alabama.gov>
Subject: RE: Harris relicensing - T&E Species

EXTERNAL MAIL: Caution Opening Links or Files

Good morning,

Regarding Alabama Power's resource management guidance questions as to whether surveys for four species (Red-cockaded Woodpecker (*Picoides borealis*), White Fringeless Orchid (*Platanthera integrilabia*), Price's Potato Bean (*Apios priceana*) and Price's Potato Bean (*Apios priceana*)) or assessments of habitat suitability are advised.

Are you aware of any occurrence of Red-cockaded Woodpecker within or near the Harris Project Boundary?
The Division of Wildlife and Freshwater Fisheries, Department of Conservation and Natural Resources (ADCNR) is not aware of any known occurrences of Red-cockaded Woodpeckers in the Harris Project Boundary. Federally-protected species are under the jurisdiction of the U. S. Fish and Wildlife Service (USFWS) and note that you are contacting that agency regarding potential impacts to federally-protected species.

Are you aware of any suitable habitat for Red-cockaded Woodpecker within or near the Harris Project Boundary?
The closest known locations of Red-cockaded Woodpeckers in our database are over 15 miles away, within the Talladega National Forest in Clay county. Given the proximity to known populations of Red-cockaded Woodpeckers in Talladega National Forest, any upland, mature pine stand within the Harris Boundary could have the potential for becoming suitable habitat if managed for an open understory.

ADCNR does not have any information or comments to provide regarding the additional questions.

We appreciate the opportunity to comment on this project. Please contact me if we may be of further assistance (334-353-7484).

Todd Fobian
Environmental Affairs Supervisor
Alabama Wildlife and Freshwater Fisheries Division
64 N. Union Street, Suite 551
Montgomery, AL 36130
Office: 334-353-7484
Cell: 334-850-3798
Todd.Fobian@dcnr.alabama.gov

From: Anderegg, Angela Segars <ARSEGARS@southernco.com>
Sent: Friday, July 24, 2020 4:10 PM
To: 'Evan Collins' <evan_collins@fws.gov>; Al Schotz (ars0002@auburn.edu) <ars0002@auburn.edu>; Fobian, Todd <Todd.Fobian@dcnr.alabama.gov>
Cc: Jeff Baker <jefbaker@southernco.com>; Chandler, Keith Edward <KECHANDL@SOUTHERNCO.COM>; Carlee, Jason <JCARLEE@southernco.com>; Jason Moak <jason.moak@kleinschmidtgroup.com>; APC Harris Relicensing <g2apchr@southernco.com>
Subject: Harris relicensing - T&E Species

Good afternoon,

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 Company (Alabama Power) is relicensing the 135- megawatt (MW) Harris Project, and the existing license expires in 2023. As part of phase one of the FERC-approved Threatened and Endangered Species Study Plan, Alabama Power conducted a desktop assessment of threatened and endangered species (**T&E Species Desktop Assessment**). The desktop assessment includes a description and maps of the project, reviews of existing information, and maps depicting known ranges and habitat.

While preparing the desktop assessment, Alabama Power determined it is unclear if some species or their suitable habitats occur within the Harris Project Boundary (maps of the Project Boundary can be found in the T&E Species Desktop Assessment – Figures 1-1 and 1-2). Based on guidance from U.S. Fish and Wildlife Service (FWS), Alabama Power has already begun performing surveys to determine if some of these species occur within the Harris Project Boundary. Surveys were recently performed for Palezone Shiner in Little Coon Creek at Skyline. Attached is a brief report of this survey. Surveys for Fine-lined Pocketbook were performed in Fall 2019 and will be completed in Summer 2020.

Alabama Power is seeking your guidance as resource managers and experts as to whether surveys for four species or assessments of habitat suitability are advised. The following sections describe these species and the areas where Alabama Power lacks enough information. Bolded text are questions we would appreciate your assistance in answering. Due to the relatively rigid deadlines involved in the FERC relicensing process, we would appreciate your response by **August 7th**.

Red-cockaded Woodpecker (*Picoides borealis*)

This species is listed as potentially occurring in Clay and Randolph counties. This woodpecker requires open pine woodlands and savannahs with large, mature pines for nesting and roosting habitat. Mature pines, preferably longleaf pine, are required as cavity trees. The cavity trees are located in open stands with little or no hardwood mid-story and few or no over-story hardwoods. The woodpeckers require abundant native bunchgrass and groundcovers suitable for foraging within their habitat. Land use analysis indicates the Harris Project Boundary at Lake Harris contains 3,068 acres of coniferous forest; however, the data is not specific enough to determine if these forests contain the more specific habitat characteristics required by Red-cockaded Woodpecker.

Are you aware of any occurrence of Red-cockaded Woodpecker within or near the Harris Project Boundary?

Are you aware of any suitable habitat for Red-cockaded Woodpecker within or near the Harris Project Boundary?

Pool Sprite (*Amphianthus pusilis*)

Limited populations of this species are known to occur in Randolph and Chambers counties. This species is a small, ephemeral aquatic annual herb with floating and submerged leaves whose entire life cycles lasts approximately one month, typically in early spring. This species occurs in very specific habitat that is restricted to vernal pools on granite outcrops in the southeastern Piedmont. Optimal habitat has been described as a shallow, flat-bottomed pool with a rock rim. A single occurrence within the Harris Project Boundary at Flat Rock was noted in 1995. Recent surveys commissioned by Alabama Power have failed to detect the Pool Sprite at Flat Rock. The granite outcrops at Flat Rock appear to be the only potentially suitable habitat within the Harris Project Boundary.

Are you aware of any additional survey work that might have documented the presence/absence of Pool Sprite and/or suitable habitats within the Harris Project Boundary?

White Fringeless Orchid (*Platanthera integrilabia*)

This species is a slender, erect, perennial herb that grows in colonies. The orchid blooms from late July to early September with fruits maturing in October. White Fringeless Orchid typically occurs in wet, flat, or boggy areas with acidic muck or sand. This plant prefers partially shaded areas at the head of streams or seepage slopes. Two extant populations have been identified in Clay and Cleburne in Talladega National Forest. According to FWS, this species' habitat range includes portions of the Harris Project Boundary at both Skyline and Lake Harris.

Are you aware of any occurrence of White Fringeless Orchid within the Harris Project Boundary at Lake Harris or Skyline?

Are you aware of any suitable habitat for White Fringeless Orchid within the Harris Project Boundary at Lake Harris or Skyline?

Price's Potato Bean *(Apios priceana)*

Price's Potato Bean is a twining, herbaceous, perennial vine that grows from a tuber and has greenish-white or brownish-pink flowers. This species is found in open, bottom areas near or along the banks of streams and rivers, sometimes near the base of limestone bluffs. There are approximately 46 miles of stream bottoms with the Harris Project Boundary at Skyline. According to the most recent 5-year review (2016), there is a known population which occurs near Little Coon Creek in the Skyline WMA.

Can you provide the exact location of the population(s) at Skyline WMA so we can determine their proximity to the Harris Project Boundary?

Have any surveys for this species been performed within the Harris Project Boundary?

Do you believe there are areas within the Harris Project Boundary where this species may potentially occur and should be surveyed?

Thank you,

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

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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

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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.

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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 surveys[4] 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.

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[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.

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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.

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Appendix B – Commission staff's recommendations on requested modifications to approved studies and new study requests

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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

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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.

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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).

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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.

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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.

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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.

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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).

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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 $20,0000 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 $36,0000,000 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 $91,0000,000 to mirror the MW

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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.

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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.

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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 grass[16] 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 imagery[17] 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.

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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.

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[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).

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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.

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(DOE) U.S. Department of Energy. 2018. U.S. Utility-Scale Photovoltaics-Plus-Energy Storage System Costs Benchmark, DOE's National Renewable Energy Laboratory, Technical Report NREL/TP-6A20-71714, November 2018.

Determination on Study Modifications

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Wed 8/12/2020 8:45 PM

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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
(205)257-2251
arsegars@southernco.com

APC Harris Relicensing

From: Anderegg, Angela Segars
Sent: Monday, August 17, 2020 8:35 AM
To: Alfred Schotz
Cc: 'Evan Collins'; todd.fobian@dcnr.alabama.gov; Baker, Jeffery L.; Chandler, Keith Edward; Carlee, Jason; Jason Moak
Subject: RE: Harris relicensing - T&E Species

This information is very helpful. Thanks, Al!

Angie Anderegg
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From: Alfred Schotz <ars0002@auburn.edu>
Sent: Saturday, August 15, 2020 10:13 AM
To: Anderegg, Angela Segars <ARSEGARS@southernco.com>
Subject: Re: Harris relicensing - T&E Species

EXTERNAL MAIL: Caution Opening Links or Files

Hi Angie,

I'll be happy to provide additional feedback. I'll answer the questions in the order they're presented in your email.

1. Pool Sprite: The only suitable habitat for the species is at Flat Rock Park, which appears to be in the Harris Project Area. The plant prefers shallow depressions on the granite outcrops.
2. White Fringeless Orchid: Suitable habitat for the species at Skyline would be saturated soils associated with small drainages on the uppermost slopes and summits of the Appalachian Plateau. For the Harris Project, suitable habitat will be saturated soils along streams on mid and lower slopes. That's correct, the plants are in flower now, with a few weeks remaining.
3. Price's Potato-Bean: I'm not aware of any concerted surveys for the species at Skyline. Plenty of suitable habitat exists.

I hope this information is helpful. Please feel free to let me know if I can help further.

Best regards,
Al Schotz

From: Anderegg, Angela Segars <ARSEGARS@southernco.com>
Sent: Monday, August 10, 2020 11:15 AM
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Cc: 'Evan Collins' <evan_collins@fws.gov>; todd.fobian@dcnr.alabama.gov <todd.fobian@dcnr.alabama.gov>; Baker,

Jeffery L. <JEFBAKER@southernco.com>; Chandler, Keith Edward <KECHANDL@SOUTHERNCO.COM>; Carlee, Jason <JCARLEE@southernco.com>; Jason Moak <jason.moak@kleinschmidtgroup.com>
Subject: RE: Harris relicensing - T&E Species

Hi Al,

Thank you for your helpful responses to our request for information and guidance relative to Threatened and Endangered species study for the R.L. Harris Project. We do have a few follow up questions that we hope you can help us with.

1. Pool Sprite – could you provide approximate locations of potentially suitable habitat at Harris where surveys are warranted?
2. White Fringeless Orchid – Could you suggest a way to refine wetland inventory maps to narrow down the number of areas that should be surveyed? As you are likely aware, this species is currently or will soon be in bloom, making in an ideal time for surveys if they are warranted.
3. Price's Potato Bean – other than the known population, have any surveys been conducted for this species at Skyline, and if so, where and when were those surveys conducted?

Thanks in advance for your assistance.

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

From: Alfred Schotz <ars0002@auburn.edu>
Sent: Tuesday, August 4, 2020 9:34 PM
To: Anderegg, Angela Segars <ARSEGARS@southernco.com>
Subject: Re: Harris relicensing - T&E Species

EXTERNAL MAIL: Caution Opening Links or Files

Dear Angela,

I apologize for the delayed reply to your message. I've been out of the office attending to family matters. I've answered the questions related to plants. As you will noticed below, I placed the question followed by my reply.

Please feel free to let me know if you have any questions regarding my feedback below.

Thanks,
Al Schotz

Are you aware of any additional survey work that might have documented the presence/absence of Pool Sprite and/or suitable habitats within the Harris Project Boundary?

I am not aware of any additional work that has documented the presence/absence of the pool sprite within the Harris Project Boundary. Suitable habitat currently exists, warranting field investigations.

Are you aware of any occurrence of White Fringeless Orchid within the Harris Project Boundary at Lake Harris or Skyline?

I am not aware of any occurrence of the white fringeless orchid within either the boundary of the Harris Project or Skyline.

Are you aware of any suitable habitat for White Fringeless Orchid within the Harris Project Boundary at Lake Harris or Skyline?

Suitable habitat for the white fringeless orchid is present within both the Harris Project and Skyline boundaries. Potential habitat is likely plentiful at Skyline where the species has been documented just off the property boundary.

Can you provide the exact location of the population(s) at Skyline WMA so we can determine their proximity to the Harris Project Boundary?

Yes, we can provide the exact location of Price's potato-bean at Skyline WMA.

Have any surveys for this species been performed within the Harris Project Boundary? No

Do you believe there are areas within the Harris Project Boundary where this species may potentially occur and should be surveyed?

No, there is no suitable habitat for Price's potato-bean within the Harris Project Boundary

---

From: Anderegg, Angela Segars <ARSEGARS@southernco.com>
Sent: Friday, July 24, 2020 4:09 PM
To: 'Evan Collins' <evan_collins@fws.gov>; Alfred Schotz <ars0002@auburn.edu>; todd.fobian@dcnr.alabama.gov <todd.fobian@dcnr.alabama.gov>
Cc: Baker, Jeffery L. <JEFBAKER@southernco.com>; Chandler, Keith Edward <KECHANDL@SOUTHERNCO.COM>; Carlee, Jason <JCARLEE@southernco.com>; Jason Moak <jason.moak@kleinschmidtgroup.com>; APC Harris Relicensing <g2apchr@southernco.com>
Subject: Harris relicensing - T&E Species

Good afternoon,

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 Company (Alabama Power) is relicensing the 135- megawatt (MW) Harris Project, and the existing license expires in 2023. As part of phase one of the FERC-approved Threatened and Endangered Species Study Plan, Alabama Power conducted a desktop assessment of

threatened and endangered species (**T&E Species Desktop Assessment [harrisrelicensing.com]**). The desktop assessment includes a description and maps of the project, reviews of existing information, and maps depicting known ranges and habitat.

While preparing the desktop assessment, Alabama Power determined it is unclear if some species or their suitable habitats occur within the Harris Project Boundary (maps of the Project Boundary can be found in the T&E Species Desktop Assessment – Figures 1-1 and 1-2). Based on guidance from U.S. Fish and Wildlife Service (FWS), Alabama Power has already begun performing surveys to determine if some of these species occur within the Harris Project Boundary. Surveys were recently performed for Palezone Shiner in Little Coon Creek at Skyline. Attached is a brief report of this survey. Surveys for Fine-lined Pocketbook were performed in Fall 2019 and will be completed in Summer 2020.

Alabama Power is seeking your guidance as resource managers and experts as to whether surveys for four species or assessments of habitat suitability are advised. The following sections describe these species and the areas where Alabama Power lacks enough information. Bolded text are questions we would appreciate your assistance in answering. Due to the relatively rigid deadlines involved in the FERC relicensing process, we would appreciate your response by **August 7th**.

Red-cockaded Woodpecker (*Picoides borealis*)

This species is listed as potentially occurring in Clay and Randolph counties. This woodpecker requires open pine woodlands and savannahs with large, mature pines for nesting and roosting habitat. Mature pines, preferably longleaf pine, are required as cavity trees. The cavity trees are located in open stands with little or no hardwood mid-story and few or no over-story hardwoods. The woodpeckers require abundant native bunchgrass and groundcovers suitable for foraging within their habitat. Land use analysis indicates the Harris Project Boundary at Lake Harris contains 3,068 acres of coniferous forest; however, the data is not specific enough to determine if these forests contain the more specific habitat characteristics required by Red-cockaded Woodpecker.

Are you aware of any occurrence of Red-cockaded Woodpecker within or near the Harris Project Boundary?

Are you aware of any suitable habitat for Red-cockaded Woodpecker within or near the Harris Project Boundary?

Pool Sprite (*Amphianthus pusilis*)

Limited populations of this species are known to occur in Randolph and Chambers counties. This species is a small, ephemeral aquatic annual herb with floating and submerged leaves whose entire life cycles lasts approximately one month, typically in early spring. This species occurs in very specific

habitat that is restricted to vernal pools on granite outcrops in the southeastern Piedmont. Optimal habitat has been described as a shallow, flat-bottomed pool with a rock rim. A single occurrence within the Harris Project Boundary at Flat Rock was noted in 1995. Recent surveys commissioned by Alabama Power have failed to detect the Pool Sprite at Flat Rock. The granite outcrops at Flat Rock appear to be the only potentially suitable habitat within the Harris Project Boundary.

Are you aware of any additional survey work that might have documented the presence/absence of Pool Sprite and/or suitable habitats within the Harris Project Boundary?

White Fringeless Orchid (*Platanthera integrilabia*)

This species is a slender, erect, perennial herb that grows in colonies. The orchid blooms from late July to early September with fruits maturing in October. White Fringeless Orchid typically occurs in wet, flat, or boggy areas with acidic muck or sand. This plant prefers partially shaded areas at the head of streams or seepage slopes. Two extant populations have been identified in Clay and Cleburne in Talladega National Forest. According to FWS, this species' habitat range includes portions of the Harris Project Boundary at both Skyline and Lake Harris.

Are you aware of any occurrence of White Fringeless Orchid within the Harris Project Boundary at Lake Harris or Skyline?

Are you aware of any suitable habitat for White Fringeless Orchid within the Harris Project Boundary at Lake Harris or Skyline?

Price's Potato Bean (*Apios priceana)*

Price's Potato Bean is a twining, herbaceous, perennial vine that grows from a tuber and has greenish-white or brownish-pink flowers. This species is found in open, bottom areas near or along the banks of streams and rivers, sometimes near the base of limestone bluffs. There are approximately 46 miles of stream bottoms with the Harris Project Boundary at Skyline. According to the most recent 5-year review (2016), there is a known population which occurs near Little Coon Creek in the Skyline WMA.

Can you provide the exact location of the population(s) at Skyline WMA so we can determine their proximity to the Harris Project Boundary?

Have any surveys for this species been performed within the Harris Project Boundary?

Do you believe there are areas within the Harris Project Boundary where this species may potentially occur and should be surveyed?

Thank you,

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

APC Harris Relicensing

From: Collins, Evan R <evan_collins@fws.gov>
Sent: Wednesday, August 26, 2020 5:06 PM
To: Baker, Jeffery L.; Jason Moak
Cc: Anderegg, Angela Segars; Carlee, Jason; Chandler, Keith Edward
Subject: Re: [EXTERNAL] Re: Skyline Spring Data

EXTERNAL MAIL: Caution Opening Links or Files

Jeff,

Thank you for notifying me of your site selection protocol for identifying survey sites for the white fringeless orchid. I agree with these methods that focus efforts on those habitats that are most likely to support the species.

Best,
Evan

--
Evan Collins
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Alabama Ecological Services Field Office
1208-B Main Street
Daphne, AL 36526
251-441-5837 (phone)
251-441-6222 (fax)
evan_collins@fws.gov

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From: Baker, Jeffery L. <JEFBAKER@southernco.com>
Sent: Wednesday, August 26, 2020 4:42 PM
To: Collins, Evan R <evan_collins@fws.gov>; Jason Moak <jason.moak@kleinschmidtgroup.com>
Cc: Anderegg, Angela Segars <ARSEGARS@southernco.com>; Carlee, Jason <JCARLEE@southernco.com>; Chandler, Keith Edward <KECHANDL@SOUTHERNCO.COM>
Subject: RE: [EXTERNAL] Re: Skyline Spring Data

Evan,

Thanks for discussing white orchid surveys for the Harris Project with me today. We would like to get your concurrence with the following survey outline or to provide additional comments if you have any. We refined survey areas for the Skyline Project Boundary using NWI wetland data, spring data from GSA, and aerial imagery. There was one freshwater forested/shrub wetland, near the Skyline Project Boundary, that appears to be downstream of one of the springs. This will be the primary search area. The remaining ponds and springs will be visited if they are accessible and time permits. In addition to the Skyline Project Boundary, we used NWI data, aerial imagery, and the Project Boundary around Lake Harris to identify wetlands for white fringeless orchid surveys. Of these, we propose to survey the freshwater emergent

wetlands and one forested/shrub wetland that is within a transmission line right of way as these areas likely represent the most suitable habitat near Lake Harris.

If we are able to discern wetlands where Sphagnum is present, using color infrared imagery, we will further refine our survey areas. Thanks again for discussing this approach with me.

Thanks,

Jeff Baker
Biologist
Alabama Power
205-351-1631
jefbaker@southernco.com

From: Collins, Evan R <evan_collins@fws.gov>
Sent: Wednesday, August 26, 2020 11:48 AM
To: Jason Moak <jason.moak@kleinschmidtgroup.com>; Baker, Jeffery L. <JEFBAKER@southernco.com>
Subject: Re: [EXTERNAL] Re: Skyline Spring Data

EXTERNAL MAIL: Caution Opening Links or Files

Very cool! I'm excited to hear what you find!
--
Evan Collins
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Alabama Ecological Services Field Office
1208-B Main Street
Daphne, AL 36526
251-441-5837 (phone)
251-441-6222 (fax)
evan_collins@fws.gov

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From: Jason Moak <Jason.Moak@Kleinschmidtgroup.com>
Sent: Wednesday, August 26, 2020 11:45 AM
To: Collins, Evan R <evan_collins@fws.gov>; Baker, Jeffery L. <JEFBAKER@southernco.com>
Subject: RE: [EXTERNAL] Re: Skyline Spring Data

Asking one of our internal mapping experts if it's possible to identify areas where Sphagnum is present using color infrared imagery…

From: Collins, Evan R <evan_collins@fws.gov>
Sent: Wednesday, August 26, 2020 12:27 PM
To: Baker, Jeffery L. <JEFBAKER@southernco.com>

Cc: Jason Moak <Jason.Moak@Kleinschmidtgroup.com>
Subject: Re: [EXTERNAL] Re: Skyline Spring Data

Sounds great, Jeff! It certainly makes the most sense to focus efforts on those areas that would provide the greatest potential to support the species given the large geographic area. Just make sure you're clear about your assumptions and reasoning. Your experience with the species in the field and published literature should be available to support your logic. Let me know if you need anything else.

-Evan

--
Evan Collins
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Alabama Ecological Services Field Office
1208-B Main Street
Daphne, AL 36526
251-441-5837 (phone)
251-441-6222 (fax)
evan_collins@fws.gov

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From: Baker, Jeffery L. <JEFBAKER@southernco.com>
Sent: Wednesday, August 26, 2020 11:05 AM
To: Collins, Evan R <evan_collins@fws.gov>
Cc: Jason Moak <jason.moak@kleinschmidtgroup.com>
Subject: RE: [EXTERNAL] Re: Skyline Spring Data

It's not necessary. I'll pull in all three data sets (NWI, springs, and project) and look at aerial imagery to refine the search area if you are agree with that approach. We'll prioritize emergent wetlands and go from there.

Jason, I'm open to suggestions. I'm curious what your thoughts are for refining the search area.

Jeff

From: Collins, Evan R <evan_collins@fws.gov>
Sent: Wednesday, August 26, 2020 10:59 AM
To: Baker, Jeffery L. <JEFBAKER@southernco.com>
Subject: Re: [EXTERNAL] Re: Skyline Spring Data

EXTERNAL MAIL: Caution Opening Links or Files

Wetland Features? I didn't count them up because skyline was split among two NWI watersheds and I only reviewed one watershed. Would you like me to get you a precise count?

--
Evan Collins
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Alabama Ecological Services Field Office
1208-B Main Street

Daphne, AL 36526
251-441-5837 (phone)
251-441-6222 (fax)
evan_collins@fws.gov

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From: Baker, Jeffery L. <JEFBAKER@southernco.com>
Sent: Wednesday, August 26, 2020 10:51 AM
To: Collins, Evan R <evan_collins@fws.gov>
Subject: [EXTERNAL] Re: Skyline Spring Data

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

How many areas were there? I'm still downloading the NWI data. Just curious.

Get Outlook for iOS [aka.ms]

From: Baker, Jeffery L. <JEFBAKER@southernco.com>
Sent: Wednesday, August 26, 2020 10:32 AM
To: Collins, Evan R
Subject: RE: Skyline Spring Data

I got it. Let me take a look at it and get back with you.

From: Collins, Evan R <evan_collins@fws.gov>
Sent: Wednesday, August 26, 2020 10:28 AM
To: Baker, Jeffery L. <JEFBAKER@southernco.com>
Subject: Skyline Spring Data

EXTERNAL MAIL: Caution Opening Links or Files

Hi, Jeff. I'm trying another method to send my original email and get the spring data to you. Below is the original text. Let me know if you receive this.

Thanks

Hi, Jeff and Jason. In order to help narrow down where to conduct surveys for the White Fringeless Orchid, it could be worth considering the National Wetlands Inventory dataset. It would probably be easiest if you downloaded the data from this website: https://www.fws.gov/wetlands/Data/Data-Download.html [fws.gov] since the data is large and potentially difficult to share through email. I would encourage you to consider ponds as well as emergent and woody wetlands. I quickly reviewed the quantity of these features within the WMA and did not think that there was an overwhelmingly large number. I am also providing a shapefile of springs within or near Skyline WMA (see attachment). Again, there appear to be about 10 springs within the WMA. I would envision an approach that incorporates your expertise with the species in field and

leverages these two datasets to target field surveys would be quite adequate to prioritize surveys. For instance you may be able to rank sites based on what your expertise and the literature indicate to be the most likely habitat. I might assume that emergent wetlands that are influenced by a spring would be a highest priority and a pond would be the lowest priority. Let me know what you think or if you'd like to discuss further.

-Evan

--
Evan Collins
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Alabama Ecological Services Field Office
1208-B Main Street
Daphne, AL 36526
251-441-5837 (phone)
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evan_collins@fws.gov

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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
Hydro Services
(205)257-2251
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>; alpeeple@southernco.com <alpeeple@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_roby@msn.com <bart_roby@msn.com>; baxterchip@yahoo.com <baxterchip@yahoo.com>; bboozer6@gmail.com <bboozer6@gmail.com>; bdavis081942@gmail.com <bdavis081942@gmail.com>; Beason, Jeffrey A. <JABEASON@southernco.com>; beckyrainwater1@yahoo.com <beckyrainwater1@yahoo.com>; 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eilandfarm@aol.com <eilandfarm@aol.com>; el.brannon@yahoo.com <el.brannon@yahoo.com>; elizabeth-toombs@cherokee.org <elizabeth-toombs@cherokee.org>; emathews@aces.edu <emathews@aces.edu>; eric.sipes@ahc.alabama.gov <eric.sipes@ahc.alabama.gov>; erin_padgett@fws.gov <erin_padgett@fws.gov>; evan.lawrence@dcnr.alabama.gov <evan.lawrence@dcnr.alabama.gov>; evan_collins@fws.gov <evan_collins@fws.gov>; eveham75@gmail.com <eveham75@gmail.com>; fal@adem.alabama.gov <fal@adem.alabama.gov>; fredcanoes@aol.com <fredcanoes@aol.com>; gardenergirl04@yahoo.com <gardenergirl04@yahoo.com>; garyprice@centurytel.net <garyprice@centurytel.net>; gene@wedoweelakehomes.com <gene@wedoweelakehomes.com>; georgettraylor@centurylink.net <georgettraylor@centurylink.net>; gerryknight77@gmail.com <gerryknight77@gmail.com>; gfhorn@southernco.com <gfhorn@southernco.com>; gjobsis@americanrivers.org <gjobsis@americanrivers.org>; gld@adem.alabama.gov <gld@adem.alabama.gov>; glea@wgsarrell.com <glea@wgsarrell.com>; gordon.lisa-perras@epa.gov <gordon.lisa-perras@epa.gov>; goxford@centurylink.net <goxford@centurylink.net>; granddadth@windstream.net <granddadth@windstream.net>; harry.merrill47@gmail.com <harry.merrill47@gmail.com>; helen.greer@att.net <helen.greer@att.net>; holliman.daniel@epa.gov <holliman.daniel@epa.gov>; info@aeconline.com <info@aeconline.com>;

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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 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
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(205)257-2251
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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, 2019[1], Alabama Power filed 10 study plans for FERC approval as part of the Integrated Licensing Process (ILP) for the Harris Project. On April 12, 2019[2], FERC approved Alabama Power's study plans with FERC modifications. Alabama Power filed the Final Study Plans with FERC on May 13, 2019[3] 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, 2020[4].

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, 2019[5]. 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

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

Attachments (2)

cc: Harris Stakeholder List

Attachment A
October 2020 Harris Project Progress Update

Document Accession #: 20201030-5215 Filed Date: 10/30/2020

Harris Progress Update Report

R.L. Harris Hydroelectric Project

FERC No. 2628

HARRIS DAM RELICENSING



Prepared for:
Alabama Power Company

Prepared by:
Kleinschmidt Associates
October 2020

Alabama Power

Kleinschmidt

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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 Project[1].

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, 2019[2]. 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 ISR[3] 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, 2020[4]. 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 Project[6]. 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, 2020[7] 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, 2020[8]. 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, 2020[9] 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, 2020[10]. 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, 2020[11] 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, 2020[12]. 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, 2020[13] 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, 2020[14] 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, 2020[15] 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, 2020[16] 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, 2020[17] 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, 2020[18]. 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, 2020[19] 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, 2020[20] 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, 2020[21].
- On August 11, 2020, FERC found Alabama Power's proposed APE for the Harris Project appropriate[22].

[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

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Thu 11/5/2020 2:13 PM

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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

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Fri 11/20/2020 2:34 PM

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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
(205)257-2251
arsegars@southernco.com

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

HARRIS DAM
RELICENSING

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

HARRIS DAM
RELICENSING

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

HARRIS DAM
RELICENSING

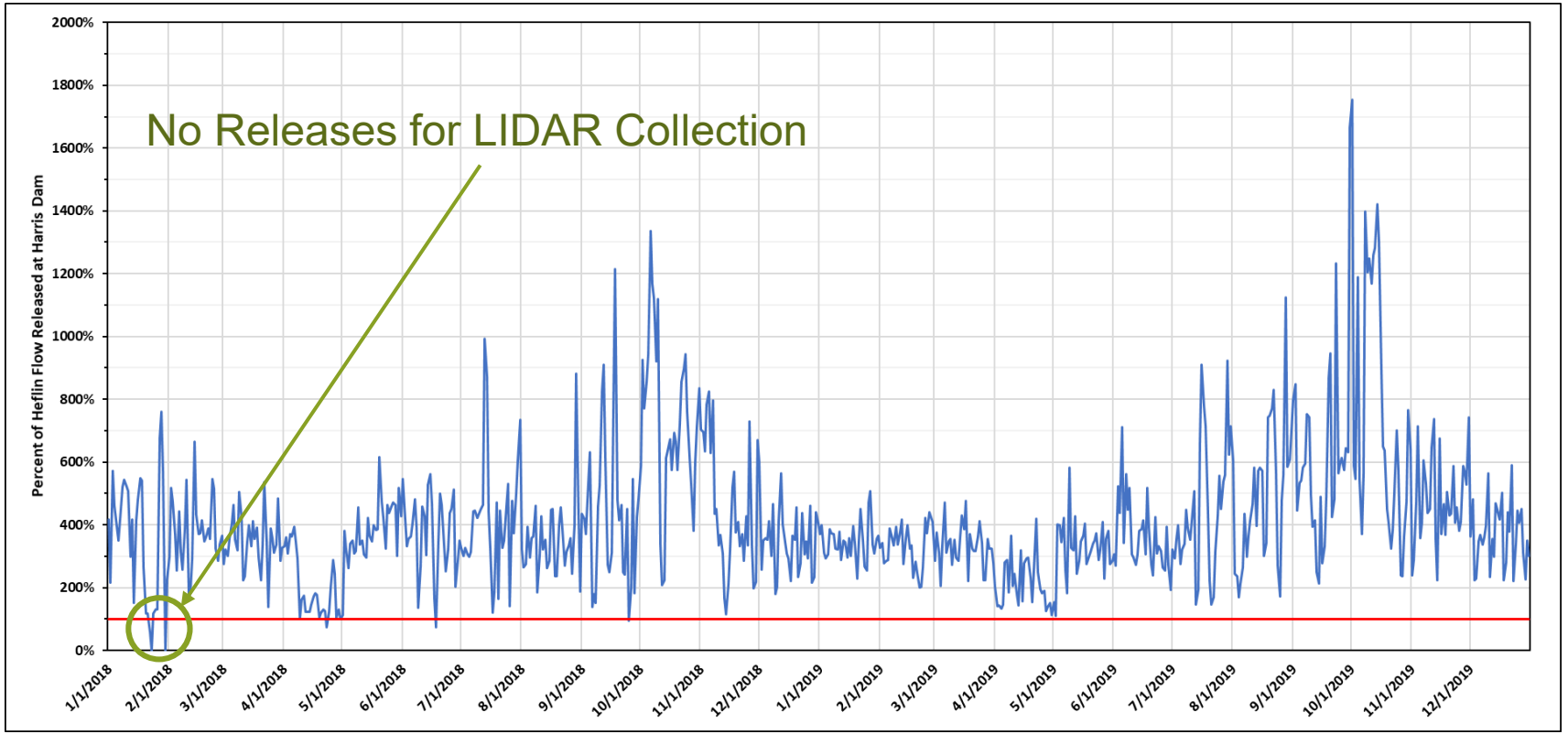
Downstream Release Alternatives Habitat Analysis

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

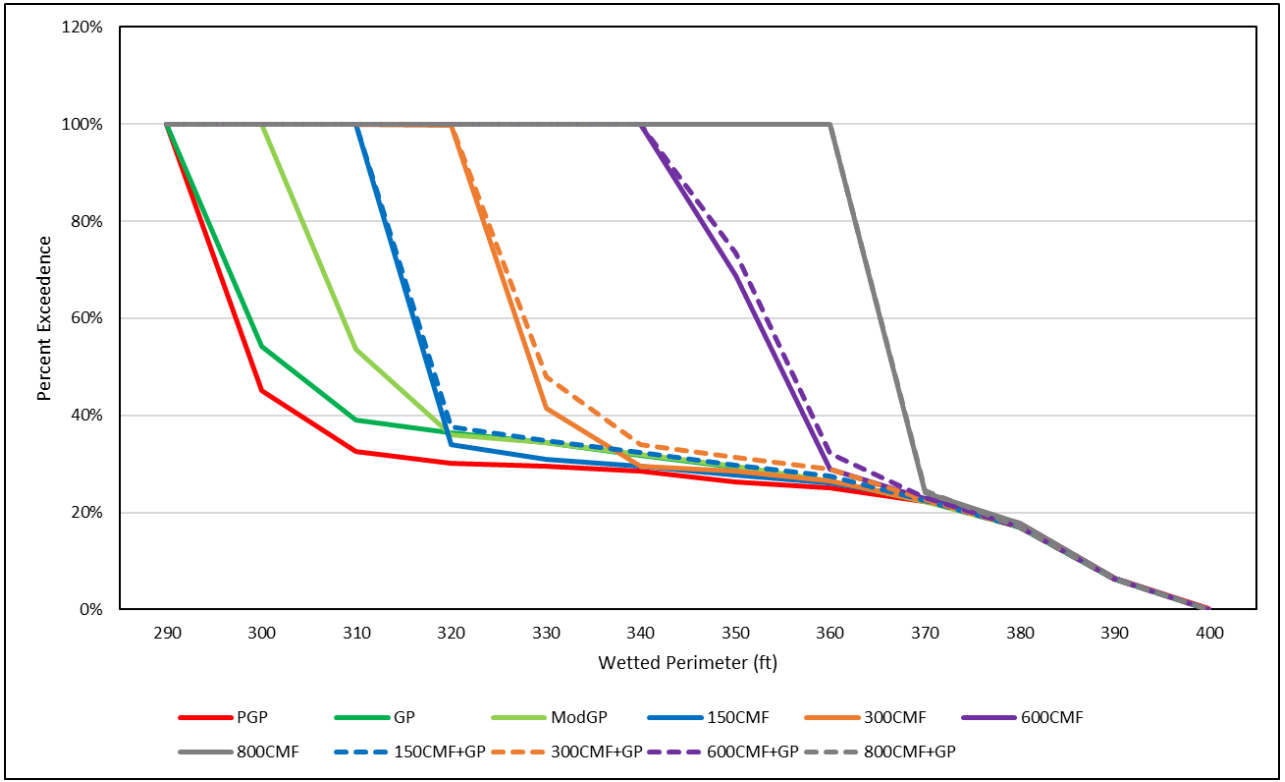


Amount of Wetted Perimeter

Relative % Difference = ($DailyAvgWP_{PGP}$ – $DailyAvgWP_{GP}$) ÷ (($DailyAvgWP_{PGP}$ + $DailyAvgWP_{GP}$)/2)

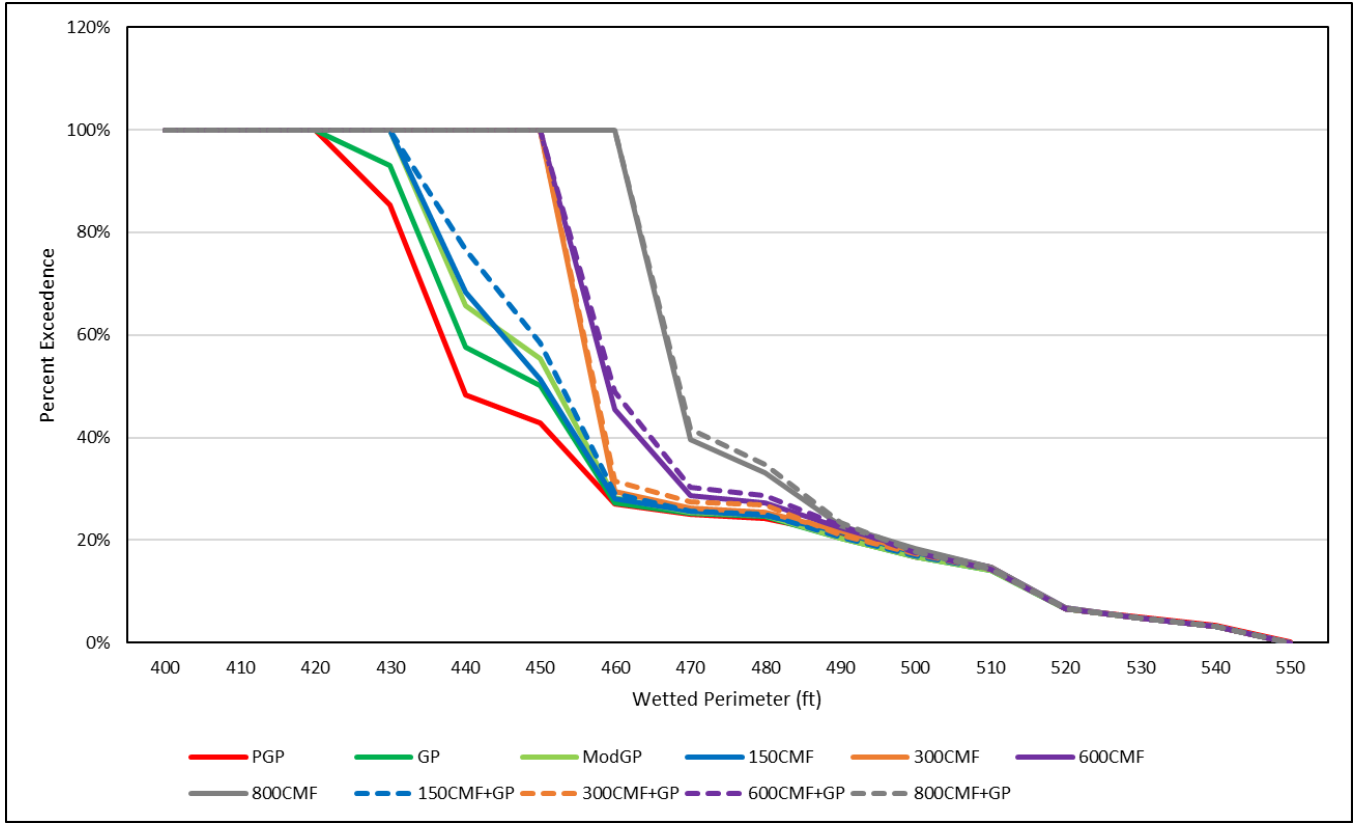
Miles Below Harris	0.4	1	2	4	7	10	14	19	23	38	43
Mesohabitat Type	Riffle	Riffle	Riffle	Pool	Pool	Riffle	Run-Pool	Riffle-Run	Riffle	Riffle	Pool
PGP	-1%	0%	-2%	0%	-2%	0%	0%	-1%	-1%	0%	0%
GP	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
ModGP	2%	1%	2%	0%	3%	1%	0%	1%	1%	0%	0%
150CMF	3%	1%	2%	0%	2%	0%	0%	1%	1%	1%	0%
150CMF+GP	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)



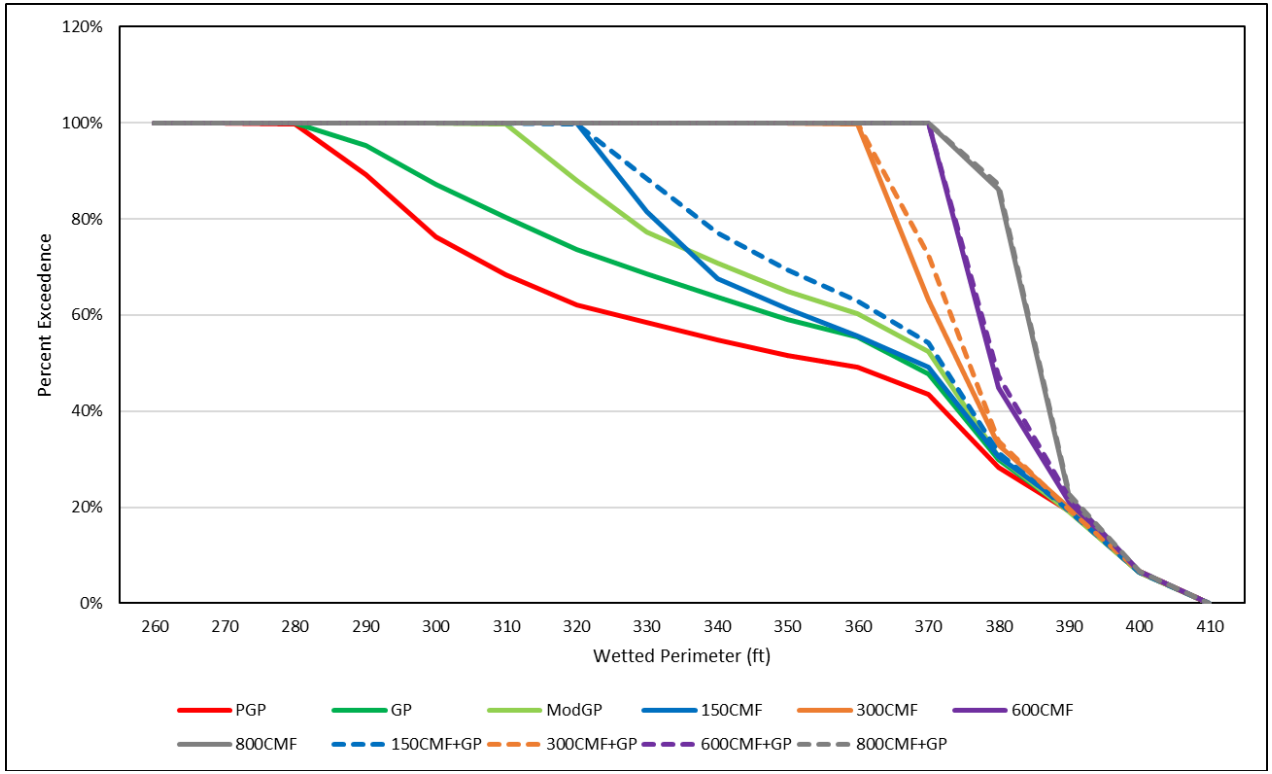


1 Mile Downstream (Riffle)



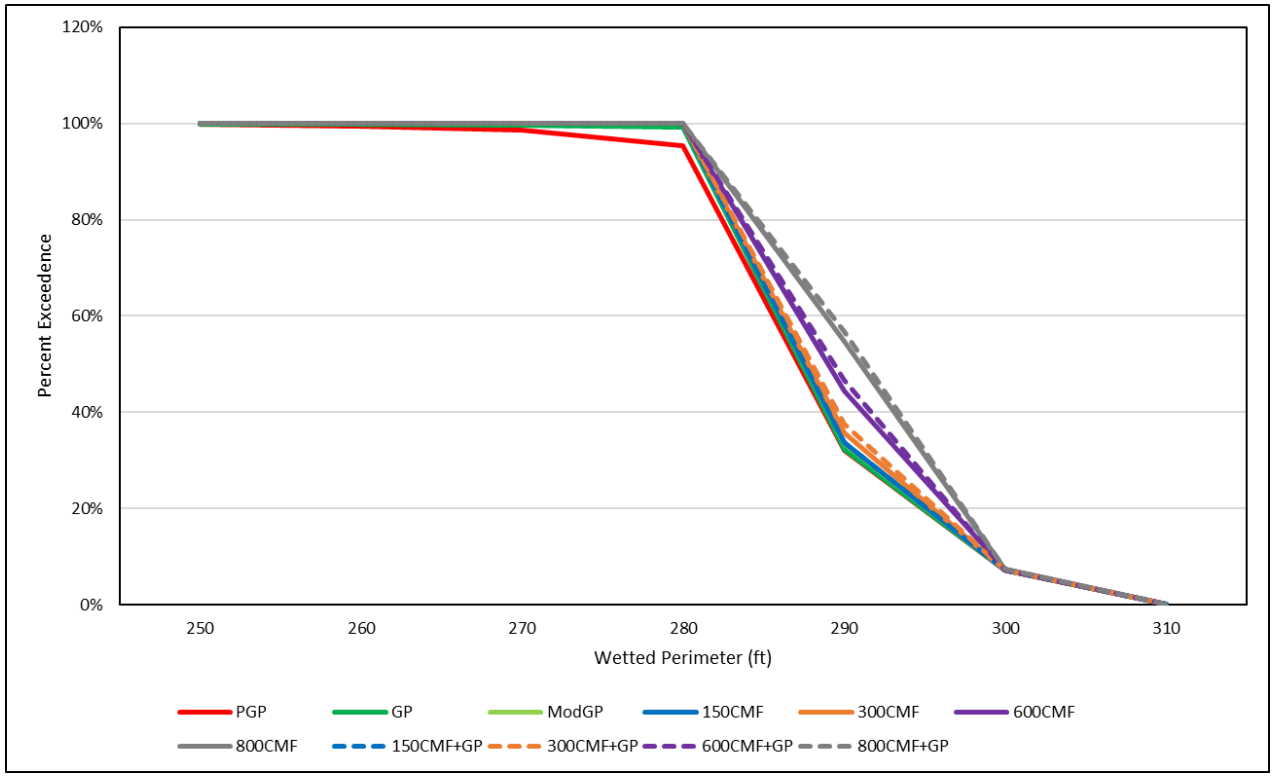


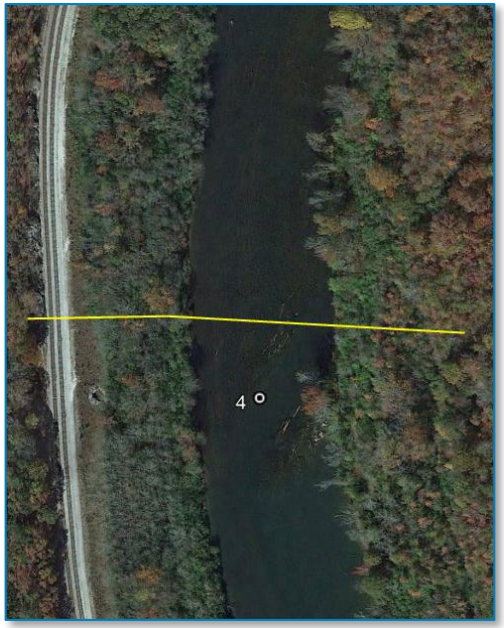
2 Miles Downstream (Riffle)



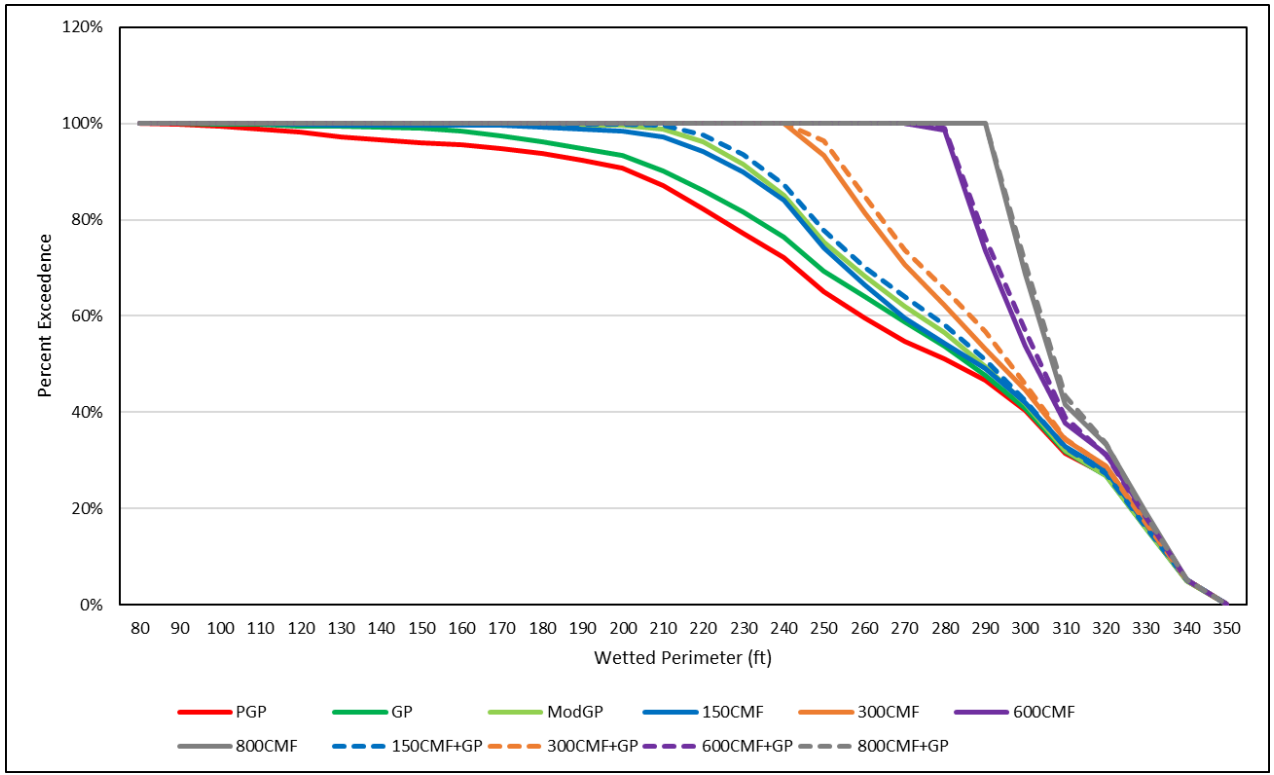


4 Miles Downstream (Pool)



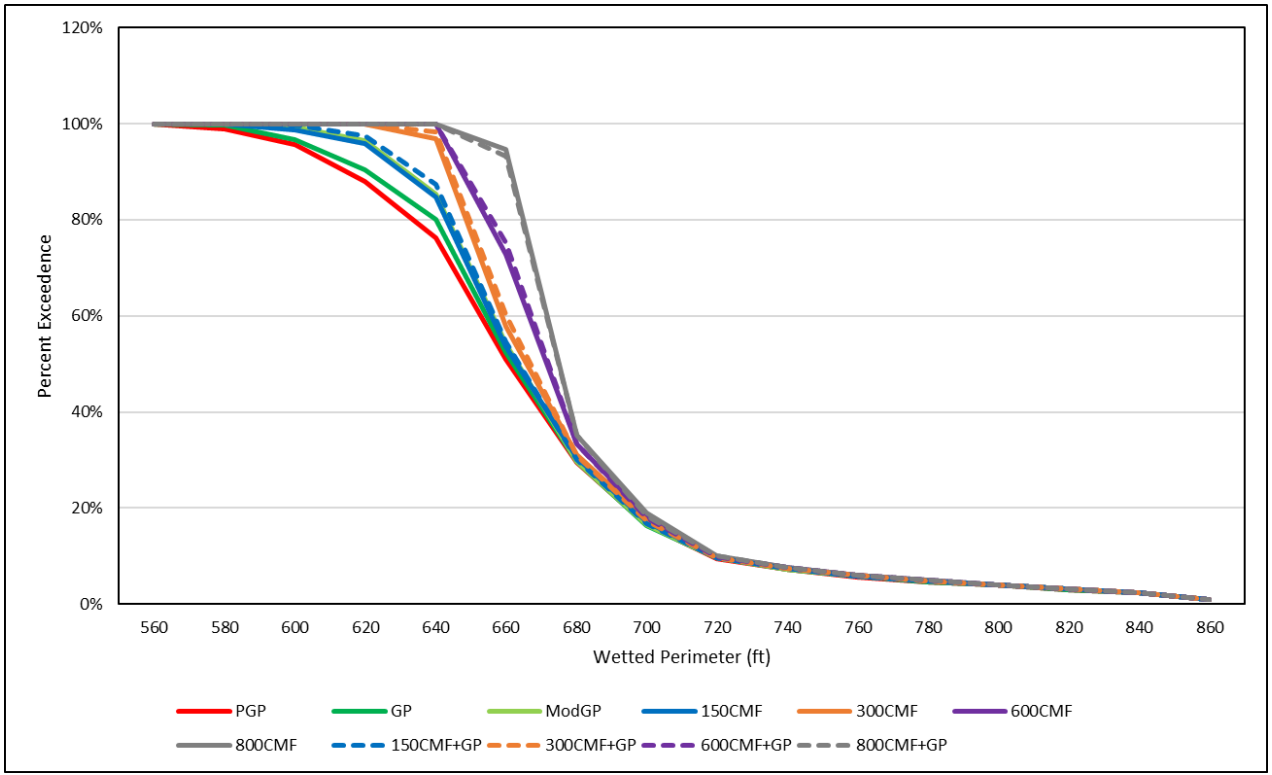


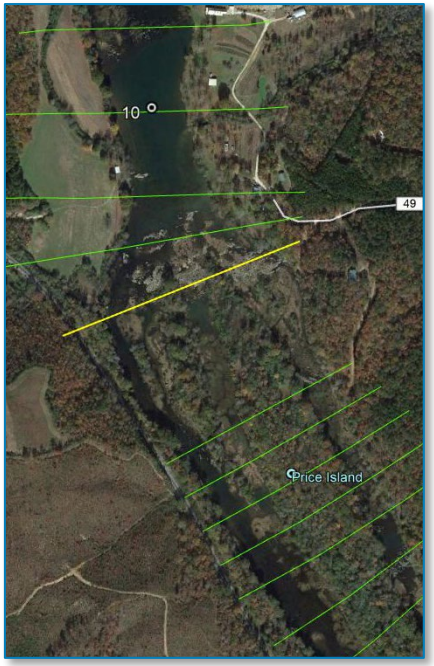
7 Miles Downstream (Riffle)



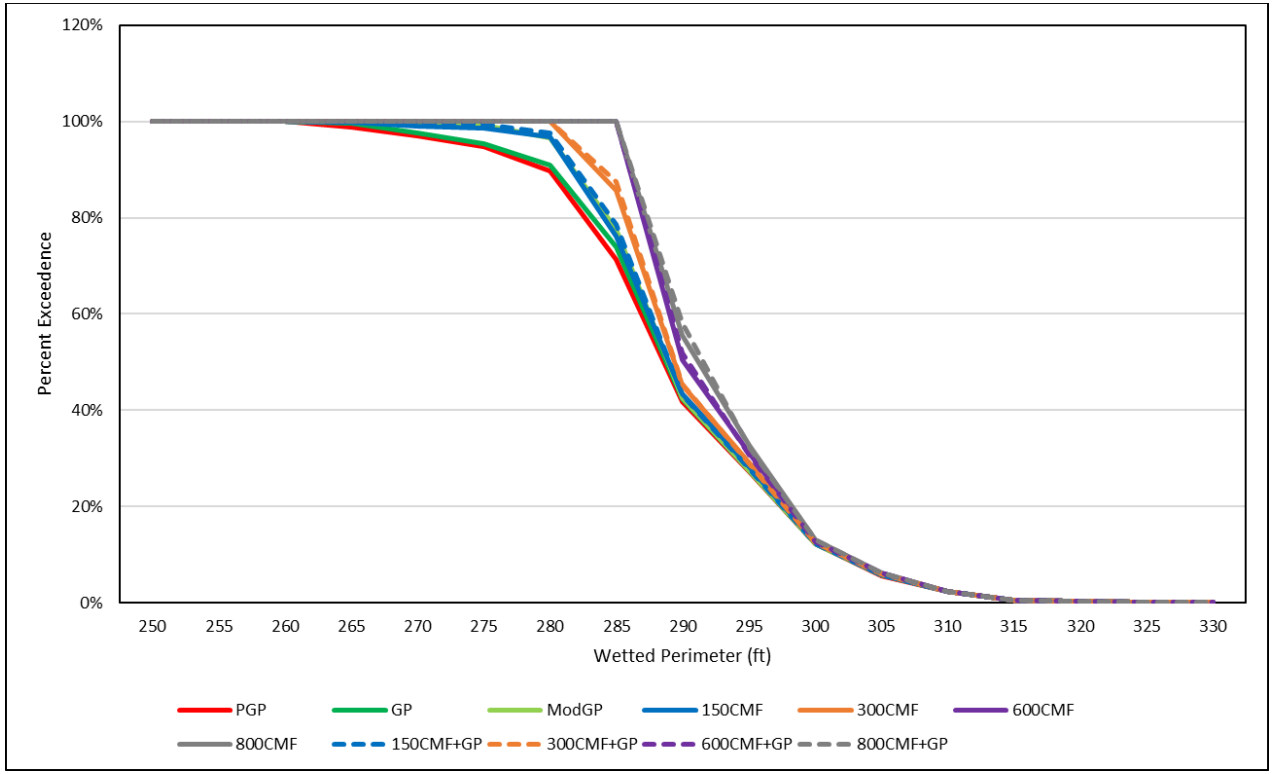


10 Miles Downstream (Riffle)



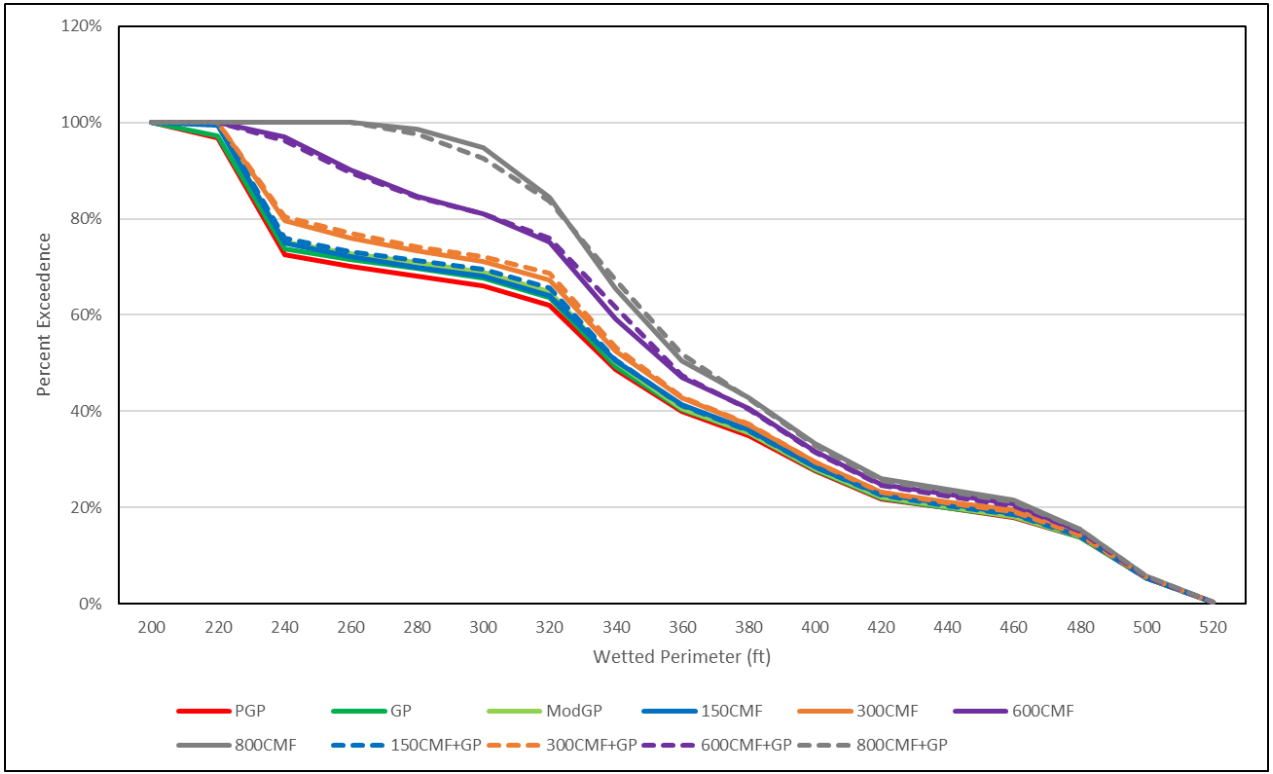


14 Miles Downstream (Pool)



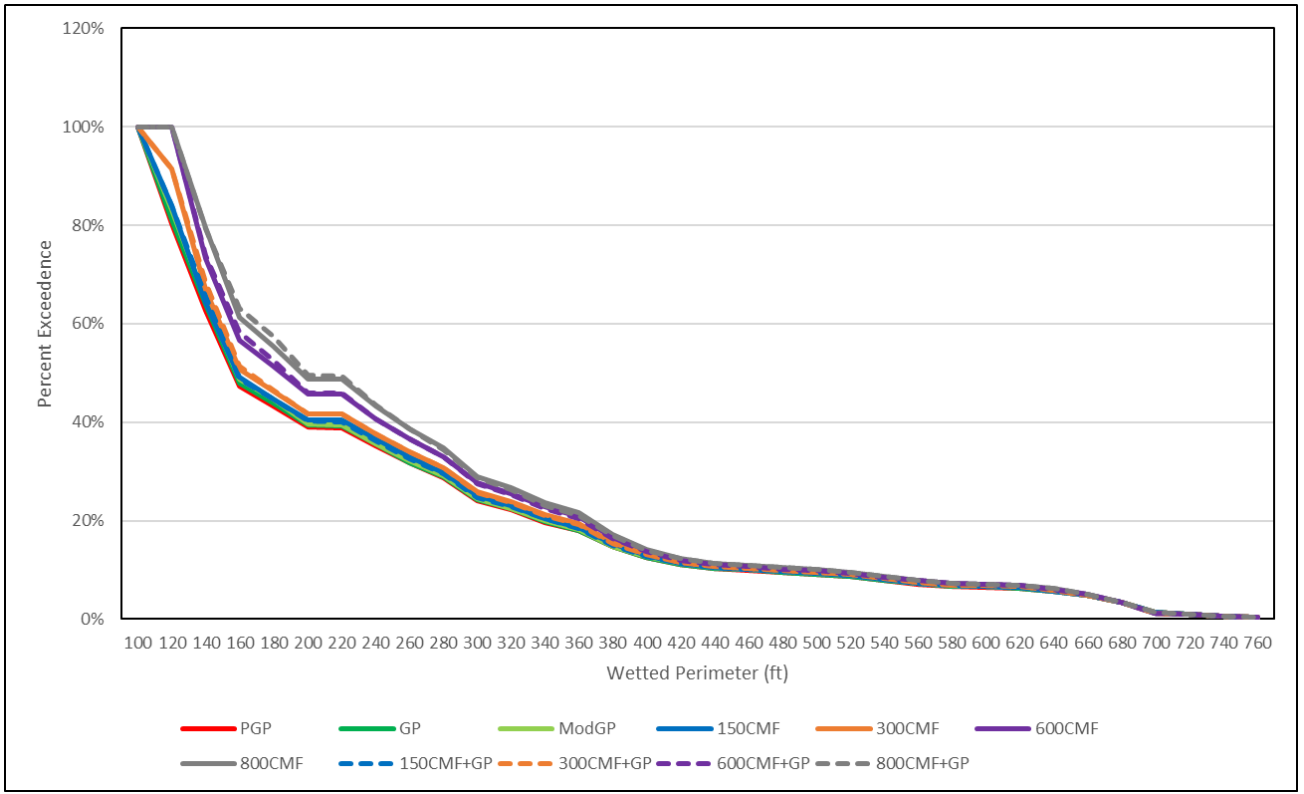


19 Miles Downstream (Riffle)



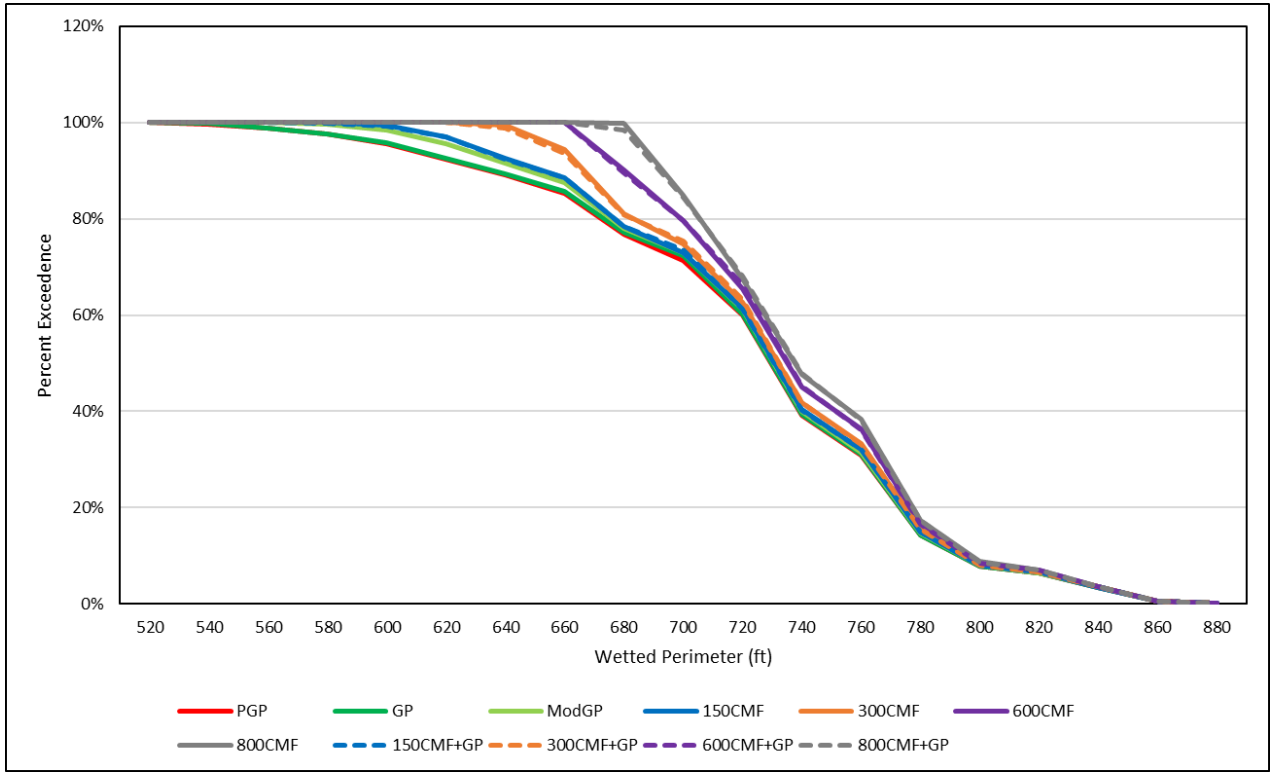


23 Miles Downstream (Riffle)



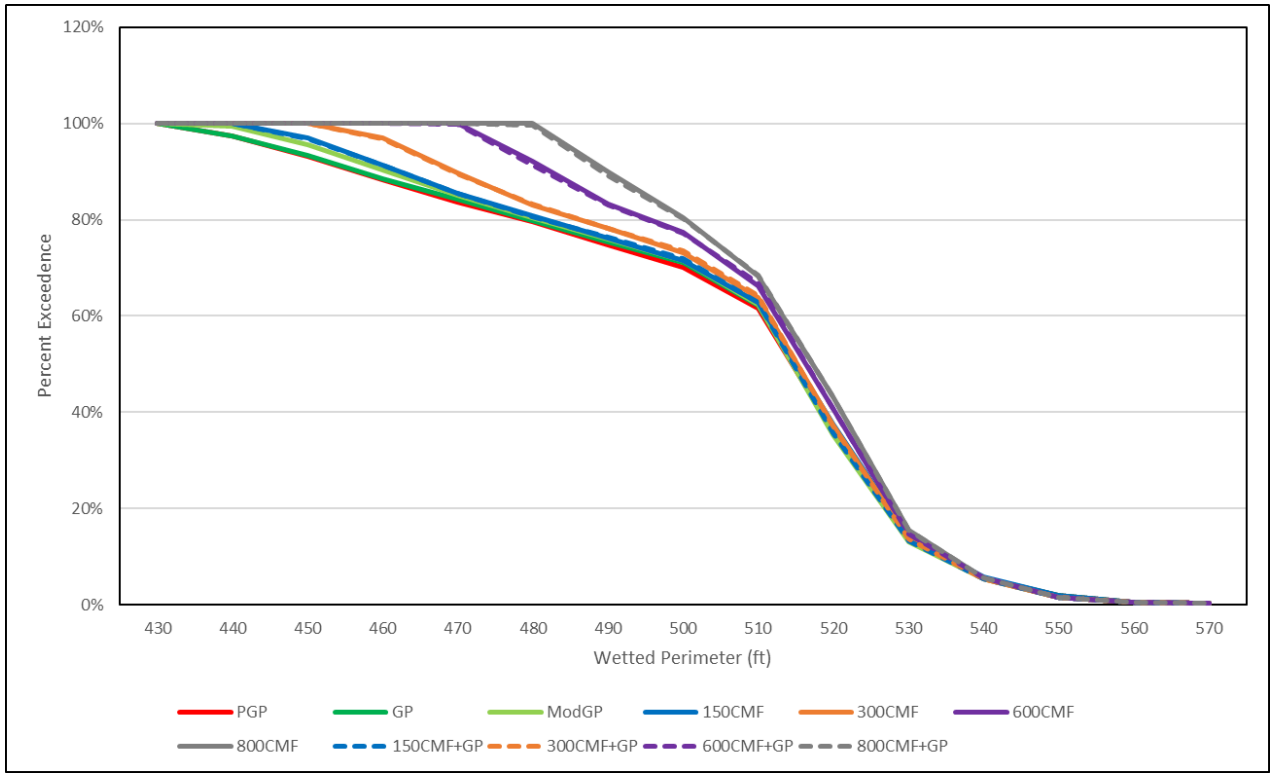


38 Miles Downstream (Griffin Shoals)





43 Miles Downstream (Horseshoe Bend)





Amount of Wetted Perimeter

Relative % Difference = ($DailyAvgWP_{PGP}$ – $DailyAvgWP_{GP}$) ÷ (($DailyAvgWP_{PGP}$ + $DailyAvgWP_{GP}$)/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%

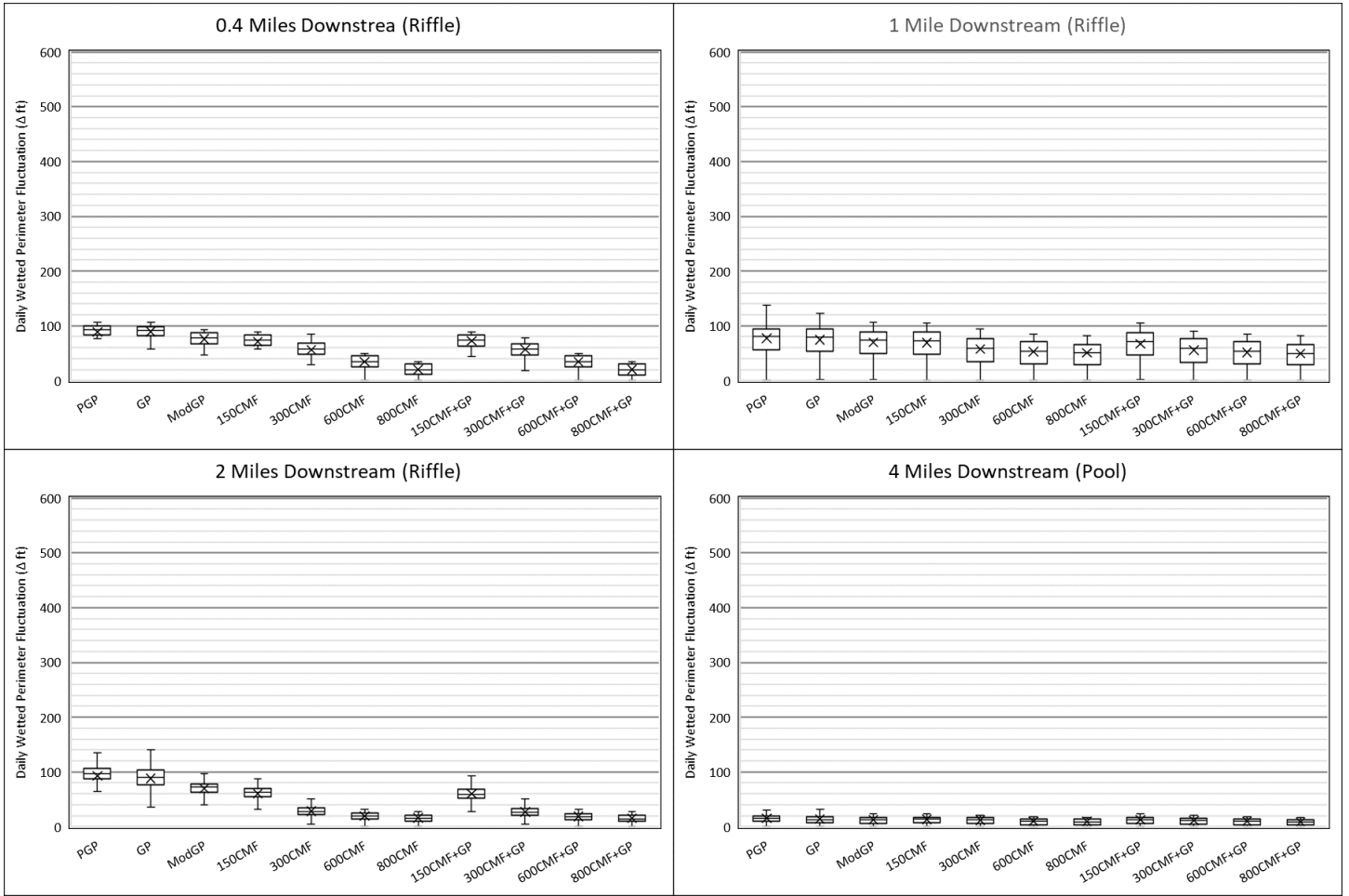
Wetted Perimeter Stability

Daily Maximum – Daily Minimum = Daily Range

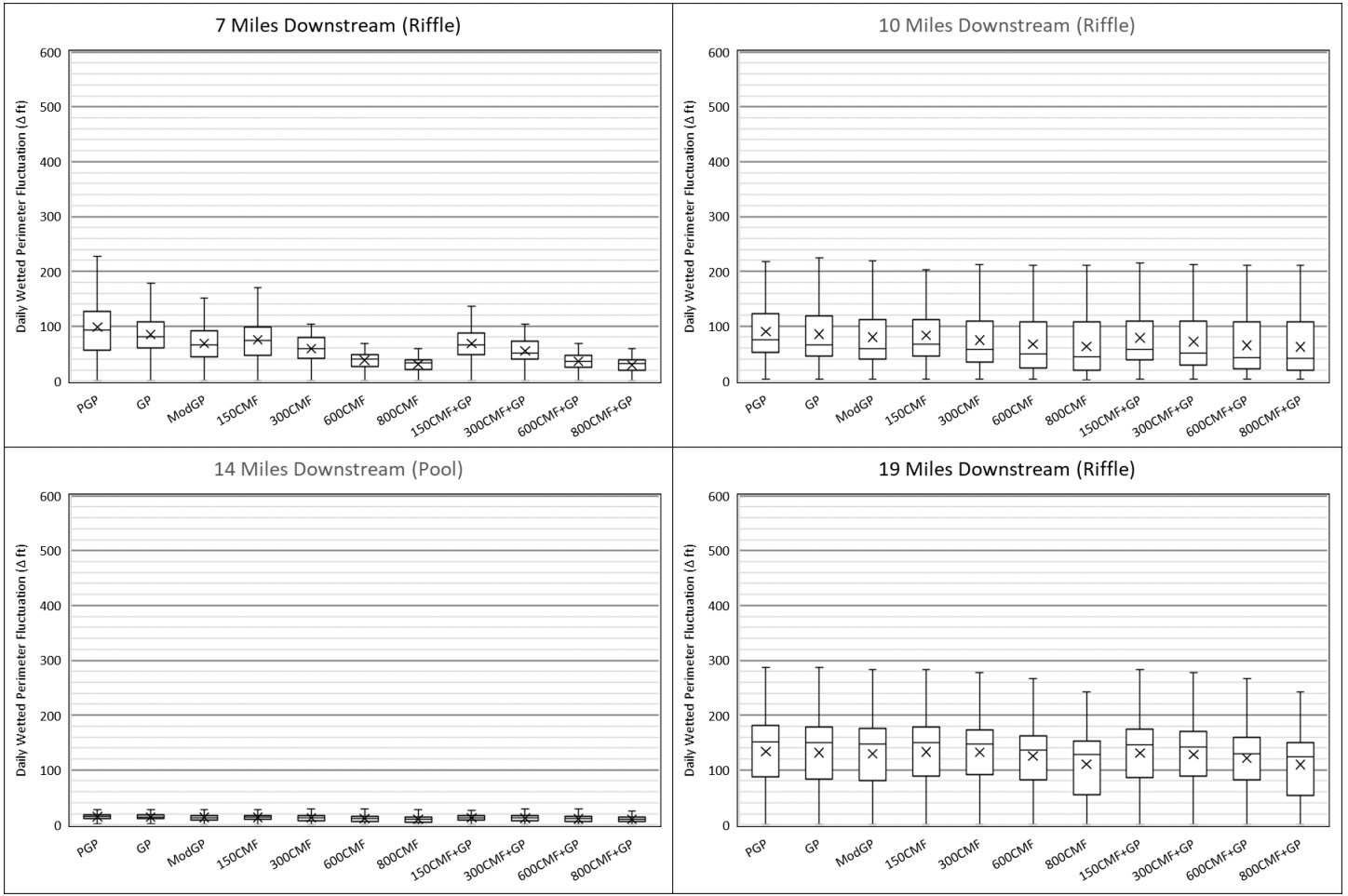
Relative % Difference = (Daily Range$_{PGP}$ – Daily Range$_{GP}$) ÷ ((Daily Range$_{PGP}$ + Daily Range$_{GP}$)/2)

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%

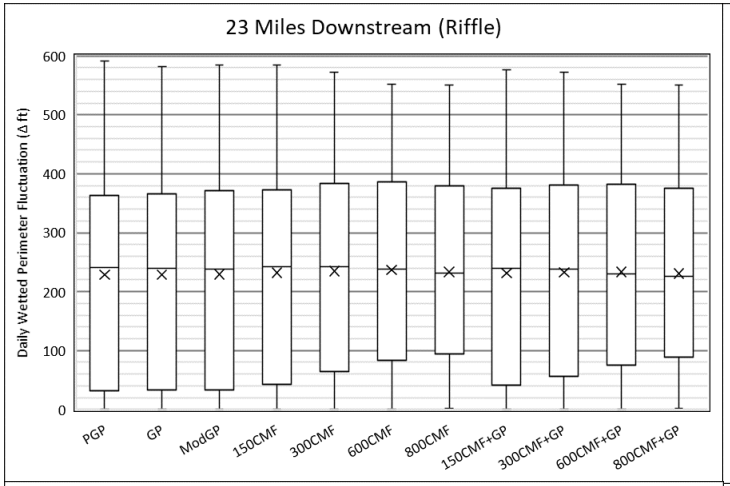
Wetted Perimeter Daily Fluctuations

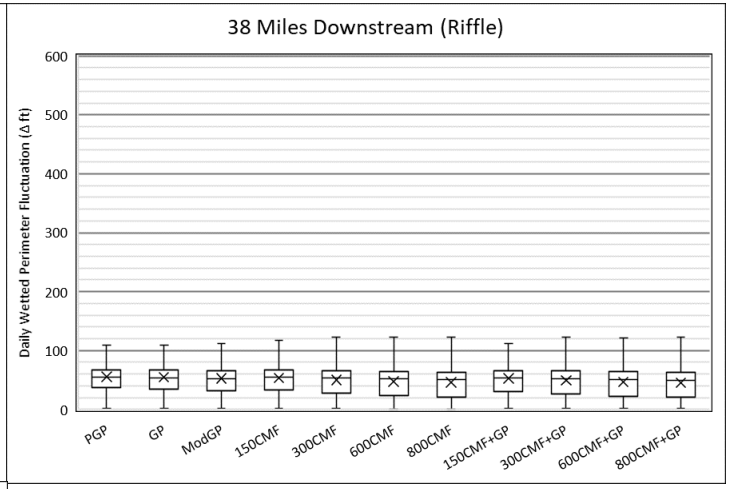


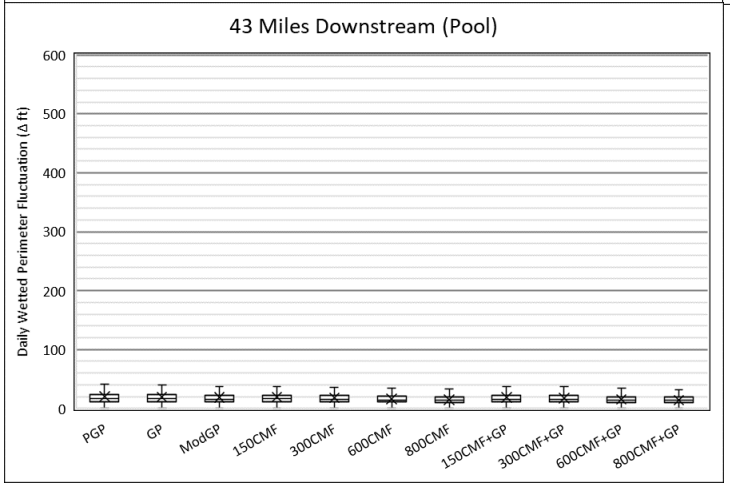
Wetted Perimeter Daily Fluctuations



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

From: Colin Dinken <Colin.Dinken@Kleinschmidtgroup.com>
Sent: Thursday, January 14, 2021 12:35 PM
To: Fobian, Todd
Cc: Anderegg, Angela Segars
Subject: Harris T&E Species sources

EXTERNAL MAIL: Caution Opening Links or Files

Hey Todd,

During the comment period for the Draft T&E Species Desktop Assessment you recommended some literature to incorporate into the final report. I was able to find a couple of these sources, but was not able to locate Fobian et al. (2015), which describes host fish species for Pale Lilliput, or Watters et al. (2005) which describes some of the host fish species for Rabbitsfoot. Could you please send information on these sources for our reference section of the final report?

Thank you,

Colin Dinken
Staff Scientist
Kleinschmidt
Office: 205-588-4613
www.KleinschmidtGroup.com [kleinschmidtgroup.com]

From: Fobian, Todd <Todd.Fobian@dcnr.alabama.gov>
Sent: Friday, January 15, 2021 9:14 AM
To: Colin Dinken <Colin.Dinken@Kleinschmidtgroup.com>
Subject: RE: Harris T&E Species sources

Hi Colin,

Attached are the two documents requested. One is a poster presentation from FMCS meeting and the other is from Ellipsaria 2009. I apologize there was an error in the 2005 citation included in the comments. Watters et al. completed a 2005 host fish update in Ellipsaria but also had one in 2009 as well. The 2009 note includes the Rabbitsfoot host fish information page 19. Please let me know if you have any additional questions.

Corrected citation:
Watters, G. T., T. Gibson, and B. Kelly. 2009. Host identifications or confirmations. Ellipsaria 11(1):19.

Thanks, Todd

Todd Fobian
Environmental Affairs Supervisor
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Todd.Fobian@dcnr.alabama.gov

From: Colin Dinken <Colin.Dinken@Kleinschmidtgroup.com>
Sent: Thursday, January 14, 2021 12:35 PM
To: Fobian, Todd <Todd.Fobian@dcnr.alabama.gov>
Cc: Anderegg, Angela Segars <ARSEGARS@southernco.com>
Subject: Harris T&E Species sources

Hey Todd,

During the comment period for the Draft T&E Species Desktop Assessment you recommended some literature to incorporate into the final report. I was able to find a couple of these sources, but was not able to locate Fobian et al. (2015), which describes host fish species for Pale Lilliput, or Watters et al. (2005) which describes some of the host fish species for Rabbitsfoot. Could you please send information on these sources for our reference section of the final report?

Thank you,

Colin Dinken
Staff Scientist
Kleinschmidt
Office: 205-588-4613
www.KleinschmidtGroup.com

REPRODUCTIVE BIOLOGY AND REINTRODUCTION OF PALE LILLIPUT (*TOXOLASMA CYLINDRELLUS*, LEA 1868) INTO THE DUCK RIVER

Todd Fobian1, Michael Buntin1, Jeff Powell2, Don Hubbs3, Jeff Garner1 and Paul Johnson1. 1Alabama Department of Conservation and Natural Resources (ADCNR), Alabama Aquatic Biodiversity Center (AABC), 2200 Highway 175, Marion, AL 36756. United States Fish and Wildlife Service (USFWS), 1208 Main Street, Daphne, AL 36526, 3Tennessee Wildlife Resources Agency (TWRA), Camden, TN 38320.



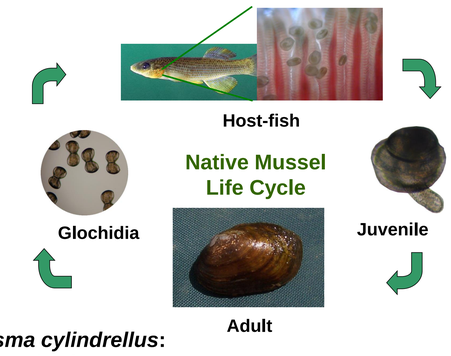
Abstract

Toxolasma cylindrellus was listed as endangered by the USFWS in 1976. A middle-Tennessee River Basin endemic, *T. cylindrellus* historically ranged from the Duck River system in central Tennessee to northeastern Alabama. The species currently occupies 20 km of the upper Paint Rock River system, with only a few live individuals encountered in the last decade. *Toxolasma cylindrellus* is often considered to be one of the most imperiled mussel species in North America. However, one extremely localized healthy population in the Estill Fork a tributary to the Paint Rock River has been discovered in recent years. In 2013, a quantitative survey at the site indicated an estimated current population of approximately 720 individuals. State resource agencies (ADCNR and TWRA) and the USFWS have identified *T. cylindrellus* as a priority for recovery through artificial propagation and reintroduction. *Toxolasma cylindrellus* has rapid glochidial development and mature glochidia can be found from early May to July. Fecundity ranged from about 2,000 to 20,000 glochidia per female. Multiple host trials determined that Northern Studfish (*Fundulus catenatus*), Blackspotted Topminnow (*Fundulus olivaceus*) and Blackstripe Topminnow (*Fundulus notatus*) likely serve as the primary hosts. *Toxolasma cylindrellus* gravid females were found predominantly in very shallow water along stream margins, often near American Water-willow (*Justicia americana*). This may spatially position the females in such a way that maximizes contact with the primary hosts which often occupy marginal shallows. To date, a total of 802 *T. cylindrellus* have been propagated and reintroduced to one locality on the Duck River, and approximately 1200 additional animals are under culture pending release in 2015. Site selection followed flow and oxygen concentration improvements and habitat restoration in the Duck River which have been underway since 1991. The released mussels were tagged and will be monitored in 2015. Additional Duck River releases are planned in an effort to establish self-sustaining populations and improve genetic diversity. Other reintroductions will be carried out in historical range of this species.

Introduction

Freshwater mussels of the family Unionidae have an obligate, parasitic larval stage, the glochidium, which attaches to the gills or fins of a host fish. Mussels are generally host-specific, i.e., able to use only one or a few species of hosts. Glochidia that attach to a compatible host transform to the juvenile stage within a few weeks. After transformation the juveniles leave the host and move to the bottom the river, where they may survive for decades.





Conservation Status of *Toxolasma cylindrellus*:

- Middle-Tennessee River Basin endemic
- Critically endangered –USFWS on June 14, 1976
- Recovery priority number (RPN) is 5
- Priority 1 species -Alabama Department of Conservation (ADCNR)
- Tier 1 priority species -Cumberlandian Region Mollusk Restoration Committee
- Ranked as G1 -NatureServe
- “Endangered” -American Fisheries Society (AFS)
- The only extant population is believed to be in the upper Paint Rock River in Jackson County, Alabama (20 km).

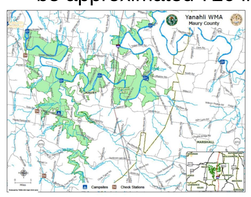
The USFWS *T. cylindrellus* Recovery Plan (1984) specifies the following down-listing criteria.

1. Stable populations occurring in Paint Rock River, Estill Fork and Hurricane Creek so that any one event would not result in the loss of the species from the basin.
2. Establish or discover new populations in two additional geographically isolated rivers.
3. The species and habitat are protected from present and foreseeable human-related threats.
4. Noticeable improvements in siltation from improved land-use practices, riparian zone restoration in the Paint Rock watershed.

Methods

Site selection

- Followed flow and oxygen concentration improvements and habitat restoration in the Duck River which have been underway since 1991
- Selected site locality contains 25 mussel species, including 5 federally listed mussel species
- Designated critical habitat and Scenic River by FWS and the state of Tennessee
- 2013 Estill Fork 100m quantitative survey indicated current population at site to be approximated 720 individuals at a density of 0.6/m² (random systematic grids)



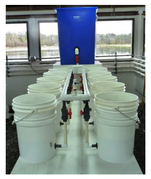


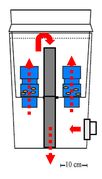




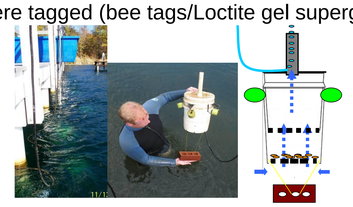
Propagation Techniques

- Estill Fork gravid females were collected and monitored to determine timing of reproduction and fecundity ranges.
- Glochidia from one or more females were used to infect potential host fish.
- Tested 19 fish species within 10 genera. Potential host fishes were collected from four Tennessee River System tributaries.
- Glochidia and juveniles were recovered from each fish to determine metamorphosis success, the percentage of attached glochidia that metamorphosed into juveniles.
- Transformed juveniles were placed into laboratory culture systems to determine the practicality of captive grow-out of juveniles for reintroductions.
- Successfully cultured 2-3cm juveniles were tagged (bee tags/Loctite gel superglue)





Stage 1: Bucket upwelling “Mucket Bucket” system 454 L–10 bucket system gravity fed from sump, supplied with well and filtered pond water (200µm) 1:3 ratio, supplemental fed commercial Shellfish Diet and Nannochloropsis algae.



Stage 2: Pond Culture- “Supsy” suspended upwelling bucket system, powered by an electric air blower using air uplift tubes to create flow through a mesh chambered bucket cage suspended in water column.

Results

Summary of transformation success pairings of *T. cylindrellus* and potential host fish (three infection dates using six different females, two per infection).

Location/Species Infections 5/14/12, 5/19/13 and 5/26/13 combined	Mean Metamorphosis %	N fish	N Encysted Glochidia	N juveniles	N juveniles/fish
Mountain Fork, Madison Co., AL					
Banded Sculpin (*Cottus carolinae*)	0	4	40	0	0
Whitetail Shiner (*Cyprinella galactura*)	0	2	101	0	0
Rainbow Darter (*Etheostoma cauruleum*)	0	5	136	0	0
Northern Studfish *(Fundulus catenatus)*	72	1	88	63	63
Striped Shiner (*Luxilus chrysocephelus*)	0	2	36	0	0
Shoal Creek, Lauderdale Co., AL					
Greenside Darter (*Etheostoma blennoides*)	0	2	221	0	0
Anderson Creek, Lauderdale Co., AL					
Logperch (*Percina caprodes*)	0	2	150	0	0
Larkin Fork, Jackson County, AL					
Rock Bass (*Ambloplites rupestris*)	0	5	2146	0	0
Largescale Stoneroller (*Campostoma oligolepis*)	0	6	345	0	0
Banded Sculpin (*Cottus carolinae*)	0	5	101	0	0
Greenside Darter (*Etheostema blennoides*)	0	4	1268	0	0
Rainbow Darter (*Etheostema caeruleum*)	0	13	573	0	0
Blackside Snubnose Darter (*Etheostema duryi*)	0	2	41	0	0
Fantail Darter (*Etheostema flabellare*)	0	1	30	0	0
Stripetail Shiner (*Etheostema kennicotti*)	0	6	298	0	0
Snubnose Darter (*Etheostema simoterum*)	0	2	28	0	0
Northern Studfish (*Fundulus catenatus*)	84	2	260	222	111
Blackstripe Topminnow (*Fundulus notatus*)	69	10	481	392	39
Longear Sunfish (*Lepomis megalotis*)	0	5	1052	0	0
Striped Shiner (*Luxilus chrysocephalus*)	0	8	840	0	0
Tennessee Shiner (*Notropis leuciodus*)	0	7	122	0	0

Results, continued

Field observations

- Gravid females were found predominantly in very shallow water along stream margins, often near American Water-willow (*Justicia americana*)

Timing of reproduction

- Gravid females were collected from early May to July

Fecundity range

- Fecundity ranged from 2,000 to 20,000 glochidia per female

Culture and Release

- N = 9299 metamorphosed juveniles were recovered (2009-2014)
- Juvenile survival in captive culture, N= 2002 of 9299 metamorphosed (250+ days – 22%)
- Grown from 250µm to 2-3 cm shell length over 500 days
- N = 802 were tagged (bee tags/superglue gel 2-3cm shell length) and released by TWRA to one locality on the Duck River Marshall County, TN on 9/10/14.
- N ≈ 1200 additional animals are under culture pending release in 2015

Conclusions

- Adult gravid females appear to spatially position in very shallow water along stream margins to maximize contact with the primary hosts which often occupy marginal shallows.
- Our laboratory trials indicate that Northern Studfish (*Fundulus catenatus*), Blackstripe Topminnow (*Fundulus notatus*) and Blackspotted Topminnow (*Fundulus olivaceus*) are primary hosts.
- *Toxolasma cylindrellus* is capable of being cultured and reared in laboratory and pond culture systems for >500+ days and up to a 2-3cm shell length.
- Released mussels will be monitored in 2015.
- Additional Duck River releases are planned in an effort to establish self-sustaining populations and improve genetic diversity.
- Other reintroductions are planned within the historical range of this species in Alabama and Tennessee.



Acknowledgements

Funding

Alabama Wildlife and Freshwater Fisheries, Tennessee Wildlife Resources Agency and US Fish and Wildlife Service

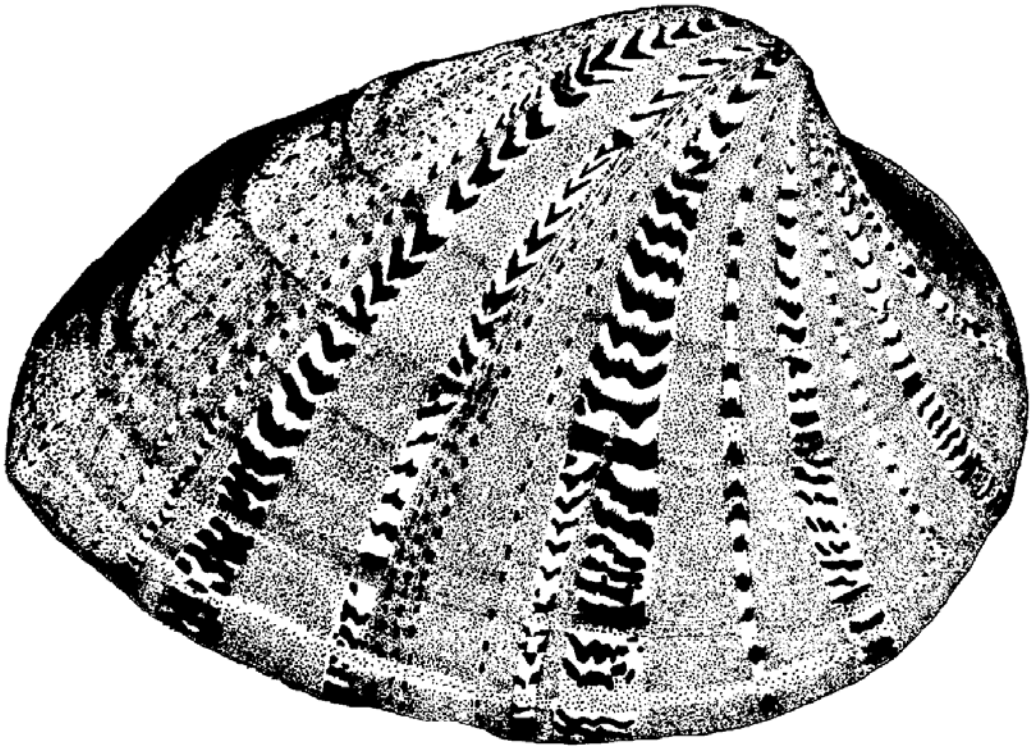
Partners



Ellipsaria

The Newsletter of the Freshwater Mollusk Conservation Society

Volume 11 – Number 1 **April 2009**



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FMCS dues are collected in January of each year. If a renewal form isn't included with this newsletter, you may download one from the Society's website.

Ellipsaria Editor

Christine Mayer
Illinois Natural History Survey
1816 S Oak Street, Champaign, IL 61820
camayer@inhs.uiuc.edu

Submissions for the August 2009 issue of *Ellipsaria* may be sent to the editor at any time but are requested by **July 31, 2009**. Anyone may submit an article but you must be a member of FMCS to receive *Ellipsaria*. Please limit submissions to about one page. Categories for contributions include news, new publications, meeting announcements, current issues affecting mollusks, job postings, contributed articles (including ongoing research projects), abstracts, and society committee reports. Electronic submissions are preferred; contact the editor with any questions. Note that submissions are not peer reviewed, but are checked for content and general editing.

Please send change of address information to the Secretary.

Ellipsaria

NEWSLETTER OF THE FRESHWATER MOLLUSK CONSERVATION SOCIETY

Volume 11, No. 1 http://ellipse.inhs.uiuc.edu/FMCS/ April 2009

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Contributed Articles 9

President's Message

Greetings,

By the time you receive the April edition of *Ellipsaria* we will have completed our 2009 FMCS International Symposium. Since this is my final message as president I want to personally thank Catherine Gatenby and her committee for all their hard work with the symposium. These are very tough economic times affecting all of us and basically this has been a perfect storm that hit right during our 2009 symposium. I wish to acknowledge our sponsors (state, federal and private consultants) that provided critical sponsorship funding plus all the in-kind help with the symposium. I also wish to personally say thanks to all our committee chairs that have worked diligently on various issues and Heidi Dunn, Christine Mayer, and Greg Zimmerman who are all critical individuals needed for the success of our society.

My final message to all of you is to get involved with FMCS. We still have a lot of work to be done in moving our society forward plus all this work doesn't need to fall on the shoulders of a few individuals. This is our society and we can make a difference concerning the protection and restoration of our mollusk resources.

Steve Ahlstedt, FMCS Past-President

~~ FMCS Officer Election Results ~~

President-Elect: Caryn Vaughn
Secretary: Greg Zimmerman

I received a total of 100 ballots from members that I was able to include in the vote tally (i.e., ballot contained the FMCS member signature and at least one vote). I was very pleased with the participation of the number of members voting. Thanks to all the members who took the time to vote!

Leroy Koch, FMCS Nominations

FMCS 2009 Award Results

Student Travel Awards

Five students were selected for travel awards: Andrea Crownhart (Missouri State), Christopher Owen (University of Louisville), Serena Ciapris (Virginia Tech), Nathan Johnson (University of Florida), and Michael Pillow (Missouri State). One additional student travel award specifically for international students was given to Alexandra Zieritz of the University of Cambridge.

Best Student Platform and Poster Awards

The best platform award went to Jason Mays (co-authors W.G. Cope, T.J. Kwak, and D. Shea) for his talk entitled "Bioaccumulation of platinum group metals in the freshwater mussel *Elliptio complanata*". The honorable mention platform award went to Dan Allen (co-author C.C. Vaughn) for his presentation on "Mussel diversity destabilizes substrates at high flows". The best poster award went to Joe Daraio (co-authors L.J. Weber, T.J. Newton, and S.J. Zigler) for his poster on "The importance of host fish location at the time of juvenile drop off on dispersal of juvenile mussels in the Upper Mississippi River". The honorable mention poster award went to Nathan Johnson (co-authors I.J. McLean, J.D. Williams, and P.J. Schofield) for his poster on "Salinity tolerance of three freshwater mussel species: a coastal plain species shows tolerance". Congratulations to all the fine student presentations at this year's meeting!!!

Professional Awards

Gerry Mackie and Jim Layzer were each presented with the Lifetime Achievement award for 30 years of dedicated service to the conservation of freshwater mollusks. Heidi Dunn and

Christine Mayer were each presented with the Meritorious Service Award for their diligent efforts on behalf of the Society. Photos of some of the award recipients are on page 24 of this newsletter.
Teresa Newton and Greg Cope

2009 Auction/Raffle Event

This year's meeting gave way to another successful and entertaining auction/raffle event! Amid the last minute sales of raffle tickets, hors d'oeuvres, and "local" brews, Steve Ahlstedt and Tom Watters entertained the crowd with their slapstick talents. Tuesday night's event raised $4675, which will go towards student travel to upcoming meetings.

A great big thank you to those members and nonmembers who donated the items, and especially to those who bought raffle tickets and purchased auction items…some of which were "hidden treasures". We had nearly 70 items that ranged from quirky river booty to beautiful photographs and hand-carved fishes. FMCS has a wealth of artistic talent among its members, and it's always nice to see this displayed at our meetings. Finally, we wanted to recognize some enthusiastic student volunteers who helped with the auction during the week -- a special thanks to Andrea Crownhart and Mike Pillow of Missouri State University for their time and dedication!

Auction Committee:
Cristi Bishop, Lisie Kitchel, Teresa Newton, Jamie Smith

FMCS Board Meeting

Marriott Waterfront Baltimore Hotel, Baltimore, MD
April 19, 2009, 1 - 5PM

A quorum is present for the official meeting of the Board of Directors of FMCS. List of attendees:

Steve Ahlstedt (President)
Gregory Cope (President-Elect / Awards Committee)
Heidi Dunn (Treasurer)
Greg Zimmerman (Secretary)
Steve McMurray (Environmental Quality & Affairs Committee)
Tom Jones (Outreach Committee)
Chuck Howard (Guidelines & Techniques Committee)
Janet Clayton (Guidelines & Techniques Committee)
Jim Williams (Mussel Distribution and Status)
Art Bogan (Mussel Distribution and Status)
Tony Brady (Propagation and Restoration Committee)
Teresa Newton (Awards Committee)
Patty Morrison (Symposium Sub-Committee)
Catherine Gatenby (Symposium Sub-Committee)
Robert Anderson (Past President)
Emily Monroe (Genetics Committee)
John Jenkinson (Information Exchange)
Mark Hove (Photography)
Andy Roberts (Co-chair Outreach Committee)
Leroy Koch (Chair Nominations Committee)
Nate Johnson
Chris Barnhart

BOARD MEETING AGENDA

Committee Reports

Awards:
Greg Cope and Teresa Newton

Environmental Quality and Affairs:
Ryan Evans and Steve McMurry
- No need for separate committee to handles toxicity issues
- Bylaws need to be updated – post on website
- Pursue development of operations manual (covers duties of committee chairs)

Gastropod Status and Distribution:
- Paul Johnson (TN/CU/Mobile River Basin mollusk restoration plan)
- Blueprint mollusk restoration plan will address Eastern Gulf Slope
- American Fisheries Society (Conservation Status of North American Freshwater Gastropods)
- Compendium of type specimens, photography of Smithsonian types. Original descriptions, original plate, new images will be web based.
- Updating AFS Conservation Status of Freshwater Mussels
- Eventual posting of mussel and snails on FMCS web site

Genetics:
David Berg
- Possible subgroup under genetics (roles of taxonomy and rules of nomenclature…ignoring established nomenclature?)

Guidelines and Techniques:
Chuck Howard and Janet Clayton
- Freshwater mussel certification process

Information Exchange:
Walkerana update – Tom Watters, Editor and John Jenkinson, Assistant Editor
- Drafting purpose and goals statement for the journal
- Compiling list of potential members on editorial board
- Need to develop business plan for the journal
- Journal name…do we wish to change the name
- Journal content…board needs to sanction or change it
- Frequency of publication
- Increasing dues to reflect publishing Journal
- Fund part-time position for Journal preparation
- Page charges…will authors pay page charges or will dues offset costs
- Back issues of *Walkerana* (storage, cost of back issues)
- *Ellipsaria* – continue as a vehicle for FMCS announcements, members, short notes etc. Board needs to clarify between the Journal and *Ellipsaria*

Mussel Status and Distribution:
Arthur Bogan and Jim Williams
- Roles of taxonomy and rules of nomenclature (genetics subgroup?)

Outreach:
Tom Jones and Andy Roberts (FMCS webpage update status)
- Urgent need for updated membership list (mass emailing, dues, announcements)
- Funding available to incorporate Andy Roberts web page with FMCS (possible student scholarship to handle this)

Propagation, Restoration, and Introduction:
Tony Brady

National Strategy
Rachel Muir
- Update/prioritize National Strategy (status?)

Symposium 2009:
Catherine Gatenby
- Update on symposium 2009 (cost, sponsorship money)

Old Business
- Propose FMCS to document history and past presidents – responsibility (past presidents)?
- Update/prioritize National Strategy (Rachel Muir, Committee Chair)

New Business
- Revisit webpage/FMCS member list system (Greg Zimmerman) see Outreach
- Need ideas and sponsors for 2010 FMCS workshop (topics, location, sponsor)
- FMCS committee dedicated to fund raising (workshops/symposia)
- Recommend Virginia Tech for future conferencing services
- Require all committees to provide biannual updates or discontinue
- Form special International and Tribal Committee to continue collaboration/membership
- Member-at-large committee responsible for increasing membership-Pacific NW Mollusk Group
- Make contact with Pacific NW Mollusk Group for future FMCS symposium (2013)
- Possible FMCS symposium 2013 Guntersville State Park, Alabama (Paul Johnson)
- Raise membership fees (2 year membership), pay at symposium

Treasurer's Report –
Submitted by Heidi Dunn

In 2008 income was from interest ($471.16), memberships ($7,800), and sale of hats and t-shirts from the outreach booth at the SCB meeting ($343). Overall, the workshop was a success. We received $9,000 in donations, a check from SCB of $3,822 (in 2009) for income of $12,822. SCB workshop expenses totaled $4,288.98, so profit from the workshop was $8,099.02. Thanks to all who helped make this a success. We also successfully acquired *Walkerana*. We hired a lawyer to make sure the transaction was legal. The lawyer donated much of his time and only charged us $500. Credit card, bank fees, and annual registration fee made up the other expenses. Total income $17,614.16, expenses $10,222.52, for a net gain of $7,391.64.

So far in 2009, we have income from memberships ($5,810), interest ($119.62), 2008 workshop ($3,822) and the 2009 auction ($4,703.92). Expenses include the t-shirts for the symposium ($521.52; all were sold so this cost will be recouped), hats ($1,518.40; many of these were also sold at the symposium), some symposium expenses, and some credit card fees. It will be a few months before we receive the balance from the symposium, but it appears we are in the black with this one (yeah!). Catherine Gatenby obtained $44,000 in donations to cover some of the expense. Total income so far in 2009 $14,455.54, expenses $5,454.03, net $8,910.51.

FMCS now has $69,815.82 in the bank.

Secretary's Report –
Submitted by Greg Zimmerman

We will work to get the most recent Society's bylaws added to the website. Keeping track of the membership between *Ellipsaria*, the treasurer, the secretary, and others has been problematic as the society grows. Hopefully, upcoming website improvements will minimize these problems and help keep the society growing.

As a reminder, all official FMCS documents such as those signed by the president should get forwarded to the secretary. Then these documents will be posted on the website for reference.

In an effort to reduce redundancy and get all of the information in the same place, some of the Board Meeting discussions have been appended to the Committee reports where noted.

Committee Reports –
All members are encouraged to join and be active in FMCS committees. You don't have to wait until the next meeting! See the FMCS website for the respective committee chair's contact information.

Awards Committee
Submitted by Teresa Newton and Greg Cope
(Note: Dr. Emy Monroe has agreed to co-chair the Awards Committee in addition to Greg Cope and Teresa Newton.)

Student Travel Awards
The Awards committee announced and solicited nominations and applications for student awards to be presented at the biennial symposium. At the request of the 2009 Symposium Planning Committee, a procedural change was made for the student travel awards during 2008-2009. Rather than issuing individual monetary student travel awards to applicants, rooms would be booked and paid for by the Society for the selected students to assist the Society with making the contracted number of room nights at the host hotel. A total of 23 applications were received for student travel awards. Based on the allotted funds for all awards from the Society, the room cost per night at the hotel for four nights, and the estimated cost of award plaques, 5 student travel awards were possible. Five students were selected for travel awards: Andrea Crownhart (Missouri State), Christopher Owen (University of Louisville), Serena Ciapris (Virginia Tech), Nathan Johnson (University of Florida), and Michael Pillow (Missouri State). Through fund raising efforts of the 2009 Symposium Chair, one additional student travel award specifically targeted for international students was made possible. The international student selected was Alexandra Zieritz of the University of Cambridge. If this model works well in 2009, the Committee will consider adopting the hotel room night payment as the standard student travel award for future Symposia.

Best Student Platform and Poster Awards
A total of 52 students submitted abstracts for platform (26) and poster (26) presentations for the 2009 Symposium that required judging for the Best Student Platform and Best student Poster Awards. This large number of student presentations required over 20 judges from the Society membership. The awards committee wishes to send a huge thanks to all members who helped in this important endeavor!! The best platform award went to Jason Mays (co-authors WG Cope, TJ Kwak, and D Shea) for his talk entitled "Bioaccumulation of platinum group metals in the freshwater mussel Elliptio complanata". The honorable mention platform award went to Dan Allen (co-author CC Vaughn) for his presentation on "Mussel diversity destabilizes substrates at high flows". The best poster award went to Joe Daraio (co-authors LJ Weber, TJ Newton, and SJ Zigler) for his poster on "The importance of host fish location at the time of juvenile drop off on dispersal of juvenile mussels in the Upper Mississippi River". The honorable mention poster award went to Nathan Johnson (co-authors IJ McLean, JD Williams, and PJ Schofield) for his poster on "Salinity tolerance of three freshwater mussel species: a coastal plain species shows tolerance". Congratulations to all the fine student presentations at this year's meeting!

Professional Awards
The Awards committee announced and solicited nominations and applications for professional awards to be presented at the biennial symposium. We received two nominations for the Meritorious Service Award and two nominations for the Lifetime Achievement Award. At the 2009 FMCS meeting, Heidi Dunn and Christine Mayer were each presented with the Meritorious Service Award for their diligent efforts on behalf of the Society. Gerry Mackie and Jim Layzer were each presented with the Lifetime Achievement award for 30 years of dedicated service to the conservation of freshwater mollusks.

Environmental Quality and Affairs Committee
Submitted by Ryan Evans and Steve McMurray

The Environmental Quality and Affairs Committee has been busy since the Little Rock Symposium. Several letters addressing mollusk concerns have been drafted for the President's signature. These included:

- A letter to the USEPA was written requesting that national water quality criteria standards for ammonia be revised to include studies on the effects of ammonia on freshwater mussels.
- A letter in support of NSF funding for the curation of the Athearn collection at the North Carolina State Museum.
- A letter to the USFWS expressing our concerns with the proposed amendments to the ESA.
- A letter to the USEPA expressing our opposition to the modifications proposed to the OSM "Stream Buffer Zone" rule.
- A letter in support of the petition by the Center for Biological Diversity (CBD) to list 42 species of freshwater snails under the ESA was sent to the USFWS.
- A letter in support of the proposed rule to list five mussels Endangered or Threatened in Pennsylvania was sent to the Pennsylvania Fish and Boat Commission.

All of these letters are available on the Society's website. Currently a letter is being drafted to again reiterate our concerns to the Obama Administration concerning repeal of several of the amendments to the ESA. During our meeting at the Symposium in Baltimore, it was decided that Ryan Evans and Steve McMurray would continue as committee co-chairs. One issue that needs to be addressed is the proposed water quality criterion for cyanide. Due to a lack of data on the effects of cyanide on freshwater mussels, the determination of effects relied on the effects to host fish. The committee would like to see a research laboratory conduct toxicity testing to determine the effects of cyanide on glochidia, and juvenile and adult mussels to better inform the process. In a related matter, the committee would like to facilitate communications between Endangered Species Biologists and Toxicologists/Contaminants Specialists. A group of committee members is working on developing a position paper/information report on the issues surrounding gas drilling and frac water toxicity, as it could have both national and international implications. If you know of other environmental issues affecting freshwater mussels that have regional, national or even international implications, or would like to assist with some of the active issues, please contact one of the co-chairs.

It was also noted during the board meeting that FMCS should consider guidance for FERC licensees regarding minimum DO and temperature, etc.

Gastropod Status and Distribution Committee
Paul Johnson unfortunately could not make the symposium but Paul is working on the Tennessee / Cumberlandia / Mobile River mollusk conservation plan and other items with Jeff Powell as noted on the gastropod meeting agenda shown below. Due to a scheduling problem, the Gastropod meeting did not occur in Baltimore with the committee chairs. For more information, committee members and others should contact Paul Johnson or Jeff Powell.

Old Business:
<u>FMCS Web Site</u>
- Tom Jones (Outreach Chair) to lead effort to revamp FMCS web site. Once this is complete, committee will hopefully become more active
- Take suggestions from attendees on functions / items to be pursued on the website

<u>Status of AFS Project:</u>
- Effort to publish a checklist evaluating the basic Conservation Status Review of North American Freshwater Gastropods
- 10 member committee of US and Canadian participants.
- Taxonomic / Systematic review are NOT an objective of the project
- Database has completed 3 reviews, and is now under 4th review
- AFS Turgeon et al, NatureServe / Heritage Database, and COSEWIC lists were the building blocks of the review (all

lists have been vetted several times)
- Updated lists revised based on recent published manuscripts
- Revised database to be sent to committee in May or June 2009 along with an outline of draft article
- AFS article expected in 2010
- Hopefully AFS will allow an electronic database to be posted on FMCS website (build upon initial list as more distributional / taxonomic information becomes available).
- Hope the article will help generate more interest nationally in freshwater snails

Mollusk Restoration Plans:
25 conservation target species for the Cumberlandian Region
28 conservation target species for the Mobile River Basin 12 proposed conservation targets for the Choctawhatchee, Yellow, & Escambia river basins
- Once finalized copies of the plans will be available on request
- Mobile and Cumberland plans should be finalized by this summer
- Hope to make PDF's available on AABC website within a year
- Accounts have been drafted for the Cumberlandian and Mobile taxa, but not the eastern gulf slope species. The gulf coast accounts will be drafted over the next year.
- The accounts specify basic priority actions for each species and begin to form a general outline of recovery activities for each species (for many species - the first priority specifies a systematic / taxonomic status review)
- Are taxa missing from the lists that should be included?
- Plans will be revised approximately every 5 years to include changes in species status and priority recovery activities

New Business:
What are the special interests of gastropod committee in light of the possible initiation of society journal, prior to the 2011 meeting in Kentucky?

News from the AABC:
- Gastropod facility operational, culture efforts underway for 5 species
- Culture efforts are limited while construction of other facilities are completed this year
- Successfully established a new reproducing population of Leptoxis plicata (Plicate Rocksnail) with cultured stock – additional monitoring to continue
- Other test releases will be conducted later this year

Pleuroceridae Type Catalog:
- A review of all type specimens of the Pleuroceridae including original descriptions and lithographs
- Project cooperators: Smithsonian Museum of Natural History, North Carolina Museum of Natural Sciences, Alabama Aquatic Biodiversity Center
- Production of high quality plates of
- Objective is a 2 volume series published in the Smithsonian Contributions to Zoology – Volume 1 to include all USNM Types (approximately 400 types).
- Photography nearly complete for USNM Types, and approximately half the plates have been assembled for the first volume
- Possible web-based version

Nominations and election of new gastropod committee chair and alternate?
[Appendix and plates provided with agenda were not included here but can be obtained directly from Jeff Powell]

Genetics Committee
David Berg noted problems regarding genetics work ignoring established nomenclature. This also echoed Art Bogan's comments.

Guidelines and Techniques Committee
Submitted by Chuck Howard
Chuck Howard and Janet Clayton re-elected as co-chairs.

In 2008-2009, the co-chairs have been evaluating the concept of a Mollusk Taxonomy and Field Techniques Education / Certification Program. Evaluations have included a pilot mussel surveyor certification program by the Pennsylvania Fish and Boat Commission, conceptual ideas for a certification program in North Carolina (Art Bogan), and existing professional certification programs in practice by the North American Benthological Society and American Fisheries Society.

At the April 21, 2009 lunch meeting, a list of Committee Goals and Potential Initiatives for Consideration by the committee were presented to committee meeting attendees. The co-chairs invited members to address these or other initiatives over the next two years, but encouraged a unified effort to help with the development of a Mollusk Taxonomy and Field Techniques Education / Certification initiative. A draft list of tasks needed to develop this dual initiative was presented to the committee.

The committee met again the evening of April 21 to continue discussion of developing a Mollusk Taxonomy and Field Techniques Education / Certification Program. The primary tasks outlined for these initiatives included: format, certification level, geographic criteria, development of a taxonomic guidance committee, development of educational materials, testing, funding, and legal issues.

Once the co-chairs receive a complete list of society members wishing to actively serve on the Guidelines and Techniques Committee, committee members will be asked to sign up for or will be assigned to one or more tasks needed to develop this initiative. Deadlines will then be set for status reports and completion of the various tasks. Development of the taxonomic education / certification program in particular will require a long-term commitment to this endeavor by taxonomic experts and institutions (such as museums, universities, and regulatory agencies) across the country; therefore, we encourage leaders in our field to evaluate how they and their institutions could support development of this initiative and contribute to the long-term commitments (e.g., education centers or evaluation sites) of an education / certification program.

We look forward to working with committee members and members of the society to develop this important initiative

that supports the society's stated purposes to promote education of freshwater mollusks and their function in freshwater ecosystems and facilitate science-based management of freshwater mollusks. We hope to communicate with current committee members in June 2009 and assign working groups for each task.

Mussel Status and Distribution Committee
Submitted by Jim Williams and Art Bogan

During the past year we have researched the conservation status of freshwater mussels in the United States, Canada and Mexico. We have assigned conservation status to the approximately 370 taxa that are currently being recognized. The spreadsheet has been circulated to the Committee members with a request that corrections to conservation status, distribution, etc. be noted and returned by 15 May 2009. The introductory text for the manuscript is being drafted and should be completed by June 2009. NatureServe has also requested that we submit the spreadsheet to them for their review to be sure that their conservation status is in line with that proposed by the Committee. We plan to submit the final document to the American Fisheries Society for publication no later than July 2009. During our Committee meeting several individuals requested that they be allowed to review the spreadsheet to be sure recent changes in conservation status and distribution were included before submission for publication.

The distribution atlas committee has not been able to attract funding to support the required museum visits to document the historical distribution of the freshwater mussels of North America. John Alderman and I in collaboration with about 12 others have taken a new approach to examine the modern distribution of the freshwater mussels of the south Atlantic Slope. This region includes the Atlantic Coast rivers from Maryland south to north Florida. We have gathered together information from the state agencies for most of the five included states. We have worked with the state agencies to donate their survey data on freshwater mussels and are in the process of incorporating this data as layers in ArcGIS. All species distribution maps will be published at the 8 digit HUC units and no dot maps will be provided. This project can be used as a new focus to bring together the first cut of information on a particular state through the cooperation of agencies responsible for collecting distribution data. I work for a state agency and have agreed to host the various state's data on a secure server with no external access or third party access. We are suggesting the South Atlantic Slope Atlas might be a first step to gathering regional data to work toward a national atlas. However, you still have to be careful of the identifications.

Outreach Committee
The following is a summary of the Baltimore Board Meeting Discussions:

The mixer was paid for by outreach activities performed by Tom Jones at Aquarium on Saturday, the day before the symposium.

New initiatives include building a smaller outreach materials set, or sets, so they could be more easily and cost-effectively shipped. The existing "Tools for Outreach" set is in Janet Butler's possession (per Patty Morrison). Andy and Tom Jones are requesting video clips for website, photos, and other non-proprietary materials for distribution or website use.

Other ideas included special mussel areas of the US – modules. Steve A. has material that he gave Catherine on commercial shell industry and native shell mounds that could be incorporated into outreach materials.

Propagation Committee
Tony Brady has been working trying to catch up with recent staff shortages and a change in job description.

It was noted that a data clearinghouse for translocations is critical. For example, with southeastern fishes the translocation of native fishes without documentation into new streams has resulted in a "nightmare" (Jim Williams). The USACE and TN system has a database, however - we need a running tally of where these mussels are going, what species, and, to where. Matt Patterson had a database but the status of the database was unknown.

Sources of mussels for toxicology studies are also needed. It would be a good idea if the Propagation Committee could compile a list of available sources for toxicology studies.

Committee Meeting Report – Submitted by Tony Brady
Tony Brady opened meeting with seven members present. Tony was asked by the committee to remain as chair for the next two years. He agreed. Tony explained to the committee the charge from the FMCS board to develop a database of current propagators, species being propagated and stocking locations. After discussion, the committee decided to begin by generating a list of current propagation facilities, and state coordinators. Information such as species propagated can be answered by contacting the facilities and stocking locations by contacting state coordinators. The meeting was then adjourned. The next day, Tony asked Rachel Muir to co-chair the committee with him. The propagation committee now falls in line with most of the other FMCS committees by having co-chairs.

Information Exchange Committee / *Walkerana* Journal
The following is a summary of the Baltimore Board Meeting discussions, edited by John Jenkinson, additional comments by Tom Watters:

The *Walkerana* journal has been officially and legally purchased from Jack Burch. Tom Watters has agreed to serve as Editor and John Jenkinson has agreed to serve as Assistant Editor. Currently, the editors are working on a draft purpose and goals statement for the journal and are compiling a list of potential members of an editorial board. Many thanks to Jack Burch, Heidi Dunn, Kevin Cummings, Steve Ahlstedt, and others who made the transfer possible.

The official name and logistics of the journal was discussed in-depth. There are a large number of business and logistical reasons that the exact name is important. The name may be put to a vote. Proposed names:

1) "Walkerana: Journal of the Freshwater Mollusk Conservation Society"
2) "JFMCS: Walkerana"

3) "The Journal of the Freshwater Mollusk Conservation Society"

Ellipsaria will be maintained as an information exchange medium for FMCS members.

Journal details: The volume numbers should be contiguous with *Walkerana*, and it was suggested that we put a transitional letter from Jack Burch on the inside cover of the first FMCS issue. Art Bogan suggested the content should include both contributions and, unlike other journals, survey reports. Jim Williams suggest we do not include notes, as it is difficult to get credit for notes professionally.

Other items discussed included the development of a Business Plan, color vs. black and white, page charges, fees, and having an electronic submission process. It was also concluded that the journal probably should shift to 8.5" x 11" because that size is more economical to print and format. Back issues should be stored in one place and sold as part of the operation of this journal; we ask the Board to consider the logistics of this, as well as setting prices for back issues. Should the journal be electronic only or print? Electronic only would streamline production, be "green," and minimize cost; distribution to a wider audience would be made through pay-per-download services such as JSTOR. Will it accept new species descriptions? If so, then a paper copy is required. FMCS should accept the AFS list or publish.

The journal will likely require a funded part-time layout/printer liaison person, which should be incorporated into the business plan. The initial goal for publication will likely be two issues per year with a long-term goal of 4x per year. If the journal will be distributed in printed form it may require that FMCS raise membership fees. If so, we also might switch to a two-year membership structure to reduce administrative work. The exact amount of increase will depend on the cost of printing the journal.

The editors were requested to prepare a business plan for this journal, including the anticipated costs of whatever options appear to be viable. That plan will be reviewed and approved or modified by the Executive Committee before Society funds are spent on this journal.

Symposium Committee

The following is a summary of the Baltimore Board Meeting Discussions:

Catherine Gatenby – The conference is breaking even, with approximately 225 registered from 15 countries! Approximately $44,000 in donations were obtained by Catherine to cover some of the expense.

Heidi suggested that we publish a protocol for symposia – basically a lesson's learned such as accommodating persons with limited mobility, etc. We also need a clearing house of FMCS logos to get t-shirts, etc. The subcontracting of an outfit to do registration was a great success and recommended for future meetings.

OLD BUSINESS

History of Past FMCS Presidents – The issue of documenting the work history of past presidents was re-raised, and what was the status of that effort? It was recommended that the past president (Robert Anderson) should compile an outline of past president's work history.

National Strategy – Status?? In 2007 it was agreed to have committees take their piece of conservation strategy and revise and present in March 08, with Rachel Muir to take the lead. To date this has not been accomplished. We also need a synopsis of what has been accomplished to date; this could be included as an appendix. We also still need electronic version of the original document in word format. The board will send an email out regarding number of action items for each committee. The Tennessee / Cumberland mussel conservation strategy is basically complete and can be used as a template as well.

NEW BUSINESS

Website News – Tom Jones should have time in the coming months to develop the website. A motion for a $1,500 / year Scholarship for a Marshall Student to maintain the website was proposed by Greg Cope. The scholarship will ensure that the new website is properly maintained and hosted. The motion was seconded and all were in favor.

FMCS Workshop 2010 and 2011 Symposium –

A number of options were discussed for the 2010 workshop and 2011 symposium. The 2010 FMCS Workshop will be held in (or near) St. Louis, MO. The general topic will be Regional Identification of Mussel Fauna and Sampling Methods.

For future symposia / workshops we are also considering a joint meeting with the Southeast Fishes Joint Regional Taxonomy Workshop in Guntersville, AL. The facility can accommodate 200. Steve Ahlstedt will continue to help look at locations with the incoming administration. Steve said a major key to the success of past symposia and workshops has been strong local sponsorship.

It was also discussed that the committees could also be a focus of the workshops, as was the original intent of the committees. It was suggested that the workshops include a field component but have the ability to plan for a weather contingency. There will also need to be an early November date for the board meeting.

Other Topics / Discussions

Jim Williams – through FMCS – working on a letter regarding Coosa River for FERC requirements / re-licensing. Jim and Art Bogan also requested the states to review the mussel Atlas. It was proposed to try to publish the new official mussel names in Ellipsaria, however it may be problematic as AFS is protective of publishing new fish/mussel names.

Art Bogan - suggested that a document "Addressing ethical and zoological nomenclature guidelines for documenting

mussel species" should be developed – can the genetics committee head this effort up? Or would this call under techniques and guidelines? The document would include:

- Series of voucher and photo procedures and recommendations
- Locality information
- Naming conventions

Walkerana / Ellipsaria News – See Information Exchange section for a summary of the discussion. The format of the Journal was discussed and it was agreed to keep Ellipsaria as an information exchange format
-Should there be a discount for pdf copy only of the journal?
-Can we scan and convert old *Ellipsaria* back issues to pdf?

Nomenclature / voucher procedures!!! Art Bogan –Article for Ellipsaria on how to photograph mussels, preserve and voucher specimens? FMCS should consider promoting the taking of some vouchers during surveys as a lack of vouchers is hindering the science. Need to then post article on website

Micro matrix Technology – Heidi Dunn discussed the potential of a developing "Micro matrix" technology which could allow for the species-specific delivery of lethal agents. For example, zebra mussels or silver carp could be targeted because it is species specific.

Genetics – David Berg / others - it was discussed the need to improve communication within the mollusk genetic community. Art Bogan stressed the problems of Genbank due to a lack of voucher documentation. Even photographic evidence has been extremely poor and some photos do not match the species sample. It was recommended that voucher procedures be developed.

Time and Place Sub-Committee – It was proposed that a sub-committee should be set up to be solely in charge of conference / workshop funding, due to the large amount of work required for putting the event together. Catherine added that trying to get donations and funding was about half the work of putting the symposium together. Greg Cope said other organizations have a "Time and Place Committee" where the past Symposium Chair is the head of the T&P, incorporated under the functions of the Symposium Committee.

International Sub-Committee – It was discussed that the international component of the Baltimore symposium was a great success. It was suggested to form a separate committee to promote the international aspect of the society. It was then agreed that the best approach would be to form an Ad Hoc International Committee under the Outreach Committee.

Motion to adjourn by Steve Ahlstedt, second by Jim Williams, all in favor.

Submitted by Greg Zimmerman, FMCS Secretary

Announcements & News

The First Biennial Eastern Gulf Slope Mollusk and Crayfish Meeting

The first Biennial Eastern Gulf Slope Mollusk and Crayfish Meeting was convened 20-22 January 2009 at the 5 Rivers Delta Resource Center, Spanish Fort, Alabama. It was held in conjunction with the Alabama DCNR Mollusk Meeting. Informal reviews and updates were presented for current mollusk and crayfish conservation and research activities in Alabama, Florida, Georgia, Louisiana, and Mississippi. Over 50 attendees from state and federal government, nongovernmental agencies and academia attended.

The next meeting is being planned for 18 January 2011, but location has not been determined. Anyone interested in attending should contact the organizers for specific time and location: Jeff Garner, Bleufer@aol.com, Sandy Pursifull, Sandra_Pursifull@fws.gov, or Jim Williams, fishwilliams@gmail.com .

Obituary – Louise Russert-Kraemer

http://www.nwanews.com/nwat/obits/74105/

Louise "Weez" Rothmund Russert-Kraemer, 85, professor emeritus of zoology at the University of Arkansas in Fayetteville, died Friday, Feb. 13, 2009, at Hillcrest Hospital in Cleveland [Arkansas].

She was born Dec. 17, 1923, to John W. and Wilhelmina Rothmund Russert in Milwaukee. Weezie, as she was known to her friends, attended the Milwaukee University School and began her college education at Wellesley College, finishing a B.S. in biology at Marquette University. She went to the University of Michigan in Ann Arbor for her graduate studies. On completing her M.S. and graduate course work, she accepted a tenure-track position as assistant professor of zoology at the University of Arkansas in Fayetteville in 1948, where she met William S. Kraemer, professor of philosophy. They married in the spring of 1949. Due to a nepotism rule preventing married couples from teaching in the same college, Louise lost her academic position.

While being the devoted mother to her four children, Weez returned to adjunct teaching in the department of zoology at the University of Arkansas in the mid-1950s. With her four, young children in tow, she revived her graduate studies and completed her Ph.D. from the University of Michigan in 1966 with a specialization in malacology. She regained a full-time position in the U of A zoology department where, as a dynamic teacher and innovative researcher, she quickly rose to the rank of full professor. Nationally and internationally recognized for pioneering research combining malacology and animal behavior, she was elected fellow of the American Association for the Advancement of Science and served as president of the American Malacological Union and of the American Microscopical Society. She was a cofounder of the

Society for the History and Philosophy of Biology. In the school year 1987-1988, she was a visiting fellow at Lucy Cavendish College, Cambridge University until she retired in 1993.

Preceded in death by her husband, William; sisters, Audrey Lowe and Joan Russert-Haber; and brother, Roger Russert-Malakoff, she is survived by her four children, Eric Russert Kraemer and his wife Francine Klein, Robert Russert Kraemer and his wife Ginger, Lisa Russert Kraemer and her husband Richard Lang and Soren Russert Kraemer and his wife Karen; 12 grandchildren; and a great granddaughter.

In lieu of flowers, donations may be made to the Louise Russert-Kraemer memorial fund, University of Arkansas Foundation Inc., University House, Fayetteville, AR 72701.

Obituary – Dorothea Franzen

http://www.iwu.edu/CurrentNews/newsreleases09/obt_Franzen_0109.shtml

Dorothea S. Franzen, professor of biology emerita, died Dec. 31, 2008, at Kidron Bethel Village, a retirement community in North Newton, Kan. She was 96 years old.

Franzen joined Illinois Wesleyan's faculty in 1952 and retired in 1977 as the George C. and Ella Beach Lewis Chair of Biology. Among the many honors she received in her lifetime, she was named Wesleyan's Teacher of the Year in 1967.

Her research specialty was malacology. Among her discoveries was a new species of mollusk which she found along the shores of Long Lake in southern Michigan and named *Catinella prolongata*. She served as national president of the American Malacological Union and received numerous grants for her research. In 1985 she was named Outstanding Member of the American Association of University Women.

Born to a family of teachers, Franzen received her bachelor's degree from Bethel College in North Newton, Kansas. She earned both a master's degree and doctorate in zoology at the University of Kansas, becoming the first female Bethel graduate to go on to earn a Ph.D. Bethel awarded her its Distinguished Achievement Award in 1975.

In 1976, Franzen was interviewed by Wesleyan's student newspaper, the *Argus*, about her journey as an educator and a pioneer as a woman in her field. "Now women can be reasonably sure of getting a position but must go through the rigors of being prepared and staying qualified," she said. Franzen also issued a challenge to IWU women who she felt "were not availing themselves to the opportunities they have. How many of Wesleyan's women have gone for a Ph.D.?"

While Franzen was devoted to her research, she told the Argus, "Teaching is my life. I've kept up research to keep myself alert as a zoologist. One has to work above one's teaching level to maintain an alert outlook and an alert mind. One must be stimulated to be able to stimulate."

Memorial contributions may be made to Bethel College, 300 E. 27th St., North Newton, KS 67117-0531.

Publications

Esarey, J., D. Soucek, J. Levengood, R. Hudson, W. Wimer, and R. Halbrook. 2008. Contaminants in unionid mussels from the confluence of the Mississippi and Illinois Rivers. Illinois Natural History Survey Bulletin 38:197-214.
To order: http://www.inhs.uiuc.edu/resources/bulletin.php

Graf, D.L., and K.S. Cummings. 2009. Actual and alleged freshwater mussels (Mollusca: Bivalvia: Unionoida) from Madagascar and the Mascarenes, with description of a new genus, Germainaia. Proceedings of the Academy of Natural Sciences of Philadelphia 158: 221-38.

Contributed Articles

The following articles were contributed by FMCS members and others in the malacological community. The contributions are incorporated into the newsletter with minimal editing and the opinions expressed therein are those of the authors.

Maryland Mussel Workgroup – January 27, 2009 Meeting

On January 27th, 2009 the first meeting of the Maryland Mussel Workgroup was held. We had eight participants at the initial meeting including: Jim McCann, Dave Brinker, Dan Feller (Maryland Natural Heritage Program), Matt Ashton (Maryland Biological Stream Survey), Julie Devers (U.S. Fish & Wildlife Service), Rita Villella Bumgardner, Glenn Nelson, and Cara Campbell (U.S. Geological Survey).

Distribution and status of Maryland's mussels:

(JM) Overview of Maryland's native unionid fauna with emphasis on the status of *A. heterodon*, *A. varicosa*, and *L. subvirids*. What are Maryland's taxonomic issues involving lanceolate *Elliptios*? How can we better determine the identity of *L. cariosa* vs. *L. cardium* in the Potomac River drainage?

Recently completed and ongoing work:

(JM) NHP database, permitting, and supportive surveys. Upper Choptank River survey to follow up 2007 MBSS *A. heterodon* record. (MA) Documenting mussel presence at MBSS sites and using data to describe coincident ecological conditions. Long-term monitoring at sites with exceptional mussel communities. Analyzing factors that describe the distribution of Coastal Plain assemblages. Conducting timed searches in conjunction with EPA NSRA sites on Potomac River and non-wadeable tributaries. (JD) Additional host trials with *E. complanata* and migratory fishes; results support suitability of American eels. Captured eels and translocated them to above Conowingo

Dam; should continue translocations in 2009. Also improving eel passage at Conowingo as part of FERC relicensing. (RV) Summarized surveys in Sideling Hill Creek, C&O Canal, Potomac River below Dam No. 4 and Little Falls. Noted recent sightings of *L. subviridis* in Potomac River. Discussed recent surveys in Potomac tributaries including Cacapon River, Back and Sleepy creeks. Participating in multiagency environmental flow analysis of lower Potomac River. (CC) Developing a landscape model for Atlantic mussels, predictive modeling of *A. heterodon*, thermal and hydrologic stability, indicator species of mussels.

Inventory, research, and conservation priorities:

Identify reasons for decline and persistence in *A. varicosa* and *L. subviridis* populations. Will this require a regional effort? Upcoming MBSS study in Sideling Hill Creek watershed can address some data needs. Work towards a consensus on the status and identification of *Lampsilis sp.* in the Potomac River. Assist those investigating lanceolate *Elliptio* taxonomy. Should we look into propagation facilities and what are Maryland's current options? Data gaps (e.g. tidal fresh and Potomac River).

Because of poor weather the group left several items unattended, including effects of stream blockages, temperature and drought, zebra mussels, and filming a segment on mussels for Maryland Public Television. The group will continue to meet (TBA), but will informally discuss new items at the FMCS Symposia. For further information on the meeting, contact Matt Ashton at mashton@dnr.state.md.us or (410) 260-8604.

More about the Expansion of the Distribution of *Dreissena bugensis* in Europe

Henk K. Mienis
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In previous short reports I have reviewed the presence of the invasive Quagga mussel *Dreissena bugensis* (Andrusov, 1897) in the lower part of the Danube (Mienis, 2006), in the delta of the Rhine and the possible role of the Main-Danube Canal in its expansion (Mienis, 2007) and its presence in the Netherlands (Mienis, 2008). Although we may not rule out the possibility that the Quagga mussel started its infiltration of Europe's main waterways – the Danube and the Rhine, independently from both ends at about the same time – the Main-Danube Canal seems to play a much more important role. The question is: Where are the records from the intermediate area? Has the Quagga mussel been overlooked or has this species failed in establishing viable populations over large stretches in both the Danube and the Rhine?

Two recently published reports show some more light on the conquest of Europe by the Quagga mussel. Hubenov & Trichkova (2007) have reported the first find of *Dreissena bugensis* in the Bulgarian stretch of the Danube between the villages Koshava (km 811) and Sandrovo (km 477). The collected material turned out to be 2-4 years old according to the size of the mussels. Szekeres, Szalóky & Bodolai (2008) reported Quagga mussels from six localities in the Hungarian part of the Danube: Komárom, Kisoroszi and Leányfalu upstream Budapest, Budapest itself, and two localities downstream Budapest near Dunaújváros.

According to these new localities it is only a matter of time before we may expect the first localities of this invasive mussel species from stretches of the Danube in Moldavia, Croatia, Austria and Germany.

References

Hubenov, Z. & Trichkova, T. 2007. *Dreissena bugensis* (Mollusca: Bivalvia: Dreissenidae) – New invasive species to the Bulgarian Malacofauna. Acta Zoologica Bulgarica, 59(2):203-209.

Mienis, H.K. 2006. How long will it take the Quagga mussel *Dreissena bugensis* to reach Western Europe? Ellipsaria, 8(1):8.

Mienis, H.K. 2007. More news about the Quagga mussels in Europe. Ellipsaria, 9(3):7-8.

Mienis, H.K. 2008. Additional news about the presence of Quagga mussels in the Netherlands. Ellipsaria, 10(1):11-12.

Szekeres, J., Szalóky, Z. & Bodolai, K. 2008. [The first data of *Dreissena bugensis* (Andrusov, 1897) from Hungary.] Malacological Newsletter, 26:33-36. (in Hungarian)

Additional Information Concerning the Conquest of Europe by the Invasive Chinese Pond Mussel *Sinanodonta woodiana*. 19. News from Austria, France, Hungary, Moldova, Romania, Serbia and Sweden

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During the second half of 2008 the invasive Chinese Pond mussel *Sinanodonta woodiana* was again in the news in several European countries. The most important information, including the first records from Moldova, is here summarized.

Austria

Sinanodonta woodiana is incorporated in the list of benthic Neozoa present in the rivers and streams of Austria (Moog et al., 2008)

France

Relatively small specimens (8.7-13.5 cm) of the Chinese Pond mussel have been found recently in an eutrophic reservoir the Grand Large, which is part of catchment basin of the river Rhône upstream of Lyon Mouthon, 2008). These mussels are accompanied among others by two other invasive bivalve species *Dreissena polymorpha* (Pallas, 1771) and *Corbicula fluminea* (Müller, 1774) and a native species *Unio pictorum*

(Linnaeus, 1758). *Sinanodonta woodiana* had been recorded since the end of the eighties from various localities in the delta of the Rhône (Girardi & Ledoux, 1989 and Girardi, 2002).

Hungary

During a survey of a stretch of the Danube in Hungary and two of its tributaries, the Hosszúvölgyi stream and the Börzsönyi stream, *Sinanodonta woodiana* was located only at two stations (out of 15) in the Danube just south of Budapest and just north of Pacs (Bódis et al., 2008).

Moldova

In Moldova empty shells of *Sinanodonta woodiana* were found in Lake Manta in 2003 while living specimens were discovered to be present in Lake Beleu in the summer of 2008 (Munjiu & Shubernetski, 2008). Both localities are situated in the catchment basin of the river Prut. Since the latter is connected to the delta of the Danube near the Black Sea, the discovery of the Chinese Pond mussel in that river was only a matter of time. These records are the first ones from Moldavian territory.

Romania

Information is presented about the process of establishment of the Chinese Pond mussel in Romania in general and the Danube in particular (Popa et al., 2008). According to the authors the entire stretch of this major European river was settled by this highly invasive species within a time span of 10 years.

Serbia

A hydro-biological survey of the river Sava carried out in Serbia in 2006 showed that *Sinanodonta woodiana* was abundant in bottom habitats predominated by the presence of sand, fine sand and mud (Paunović et al., 2008). This mussel species was only collected by diving. The authors consider the river Sava as an important part of the Southern Invasive Corridor of Europe.

Sweden

The situation of the Chinese Pond mussel in Sweden has been described recently by von Proschwitz (2008a-b). So far it has been found at two localities: Hjärnarp in 2005 and Askim (southern part of Göteborg) in 2007. They had reached these localities most probably by means of respectively carp and goldfish infected with glochidia of Sinanodonta woodiana. The locality in Askim forms at this moment the northernmost known in Europe.

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New malacological records from Paraná State, Southern Brazil region, with a general synthesis of current knowledge

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Since the year of 2001 (Agudo 2008a; Agudo-Padrón 2008b), we have been developing the continental inventory of freshwater/limnic and terrestrial mollusk fauna present in the territory of Paraná State, Southern Brazil region (Fig. 1), with a total of 133 species and subspecies confirmed (77 terrestrial and 56 freshwater; 23 mussel/clams & 33 gastropods), systematically included in 2 classes, 35 families, and 64 genera (classification based on Bouchet & Rocroi (2005), Poppe & Tagaro (2006), Simone (2006) and Thomé et al (2006, 2007)). Once we incorporate information concerning the regional marine/estuarine species (193 forms), the total number of known species and subspecies will rise to 326 forms .

The chronological results of research previously generated can be found in the contributions of Agudo (2005, 2006 a-c, 2007 a), Agudo-Padrón (2007), Agudo (2007 b, 2008 a-c), and Agudo-Padrón (2008 a-b, 2009).



Figure 1. Geographical location of the Paraná's State, Brazil

Additional registrations of species for the State included, in this opportunity, two not certain aquatic/limnic species of the Alluvial Plain (or of Flood) of the High Paraná River, located in the extreme Northwest of the State, regional Third Plateau (Souza *et al* 2008: 310) (Fig. 1):

Systematic Species List :
Class GASTROPODA
Subclass Caenogastropoda / Prosobranchia
Family THIARIDAE
- *Aylacostoma* sp
Class BIVALVIA
Order VENEROIDA
Family SPHAERIDAE
- *Eupera* sp (the first well-known record)

Finally, some other geographical registrations, referred in the regional specialized literature, including researches in the general State territory (Belz & Netto 2008) and specific localities of the Coastal Plain (Agudo 2008 c: 12; Arruda *et al* 2009)(*), the Southwest ("Chopinzinho") and Central North ("Londrina") regions (Carboni *et al* 2006; Guardia 2006)(**), the Metropolitan region of "Cascavel" (Netto et al 2008; Pereyra *et al* 2008), border places localities of the "Iguazú Waterfalls National Ecological Park" (Rumi *et al* 2005, 2008; Gregoric *et al* 2008), the Alluvial Plain of the High Paraná River, in the Third Plateau (Takeda *et al* 2002; Sorte & Martins-Silva 2008; Souza *et al* 2008), and the organization of a coastal malacological collection in Museum of Natural History (Fraguas *et al* 2002).

(*)For the amphibian slug *Omalonyx matheroni* (Potiez & Michaud, 1835), in the "Inferninho River", Paranaguá …
(**)For the native giant freshwater mussel naiad *Anodontites trapesialis* (Lamarck, 1819) …

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General mollusk fauna of Rio Grande do Sul State, Southernmost Brazil region: a preliminary revision rehearsal

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A brief revision and preliminary bibliographical compilation of the mollusk fauna for the Rio Grande do Sul State is presented in this report, based on the fact that abundant and diversified references exist, included general ecological aspects and specific descriptions, but are dispersed and not always of easy access, seeking to minimize part of this informative deficiency.

Located in the brazilian Southernmost region, Rio Grande do Sul State is the largest geo-political portion of the South area of the country (Fig. 1), geographically close to the remaining States of the brazilian Southern region, Santa Catarina and Paraná and the neighboring countries of Uruguay and Argentina, of the "Atlantic Slope of the Southern Cone of South America", placed in the oriental face of the Andean Mountain range. Occupying a total area of 282.062 km², and an large Atlantic sandy coast with more than 622 kilometers of extension, Rio Grande do Sul possesses a soft, super-humid subtropical, mesothermal climate, with hot summer and without station it evaporates very defined. The annual medium temperature oscillates between 16 and 20°C. The average of the hottest month is between 22ºC and 26°C and the average of the coldest month between 10° and 15°C. The annual pluviometric precipitation varies between 1000 and 1500 mm and the number of frosts a year varies since 1º, in "Torres" - emblem with coast Atlantic of Santa Catarina's State , to the North, to more than 15º in "Santa Vitória do Palmar", in the close interior to the end South of the State.

The Metropolitan area of Porto Alegre, also known as Great Porto Alegre, located between the Central Depression and the portion of the Coastal Plains that outline the hidrographic delta of the Jacuí River, the "Guaíba Lake" and the "Patos Lagoon" (Fig. 1), it gathers 31 of the Municipal districts of RS, in intense process of urban occupation, term that refers to the extension of capital Porto Alegre, forming with its bordering Municipal districts a continuous urban stain, in a mixture of areas typically urban, agricultural rural spaces and representative several remainders of the original natural environment, now integrating 9.800,194 km².

In general, reasonable swinging of 562 species and confirmed subspecies, including 271 continental – 106 freshwater (53 limnic mussels/clams and 53 gastropods – Caenogastropoda/Prosobranchia and Pulmonata) & 165 terrestrial, besides 291 marine forms it is the preliminary general result of this regional analysis.



Figure 1. Rio Grande do Sul State, territory (top) in Brazil, and the Atlantic Slope of the Southern Cone of South America (bottom).

A compilation on some main bibliographical sources of interest follows, seeking to contribute to the regional knowledge of this diversified invertebrate fauna:

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IV. CONTINENTAL TERRESTRIAL FORMS

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First confirmed record of amphibian slugs *Omalonyx* (Gastropoda: Pulmonata: Succineidae) for Santa Catarina's Island, Southern Brazil

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Santa Catarina's Island is the largest islander geographical territory of the Santa Catarina's State. Our malacological inventory, begun in March 1996 (Agudo 2002 a-b), includes a confirmed total of 253 species and subspecies, including 211 marine forms (Agudo & Bleicker 2009) and 42 continental representatives – 13 freshwater / limnic and 29 terrestrial (Agudo 2007; Agudo-Padrón 2008).

On March 30-31 2009, two lots of 18 specimens (7 and 11 animals) of *Omalonyx convexus* (Heynemann, 1868) were collected by us in a strait sandbank stream (drainage channel) close to human residences on "Campeche Beach" (Travessa Manoel Rafael Inácio), Florianópolis city, to the North of "Peri Lagoon" (Agudo 2007:10), coastal SE area of Santa Catarina Island, densely populated by riverside aquatic plants (predominancy of macrophytes *Eichornia azurea* and *Hydrocotyle ranunculoides*), with presence of flotation vegetable species *Pistia stratiotes* and *Spirodela intermedia*, the little limnic snail Planorbidae *Drepanotrema cimex* (Moricand, 1838) and abundant small native tropical fishes Poecilidae, characteristic of this type of aquatic environment in the island. Preserved in liquid by the searching malacologist Janine Oliveira Arruda, a specialist in Succineidae gastropods (Malacology Laboratory, Museum of Science and Technology - MCT, PUCRS, Porto Alegre, RS), on 09/04/2009.

In general, *Omalonyx convexus*, representative pulmonate gastropod species of the genus *Omalonyx* d'Orbigny, 1837 and family Succineidae Beck, 1837 (Thomé et al 2006: 46, 58; Arruda & Thomé 2008 a: 94; Arruda & Thomé 2008 b: 159), is a small Neotropical amphibian slug with an external reduced, flattened nail-shape shell (Simone 2006: 236-fig. 907) that lives on macrophytes and adjacent vegetation in swamps, marshes and floodplains (Arruda & Thomé 2008b:159), usually in polluted waters close to environments modified by humans, and can be found in artificial lakes, dams and even in parks and public squares of cities.

In southernmost Brazil it is present in the Santa Catarina and Rio Grande do Sul states (Thomé et al 2007:26; Agudo-Padrón 2008b). Already in the southern State of Paraná (Agudo 2008 a:10), the genus is represented by the species *Omalonyx matheroni* (Potiez & Michaud, 1835) (Agudo 2008b:12; Arruda et al 2009). In the Santa Catarina's State territory, it has been just listed for the following continental Municipal Districts: São João do Sul (high Mampituba River basin), Criciúma, Paulo Lopes (to the South), and Camboriú (to the North) (Agudo-Padrón 2008

Thus, the present report characterizes the first historical record of an amphibian slug in an islander territory of the Santa Catarina´s State, the smallest geographical portion of the Southern Brazil region (Agudo & Bleicker 2006:8). Elevating to 254 the general inventory of well-known species and subspecies (30 terrestrial) for Santa Catarina's Island.

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Host Identifications or Confirmations

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All transformations at 20° C

Mussel	Host	Average # juveniles/ fish	% Transformation	Days to Transformation	Starting month
Lampsilis fasciola	Longear Sunfish	3	43%	29	August
Ligumia recta	Largemouth Bass	64	38%	25	November
Megalonaias nervosa	Shovelnose Sturgeon	20	24%	28	December
	Black Bullhead	30	56%	28	December
	Black Bullhead	5	12%	20	January
	Yellow Bullhead	253	92%	28	December
	Northern Studfish	174	64%	28	December
	Golden Shiner	2	3%	28	December
	Largemouth Bass	2	12%	28	December
	Green Sunfish	79	54%	28	December
	Green Sunfish	14	64%	26	October
Ptychobranchus fasciolaris	Fantail Darter	3	6%	35	April
	Rainbow Darter	27	*	30	April
Quadrula cylindrica cylindrica	Rainbow Darter	26	8%	25	May
	Striped Shiner	20	3%	25	May

* Not measured

Mollusk Survey of Crystal Creek-Spring Creek Ranches, Blaine County, Idaho, USA

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The Crystal Creek-Spring Creek Ranches cover an area of about 16 km^2 and are located in the floodplain of the Big Wood River near the town of Bellvue in Blaine County, Idaho. We completed two mollusk surveys in the ground-water fed, irrigation supplemented, Willow, Spring, and Crystal creeks. The first was on 13 and 14 May, 2008 and the second completed on 18 and 19 July, 2008. For the May survey we used ocular inspection over approximately 16 kilometers of Willow Creek, Crystal Creek, and Spring Creek following the methods of Young et al. (2001). For the July survey we used an adaptive cluster design (Strayer and Smith 2003) at three locations in Willow Creek based on observations of *Margaritifera falcata* valve fragments from the May survey.

In May we visually inspected all spring creeks on both ranches with viewing buckets and counted a total of 248 *Margaritifera falcata* valve fragments but documented only a single live *M. falcata*. Although shells were found over much of the study area, they were concentrated at four locations; three in the upstream portion of the study area, approximately 2 km from the confluence with the Big Wood River and the fourth in the downstream portion of the study area only 450 meters from the confluence. The single live *M. falcata* was found at our most downstream site. It was positioned on its side on gravel/pebble substrate and measured approximately 6 cm in length.

During the July survey, we sampled a total of 30 1 m^2 quadrats by ocular inspection (i.e. 20% of 150 possible quadrats). From those quadrats, we excavated 30 0.25 m^2 quadrats to a depth of approximately 10 cm (ca. 0.75 m^3 of sediment). No live *Margaritifera falcata* were collected or observed. Molluscan species richness in Willow Creek, based on our collections, is eight species from six families (Table 1). Molluscan species richness was greatest at our most upstream site approximately 2 km above the confluence with the Big Wood River. We also used viewing buckets to survey an approximately 500 meter reach of the Big Wood River above and below the confluence with Willow Creek. No live *M. falcata* or sign of any mussel species was observed.

Table 1. Mollusks collected or observed during this survey from sampling sites on Willow Creek and the Big Wood River, Blaine County, Idaho; May - July, 2008.

Family	**Genus**	**Species**	**Authority**	**Willow Cr. Status**
Ancylidae	*Ferrissia*	*rivularis*	Say, 1817	Rare
Hydrobiidae	*Fluminicola*	*fuscus*	Haldeman, 1847	Abundant
Hydrobiidae	*Potamopyrgus*	*antipodarum*	Gray, 1853	Rare
Lymnaeidae	*Radix*	*auricularia*	Linnaeus, 1758	Wood R. only
Lymnaeidae	*Stagnicola*	*hinkleyi*	Baker, 1906	Wood R. only
Physidae	*Physa*	*gyrina*	Say, 1821	Abundant
Planorbidae	*Gyraulus*	*parvus*	Say, 1817	Rare
Planorbidae	*Planorbella*	*subcrenatum*	Carpenter, 1857	Uncommon
Margaritiferidae	*Margaritifera*	*falcata*	Gould, 1850	Rare
Sphaeriiddae	*Pisidium*	sp.	Pfeiffer, 1821	Uncommon

Numerically, two families, represented by one species each, dominated the molluscan community in Willow Creek; *Fluminicola fuscus* (Haldeman, 1847) (Hydrobiidae) and *Physa gyrina* (Say, 1821) (Physidae). Only one individual each of *Margaritifera falcata*, *Ferrissia rivularis* (Say, 1817), *Potamopyrgus antipodarum* (Gray, 1853) and *Gyraulus parvus* (Say, 1817) was collected. It is assumed that a small population of *F. rivularis* and *G. parvus* exist within the Willow Creek Complex as these species are considered habitat generalists and persist relatively well in degraded habitats. It is also assumed that there is a population of *P. antipodarum* in Willow Creek given the highly invasive potential of this species (Richards et al. 2001) and its presence in nearby Silver Creek (Richards and Lester, 2005). We had hoped to find additional buried or emergent *M. falcata* individuals in those areas with considerable evidence of past utilization (i.e. valve fragments) and/or nearby the collection site of the single live individual. Although we failed to find any additional mussels, we were surprised at the number of species observed and are optimistic with regard to their conservation in Willow Creek.

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An Updated Review of Attempts to Smuggle Freshwater Snails from Thailand into Israel

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Since 2005 inspectors of the Plant Protection and Inspection Services (PPIS) of the Ministry of Agriculture of Israel, stationed at the international Ben-Gurion Airport, have so far come across nine cases of attempts to smuggle life freshwater snails by temporary labourers arriving in Israel from Bangkok.

The first discovery of life snails among the personal belongings of these labourers took place on 17 March 2005, the most recent one on 27 February 2009. The quantity of intercepted snails ranged from less than ten specimens to almost 2 kg (about 500 specimens!) in a single batch and consisted of one to three different species. These snails are being confiscated because not only the whole phylum Mollusca is protected by law in Israel, but it is also prohibited to import molluscs alive or dead without a proper permit. So far seven different species have been discovered. They are enumerated here in systematic order.

GASTROPODA
Family VIVIPARIDAE
Filopaludina (Filopaludina) sumatrensis polygramma (von Martens, 1860)
Filopaludina (Siamopaludina) martensi cambodjensis (Mabille & Le Mesle, 1869)
Filopaludina (Siamopaludina) martensi martensi (von Frauenfeld, 1865)
Family AMPULLARIIDAE
Pila ampullacea (Linnaeus, 1758)
Pila gracilis (Lea, 1856)
**Pomacea canaliculata* (Lamarck, 1819)
**Pomacea insularum* (d'Orbigny, 1839)
*An invasive species from South America, which has become naturalized in Thailand.

All seven gastropods belong to relatively large species which are eaten all over Thailand. Since similar, edible species are not available in Israel, new or returning Thai workers try to smuggle them into Israel with the intention to grow them in aquatic habitats in the vicinity of the complexes were they are living.

The diversity of the snail species, which they try to smuggle into Israel, depends on the area where they live in Thailand. The different species combination of the various interceptions has been tabulated below.

Date	17.03 2005	16.11 2005	02.01 2006	09.04 2006	20.04 2006	04.12 2006	22.02 2007	20.02 2008	27.02 2009
PPIS mollusc sample #	199	205	210	214	213	218	222	244	259
Species									
Filopaludina sumatrensis polygramma	-	-	-	-	-	-	-	-	+
Filopaludina martensi cambodjensis	-	-	+	-	-	-	-	-	-
Filopaludina martensi martensi	+	+	-	+	+	+	-	-	+
Pila ampullacea	-	-	-	+	+	+	+	+	+
Pila gracilis	-	-	-	-	-	-	-	+	-
Pomacea canaliculata	-	-	+	-	-	-	-	-	-
Pomacea insularum	-	-	+	-	-	-	-	-	-
Total	1	1	3	2	2	2	1	2	3

The problem with these interceptions is not only that they have taken place already nine times, but more seriously is the fact that we have no idea how many times these workers succeeded in smuggling such snails into Israel. If these snails manage to get a foothold in Israel, then most likely they may have a negative effect on the whole aquatic biodiversity in general and the local mollusc fauna in particular. The latter is already suffering from pollution and a general lack in rainfall during the past 10 years.

Also a health risk is involved: all species of *Filopaludina* and *Pila* living in Thailand are well-known intermediate hosts of trematodes, which may cause among others Echinostomiasis in man, a snail-borne disease not known in Israel (Brandt, 1974).

Acknowledgements
I like to thank Dr. Shmuel Moran, who recently retired from the PPIS, Ministry of Agriculture, and Mrs. Svetlana Vaisman of the same institute for submitting at least part of the intercepted molluscs for identification and permanent storage in either the Mollusc Collection of the Tel Aviv University or the Hebrew University of Jerusalem.

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Spectaclecase (*Cumberlandia monodonta*) host studies produce more negative results

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Despite exhaustive trials by our laboratories and others (*e.g.*, Baird (2000)), no suitable hosts have been identified for spectaclecase (Watters, 2008).

We conducted spectaclecase glochidia host suitability trials using standard methods (Zale and Neves, 1982). Gravid spectaclecase and silver lamprey were collected from the St. Croix River and other in/vertebrates were collected from streams and rivers outside the watershed. Host suitability trials were conducted at the University of Minnesota Wet Laboratory and at the Grantsburg High School Biology Laboratory during 2007. Treated subjects were inoculated with at least 10-20 glochidia and transferred to clean aquaria. Inoculated subjects were held in aquaria at 19°C ± 2 °C and fed at least three times a week. Aquaria were generally siphoned and siphonate checked for presence of glochidia and juveniles three times a week. A suitable host was verified if we observed glochidia encapsulation and metamorphosis to the juvenile stage.

We exposed a variety of vertebrates and invertebrates to spectaclecase glochidia but did not observe metamorphosis. Seven fish species were tested at the University of Minnesota and fourteen additional species including an agnathan fish, two amphibians, two gastropods, two crayfish, two ephemeropterans, one plecopteran, and four odonates were tested at Grantsburg High School (Table 1, next page). Although each of the 14 non-fish test subjects remained in the infestation tank for at least a 30 minute period, glochidial attachment was minimal. Using a stereoscope, we observed that anisopteran odonates anal respiration resulted in the near continuous inspiration and expiration of the neutrally buoyant glochidia without any apparent attachment. Despite direct contact with zygopteran odonate, ephemeropteran and plecopteran external gills, we observed no attachment. Rather, glochidia attached only to tibial setae on the crayfish and odonates, antennae and caudal cerci on the plecopterans, and not at all on ephemeropterans or gastropods. We did not directly observe glochidia on the internal gills of either the lampreys or the tadpoles, but the number of sloughed glochidia recovered from each suggests some attachment did occur. Ultimately, no test subjects facilitated glochidia metamorphosis, nor did we observe growth of any sloughed glochidia.

Several people and organizations assisted with this project. We thank the MN DNR ‘mussel survey team’ (Ben Dickinson, Mike Davis, Paula Frank, and others) and Vanessa Kleiss, Mitchell Evenson, Nicole Davis, Lydia Benge-Briggs, Charlie Falk, Tyler Myers, Ingrid Ames, Vanessa McKinley, Kevin Johnson, and many others in the 2007 Biology 2 classes at Grantsburg High School. Thanks also to the USFWS for funding this study and Wisconsin DNR for administering the project.

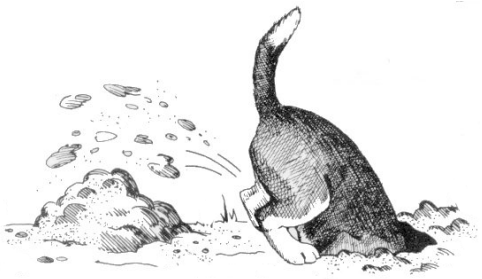
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Table 1: Spectaclecase host suitability trial results

Test Host	Trial	No. of individuals inoculated	No. of survivors	Glochidia attachment period (days)
Fish				
pallid sturgeon (*Scaphirhynchus albus*)	Trial 1	1	1	1-4
	Trial 2	2	2	1-4
lake sturgeon (*Acipenser fulvescens*)	Trial 1	2	2	1-4
	Trial 2	3	3	1-4
longnose gar (*Lepisosteus osseus*)		2	2	3-6
shortnose gar (*Lepisosteus platostomus*)		3	3	3-6
American eel (*Anguilla rostrata*)		3	3	4-13
gizzard shad (*Dorosoma cepedianum*)		1	1	4-7
mottled sculpin (*Cottus bairdii*)		5	5	4-7
silver lamprey (*Ichthyomyzon unicuspis*)		2	2	1-8
Amphibians				
green frog tadpole (*Rana clamitans*)		20	16	1-7
mudpuppy (*Necturus maculosus*)		1	1	1-7
Gastropods				
physa snail (*Physa* sp.)		10	**	**
viviparus snail (*Viviparus* sp.)		5	**	**
Crustaceans				
rusty crayfish (*Orconectes rusticus*)		4	3	1-7
native crayfish (*Orconectes* sp.)		2	2	1-4
Insects				
humpback mayfly (*Baetisca* sp.)		20	**	**
"hex"mayfly (*Hexagenaia* sp.)		15	**	**
stonefly (*Pteronarcys* sp.)		2	2	1-4
bluet damselfly (*Enallagma* sp.)		2	**	**
dancer damselfly (*Argia* sp.)		2	**	**
stygian shadowdragon (*Neurocordulia yamaskanensis*)		25	15*	1-8
swift river cruiser (*Macromia illinoiensis*)		16	8*	1-15

* Terminal instars emerged as flying adults before the end of study, no mortalities ** No glochidial attachment observed

Helpful Hints from Hoppy:

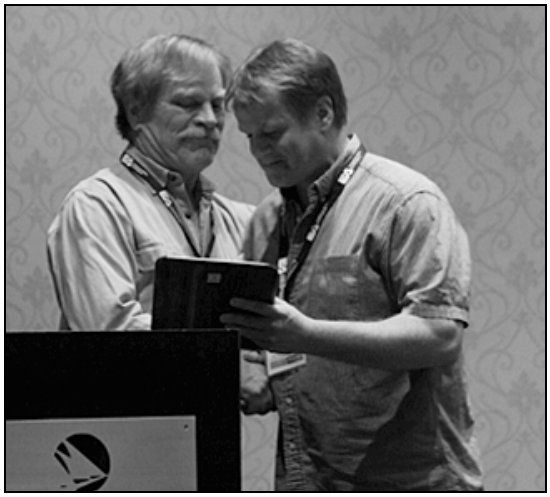


Hoppy Says — my eternal message for dedicated shellheads…never give up digging. Farewell!

Submitted by Steve Ahlstedt

FMCS 2009 Awards

Photos from Mark Hove



Lifetime Achievement Award: James Layzer (on left)



Lifetime Achievement Award: Gerrie Mackie



Meritorious Service Award: Heidi Dunn



Best Student Platform Award: Jason Mays



Honorable Mention Student Platform Award: Dan Allen



Honorable Mention Student Poster Award: Nathan Johnson
Not pictured: Best Student Poster Award: Joe Daraio
Presenter is Teresa Newton, Awards Committee Co-Chair.

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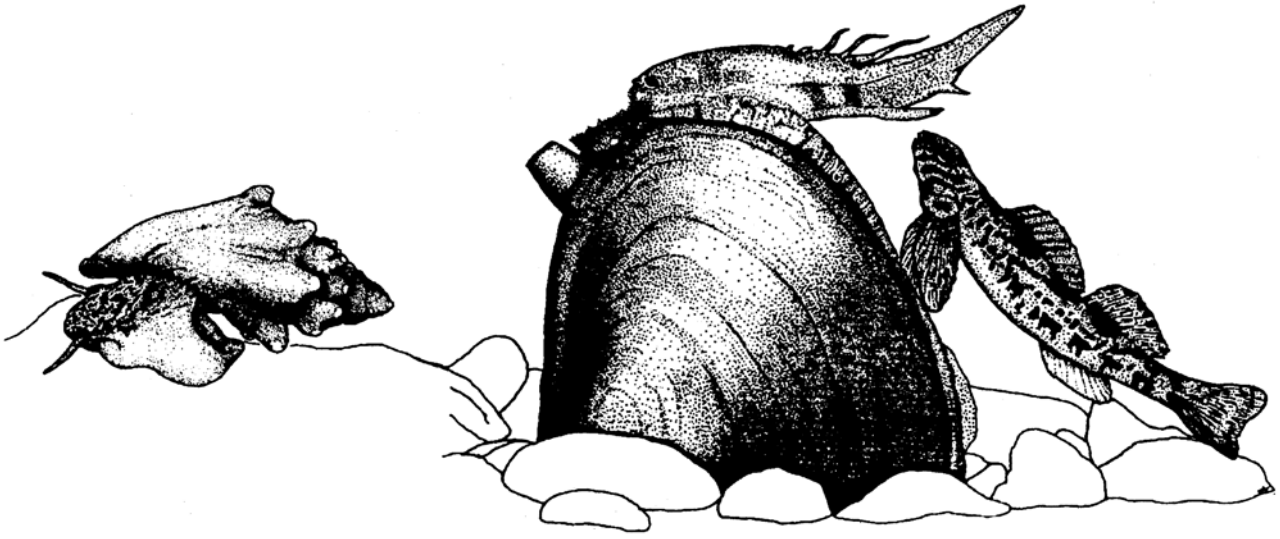
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Freshwater Mollusk Conservation Society



…dedicated to the advocacy and conservation science of freshwater molluscan resources

Attachment 2

Comments and Responses on the Draft Threatened and Endangered Species Desktop Assessment

Commenting Entity	Date of Comment & FERC Accession Number	Comment – Threatened and Endangered Species	Alabama Power Response
Federal Energy Regulatory Commission (FERC) Note: footnotes included in the original letter have been omitted from this table	6/10/2020 20200610-3059	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 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, northern long-eared bat, pool sprite, and white fringeless orchid) on the official species list for the project. 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. 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.	See Alabama Power's response filed July 10, 2020 (Accession No. 20200710-5122).

Commenting Entity	Date of Comment & FERC Accession Number	Comment – Threatened and Endangered Species	Alabama Power Response
FERC	Questions submitted in advance of ISR meeting	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.	To facilitate FERC's review of these maps, Alabama Power is providing GIS shapefiles used for the T&E Study and of the requested information (e.g., timber harvest areas, wildlife management areas, etc.). Shapefiles featured in maps and used to determine survey locations for T&E species are can be found on the Harris Relicensing website. Locations of shapefiles from public sources are located below: • Current Habitat Ranges of T&E Species featured in Species Habitat Range Maps, Appendix B (This link leads to the page for Palezone Shiner, but a shapefile containing the current habitat range for all species is available here) (USFWS, accessed October 2019) https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=E04E • Designated Critical Habitat of T&E Species featured in Species Habitat Range Maps, Appendix B (USFWS, accessed October 2019) https://ecos.fws.gov/ecp/report/table/critical-habitat.html • Streams featured in Species Habitat Range Maps, Appendix B (USGS, accessed October 2019) https://viewer.nationalmap.gov/basic/#/ • Limestone areas, granite, karst landscape featured in Species Habitat Range Maps, Appendix B (GSA, accessed October 2019) https://www.gsa.state.al.us/gsa/geologic/hazards/geospatial • Talladega National Forest featured in Species Habitat Range Maps, Appendix B (USDA, accessed October 2019) https://data.fs.usda.gov/geodata/edw/datasets.php?dsetCategory=boundaries • Forested areas and coniferous lands featured in Species Habitat Range Maps, Appendix B (MLRC, accessed October 2019) https://www.mrlc.gov/data?f%5B0%5D=category%3Aland%20cover&f%5B1%5D=region%3Aconus • Alabama wetlands used to determine survey locations for White Fringeless Orchid in the White Fringeless Orchid (*Platanthera integrilabia*) and Price's Potato-bean (*Apios priceana*) Survey Report, Appendix F (USFWS, accessed September 2020) https://www.fws.gov/wetlands/Data/State-Downloads.html • Skyline Wildlife Management Area (ADCNR, accessed November 2020) https://www.outdooralabama.com/hunting/wildlife-management-areas

Commenting Entity	Date of Comment & FERC Accession Number	Comment – Threatened and Endangered Species	Alabama Power Response
FERC		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 consulted with USFWS, ADCNR, and ALNHP 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 were performed for the Palezone Shiner due to information from USFWS regarding the possibility of existence in some tributaries within Skyline (meeting summary from HAT 3 meeting held on August 27, 2019). Surveys for Finelined Pocketbook were performed due to existing critical habitat in the upper Tallapoosa River above Lake Harris (meeting summary from HAT 3 meeting held on August 27, 2019). Surveys for Red-cockaded Woodpecker were performed due to the potential for suitable habitat in mature pine stands within the Project Boundary at Lake Harris and recommendation for surveys by the USFWS and ADCNR (emails dated August 7, 2020). Surveys were conducted for White Fringeless Orchid due to the presence of suitable habitat within the Project Boundary (emails dated July 24, 2020 and August 4, 2020) and survey methods for the White Fringeless Orchid were developed in consultation with the USFWS (emails dated August 26, 2020). Surveys for Price's Potato-bean were not requested, but Alabama Power conducted surveys for this species in the Project Boundary at Skyline due to historical records of a known population at Little Coon Creek near the Project Boundary. Information on rationale for conducting field surveys for Finelined Pocketbook, Palezone Shiner, White Fringeless Orchid, Price's Potato-bean, and Red-cockaded Woodpecker, along with consultation with USFWS, ADCNR, and ALNHP are provided in the Final T&E Species Study Report. The field survey reports are attached as appendices to the Final T&E Species Study Report.
FERC		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 Final T&E Species Study Report contains a reference in the Methods section to the ECOS and the IPaC. An IPaC list was used to identify species to include in the desktop assessment and potential field surveys.
FERC		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?	Information was added to the Red-cockaded Woodpecker (*Picoides borealis*) Habitat Survey Report, which is appended to the Final T&E Species Study Report, to explain how the surveys were completed and what components were important in determining habitat suitability for the Red-cockaded Woodpecker.
FERC		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.).	Explanation was provided in Alabama Power's ISR Meeting Summary (Accession No. 2020-05-12-5083). Results of the Finelined Pocketbook surveys are appended to the Final T&E Species Study Report. Reasons for not surveying the Southern Pigtoe are also included in Section 3.12 of the Final T&E Species Study Report; however, an area that intersects Southern Pigtoe's current habitat range (Ketchepedrakee Creek) was included in Finelined Pocketbook surveys, but no Southern Pigtoe specimens were found (Finelined Pocketbook (*Hamiota altilis*) Survey Report (Appendix E)).

Commenting Entity	Date of Comment & FERC Accession Number	Comment – Threatened and Endangered Species	Alabama Power Response
FERC		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?	Explanation was provided in Alabama Power's ISR Meeting Summary (Accession No. 2020-05-12-5083). This response is also included in the Final T&E Species Study Report.
FERC		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 correction is in the Final T&E Species Study Report.
FERC		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-streamlinedchecklist.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 37 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").	Explanation was provided in Alabama Power's ISR Meeting Summary (Accession No. 2020-05-12-5083). Since filing the ISR Meeting Summary, Alabama Power consulted with the USFWS regarding the NLEB streamlined consultation (emails dated June 22 and June 23, 2020). The USFWS indicates that the streamlined consultation for NLEB isn't appropriate due to the overlap in range of the Indiana Bat and NLEB, specifically within the Project Boundary at Lake Harris. This information and information on best management practices (BMPs) for bats and timber management protocol will be provided in the Wildlife Management Report. As previously noted, Alabama Power is providing all GIS shapefiles to FERC for its analysis in lieu of updating maps. Shapefiles featured in maps and used to determine survey locations for T&E species are can be found on the Harris Relicensing website. Locations of shapefiles from public sources are located below: • Current Habitat Ranges of T&E Species featured in Species Habitat Range Maps, Appendix B (This link leads to the page for Palezone Shiner, but a shapefile containing the current habitat range for all species is available here) (USFWS, accessed October 2019) https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=E04E • Designated Critical Habitat of T&E Species featured in Species Habitat Range Maps, Appendix B (USFWS, accessed October 2019) https://ecos.fws.gov/ecp/report/table/critical-habitat.html • Streams featured in Species Habitat Range Maps, Appendix B (USGS, accessed October 2019) https://viewer.nationalmap.gov/basic/#/ • Limestone areas, granite, karst landscape featured in Species Habitat Range Maps, Appendix B (GSA, accessed October 2019) https://www.gsa.state.al.us/gsa/geologic/hazards/geospatial • Talladega National Forest featured in Species Habitat Range Maps,

Commenting Entity	Date of Comment & FERC Accession Number	Comment – Threatened and Endangered Species	Alabama Power Response
		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).	Appendix B (USDA, accessed October 2019) https://data.fs.usda.gov/geodata/edw/datasets.php?dsetCategory=boundaries • Forested areas and coniferous lands featured in Species Habitat Range Maps, Appendix B (MLRC, accessed October 2019) https://www.mrlc.gov/data?f%5B0%5D=category%3Aland%20cover&f%5B1%5D=region%3Aconus • Alabama wetlands used to determine survey locations for White Fringeless Orchid in the White Fringeless Orchid (*Platanthera integrilabia*) and Price's Potato-bean (*Apios priceana*) Survey Report, Appendix F (USFWS, accessed September 2020) https://www.fws.gov/wetlands/Data/State-Downloads.html • Skyline Wildlife Management Area (ADCNR, accessed November 2020) https://www.outdooralabama.com/hunting/wildlife-management-areas
FERC		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?	Explanation was provided in Alabama Power's ISR Meeting Summary (Accession No. 2020-05-12-5083). A footnote referencing the botanical inventory was added to the Final T&E Species Study Report.
FERC		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?	Explanation was provided in Alabama Power's ISR Meeting Summary (Accession No. 2020-05-12-5083). Surveys for White Fringeless Orchid were conducted and the survey report is provided as an appendix to the Final T&E Species Study Report.
FERC		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.	Explanation was provided in Alabama Power's ISR Meeting Summary (Accession No. 2020-05-12-5083). Surveys for Price's Potato-bean were conducted and the report is provided as an appendix to the Final T&E Species Study Report.
FERC		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.	Explanation was provided in Alabama Power's ISR Meeting Summary (Accession No. 2020-05-12-5083). A footnote was inserted next to the reference for the figure in section 3.19 of the Final T&E Species Study Report**.**

Commenting Entity	Date of Comment & FERC Accession Number	Comment – Threatened and Endangered Species	Alabama Power Response
FERC		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.	Explanation was provided in Alabama Power's ISR Meeting Summary (Accession No. 2020-05-12-5083); however, the timber harvesting protocols will be filed with the Wildlife Management Plan rather than the Final T&E Species Study Report, as originally stated in the ISR Meeting Summary. "Sensitive time periods" in the context of timber harvesting refers to the summer roosting periods of the Indiana Bat and Northern Long-eared Bat. Surveys for the Palezone Shiner were completed and the Palezone Shiner Survey Report is appended to the Final T&E Species Survey Report.
FERC		Could 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?	Explanation was provided in Alabama Power's ISR Meeting Summary (Accession No. 2020-05-12-5083). Information was also added to the Final T&E Species Study Report.
FERC		Is IPaC 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.	Explanation was provided in Alabama Power's ISR Meeting Summary (Accession No. 2020-05-12-5083). Information was also added to the Final T&E Species Study Report.
FERC		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.	Explanation was provided in Alabama Power's ISR Meeting Summary (Accession No. 2020-05-12-5083). Since filing the ISR Meeting Summary, Alabama Power consulted with the USFWS regarding the NLEB streamlined consultation (emails dated June 22 and June 23, 2020). The USFWS indicates that the streamlined consultation for NLEB isn't appropriate due to the overlap in range of the Indiana Bat and NLEB, specifically within the Project Boundary at Lake Harris. This information and information on best management practices (BMPs) for bats and timber management protocol will be provided in the Wildlife Management Report. As previously noted, Alabama Power is providing all GIS shapefiles to FERC for its analysis in lieu of updating maps.
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	Throughout the Threatened and Endangered Species Desktop Assessment, capitalize species common names. When a species is first used in the document, include the scientific name in parentheses. The common name can then be used in the remaining sections of the document.	Species common names have been capitalized throughout the document and scientific names have been provided in parenthesis after first use of common names.
ADCNR		Range Figures included in the Threatened and Endangered Species Desktop Assessment illustrating aquatic species habitat ranges, include the tributaries and streams names on the maps.	Tributary and stream names have been added to all applicable maps.

Commenting Entity	Date of Comment & FERC Accession Number	Comment – Threatened and Endangered Species	Alabama Power Response
ADCNR		On page 6, Table 1-1 of the Threatened and Endangered Species Desktop Assessment in Scientific names column change "*Villosa trabalis*" to "*Venustaconcha trabalis*", "*Quadrula cylindrica*" to "*Theliderma cylindrica*". Correct error for scientific name of Shiny Pigtoe to "*Fusconaia cor*" (Williams *et al.* 2017).	Scientific names have been updated for the Cumberland Bean, Rabbitsfoot, and Shiny Pigtoe. The scientific name for Little Ampthianthus (*Gratiola amphiantha*) has also been updated.
ADCNR		On page 6, Table 1-1 of the Threatened and Endangered Species Desktop Assessment all of the species listed in this table are now State Protected, see Alabama Regulations relating to game, fish and furbearing animals. 2019-2020. Alabama Department of Conservation and Natural Resources, with the exception of the plant species listed, Little Amphianthus, White Fringeless Orchid, Price's Potato-bean and Morefield's Leather Flower.	All species, excluding the listed plant species, have been identified as state protected.
ADCNR		On page 6, Table 1-1 of the Threatened and Endangered Species Desktop Assessment change column heading "Occurrence" column to "Recent Documented Occurrence in Harris Project Boundary". Within the document "Recent" should be defined, for example, "In this report any documented occurrence within the past 25 years will be classified as a Recent Documented Occurrence".	The column title was changed to "Recent Documented Occurrence (1995-2020) in Project Boundary."
ADCNR		On page 6, Table 1-1 of the Threatened and Endangered Species Desktop Assessment, Williams *et al.* (2008) is cited but this resource is not utilized anywhere else in the document. Recommend including the most up to date resources in the following species descriptions.	This resource is now cited in section 3.5 – Alabama Lampmussel.
ADCNR		On Page 9, 3.2 Palezone Shiner section of the Threatened and Endangered Species Desktop Assessment if an updated survey is proposed for this species suggest including and discussing or note that it will be included in an additional Phase 2 study report.	Palezone Shiner surveys were conducted in June 2020.
ADCNR		On page 10, 3.4 Finelined Pocketbook section of the Threatened and Endangered Species Desktop Assessment, include "primarily" in the statement, "this mussel lives in large to small streams in habitats "primarily" above the fall line." See Williams *et al.* 2008 distribution map and distribution descriptions.	"Primarily" was included in this statement.

Commenting Entity	Date of Comment & FERC Accession Number	Comment – Threatened and Endangered Species	Alabama Power Response
ADCNR		On page 10, 3.4 Finelined Pocketbook section of the Threatened and Endangered Species Desktop Assessment, include, if any, the last mussel survey completed in the Tallapoosa Harris Tailrace and tributaries. Include a statement indicating if a mollusk tailrace study has been considered in the study plan development process and why it was not deemed necessary for this species.	Alabama Power has no records indicating that a tailrace survey has ever been performed. The tailrace is not located within the current habitat range of this species.
ADCNR		On page 10, 3.4 Finelined Pocketbook section of the Threatened and Endangered Species Desktop Assessment, a statement should be included notifying that ADCNR and USFWS are currently reintroducing the Finelined Pocketbook into suitable historical habitats within the state (USFWS 2019).	The following statement was added to Section 3.4: “The ADCNR and USFWS are currently reintroducing the Finelined Pocketbook into suitable historical habitats within the state (USFWS 2019b).”

Commenting Entity	Date of Comment & FERC Accession Number	Comment – Threatened and Endangered Species	Alabama Power Response
ADCNR		On page 10, 3.4 Finelined Pocketbook section of the Threatened and Endangered Species Desktop Assessment, the reasons for decline could be updated and improved by summarizing statements from USFWS (2019), Nine Mobile River Basin mussels (Finelined Pocketbook (*Hamiota (=Lampsilis) altilis*), Orangenacre Mucket (*Hamiota (=Lampsilis) perovalis*), Alabama Moccasinshell, (*Medionidus acutissimus*), Coosa Moccasinshell (*Medionidus parvulus*), Southern Clubshell (*Pleurobema decisum*), Dark Pigtoe *(Pleurobema furvum*), Southern Pigtoe (*Pleurobema georgianum*), Ovate Clubshell (*Pleurobema perovatum*), Triangular Kidneyshell (*Ptychobranchus greenii*)) 5-year review. This review states that suitable habitats and water quality, free of excessive sedimentation and other pollutants, are required for Finelined Pocketbook. The primary cause of curtailment of range and fragmentation of habitat for these mussel species has been contributed to the historic construction of dams and impoundment of large reaches of major river channels (Federal Register 58 FR 14330). Although most of these actions took place in the past, the impacted conditions and habitat continue to affect the species. In recent years, some improvements have been made to improve riverine conditions. For example, flow improvements have been made below Weiss Dam on the Coosa River that benefit existing populations of Southern Clubshell. Watershed-specific threats continue to negatively impact the species. These threats include: 1) coal mining activities 2) oil and gas exploration 3) water withdrawal 4) hypolimnetic discharges 5) poor water quality due to insufficient releases from dams 6) instream aggregate mining 7) navigation channel maintenance activities (8) agricultural practices that degrade water quality by increasing nutrients, herbicide/surfactant compounds, and hormones in surface waters; (9) hydropeaking dams that alter downstream flow conditions, water temperatures, and dissolved oxygen (10) increasing urban development that degrades water quality and stream geomorphology; and (11) climate change, which is expected to result in more frequent and extreme dry and wet years in the Southeast over the next century.	Citation for Finelined Pocketbook 5-year review (USFWS 2008) was removed and replaced with the reference for the 5-year review of nine mobile river basin mussels (USFWS 2019a). The following statement was added to Section 3.12: "The historic construction of dams and impoundments along large reaches of river channels is the primary cause of the declination in Finelined Pocketbook's distribution and population size and continues to be a major threat to this species' persistence (USFWS 2019b). This species continues to be imperiled due to a range of threats, including water withdrawal, water quality degradation including sedimentation released from dams and agricultural runoff, downstream flow alterations caused by hydropeaking dams, and climate change (USFWS 2019b)."

Commenting Entity	Date of Comment & FERC Accession Number	Comment – Threatened and Endangered Species	Alabama Power Response
ADCNR		On page 10, 3.4 Finelined Pocketbook section of the Threatened and Endangered Species Desktop Assessment, change statement “No populations were identified within the Project Boundary at Lake Harris, but future surveys have been proposed by Alabama Power.” to “To date, no populations were identified within the Project Boundary at Lake Harris, but surveys focused on the 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 are currently being conducted by Alabama Power and USFWS.”	This statement was updated. Details on the methodology of surveys for Finelined Pocketbook are included in the Finelined Pocketbook (*Hamiota altilis*) Survey Report, Appendix E.
ADCNR		On page 11, 3.5 Alabama Lampmussel section of the Threatened and Endangered Species Desktop Assessment, a statement should be included notifying that ADCNR and USFWS is currently reintroducing the Alabama Lampmussel into suitable historical habitats within the state (USFWS 2012).	The following Statement was added to Section 3.5: "The ADCNR and USFWS is currently reintroducing the Alabama Lampmussel into suitable historical habitats within the state (USFWS 2012)."
ADCNR		On page 11, 3.5 Alabama Lampmussel section of the Threatened and Endangered Species Desktop Assessment, reasons for imperilment should be updated and improved summarizing statements from USFWS released a Five-Year Review for the species (USFWS 2012).	The following was added to Section 3.5: "This species is imperiled due to water quality degradation primarily caused by agricultural runoff, severely restricted distribution, rarity, and vulnerability to habitat degradation ((USFWS 2012). Habitat degradation is the leading cause of the decline for this species (USFWS 2012). Unauthorized removal of gravel from the Paint Rock River drainage basin results in degradation of Alabama Lampmussel habitat (USFWS 2012). Factors that have the potential to affect this species’ persistence include droughts, toxic spills, and fish barriers which restrict freshwater mussel distribution (USFWS 2012)."
ADCNR		On page 11, 3.5 Alabama Lampmussel section of the Threatened and Endangered Species Desktop Assessment, include that in laboratory trials Alabama Lampmussel glochidia have been found to utilize Rock Bass (*Ambloplites rupestris*), Green Sunfish (*Lepomis cyanellus*), Bluegill (*Lepomis macrochirus*), Smallmouth Bass (*Micropterus dolomieu*), Spotted Bass (*Micropterus punctulatus*), Largemouth Bass (*Micropterus salmoides*), and Redeye Bass (*Micropterus coosae*) as host fish and that Banded Sculpin (Cottus carolinae) appear to be marginal hosts (Williams et. Al. 2008).	The following was added to Section 3.5: "In laboratory trials Alabama Lampmussel glochidia have been found to utilize Rock Bass (*Ambloplites rupestris*), Green Sunfish (*Lepomis cyanellus*), Bluegill (*Lepomis macrochirus*), Smallmouth Bass (*Micropterus dolomieu*), Spotted Bass (*Micropterus punctulatus*), Largemouth Bass (*Micropterus salmoides*), and Redeye Bass (*Micropterus coosae*) as host fish and that Banded Sculpin (*Cottus carolinae*) appear to be marginal hosts (Williams et. Al. 2008)."
ADCNR		On page 12, 3.6 Cumberland Bean section of the Threatened and Endangered Species Desktop Assessment, a statement should be included notifying that ADCNR and USFWS is currently reintroducing the Cumberland Bean into suitable historical habitats within the state (USFWS 2020).	The following statement was added to Section 3.6: "The ADCNR and USFWS is currently reintroducing the Cumberland Bean into suitable historical habitats within the state (USFWS 2020)."

Commenting Entity	Date of Comment & FERC Accession Number	Comment – Threatened and Endangered Species	Alabama Power Response
ADCNR		On page 12, 3.6 Cumberland Bean section of the Threatened and Endangered Species Desktop Assessment, reasons for imperilment should be updated and improved summarizing statements from USFWS released a Five-Year Review for the species (USFWS 2020).	The following was added to Section 3.6: "Factors contributing to the decline of this species includes impoundments, siltation, and pollution (USFWS 2020). Limited distribution and rarity make it vulnerable to extinction (USFWS 2020). Factors that have the potential to affect this species' persistence include changes in land use, pollution, contaminant spills, resource extraction, and siltation (USFWS 2020)."
ADCNR		On page 12, 3.7 Fine-Rayed Pigtoe section of the Threatened and Endangered Species Desktop Assessment, reasons for species decline should be updated and improved summarizing statements from USFWS released a Five-Year Review for the species (USFWS 2013b).	The following was added to Section 3.7: "Factors contributing to the decline of this species includes impoundment, siltation, and pollution (USFWS 2013a).The Fine-rayed Pigtoe's small population size and limited geographic distribution make it vulnerable to stochastic disturbances and decreased fitness from reduced genetic diversity (USFWS 2013a). Factors that have the potential to affect this species' persistence include accidental chemical releases and spills and other human-induced changes (USFWS 2013a)."
ADCNR		On page 13, 3.8 Pale Lilliput section of the Threatened and Endangered Species Desktop Assessment, a statement should be included notifying that ADCNR and USFWS is currently reintroducing the Pale Lilliput Mussel into suitable historical habitats within the state (USFWS 2011).	The following statement was added to Section 3.8: "The ADCNR and USFWS is currently reintroducing the Pale Lilliput Mussel into suitable historical habitats within the state (USFWS 2011)."
ADCNR		On page 13, 3.8 Pale Lilliput section of the Threatened and Endangered Species Desktop Assessment, reasons for imperilment should be updated and improved summarizing statements from USFWS released a Five-Year Review for the species (USFWS 2011).	The following was added to section 3.8: " The Pale Lilliput mussel is vulnerable to extinction due to extremely limited distribution, rarity, and susceptibility to habitat degradation (USFWS 2011). Unauthorized removal of gravel from the Paint Rock River drainage basin results in degradation of Alabama Lampmussel habitat (USFWS 2011). Factors that have the potential to affect this species' persistence include droughts, toxic spills, and fish barriers which restrict freshwater mussel distribution (USFWS 2011)."
ADCNR		On page 13, 3.8 Pale Lilliput section of the Threatened and Endangered Species Desktop Assessment, include, in laboratory trials by ADCNR, Pale Lilliput glochidia have been found to utilize Northern Studfish (*Fundulus catenatus*), Blackspotted Topminnow (*Fundulus olivaceus*) and Blackstripe Topminnow (*Fundulus notatus*) as primary hosts. (Fobian *et al.* 2015)	The following statement was added to Section 3.8: "In laboratory trials by ADCNR, Pale Lilliput glochidia have been found to utilize Northern Studfish (*Fundulus catenatus*), Blackspotted Topminnow (*Fundulus olivaceus*) and Blackstripe Topminnow (*Fundulus notatus*) as primary hosts. (Fobian et al. 2015)."
ADCNR		On page 13, 3.9 Rabbitsfoot section of the Threatened and Endangered Species Desktop Assessment, a statement should be included notifying that ADCNR and USFWS is currently reintroducing the Rabbitsfoot into suitable historical habitats statewide.	The following statement was added to Section 3.9: "The ADCNR and USFWS is currently reintroducing the Rabbitsfoot into suitable historical habitats statewide (ADCNR 2020)."

Commenting Entity	Date of Comment & FERC Accession Number	Comment – Threatened and Endangered Species	Alabama Power Response
ADCNR		On page 13, 3.9 Rabbitsfoot section of the Threatened and Endangered Species Desktop Assessment, include, suitable fish hosts for Rabbitsfoot populations west of the Mississippi River include Blacktail Shiner (*Cyprinella venusta*) from the Black and Little rivers and Cardinal Shiner (*Luxilus cardinalis*), Red Shiner (*Cyprinella lutrensis*), Spotfin Shiner (*Cyprinella spiloptera*), and Bluntface Shiner (*Cyprinella camura*) from the Spring River, but host suitability information is lacking for most of the eastern range (Fobian 2007). A host study by ADCNR in 2011, found Scarlet Shiner (*Lythrurus fasciolari*), Whitetail Shiner (*Cyprinella galactura*) and Striped Shiner (*Luxilus chrysocephalus*) to be sympatric hosts with Rabbitsfoot from Paint Rock River, AL. Marginal minnow hosts from studies have included Central Stoneroller (*Campostoma anomalum*), Emerald Shiner (*Notropis atherinoides*), Rosyface Shiner (*Notropis rubellus*), Bullhead Minnow (*Pimephales vigilax*) and Rainbow Darter (*Etheostoma caeruleum*), but not in all stream populations tested (Fobian 2007, Watters *et al.* 2005).	This statement was added to Section 3.9
ADCNR		On page 14, 3.10 Snuffbox section of the Threatened and Endangered Species Desktop Assessment, update and include that in 2019, USFWS released a Five-Year Review for the species (USFWS 2019b). Reasons for imperilment could be added and improved summarizing statements from this document as well.	The following statements was added to Section 3.10: "The USFWS has a Five-Year Review for the Snuffbox mussel (USFWS 2018a)." The following was added to Section 3.10: "This species' initial and current imperilment is caused by adverse effects from construction impoundments, including destruction, modification, and curtailment of habitat range (USFWS 2018a). Since its listing, five dams have been removed on streams inhabited by Snuffbox mussel, but status improvements have not been documented in restored reaches of inhabited streams (USFWS 2018a). Other factors that continue to effect Snuffbox populations are water quality degradation caused by agricultural runoff, municipal effluents, industrial sources, and spills (USFWS 2018a). Reduction in Snuffbox range include dredging and channelization, oil and gas production, and development (USFWS 2018a). "
ADCNR		On page 15, 3.11 Shiny Pigtoe Mussel section of the Threatened and Endangered Species Desktop Assessment, reasons for imperilment should be updated and improved summarizing statements from USFWS released a Five-Year Review for the species (USFWS 2013c).	The following was added to Section 3.11: "This species is imperiled due to impoundments, siltation, and pollution caused by coal mining, urbanization, agriculture, and toxic chemical spills (USFWS 2013b). The Shiny Pigtoe's small population size and limited geographic distribution make it vulnerable to stochastic disturbances and decreased fitness from reduced genetic diversity (USFWS 2013b)."
ADCNR		On page 16, 3.12 Southern Pigtoe section of the Threatened and Endangered Species Desktop Assessment, change "finelined pocketbook mussel" to "Southern Pigtoe".	"finelined pocketbook mussel" was changed to "Southern Pigtoe".

Commenting Entity	Date of Comment & FERC Accession Number	Comment – Threatened and Endangered Species	Alabama Power Response
ADCNR		On page 16, 3.12 Southern Pigtoe section of the Threatened and Endangered Species Desktop Assessment, the reasons for decline could be updated and improved by summarizing statements from USFWS (2019), Nine Mobile River Basin mussels (Finelined Pocketbook (*Hamiota (=Lampsilis) altilis*), Orangenacre Mucket (*Hamiota (=Lampsilis) perovalis*), Alabama Moccasinshell, (*Medionidus acutissimus*), Coosa Moccasinshell (*Medionidus parvulus*), Southern Clubshell (*Pleurobema decisum*), Dark Pigtoe *(Pleurobema furvum*), Southern Pigtoe (*Pleurobema georgianum*), Ovate Clubshell (*Pleurobema perovatum*), Triangular Kidneyshell (*Ptychobranchus greenii*)) 5-year review. This review states that suitable habitats and water quality, free of excessive sedimentation and other pollutants, are required for Southern Pigtoe. The primary cause of curtailment of range and fragmentation of habitat for mussel species has been contributed to the historic construction of dams and impoundment of large reaches of major river channels (Federal Register 58 FR 14330). Although most of these actions took place in the past, the impacted conditions and habitat continue to affect the species. In recent years, some improvements have been made to improve riverine conditions. For example, flow improvements have been made below Weiss Dam on the Coosa River that benefit existing populations of Southern Clubshell. Watershed-specific threats continue to negatively impact the species. These threats include: 1) coal mining activities 2) oil and gas exploration 3) water withdrawal 4) hypolimnetic discharges 5) poor water quality due to insufficient releases from dams 6) instream aggregate mining 7) navigation channel maintenance activities (8) agricultural practices that degrade water quality by increasing nutrients, herbicide/surfactant compounds, and hormones in surface waters; (9) hydropeaking dams that alter downstream flow conditions, water temperatures, and dissolved oxygen (10) increasing urban development that degrades water quality and stream geomorphology; and (11) climate change, which is expected to result in more frequent and extreme dry and wet years in the Southeast over the next century.	The 5-year review of nine mobile river basin mussels (USFWS 2019b) has been added to the document and cited for all information pertaining to the decline of the Southern Pigtoe. The following statement was added to Section 3.12: "The historic construction of dams and impoundments along large reaches of river channels is the primary cause of the declination The following information is provided in Section 3.12: “The historic construction of dams and impoundments along large reaches of river channels is the primary cause of the decline in Southern Pigtoe’s distribution and population size and continues to be a major threat to this species’ persistence (USFWS 2019b). This species continues to be imperiled due to water withdrawal, water quality degradation including sedimentation released from dams and agricultural runoff, downstream flow alterations caused by hydropeaking dams, and climate change (USFWS 2019b)."

Commenting Entity	Date of Comment & FERC Accession Number	Comment – Threatened and Endangered Species	Alabama Power Response
ADCNR		On page 17, 3.13 Slabside Pearlymussel section of the Threatened and Endangered Species Desktop Assessment, include that in 2013, USFWS designated critical habitat for the species (Federal Register 78:59555-59620). A statement similar to the Rabbitsfoot section could be included for consistency.	The following statement was added to Section 3.13: "The USFWS designated critical habitat for the Slabside Pearlymussel in 2013 (USFWS 2013c)."
ADCNR		On page 25, Discussion and Conclusions: section of the Threatened and Endangered Species Desktop Assessment, include a caveat statement or footnote reiterating that this is a desktop assessment and that to be certain of species occurrence, surveys should be conducted by qualified biologists to determine if a sensitive species occurs within a project area. Species not listed for a specific area does not imply that they do not occur there, only that their occurrence there is as yet unrecorded by state or federal agencies. This assessment is currently under review and reflects only our current understanding of species distributions.	The T&E Species Desktop Assessment was revised and incorporated into the Discussion and Conclusions Section of the Final T&E Species Study Report, which describes how Alabama Power and USFWS determined whether additional field surveys were needed for each species.
ADCNR		On page 25, Discussion and Conclusions: section of the Threatened and Endangered Species Desktop Assessment, change "…extant populations of 20 federal and state protected T&E species (Appendix B)." to "….extant populations of 20 federally T&E species of which 16 are state protected (Appendix B)."	"…extant populations of 20 federal and state protected T&E species (Appendix B)." was changed to "…extant populations of 20 federally T&E species of which 16 are state protected (Table 1-1)."
ADCNR		Appendix B Species Habitat Range Maps of the Threatened and Endangered Species Desktop Assessment, all figures with "extant population" shown. change to "Recent Documented Occurrence". In addition, make sure "Current Range" and "Documented Historic Range" terminology is defined in the assessment. As is, all Figure Titles in Appendix B should have "Current" inserted before Habitat Range and after the Species name.	Legend items identifying "Extant Population" have been changed to "Recent Documented Occurrence". The following statement was added: "For the purpose of this study, "Documented Historic Range" refers to the geographic area a species was known or believed to occupy in the past, and "Current Range" refers to the geographic range the species is known or believed to currently occupy."
ADCNR		Figure 3.12-1 Appendix B of the Threatened and Endangered Species Desktop Assessment, Southern Pigtoe does not occur in the Tennessee River system. It does not have critical habitat in the Paint Rock River system. This map appears to be inaccurate and should be deleted.	The Southern Pigtoe map for Skyline was removed. The Southern Pigtoe map for Lake Harris was renamed to Figure 3.12-1 in Appendix B.
ADCNR		Figure 3.13-1 Appendix B of the Threatened and Endangered Species Desktop Assessment, The Paint Rock River has designated critical habitat for this species. See Federal Register 78:59555-59620 for critical habitat details that should be included.	The Slabside Pearlymussel has critical habitat in the Paint Rock River system, which includes Hurricane Creek (USFWS 201c). This change was made to Figure 3.13-1.

Commenting Entity	Date of Comment & FERC Accession Number	Comment – Threatened and Endangered Species	Alabama Power Response
ADCNR		Threatened and Endangered Species Desktop Assessment discussion. APC stated that "No listed species have been documented in the Tallapoosa River below the Harris Dam." Should be changed to "No listed species have recently been documented in the Tallapoosa River between Harris Dam and Lake Martin." The Documented Historic Range for Finelined Pocketbook includes the Tallapoosa River.	A statement that the Documented Historic Range for Finelined Pocketbook includes the Tallapoosa River was added.
Alabama Rivers Alliance	Questions submitted prior to the ISR Meeting	Is the additional fieldwork to identify mussels scheduled for May being pushed back or proceeding on schedule?	Explanation was provided in Alabama Power's ISR Meeting Summary (Accession No. 2020-05-12-5083). Fieldwork was completed and results presented in the Finelined Pocketbook (*Hamiota altilis*) Survey Report (Appendix E), appended to the Final T&E Species Study Report.
United States Fish and Wildlife Service (USFWS)	Questions submitted prior the ISR Meeting	USFWS indicated that they do not have a copy of the best management practices for consultation on bats and that information would be beneficial to mapping the buffer zone.	Explanation was provided in Alabama Power's ISR Meeting Summary (Accession No. 2020-05-12-5083). Information on best management practices (BMPs) for bats will be provided in the Wildlife Management Report.
Ken Wills (Alabama Glade Conservation Association)	Questions submitted prior the ISR Meeting	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?	Explanation was provided in Alabama Power's ISR Meeting Summary (Accession No. 2020-05-12-5083).
Jimmy Traylor (Downstream Property Owner)	Questions submitted prior the ISR Meeting	Why there are no [Threatened and Endangered Species] studies below the dam and how Skyline effects water below the dam. Why are no T&E species being studied?	Explanation was provided in Alabama Power's ISR Meeting Summary (Accession No. 2020-05-12-5083).

Attachment 3
Final Threatened and Endangered Species Report

Threatened and Endangered Species Study Report

R.L. Harris Hydroelectric Project

FERC No. 2628



Prepared for:

Alabama Power Company

Prepared by:

Kleinschmidt Associates

January 2021

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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 the 135-megawatt (MW) 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 (Figure 1-1). This includes land to 795 feet 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 (Figure 1-2). 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 by, the State of Alabama for wildlife management and public hunting and are part of the Skyline WMA (ADCNR 2016b as cited in Alabama Power 2018).

For the purposes of this study, "Lake Harris" refers to the 9,870-acre reservoir, 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

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

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 (Alabama Power 2018).

Lake Harris and Skyline are located within two river basins: the Tallapoosa and Tennessee River Basins, respectively. The only waterbody managed by Alabama Power as part of their FERC license for the Harris Project is the Harris Reservoir.

1.1 Study Background

During the October 19, 2017 issue identification workshop, representatives from the United States Fish and Wildlife Service (USFWS) and Alabama Department of Conservation and Natural Resources (ADCNR) noted that there may be species of federally protected bats using Project lands around the Harris Project. The USFWS also noted that there may be some aquatic species of concern in the Project Area (areas adjacent to the Project Boundary that could be influenced by Project operations). The USFWS and ADCNR requested that potential impacts to threatened or endangered species currently in the Harris Project Boundary be evaluated during the relicensing process.

During preparation of the Harris Pre-Application Document (PAD), research identified several federally protected species that are present in the counties where the Harris Project is located (Table 1-1). On November 13, 2018, Alabama Power filed ten proposed study plans, including a study plan for threatened and endangered (T&E) species at 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, 2019.

Alabama Power formed the Harris Action Team (HAT) 3 to specifically address fish and wildlife issues, including T&E species, at the Harris Project. Alabama Power held a HAT 3 meeting on August 27, 2019 to discuss the T&E Species Study Plan. Alabama Power noted that the first phase of the T&E Species Study would be a desktop analysis that involved developing Geographic Information System (GIS) overlays of habitat information and maps to determine possible areas in the FERC-approved geographic scope where T&E species may occur.

Alabama Power prepared and filed a Draft T&E Species Desktop Assessment with FERC on April 10, 2020. Concurrently, Alabama Power distributed the draft report to the Harris Action Team (HAT) 3 participants. Stakeholders provided comments on the Draft T&E Species Desktop Assessment. This Final T&E Species Study Report incorporates

information provided within and comments received on the Draft T&E Species Desktop Assessment.

The goals of the desktop assessment were to determine the probability of populations of currently listed T&E species and/or their critical habitat occurring within the Harris Project Boundary or Project Area. Alabama Power developed GIS overlays of habitat information and maps for this assessment and used this information to determine if further evaluation (i.e. field surveys) of any identified species and their habitat was warranted.

The USFWS's Information for Planning and Consultation (IPaC) was used to identify listed species occurring in counties that intersect the Project Boundary. The USFWS's Environmental Conservation Online System (ECOS) was used to more specifically determine the location of species' ranges and areas of critical habitat relative to the Project Boundary and to gather background information on life history and habitat.

Consultation with the USFWS determined the necessity for field surveys to determine presence or absence of certain listed species. In fall 2019 and summer 2020, field surveys were conducted for target mussel species (Finelined Pocketbook (*Hamiota altilis*)). Surveys for four other species (Red-cockaded Woodpecker (*Picoides borealis*), Palezone Shiner (*Notropis albizonatus*), White Fringeless Orchid (*Platanthera integrilabia*), and Price's Potato-bean (*Apios priceana*)) or their habitat continued through 2020. On December 11, 2019 and November 5, 2020, Alabama Power held HAT 3 meetings to discuss the T&E Species Study progress to-date.

For the purpose of this study, "Documented Historic Range" refers to the geographic area a species was known or believed to occupy in the past, and "Current Range" refers to the geographic range the species is known or believed to currently occupy.

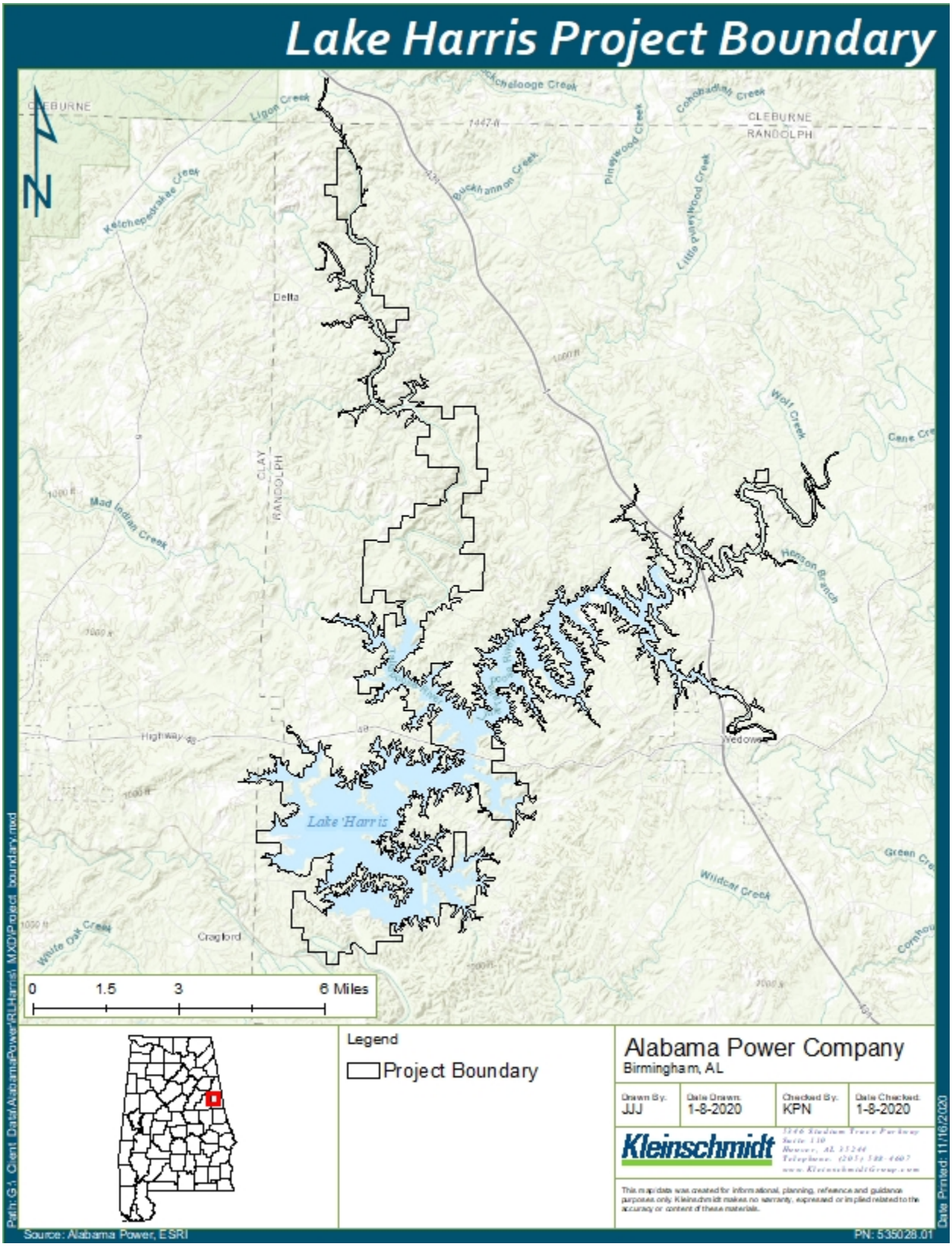


Figure 1–1 Lake Harris Project Boundary

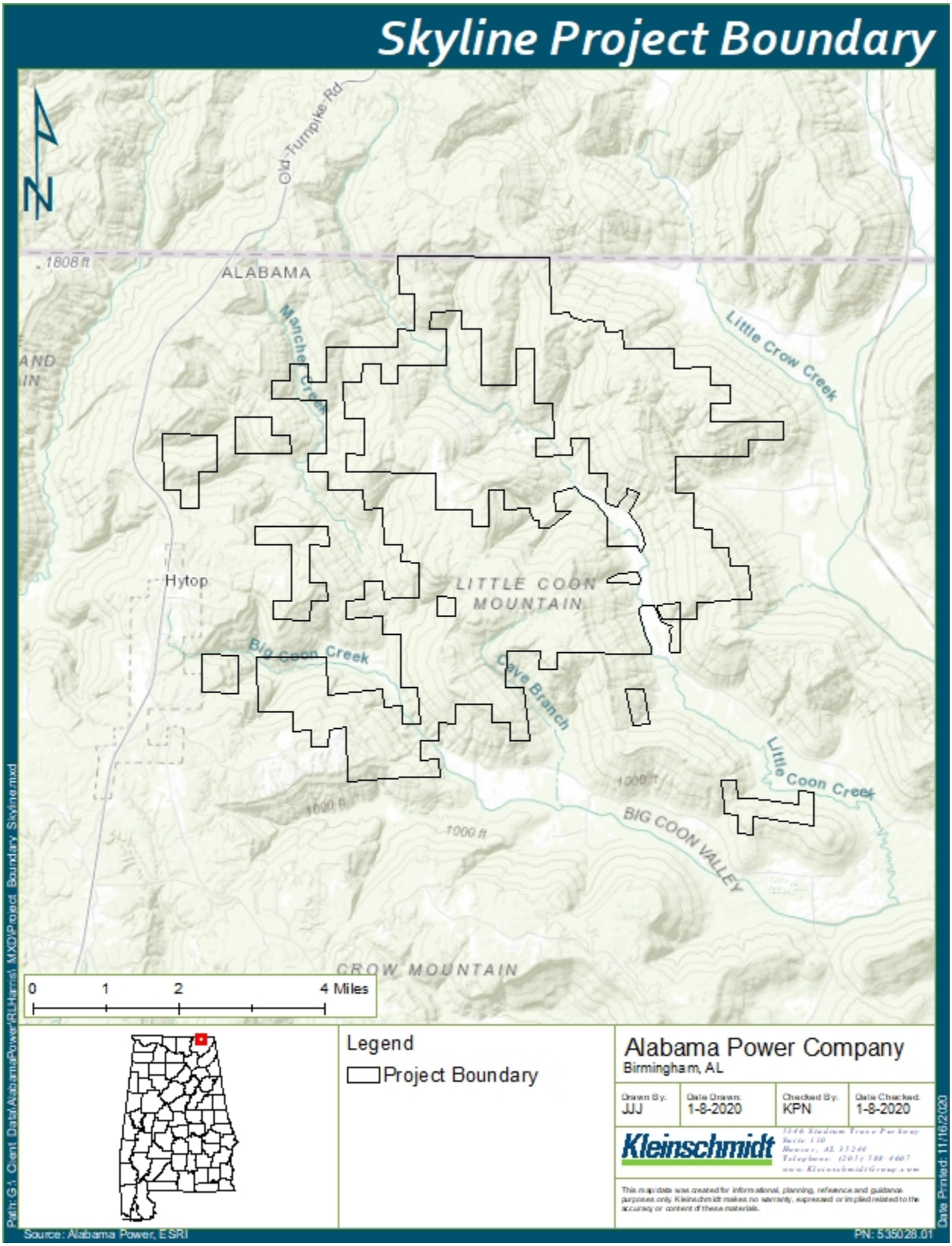


Figure 1–2 Skyline Project Boundary

Table 1-1 Federally Threatened and Endangered Species Potentially Occurring in Alabama Counties in the R.L. Harris Project Vicinity

SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS[1]	STATE PROTECTED	COUNTY(IES) OF OCCURRENCE	RECENT DOCUMENTED OCCURRENCE (1995-2020) IN PROJECT BOUNDARY	DOCUMENTED HISTORIC RANGE IN AL
Picoides borealis	Red-cockaded Woodpecker	E	Yes	Clay & Randolph	No	Statewide in appropriate habitat
Notropis albizonatus	Palezone Shiner	E	Yes	Jackson	No	Tennessee River system
Erimonax monachus	Spotfin Chub	T	Yes	Jackson	No	Tennessee River system
Hamiota altilis	Finelined Pocketbook	T	Yes	Cleburne	No	Coosa, Tallapoosa, Cahaba River systems
Lampsilis virescens	Alabama Lampmussel	E	Yes	Jackson	No	Tennessee River system
Venustaconcha trabalis	Cumberland Bean	E	Yes	Jackson	No	Tennessee River system
Fusconaia cuneolus	Fine-rayed Pigtoe	E	Yes	Jackson	No	Tennessee River system
Toxolasma cylindrellus	Pale Lilliput	E	Yes	Jackson	No	Tennessee River system
Theliderma cylindrica	Rabbitsfoot	T	Yes	Jackson	No	Tennessee River system
Fusconaia cor	Shiny Pigtoe	E	Yes	Jackson	No	Tennessee River system
Epioblasma triquetra	Snuffbox	E	Yes	Jackson	No	Tennessee River system
Pleurobema georgianum	Southern Pigtoe	E	Yes	Clay & Cleburne	No	Coosa River system
Pleuronaia dolabelloides	Slabside Pearlymussel	E	Yes	Jackson	No	Tennessee River system
Myotis sodalis	Indiana Bat	E	Yes	Clay, Cleburne, Randolph, Chambers, Tallapoosa, & Jackson	Yes	Statewide in appropriate habitat
Myotis septentrionalis	Northern Long-eared Bat	T	Yes	Clay, Cleburne, Randolph, Chambers, Tallapoosa, & Jackson	Yes	Piedmont and Cumberland regions
Myotis grisescens	Gray Bat	E	Yes	Jackson	Yes	Statewide in appropriate habitat
Gratiola amphiantha	Little Amphianthus	T	No	Randolph, Chambers, & Tallapoosa	Yes	Piedmont region (Bridges 1988)
Platanthera integrilabia	White Fringeless Orchid	T	No	Clay, Cleburne, Jackson, Chambers, & Tallapoosa	No	Talladega National Forest

SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS[1]	STATE PROTECTED	COUNTY(IES) OF OCCURRENCE	RECENT DOCUMENTED OCCURRENCE (1995-2020) IN PROJECT BOUNDARY	DOCUMENTED HISTORIC RANGE IN AL
Apios priceana	Price's Potato-bean	T	No	Jackson	Yes	Statewide in appropriate habitat
Clematis morefieldii	Morefield's Leather Flower	E	No	Jackson	No	Northern regions of state (USFWS 2007)

Source: Mirarchi et.al. 2004, USFWS 2016a, USFWS 2016b, Williams et.al. 2008, FERC 2018; [1] E = Federally listed as Endangered, T = Federally listed as Threatened

2.0 METHODS

Information presented in the Section 3.0 below was obtained and summarized from a variety of sources, including scientific literature, gray literature, and resource agency websites and databases.

The IPaC and Federal Register Listings were used to identify listed species occurring in counties that intersect the Project Boundary. The ECOS, USFWS Recovery Plans, and Five-Year Reviews were used to more specifically determine the location of species' ranges and areas of critical habitat relative to the Project Boundary and to gather background information on life history and habitat. Maps depicting current species ranges and critical habitats (Appendix B) were developed using GIS data available on the USFWS' ECOS online system. Information from the Draft Threatened and Endangered Species Desktop Assessment was revised and updated based on comments received from stakeholders and agencies.

The revised Threatened and Endangered Species Desktop Assessment in conjunction with consultation with the USFWS was used to determine if further evaluation (i.e., field surveys) of any listed species and potential habitat was warranted. If field surveys were conducted, a report was completed outlining survey methods and results.

Information presented in the Section 3.0 below incorporates the revised Threatened and Endangered Species Desktop Assessment and summaries of consultation with agencies and subsequent field surveys.

3.0 DISCUSSION AND CONCLUSIONS

The species described within this section potentially occur or may have designated habitat in the Lake Harris Project Vicinity and the Skyline Project Vicinity, which includes Clay, Randolph, Cleburne, Tallapoosa, and Chambers counties, and Jackson county, respectively. These species may also occur in other counties in Alabama; however, this assessment focuses on those counties where the Harris Project is located.

The Alabama counties in which the Harris Project Vicinity is located (i.e., Tallapoosa, Chambers, Randolph, Clay, Cleburne, and Jackson) overlap with the habitat range, critical habitat, and extant populations of 20 federally listed T&E species of which 16 are state protected (Table 1-1).

The desktop assessment determined that, of these 20 species that potentially occur or may have designated habitat in the Project Vicinity, nine of these species have habitat ranges intersecting the Project Boundary, five of which have a range occurring in the Project Boundary at Skyline, and seven of which have a range occurring in the Project Boundary at Lake Harris (Table 3-1).

Additionally, the USFWS has designated critical habitats for six of the 20 total species identified (Finelined Pocketbook, Indiana Bat (*Myotis sodalis*), Rabbitsfoot (*Theliderma cylindrica*), Slabside Pearlymussel (*Pleuronaia dolabelloides*), Southern Pigtoe (*Pleurobema georgianum*), and Spotfin Chub (*Erimonax monachus*)). However, only one of these, Finelined Pocketbook, has areas of critical habitat that occur within or adjacent to the Project Boundary.

In addition to critical habitat ranges, specific extant populations were identified for ten species. Seven of the ten listed mussels (Alabama Lampmussel (*Lampsilis virescens*), Fine-rayed Pigtoe (*Fusconaia cuneolus*), Pale Lilliput (*Toxolasma cylindrellus*), Rabbitsfoot, Snuffbox (*Epioblasma triquetra*), Shiny Pigtoe (*Fusconaia cor*), and Slabside Pearlymussel) 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.

Surveys were conducted for five species (Red-cockaded Woodpecker, Palezone Shiner, Finelined Pocketbook, White Fringeless Orchid, and Price's Potato-bean) due to potential suitable habitat, known critical habitat, or known extant populations within or in close proximity to the Project Boundary.

Table 3-1 Habitat Ranges of Listed Threatened and Endangered Species that Intersect the R.L. Harris Project Boundary

Species	Habitat Occurrence	
	Skyline	*Lake Harris*
Finelined Pocketbook		✓
Southern Pigtoe		✓
Gray Bat	✓	
Indiana Bat	✓	✓
Northern Long-eared Bat	✓	✓
Little Amphianthus		✓
Price's Potato-bean	✓	
Red-cockaded Woodpecker		✓
White Fringeless Orchid	✓	✓

3.1 Red-cockaded Woodpecker



Source: US Fish and Wildlife Service. 2019. Red-cockaded Woodpecker. [Online] URL: https://www.fws.gov/rcwrecovery/rcw.html

The Red-cockaded Woodpecker (RCW) is a federally listed endangered species that potentially occurs in Clay and Randolph counties (USFWS 2016e) (Appendix B, Figures 3.1-1 and 3.1-2). This woodpecker requires open pine woodlands and savannahs with large old pines for nesting and roosting habitat. Large old pines, preferably longleaf pine, are required as cavity trees. The excavated cavities within inactive heartwood are free of resin, which can entrap the birds (USFWS 2016e). The resin that comes out of the tree (from outer vascular tissue) after excavation may provide protection for woodpeckers against climbing snakes or other predators. The cavity trees are located in open stands with little or no hardwood mid-story and few or no over-story hardwoods. The woodpeckers require abundant native bunchgrass and groundcovers suitable for foraging within their habitat (USFWS 2016e). The two primary factors threatening the

Red-cockaded Woodpecker are habitat loss and habitat degradation (USFWS 2006).

The USFWS has both a Recovery Plan (USFWS 2003) and a Five-Year Review (USFWS 2006) for the Red-cockaded Woodpecker.

3.1.1 Potential Occurrence and Habitat Range

There are no published reports of RCW occurring within the Project Boundary at Lake Harris; however, the species range does overlap with the Project Boundary at Lake Harris and includes a few areas of coniferous forests. Coniferous forest within the Project Boundary were identified using GIS and aerial imagery.

The IPaC and Federal Register Listings do not list the RCW as occurring in the county where the Project Boundary at Skyline is located.

3.1.2 Field Surveys

Consultation with USFWS[2] and ADCNR[3] determined the need to conduct field surveys for RCW habitat due to the potential for suitable habitat in mature pine stands within the Project Boundary at Lake Harris.

Alabama Power performed surveys to assess habitat suitability and to determine if potential habitat was occupied or had signs of use by RCW. Methods and results of surveys for the RCW and its habitat are described in the Red-cockaded Woodpecker (*Picoides borealis*) Habitat Survey Report (Appendix C). Mature pines, where present, were viewed from all angles to detect potential signs of use by RCW.

Coniferous forests within the Project Boundary were identified using GIS and aerial imagery. The Project Boundary at Lake Harris contains 3,068 acres of coniferous forest; however, the land use data is not specific enough to determine if these forests contain the more specific habitat characteristics to be suitable for RCW (Appendix B, Figure 3.1-1 and 3.1-2). A total of six coniferous forest sites were assessed for RCW habitat suitability.

[2] Reference email dated August 7, 2020 between USFWS and Alabama Power as included in the T&E Study Consultation record filed concurrently within this report.
[3] Reference email dated August 7, 2020 between ADCNR and Alabama Power as included in the T&E Study Consultation record filed concurrently within this report.

Although stand data used for site identification indicated areas that met habitat survey guideline criteria, foraging habitat was of marginal quality at best and very few standing snags were observed. Additionally, the thick understory would make utilization of the larger pines for foraging unlikely. Furthermore, excavation of starter cavities or resin wells were not observed in any of the mature pine evaluated during this survey. Surveyors determined that the Project Boundary at Lake Harris is not likely to contain populations of RCW (Appendix C).

3.2 Palezone Shiner



Source: Wikipedia. 2018. Palezone Shiner. [Online] URL: https://en.wikipedia.org/wiki/Palezone_shiner

The Palezone Shiner was listed as endangered in 1993. The Palezone Shiner is a small, slender minnow species with a pointed snout and large eyes. It has a small, dark, wedge-shaped spot at the base of the caudal fin and may exhibit a light yellow color at the base of its pectoral fins during breeding. Historically, this species was found in the Tennessee and Cumberland River systems; however, the only known extant populations occur in the Paint Rock River (Tennessee River tributary), and the Little South Fork of the Cumberland River both of which are outside of the Project Boundary at Skyline (Appendix B, Figure 3.2-1). The Palezone Shiner is found in runs and pools of large creeks and small rivers with clean bedrock, cobble, gravel, and sand. Spawning likely occurs between May and July, peaking in June. Limited distribution make this species vulnerable to extinction.

The USFWS has both a Recovery Plan (USFWS 1997a) and Five-Year Review (USFWS 2014) for the Palezone Shiner.

3.2.1 Potential Occurrence and Habitat Range

The IPaC and Federal Register Listings do not list the Palezone Shiner as occurring in the counties where the Project Boundary at Lake Harris is located.

Habitat range for this species is located immediately to the west of the Project Boundary at Skyline (Appendix B, Figure 3.2-1). The Palezone Shiner occurs in tributaries of the Tennessee River in Jackson County, Alabama, specifically in Paint Rock River, which is near

the Project Boundary at Skyline; however, there is no documentation of the species occurring within the Project Boundary at Skyline.

3.2.2 Field Surveys

The USFWS recommended surveys for this species[4] due to the close proximity of the extant population in the Paint Rock River to the Project Boundary at Skyline and the possibility of a population in Little Coon Creek.

Surveyors from Alabama Power and the Alabama Department of Environmental Management (ADEM) performed fish Index of Biotic Integrity (IBI) sampling according to methods in O'Neil and Shephard (2010) at four locations on Little Coon Creek. No specimens were found, and surveyors determined that the species was not likely to be present in the Project Boundary at Skyline due to the absence of historical records for Palezone Shiner in Little Coon Creek, degraded substrate conditions throughout much of the stream, and the failure to detect the species during the collection effort (Palezone Shiner (*Notropis albizonatus*) Survey Report (Appendix D)). Methods and results of surveys for the Palezone Shiner are described in the Palezone Shiner (*Notropis albizonatus*) Survey Report (Appendix D).

3.3 Spotfin Chub



Source: National Park Service. 2015. Threatened and Endangered Species of Abrams Creek. Gatlinburg, TN. [Online] URL:https://www.nps.gov/grsm/learn/nature/threatened-species-abrams.htm

The Spotfin Chub was listed as threatened in 1977. The Spotfin Chub is an elongate minnow species with dusky green coloration above the lateral line and silver below. Breeding males develop a metallic blue coloration and white fin margins. Historically, this species was endemic to upland habitats in the Tennessee River drainage including parts of Alabama (Appendix B, Figure 3.3-1); however, it is presumed to be extirpated in Alabama and Georgia. The Spotfin Chub is found in clear, large creeks and medium-sized rivers with moderate current over bedrock and gravel substrates. Spawning probably

[4] Reference meeting summary from HAT 3 meeting held on August 27, 2019 as included in the T&E Study Consultation record filed concurrently within this report.

occurs between May and August. Threats to this species include habitat loss and degradation.

The USFWS has both a Recovery Plan (USFWS 1983) and Five-Year Review (USFWS 2019a) for the Spotfin Chub.

3.3.1 Potential Occurrence and Habitat Range

The IPaC and Federal Register Listings do not list the Spotfin Chub as occurring in the counties where the Project Boundary at Lake Harris is located.

Habitat range for this species is located immediately to the west of Skyline (Appendix B, Figure 3.3-1).

3.3.2 Field Surveys

USFWS did not recommend field surveys for this species because they are presumed to be extirpated from the state. Additionally, there are no historical records of the species occurring near the Project Boundary at Skyline and no areas of critical habitat occur within or adjacent to the Project Boundary.

3.4 Finelined Pocketbook Mussel



Source: International Union for Conservation of Nature and Natural Resources. 2019. Finelined Pocketbook. [Online] URL: https://www.iucnredlist.org/species/11250/502085

The Finelined Pocketbook mussel is a threatened mussel with a range that occurs within the Project Boundary at Lake Harris (Appendix B, Figure 3.4-1). The Finelined Pocketbook is a suboval shaped mussel that has a maximum length of approximately 3⅜ inches (Mirarchi et al. 2004). This mussel lives in large to small streams, primarily above the fall line, with stable sand/gravel/cobble substrates and moderate to swift currents. Historically, this mussel was found in the Alabama, Tombigbee, Black Warrior, Cahaba, Tallapoosa, and Coosa Rivers, and their tributaries (USFWS 2004) (Appendix B, Figure 3.4-1). The ADCNR and USFWS are currently reintroducing the Finelined Pocketbook into suitable historical habitats within the state (USFWS 2019b). Regarding reproduction, the

Finelined Pocketbook mussel releases glochidia as a super-conglutinate from March through June, and confirmed host species include Blackspotted Topminnow (*Fundulus olivaceus*), Redeye Bass (*Micropterus coosae*), Spotted Bass (*Micropterus punctulatus*), Largemouth Bass (*Micropterus salmoides*), and Green Sunfish (*Lepomis cyanellus*) (Mirarchi et al. 2004)[5].

The historic construction of dams and impoundments along large reaches of river channels is the primary cause of the decline in Finelined Pocketbook's distribution and population size and continues to be a major threat to this species' persistence (USFWS 2019b). This species continues to be imperiled due to water withdrawals, water quality degradation including sedimentation released from dams and agricultural runoff, downstream flow alterations caused by hydropeaking dams, and climate change (USFWS 2019b).

The USFWS has both a Recovery Plan (USFWS 2000) and a Five-Year Review (USFWS 2019b) for the Finelined Pocketbook. Critical habitat was designated for this species in 2004 (USFWS 2004). The Lake Harris Project Area does not encompass critical habitat designated by the USFWS; however, critical habitat for this species is located immediately upstream of Lake Harris (USFWS 2004) (Appendix B, Figure 3.4-1). To date, no populations have been identified within the Project Boundary at Lake Harris.

3.4.1 Potential Occurrence and Habitat Range

The Lake Harris Project Area does not encompass critical habitat designated by the USFWS; however, critical habitat for this species abuts the Project Boundary at Lake Harris at Hwy 431 (USFWS 2004) (Appendix B, Figure 3.4-1). The Documented Historic Range for Finelined Pocketbook includes the Tallapoosa River. However, to date no populations have been identified within the Project Boundary at Lake Harris.

The IPaC and Federal Register Listings do not list the Finelined Pocketbook as occurring in the county where the Project Boundary at Skyline is located.

[5] Tallapoosa Bass (*Micropterus tallapoosae*) and Alabama Bass (*Micropterus henshalli*) were formerly known as Redeye Bass and Spotted Bass in the Tallapoosa River Basin at the time of the Mirarchi et al. (2004) publication.

3.4.2 Field Surveys

USFWS recommended surveys for Finelined Pocketbook[6] due to the proximity of critical habitat to the Project Boundary at Lake Harris. Surveys were subsequently conducted in 2019 and 2020 in areas of critical habitat, in the Little Tallapoosa River, and in nearby tributaries of both the Tallapoosa River and Little Tallapoosa River. If Finelined Pocketbook were present in areas of critical habitat, surveys would continue downstream toward and potentially into the Project Boundary. Much of the designated critical habitat surveyed in the Tallapoosa River had been degraded by siltation, and secondary tributaries lacked suitable habitat. No Finelined Pocketbook specimens were found during surveys. Methods and results of surveys for the Finelined Pocketbook are described in Finelined Pocketbook (*Hamiota altilis*) Survey Report (Appendix E).

3.5 Alabama Lampmussel



Source: Alabama Department of Conservation and Natural Resources. 2019. Outdoor Alabama. Montgomery, AL. [Online] URL: https://www.outdooralabama.com/lampsilis/alabama-lampmussel

The Alabama Lampmussel was listed as endangered in 1976 (Mirarchi et al. 2004) and is found in shoals in small to medium rivers (Parmalee and Bogan 1998). The Alabama Lampmussel is endemic to the Tennessee River system and historically occurred from its headwaters downstream to Muscle Shoals (Ortmann 1925, Parmalee and Bogan 1998). Now, it is only known to occur in upper reaches of the Paint Rock River system, Jackson County, Alabama (Ahlstedt 1995) (Appendix B, Figure 3.5-1). The ADCNR and USFWS is currently reintroducing the Alabama Lampmussel into suitable historical habitats within the state (USFWS 2012). The Alabama Lampmussel has a moderately thin shell with a maximum length of 2 ¾ inches, elliptical to long ovate in outline, and somewhat inflated. Although unknown, this species is thought to be a long-term brooder (Mirarchi et al. 2004). In laboratory trials Alabama Lampmussel glochidia have been found to utilize Rock Bass (*Ambloplites rupestris*), Green Sunfish, Bluegill (*Lepomis macrochirus*), Smallmouth Bass (*Micropterus dolomieu*), Spotted Bass, Largemouth Bass, and Redeye Bass as host fish

[6] Reference meeting notes from HAT 3 meeting held on August 27, 2019 as included in the T&E Study Consultation record filed concurrently within this report.

and that Banded Sculpin (*Cottus carolinae*) appear to be marginal hosts (Williams et. al. 2008).

This species is imperiled due to water quality degradation primarily caused by agricultural runoff, severely restricted distribution, rarity, and vulnerability to habitat degradation (USFWS 2012). Habitat degradation is the leading cause of the decline for this species (USFWS 2012). Unauthorized removal of gravel from the Paint Rock River drainage basin results in degradation of Alabama Lampmussel habitat (USFWS 2012). Factors that have the potential to affect this species' persistence include droughts, toxic spills, and fish barriers which restrict freshwater mussel distribution (USFWS 2012).

The USFWS has both a Recovery Plan (USFWS 1985) and Five-Year Review (USFWS 2012) for the Alabama Lampmussel.

3.5.1 Potential Occurrence and Habitat Range

The IPaC and Federal Register Listings do not list the Alabama Lampmussel as occurring in the counties where the Project Boundary at Lake Harris is located.

There are no published reports of Alabama Lampmussel occurrences within the Project Boundary at Skyline.

3.5.2 Field Surveys

The current habitat range does not intersect the Project Boundary. The USFWS did not recommend field surveys for this species.

3.6 Cumberland Bean

The USFWS listed the Cumberland Bean (*Venustaconcha trabalis*) as endangered in 1976 (USFWS 2016c). This species can be found in swift riffles of small rivers and streams with gravel or mixture of sand and gravel substrate (Parmalee and Bogan 1998). This species is endemic to the upper Cumberland River system in Kentucky and the Tennessee River system from headwaters downstream to Muscle Shoals, Alabama (Appendix B, Figure 3.6-1). The Cumberland Bean has not been reported in Alabama since



Source: US Fish and Wildlife Service. 2017. Raleigh Ecological Services Field Office. [Online] URL: https://www.fws.gov/raleigh/species/es_cumberland_bean.html

impoundment of the Tennessee River and is considered extirpated (Parmalee and Bogan 1998, Mirarchi 2004). The ADCNR and USFWS is currently reintroducing the Cumberland Bean into suitable historical habitats within the state (USFWS 2020). This species has a solid, elongated shell with a maximum length of 2 ⅛ inches. Females grow slightly larger than males (Mirarchi et al. 2004). Host fish for the Cumberland Bean glochidia include Barcheek (*Etheostoma obeyense*), Fantail (*Etheostoma flabellare*), Johnny (*Etheostoma nigrum*), Rainbow (*Etheostoma caeruleum*), Snubnose (*Etheostoma simoterum*), Dirty (*Etheostoma olivaceum*), Striped (*Etheostoma virgatum*), and Stripetail (*Etheostoma kennicotti*) Darters (Parmalee and Bogan 1998). Factors contributing to the decline of this species includes impoundments, siltation, and pollution (USFWS 2020). Limited distribution and rarity make it vulnerable to extinction (USFWS 2020). Factors that have the potential to affect this species' persistence include changes in land use, pollution, contaminant spills, resource extraction, and siltation (USFWS 2020).

The USFWS has both a Recovery Plan (USFWS 1984a) and Five-Year Review (USFWS 2010) for the Cumberland Bean.

3.6.1 Potential Occurrence and Habitat Range

The IPaC and Federal Register Listings do not list the Cumberland Bean as occurring in the counties where the Project Boundary at Lake Harris is located.

There are no published reports of Cumberland Bean occurrences within the Project Boundary at Skyline.

3.6.2 Field Surveys

The current habitat range does not intersect the Project Boundary. The USFWS did not recommend field surveys for this species.

3.7 Fine-rayed Pigtoe Mussel



Source: IUCN Red List. iNaturalist. [Online] URL: https://www.inaturalist.org/taxa/101102-Fusconaia-cuneolus

The USFWS listed the Fine-rayed Pigtoe mussel as endangered in 1976. This species occurs in shoal habitat of medium to large rivers. Typically, the Fine-rayed Pigtoe lives in stable, mixed substrate, with particle sizes ranging from sand to cobble (Neves 1991). Endemic to the Tennessee River system, this species historically occurred from the Virginia headwaters, downstream to Muscle Shoals, Alabama, and in some tributaries (Parmalee and Bogan 1998) (Appendix B, Figure 3.7-1). This species was extirpated from Tennessee River proper (Garner and McGregor 2001). A population in Paint Rock River, Jackson County, Alabama (Ahlstedt 1995), appears to be the only extant population in Alabama. The Fine-rayed Pigtoe mussel shell is solid, somewhat inflated, with a maximum length of 3 ⅛ inches, subtriangular to rhomboidal in outline (Mirarchi 2004). This species is a short-term brooder, spawning in May, with females gravid until late July (Ortmann 1925, Bruenderman and Neves 1993). This mussel distributes glochidia; hosts include River Chub (*Nocomis micropogon*), Central Stoneroller (*Campostoma anomalum*), Fathead Minnow (*Pimephales promelas*), Mottled Sculpin (*Cottus bairdii*), and Whitetail (*Cyprinella galactura*), White (*Luxilus albeolus*), Telescope (*Notropis telescopus*), and Tennessee (*Notropis leuciodus*) Shiners (Bruenderman and Neves 1993).

Factors contributing to the decline of this species includes impoundment, siltation, and pollution (USFWS 2013a). The Fine-rayed Pigtoe's small population size and limited geographic distribution make it vulnerable to stochastic disturbances and decreased fitness from reduced genetic diversity (USFWS 2013a). Factors that have the potential to affect this species' persistence include accidental chemical releases and spills and other human-induced changes (USFWS 2013a).

The USFWS has both a Recovery Plan (USFWS 1984b) and Five-Year Review (USFWS 2013a) for the Fine-rayed Pigtoe.

3.7.1 Potential Occurrence and Habitat Range

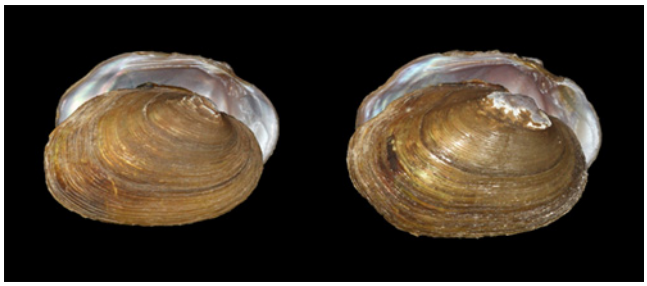
The IPaC and Federal Register Listings do not list the Fine-rayed Pigtoe as occurring in the counties where the Project Boundary at Lake Harris is located.

There are no published reports of Fine-rayed Pigtoe occurrences within the Project Boundary at Skyline.

3.7.2 Field Surveys

The current habitat range does not intersect the Project Boundary. The USFWS did not recommend field surveys for this species.

3.8 Pale Lilliput Mussel



Source: Alabama Department of Conservation and Natural Resources. 2019. Outdoor Alabama. Montgomery, AL. [Online] URL: https://www.outdooralabama.com/toxolasma/pale-lilliput

The USFWS listed the Pale Lilliput mussel as endangered in 1976. This species is found in large creeks and small rivers, typically in gravel and in moderate current (Parmalee and Bogan 1998). This species was thought to be eliminated, except in the Paint Rock River system, Jackson County, Alabama, where it is rare (Ahlstedt 1995) (Appendix B, Figure 3.8-1). The ADCNR and USFWS is currently reintroducing the Pale Lilliput Mussel into suitable historical habitats within the state (USFWS 2011).The shell is moderately solid with a maximum length of 1 ⅜ inches, elongate and elliptical in outline, and inflated in some older species (Mirarchi et al. 2004). It is thought to be a long-term brooder. In laboratory trials by ADCNR, Pale Lilliput glochidia have been found to utilize Northern Studfish (*Fundulus catenatus*), Blackspotted Topminnow and Blackstripe Topminnow (*Fundulus notatus*) as primary hosts (Fobian et al. 2015). The Paint Rock River system, where the only extant population of the Pale Lilliput persists, is strained from human-related activities and development (USFWS 2011).

The Pale Lilliput mussel is vulnerable to extinction due to extremely limited distribution, rarity, and susceptibility to habitat degradation (USFWS 2011). Unauthorized removal of gravel from the Paint Rock River drainage basin results in degradation of Alabama Lampmussel habitat (USFWS 2011). Factors that have the potential to affect this species' persistence include droughts, toxic spills, and fish barriers which restrict freshwater mussel distribution (USFWS 2011).

The USFWS has both a Recovery Plan (USFWS 1984c) and a Five-Year Review for the Pale Lilliput (USFWS 2011).

3.8.1 Potential Occurrence and Habitat Range

The IPaC and Federal Register Listings do not list the Pale Lilliput as occurring in the counties where the Project Boundary at Lake Harris is located.

There are no published reports of Pale Lilliput occurrences within the Project Boundary at Skyline.

3.8.2 Field Surveys

The current habitat range does not intersect the Project Boundary. The USFWS did not recommend field surveys for this species.

3.9 Rabbitsfoot Mussel



Source: US Fish and Wildlife Service. 2019. US Fish and Wildlife Service Midwest Region. Bloomington, MN. [Online] URL: https://www.fws.gov/midwest/endangered/clams/Rabbitsfoot/index.html

The USFWS listed the Rabbitsfoot mussel as threatened in 2013 (USFWS 2015). The Rabbitsfoot mussel is found in creeks and small rivers along margins of riffles and runs. In lotic reaches of larger rivers, this species may be found at depths greater than 19 ¾ feet, as well as upon marginal shelves in shallower waters (Mirarchi et al. 2004). In Alabama, extant populations are known to exist only in the Paint Rock River system, Jackson County, Alabama (Ahlstedt 1995), and a short reach of Bear Creek, Colbert County (Mirarchi et al. 2004) (Appendix B, Figure 3.9-1). The ADCNR and USFWS is currently reintroducing the Rabbitsfoot into suitable historical habitats statewide (ADCNR 2020). This species has a solid shell with a maximum length of 4 ¾ inches, elongated and rhomboidal to rectangular in outline. The Rabbitsfoot mussel is a short-term brooder. Suitable fish hosts for Rabbitsfoot populations west of the Mississippi River include Blacktail Shiner (*Cyprinella venusta*) from the Black and Little Rivers and Cardinal Shiner (*Luxilus cardinalis*), Red Shiner (*Cyprinella lutrensis*), Spotfin Shiner (*Cyprinella spiloptera*), and Bluntface Shiner (*Cyprinella camura*) from the Spring River, but host suitability information is lacking for most of the eastern range (Fobian 2007). A host study conducted by ADCNR in 2011, found Scarlet Shiner (*Lythrurus fasciolari*),

Whitetail Shiner and Striped Shiner (*Luxilus chrysocephalus*) to be sympatric hosts with Rabbitsfoot from Paint Rock River, AL. Marginal minnow hosts from studies have included Central Stoneroller, Emerald Shiner (*Notropis atherinoides*), Rosyface Shiner (*Notropis rubellus*), Bullhead Minnow (*Pimephales vigilax*) and Rainbow Darter, but not in all stream populations tested (Fobian 2007, Watters et al. 2009). Widespread distribution reductions, rarity, and declining population trends make it vulnerable to extirpation (Mirarchi et al. 2004).

The USFWS designated critical habitat for the Rabbitsfoot in 2015 (USFWS 2015). In April 2019, the USFWS initiated the Five-Year Review of the Rabbitsfoot.

3.9.1 Potential Occurrence and Habitat Range

The IPaC and Federal Register Listings do not list the Rabbitsfoot as occurring in the counties where the Project Boundary at Lake Harris is located.

There are no published reports of Rabbitsfoot occurrences within the Project Boundary at Skyline.

3.9.2 Field Surveys

The current habitat range does not intersect the Project Boundary, and no areas of critical habitat occur within or adjacent to the Project Boundary. The USFWS did not recommend field surveys for this species.

3.10 Snuffbox Mussel

The USFWS listed the Snuffbox mussel as endangered in 2012. It is found in large creeks to large rivers, generally in gravel and sand substrate in shoal and riffle habitats. Individual mussels often are completely buried or with only their posterior slopes exposed (Parmalee and Bogan 1998). In Alabama, the Snuffbox mussel once occurred in the Tennessee River and several of its tributaries. However, the Snuffbox mussel is assumed to persist only in the Paint Rock River system, Jackson County (Mirarchi et al. 2004) (Appendix B, Figure 3.10-1). The Snuffbox mussel is a long-term brooder with gravid females observed from



Source: US Fish and Wildlife Service. 2019. US Fish and Wildlife Service Midwest Region. Bloomington, MN. [Online] URL: https://www.fws.gov/midwest/endangered/clams/Snuffbox/index.html

September to May, with glochidial discharge in late May (Ortmann 1919). Hosts include Common Logperch (*Percina caprodes*), Roanoke Darter (*Percina roanoka*), and Banded and Black Sculpins (*Cottus baileyi*) (Yeager and Saylor 1995). This species' initial and current imperilment is caused by adverse effects from construction impoundments, including destruction, modification, and curtailment of habitat range (USFWS 2018a). Since its listing, five dams have been removed on streams inhabited by Snuffbox mussel, but status improvements have not been documented in restored reaches of inhabited streams (USFWS 2018a). Other factors that continue to effect Snuffbox populations are water quality degradation caused by agricultural runoff, municipal effluents, industrial sources, and spills (USFWS 2018a). Reduction in Snuffbox range include dredging and channelization, oil and gas production, and development (USFWS 2018a).

The USFWS has a Five-Year Review for the Snuffbox mussel (USFWS 2018a). The Snuffbox mussel does not have a Recovery Plan or designated critical habitat at this time.

3.10.1 Potential Occurrence and Habitat Range

The IPaC and Federal Register Listings do not list the Snuffbox mussel as occurring in the counties where the Project Boundary at Lake Harris is located.

There are no published reports of Snuffbox mussel occurrences within the Project Boundary at Skyline.

3.10.2 Field Surveys

The current habitat range does not intersect the Project Boundary. The USFWS did not recommend field surveys for this species.

3.11 Shiny Pigtoe Mussel



Source: US Fish and Wildlife Service. 2019. US Fish and Environmental Conservation Online System. [Online] URL: https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=F00Q

The USFWS listed the Shiny Pigtoe mussel as endangered in 1976 (Mirarchi et al. 2004). The Shiny Pigtoe mussel lives in shoal and riffle habitat of medium to large rivers. Endemic to the Tennessee River system, this mussel historically occurred from the headwaters downstream to Muscle Shoals, Alabama, and in some of its large tributaries (Parmalee and

Bogan 1998). Although this mussel was extirpated from the Tennessee River proper (Garner and McGregor 2001), it still occurs in several tributaries, including Paint Rock River, Jackson County, Alabama (Ahlstedt 1995) (Appendix B, Figure 3.11-1). The Shiny Pigtoe mussel has a solid and somewhat inflated shell with a maximum length of 3 ⅛ inches, subtriangular in outline, with anterior margin broadly rounded and somewhat obliquely truncate above, and posterior margin nearly straight but obliquely angled; doral and ventral margins nearly straight (Mirarchi et al. 2004). This species is a short-term brooder, spawning from late May to early June and gravid from mid-May to mid-July (Ortmann 1921; Kitchel 1985). Glochidia use fish in the shiner family (Cyprinidae), including Telescope Shiner, Warpaint Shiner (*Luxilus coccogenis*), and Common Shiner (*Luxilus cornutus*) as hosts (Kitchel 1985). This species is imperiled due to impoundments, siltation, and pollution caused by coal mining, urbanization, agriculture, and toxic chemical spills (USFWS 2013b). The Shiny Pigtoe's small population size and limited geographic distribution make it vulnerable to stochastic disturbances and decreased fitness from reduced genetic diversity (USFWS 2013b).

The USFWS has both a 1984 Recovery Plan (USFWS 1984b) and a Five-Year Review (USFWS 2013b) for the Shiny Pigtoe.

3.11.1 Potential Occurrence and Habitat Range

The IPaC and Federal Register Listings do not list the Shiny Pigtoe as occurring in the counties where the Project Boundary at Lake Harris is located.

There are no published reports of Shiny Pigtoe occurrences within the Project Boundary at Skyline.

3.11.2 Field Surveys

The current habitat range does not intersect the Project Boundary. The USFWS did not recommend field surveys for this species.

3.12 Southern Pigtoe



Source: US Fish and Wildlife Service. 2015. Georgia Ecological Services Field Offices. [Online] URL: https://www.fws.gov/athens/endangered/teinverts.html

The Southern Pigtoe is an endangered mussel found in Clay and Cleburne Counties. The Southern Pigtoe is an elliptical to oval shaped mussel that has a maximum length of approximately 2.5 inches (USFWS 2019c). This mussel lives in medium streams to large rivers in habitats having sand/gravel substrates and moderate to swift currents. Historically, this mussel was found in Alabama, Georgia, and Tennessee and is endemic to the Coosa River system (USFWS 2019c, Mirarchi 2004) (Appendix B, Figure 3.12-1). Regarding reproduction, the Southern Pigtoe releases glochidia during spring and early summer, and confirmed host species include Alabama Shiner (*Cyprinella callistia*), Blacktail Shiner, and Tricolor Shiner (*Cyprinella trichroistia*) (USFWS 2019c).

The historic construction of dams and impoundments along large reaches of river channels is the primary cause of the decline in Southern Pigtoe's distribution and population size and continues to be a major threat to this species' persistence (USFWS 2019b). This species continues to be imperiled due to water withdrawals, water quality degradation including sedimentation released from dams and agricultural runoff, downstream flow alterations caused by hydropeaking dams, and climate change (USFWS 2019b).

The USFWS has a Five-Year Review (USFWS 2019c) for the Southern Pigtoe. Critical habitat was designated for this species in 2004, which includes 973 miles of stream channel in Alabama, Mississippi, Tennessee, and Virginia. The Lake Harris Project Area does not encompass critical habitat areas identified by the USFWS (USFWS 2004); no populations were identified within the Project Boundary at Lake Harris (Appendix B, Figure 3.12-1).

3.12.1 Potential Occurrence and Habitat Range

The Lake Harris Project Area does not encompass critical habitat areas identified by the USFWS (USFWS 2004); no populations were identified within the Project Boundary at Lake Harris (Appendix B, Figure 3.12-1). Southern Pigtoe does not likely occur within the Project

Boundary at Lake Harris, because the Documented Historic Range in Cleburne County exists exclusively in the Coosa River Basin.

The IPaC and Federal Register Listings do not list the Southern Pigtoe as occurring in the county where the Project Boundary at Skyline is located.

3.12.2 Field Surveys

There are no published reports of any specimens, and no areas of critical habitat occur within or adjacent to the Project Boundary. The USFWS did not recommend surveys for Southern Pigtoe; however, two sites where the Southern Pigtoe's current habitat range intersects the Project Boundary at Lake Harris in Ketchepedrakee Creek were included in Finelined Pocketbook surveys. No Southern Pigtoe specimens were found during surveys (Finelined Pocketbook (*Hamiota altilis*) Survey Report (Appendix E)).

3.13 Slabside Pearlymussel



Source: Wikipedia. 2019. Pleuronaia dolabelloides. [Online] URL: https://en.wikipedia.org/wiki/Pleuronaia_dolabelloides

The USFWS listed the Slabside Pearlymussel as endangered with critical habitat designated in 2013 (USFWS 2016d). The Slabside Pearlymussel historically occurred in Alabama in the Tennessee River and several of its tributaries. This species is subtriangular in shape, reaches an average length of 3.5 inches, and has dense, moderately inflated valves and a white nacre. This species typically inhabits large creeks and rivers in shallow riffles comprised of sand, gravel, and cobble substrates with moderate current. The Slabside Pearlymussel is a short-term, summer brooder that is known to use several species in the family Cyprinidae as glochidial hosts (USFWS 2013c). The U.S. Department of Interior designated 13 critical habitat units encompassing approximately 970 miles of stream channel in Alabama, Mississippi, Tennessee, and Virginia for the Slabside Pearlymussel. In Jackson County, the designated critical habitat includes the Paint Rock River, Larkin Fork, Estill Fork, and Hurricane Creek (Appendix B, Figure 3.13-1). Decline of this species is attributed primarily to habitat loss and degredation associated with impoundments, gravel and coal mining, sedimentation, water pollution, and stream channel alterations (USFWS 2013c).

The USFWS designated critical habitat for the Slabside Pearlymussel in 2013 (USFWS 2013c). There is no Recovery Plan or Five-Year Review for the Slabside Pearlymussel.

3.13.1 Potential Occurrence and Habitat Range

The IPaC and Federal Register Listings do not list the Slabside Pearlymussel as occurring in the counties where the Project Boundary at Lake Harris is located.

Designated critical habitat for the Slabside Pearlymussel exists to the west of the Project Boundary at Skyline in the Paint Rock River and Hurricane Creek. There are no published reports of Slabside Pearlymussel occurrences within the Project Boundary at Skyline.

3.13.2 Field Surveys

The current habitat range does not intersect the Project Boundary, and no areas of critical habitat occur within or adjacent to the Project Boundary. The USFWS did not recommend field surveys for this species.

3.14 Indiana Bat

The USFWS listed the Indiana Bat as an endangered species in 1976. Habitat conducive to the Indiana Bat is located in the central to north and eastern portions of Alabama (Appendix B, Figures 3.14-1 to 3.14-3). This species hibernates in caves, mostly in tight clusters. In the summer, females form small maternity colonies in tree hollows and behind loose bark. A single pup is born in June or early July and weaned in 25-35 days. The diet of this species includes small, soft-bodied insects, including moths, flies, and beetles (Mirarchi et al. 2004). The Indiana Bat is vulnerable to extinction due to habitat loss and White Nose Syndrome, a fungal disease.



Source: US Fish and Wildlife Service. 2019. US Fish and Wildlife Service Midwest Region. Bloomington, MN. [Online] URL: https://www.fws.gov/midwest/endangered/permits/hcp/FowlerRidge/

The USFWS has a 2007 Draft Recovery Plan (USFWS 2007b) for the Indiana Bat, as well as a 1977 final correction and augmentation of critical habitat (USFWS 1977). Designated critical habitat does not occur within the Project Boundary.

3.14.1 Potential Occurrence and Habitat Range

While the Lake Harris and Skyline Project Boundaries fall within the range of the Indiana Bat, there have been no reports of overwintering or summer roosting occurrences at either location. A large portion (66.5 percent) of the Harris Project is comprised of forested cover that likely provides some suitable summer roosting habitat for the Indiana Bat (Appendix B, Figures 3.14-1 and 3.14-3). In addition, Skyline has 10,782 acres of karst geology conducive to cave formation; however, no known hibernacula have been reported (Appendix B, Figure 3.14-2).

The Indiana Bat could potentially use the forests within the Project Boundaries at Lake Harris and Skyline for roosting during the summer months and could potentially use the Skyline WMA year-round because of the presence of potentially suitable habitat (i.e., karst geology).

3.14.2 Field Surveys

The USFWS did not recommend surveys for any bat species, because Alabama Power uses best management practices (BMPs) for timber harvest that are protective of these bats. Furthermore, no areas of critical habitat occur within or adjacent to the Project Boundary. Information on timber management within the Project Boundary at Lake Harris can be found in the Wildlife Management Plan that will be filed as part of the license application.

3.15 Northern Long-eared Bat



Source: US Fish and Wildlife Service. 2019. US Fish and Wildlife Service Midwest Region. Bloomington, MN. [Online] URL: https://www.fws.gov/Midwest/endangered/mammals/nleb/nlebFactSheet.html

The USFWS listed the Northern Long-eared Bat (*Myotis septentrionalis*) as threatened on April 2, 2015, with a final rule published in the Federal Register on January 14, 2016. On April 27, 2016, the USFWS determined that the designation of critical habitat for the species was not prudent; therefore, critical habitat has not been established for the Northern Long-eared Bat (USFWS 2016f). The Northern Long-eared Bat was historically distributed statewide; however, there is only low occurrence, if at all, in the southwestern region of Alabama (Mirarchi et al. 2004). The Northern Long-eared Bat feeds on invertebrates and is known to glean prey from vegetation and water surfaces. The

Northern Long-eared Bat winters in groups in underground caves and cave-like structures but in the summers, it roosts singularly or in small colonies in cavities, under bark, or in hollows of live and dead trees typically greater than 3 inches in diameter. Suitable roosting trees possess exfoliating bark, cavities, or cracks (USFWS 2016f). The Northern Long-eared Bat has a single pup born in late spring or early summer with the offspring weaned approximately one month after birth (Mirarchi et al. 2004). The primary threat to the Northern Long-eared Bat is White Nose Syndrome, a fungal disease (USFWS 2016f).

The USFWS does not have a Recovery Plan, Five-Year Review, or designated critical habitat for the Northern Long-eared Bat.

3.15.1 Potential Occurrence and Habitat Range

While the Project Boundaries at Lake Harris and Skyline fall within the range of the Northern Long-eared Bat, there have been no reports of overwintering or summer roosting occurrences at either location. A large portion (66.5 percent) of the Harris Project is comprised of forested cover that likely provides some suitable summer roosting habitat for the Northern Long-eared Bat (Appendix B, Figures 3.15-1 and 3.15-3). In addition, Skyline has 10,782 acres of karst geology conducive to cave formation; however, no known hibernacula or maternity roost trees have been reported in or within 0.25 miles and 150 feet[7] of the Project Boundary, respectively (Appendix B, Figure 3.15-2).

The Northern Long-eared Bat could potentially use the forests within the Project Boundaries at Lake Harris and Skyline for roosting during the summer months and could potentially use the Skyline WMA year-round because of the presence of potentially suitable habitat (i.e., karst geology).

3.15.2 Field Surveys

The USFWS did not recommend surveys for any bat species, because Alabama Power uses BMPs for timber harvest that are protective of these bats. Information on timber management within the Project Boundary at Lake Harris can be found in the Wildlife Management Plan that will be filed as part of the license application.

[7] The USFWS's Northern Long-eared Bat 4(d) rule prohibits incidental take that may occur from tree removal activities within 0.25 miles of hibernacula at any time or within 150 feet of roost trees during the months of June and July.

3.16 Gray Bat

The Gray Bat (*Myotis grisescens*) was listed as endangered on April 28, 1976. The Gray Bat is distinguished from other bats by the uni-colored fur on its back. This species molts in the summer, when its dark gray fur turns to a chestnut brown (USFWS 1997b). This species can be found in caves year-round, using them both in the summer roosting and winter hibernating periods (Appendix B, Figures 3.16-1 and 3.16-2). Typically, these caves are scattered along rivers or lakes where the Gray Bat feeds on flying aquatic and terrestrial insects (USFWS 1997b). Breeding takes place in the fall, with a single pup born in late May or early June (Mirarchi et al. 2004, USFWS 1997b). According to its Five-Year Review, the main threat to Gray Bat populations is human disturbance in unprotected caves (USFWS 2009).



Source: US Fish and Wildlife Service. 2019. US Fish and Wildlife Service Midwest Region. Bloomington, MN. [Online] URL: https://www.fws.gov/midwest/endangered/mammals/grbat_fc.html

The USFWS has both a Recovery Plan (USFWS 1982) and Five-Year Review (USFWS 2009) for the Gray Bat.

3.16.1 Potential Occurrence and Habitat Range

The IPaC and Federal Register Listings do not list the Gray Bat as occurring in the counties where the Project Boundary at Lake Harris is located.

Skyline falls within the current habitat range of the Gray Bat and has approximately 10,782 acres of karst geology (Appendix B, Figure 3.16-1). Although the Gray Bat uses caves for both winter hibernaculum and summer roosting, there have been no reports of overwintering or summer roosting occurrences within the Project Boundary at Skyline (Appendix B, Figure 3.16-1).

3.16.2 Field Surveys

The USFWS did not recommend surveys for any bat species because Alabama Power uses

BMPs for timber harvest that are protective of these bats. Information on timber management within the Project Boundary at Lake Harris can be found in the Wildlife Management Plan that will be filed as part of the license application.

3.17 Little Amphianthus



Source: US Fish and Wildlife Service. 2015. Georgia Ecological Services Field Offices. Athens, GA; Townsend, GA, Ft. Benning, GA. [Online] URL: https://www.fws.gov/athens/endangered/teplants.html

The Little Amphianthus (*Gratiola amphiantha*) was listed as threatened in 1988 under the Endangered Species Act (ESA). Historically, this species is known to inhabit 57 sites in Georgia, Alabama, and South Carolina. In Alabama, limited populations occur in Randolph (two sites) and Chambers (one site) counties (Appendix B, Figure 3.17-1). This species is a small, aquatic annual herb with floating and submerged leaves. The tiny white to pale purple flowers are found among both the floating and submerged leaves. An ephemeral species, the entire life cycle of this plant may be completed within three to four weeks in the spring. This species has a very specific habitat that is restricted to vernal pools on granite outcrops in the southeastern Piedmont. Optimal habitat has been described as a shallow, flat-bottomed pool with a rock rim (NatureServe 2015). In 1993, the USFWS prepared a recovery plan (USFWS 1993a) which identified threats to the species including: quarrying activities; conversion of habitat to pasture for farm animals; dumping of waste material; vehicular traffic including off-road vehicles, motorbikes, automobiles, and logging equipment; recreation impacts including foot traffic, littering, or vandalism; and, insufficient regulations. Little Amphianthus will be considered for delisting when 20 viable, geographically separate populations (at least two in Alabama) have been permanently protected. A population is considered viable when it has the reproductive fitness to maintain itself.

A Five-Year Review conducted in 2007 by the USFWS concluded that the population of Little Amphianthus is declining (USFWS 2007a). Surveys found that 44 of the 65 original populations are still known to be intact. Since the recovery plan has been implemented, sixteen (25 percent) of the populations have been extirpated, and four populations have become tremendously degraded, and are at risk of being extirpated (USFWS 2007a).

3.17.1 Potential Occurrence and Habitat Range

One occurrence was reported within the Project Boundary at Lake Harris, specifically in Flat Rock Park on March 17, 1995 (ALNHP 2019), but subsequent surveys in Fall 2018, Spring 2019, and Fall 2019 did not detect the plant[8], and it is assumed extirpated from the site. There are 138.4 acres of granite rock geology occurring within the western edge of the Project Boundary at Lake Harris that could contain outcroppings for Little Amphianthus (Appendix B, Figure 3.17-1). Desktop resources like the National Wetland Inventory do not provide accurate enough detail to identify the specific habitat characteristics of Little Amphianthus, such as the presence of vernal pools; however, vernal pools were identified during the 2019 surveys at Flat Rock Park.

The IPaC and Federal Register Listings do not list Little Amphianthus as occurring in the county where the Project Boundary at Skyline is located.

3.17.2 Field Surveys

Consultation with the Alabama Natural Heritage Program (ALNHP) determined that the only suitable habitat for Little Amphianthus occurs at Flat Rock Park[9]; however, Little Amphianthus was not found during the botanical inventory of Flat Rock Park in 2018 and 2019. The USFWS did not recommend additional field surveys for this species.

[8] Surveys were conducted for the Flat Rock Botanical Inventory Report, Appendix D of the Final Project Lands Report filed with FERC on October 2, 2020 (Accession No. 20201002-5139).

[9] Reference email dated August 15, 2020 between the ALNHP and Alabama Power as included in the T&E Study Consultation record filed concurrently within this report.

3.18 White Fringeless Orchid


White fringeless orchid. Credit - USFWS

Source: US Fish and Wildlife Service. 2016. Tennessee Ecological Services Field Office. [Online] URL: https://www.fws.gov/cookeville/Whitefringelessrchid.html

The White Fringeless Orchid was listed as threatened under the ESA in September of 2016 (USFWS 2016a). Two extant populations have been identified in Clay and Cleburne in Talladega National Forest (Appendix B, Figures 3.18-1 and 3.18-2). This species is a slender, erect, perennial herb that grows in colonies. The fragrant, white flowers grow in loose, round to elongated, terminal clusters with 6 to 15 flowers in each cluster. The stem is light green, smooth, and can grow up to 3.6 inches. The orchid blooms from late July to early September with fruits maturing in October. White Fringeless Orchid typically occurs in wet, flat, or boggy areas with acidic muck or sand. This plant prefers partially shaded areas at the head of streams or seepage slopes. The primary threat to this species is the destruction and alteration of its habitat including excessive shading, soil disturbance, altered hydrology, and the spread of invasive species. Other threats include unauthorized collection for recreational or commercial purposes, herbivory, and small population sizes (Federal Register 2016). A recovery plan has not been completed for this species.

3.18.1 Potential Occurrence and Habitat Range

The habitat range of the White Fringeless Orchid overlaps the Project Boundaries at Lake Harris and Skyline; however, there are no published reports of White Fringeless Orchid occurrences within the Project Boundaries Lake Harris and Skyline (Appendix B, Figures 3.18-1 and 3.18-2). The known extant populations in Clay and Cleburne counties are within Talladega National Forest, and the status of a third population in Jackson County outside of the Project Boundary at Skyline is uncertain (USFWS 2016a).

Although this species uses wetland habitats, the National Wetland Inventory is not detailed enough to identify wetlands containing the plant's unique habitat characteristics;

however, consultation with the ALNHP determined that suitable habitat was present within the Project Boundaries at Lake Harris and Skyline[10].

3.18.2 Field Surveys

Alabama Power developed survey methods for White Fringeless Orchid in consultation with the USFWS[11] and conducted surveys within and near the Project Boundary at Lake Harris and Skyline. Habitat at the survey sites was marginal at best. The best habitat documented was at a site in the Project Boundary at Lake Harris where Small Green Wood Orchid (*Platanthera clavellata*), a species known to occur along with White Fringeless Orchid, had previously been found (Spaulding 2020, personal communication). Surveyed habitat was typically not suitable due to excessive amounts of shade from dense canopies, disturbance, soil type, inundation, vegetation community (lack of common associates), and steep slopes. Methods and results of White Fringeless Orchid surveys are described in White Fringeless Orchid (*Platanthera integrilabia*) & Price's Potato-bean (*Apios priceana*) Survey Report (Appendix F).

3.19 Price's Potato-bean



Source: US Fish and Wildlife Service. 2019. US Fish and Wildlife Service Midwest Region. Bloomington, MN. [Online] URL: https://www.fws.gov/midwest/endan

Price's Potato-bean (*Apios priceana*) was listed as threatened in 1990. A member of the pea family (Fabaceae), this species' historic range included Alabama, Illinois, Kentucky, Mississippi, and Tennessee. Price's Potato-bean is a twining, herbaceous, perennial vine that grows from a tuber and has greenish-white or brownish-pink flowers. This species is found in open, bottom areas near or along the banks of streams and rivers, sometimes near the base of limestone

[10] Reference emails dated July 24, 2020 and August 4, 2020 between the ALNHP and Alabama Power as included in the T&E Study Consultation record filed concurrently within this report.

[11] Reference emails dated August 26, 2020 between USFWS and Alabama Power as included in the T&E Study Consultation record filed concurrently within this report.

bluffs (Appendix B, Figure 3.19-1[12]). Since publication of this species' Recovery Plan (USFWS 1993b), many new populations have been discovered. Twenty of the 25 populations included in the recovery plan are still extant and apparently stable (USFWS 2016g).

3.19.1 Potential Occurrence and Habitat Range

The IPaC and Federal Register Listings do not list Price's Potato-bean as occurring in the counties where the Project Boundary at Lake Harris is located.

According to the Five-Year Review, there are currently 16 extant populations of Price's Potato-bean in Alabama distributed among nine counties: Autauga (2), Butler (1), Dallas (2), Jackson (2), Lawrence (1), Madison (5), Marshall (1), Monroe (1), and Wilcox (1). The populations in Jackson County occur on Sauta Cave National Wildlife Refuge, and near Little Coon Creek in the Skyline WMA (Appendix B, Figure 3.19-1[13]). One of these extant populations 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. According to its Five-Year Review, 7 of the 15 populations of Price's Potato-bean in Alabama face one or more of the following threats; incompatible logging, excessive shading by canopy trees, road and right-of-way interference, and competition with non-native, invasive species (USFWS 2016g).

3.19.2 Field Surveys

The USFWS did not formally recommend surveys for Price's Potato-bean, but Alabama Power conducted surveys for this species in areas of potential habitat along Little Coon Creek within the Project Boundary at Skyline as a secondary objective during the White Fringeless Orchid surveys. No specimens were found at the known population near Little Coon Creek. Alabama Power returned at a later date to conduct additional surveys in two locations near the known population with suitable habitat but did not find Price's Potato-

[12] A 100-foot stream buffer within limestone landscape was included in this figure to highlight low areas along or near the banks of streams and rivers, which this species seems to prefer. 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.

[13] The recent documented occurrence (1995-2020) of Price's Potato-bean in this figure is portrayed as the entirety of Little Coon Creek. More specifically, the recent documented occurrence of this species is restricted to the section of Little Coon Creek near the northern Project Boundary at Skyline and extends partially into the Project Boundary.

bean. Canopy cover may have been too dense to support populations of Price's Potato-bean. Methods and results of Price's Potato-bean surveys are described in the White Fringeless Orchid (*Platanthera integrilabia*) & Price's Potato-bean (*Apios priceana*) Survey Report (Appendix F).

3.20 Morefield's Leather Flower

Morefield's Leather Flower (*Clematis morefieldii*), a perennial vine in the buttercup family (Ranunculaceae), was listed as endangered in 1992. This species has urn-shaped flowers that are pinkish in color and typically present from May to July. Morefield's Leather Flower typically occurs near seeps and springs in rocky limestone woods on south and southwest facing slopes of mountains (Appendix B, Figure 3.20-1). According to the Five-Year Review, there are currently 10 extant populations in Alabama in the counties of Madison and Jackson (USFWS 2018b) (Appendix B, Figure 3.20-1). Populations are imperiled by residential development, logging, and/or roadway interference (USFWS 2018b). There are no published reports of Morefield's Leather Flower within the Project Boundary at Skyline.



Source: The Encyclopedia of Alabama. 2019. Alabama Humanities Foundation. [Online] URL: http://www.encyclopediaofalabama.org/article/

3.20.1 Potential Occurrence and Habitat Range

The IPaC and Federal Register Listings do not list Morefield's Leather Flower as occurring in the counties where the Project Boundary at Lake Harris is located.

Although Morefield's Leather Flower is known to occur in Jackson County, there are no published reports of specimens within the Project Boundary at Skyline.

3.20.2 Field Surveys

The Project Boundary at Skyline contains mountain slopes in wooded limestone areas, which Morefield's Leather Flower favors; however, the current habitat range of Morefield's Leather Flower does not intersect the Project Boundary at Skyline. USFWS did not recommend surveys for this species[14].

[14] Reference meeting notes from HAT 3 meeting held on August 27, 2019 as included in the T&E Study Consultation record filed concurrently within this report.

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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 Centrigrade
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 Soils
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

APPENDIX B

SPECIES HABITAT RANGE MAPS

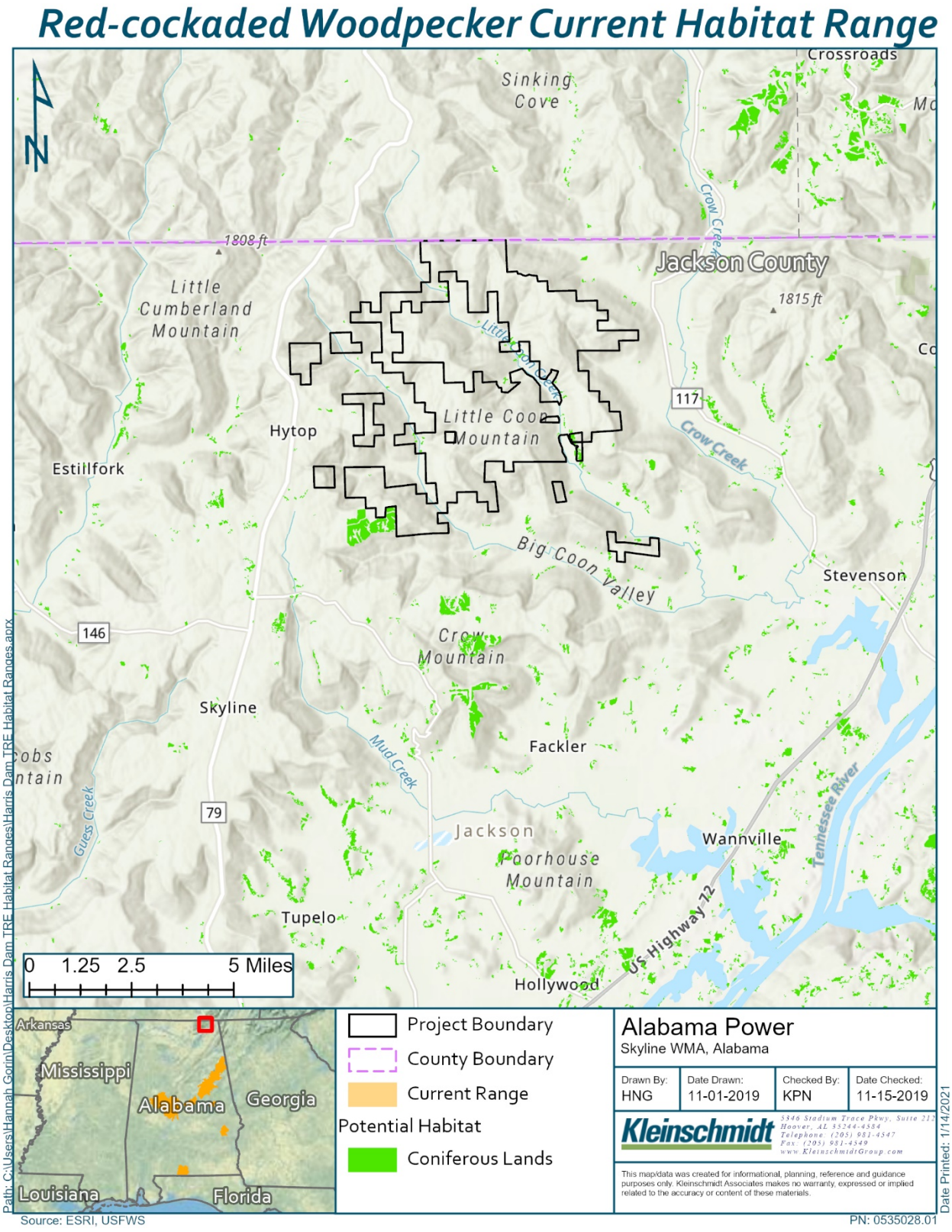

Red-cockaded Woodpecker Current Habitat Range
Sinking Cove
Crossroads
1808 ft
Little Cumberland Mountain
Jackson County
1815 ft
Little Coon Mountain
Hytop
Estillfork
117
Crow Creek
Big Coon Valley
Stevenson
146
Crow Mountain
Skyline
Fackler
Mud Creek
Guess Creek
79
Jackson
Poorhouse Mountain
Wannville
Tennessee River
Tupelo
US Highway 72
Hollywood
0 1.25 2.5 5 Miles
Arkansas
Mississippi
Alabama
Georgia
Louisiana
Florida
Project Boundary
County Boundary
Current Range
Potential Habitat
Coniferous Lands
Alabama Power
Skyline WMA, Alabama
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Figure 3.1-1

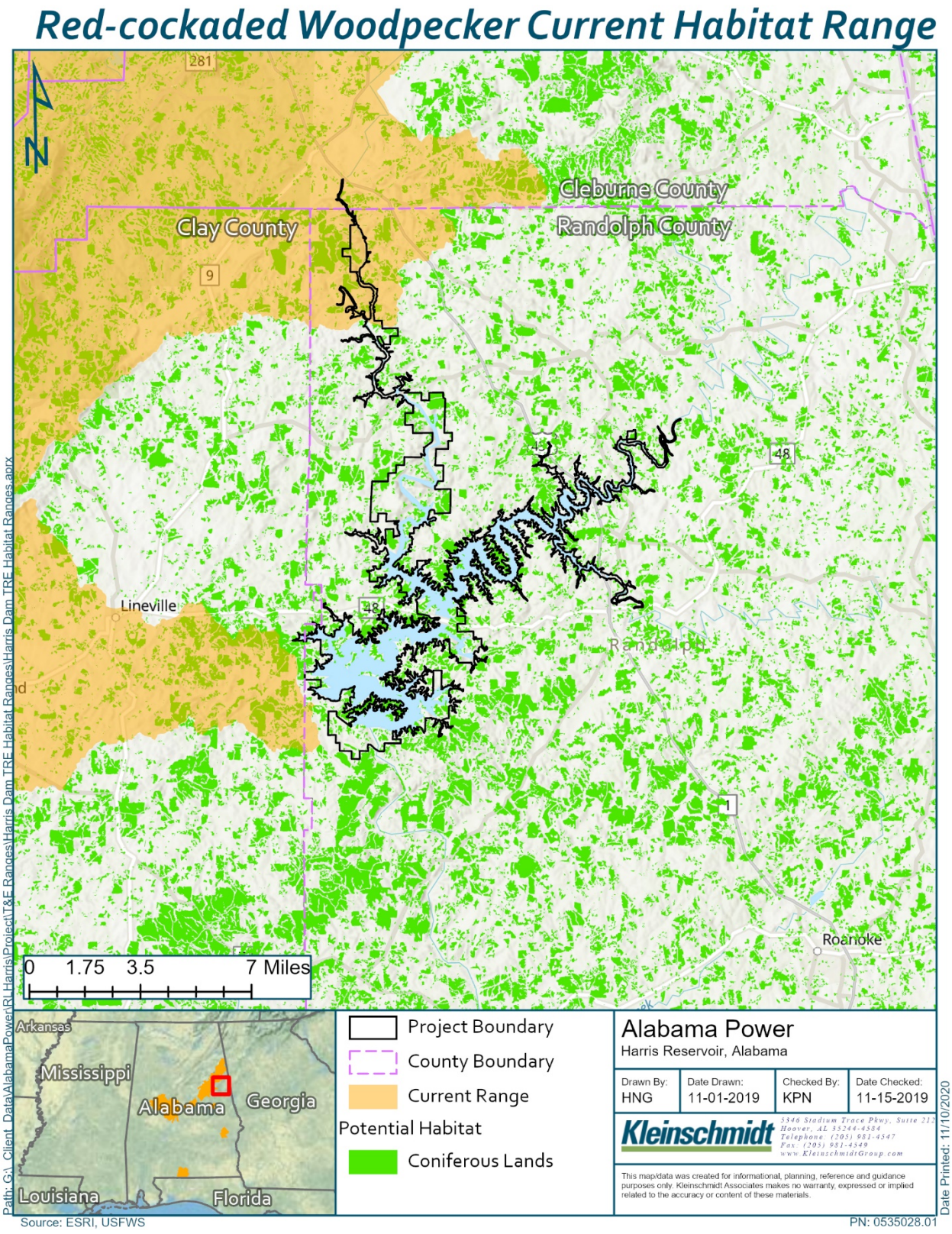

Red-cockaded Woodpecker Current Habitat Range
N
281
Cleburne County
Clay County
Randolph County
9
48
Lineville
Roanoke
0 1.75 3.5 7 Miles
Arkansas
Mississippi
Alabama
Georgia
Louisiana
Florida
Project Boundary
County Boundary
Current Range
Potential Habitat
Coniferous Lands
Alabama Power
Harris Reservoir, Alabama
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Figure 3.1-2

Palezone Shiner Current Habitat Range

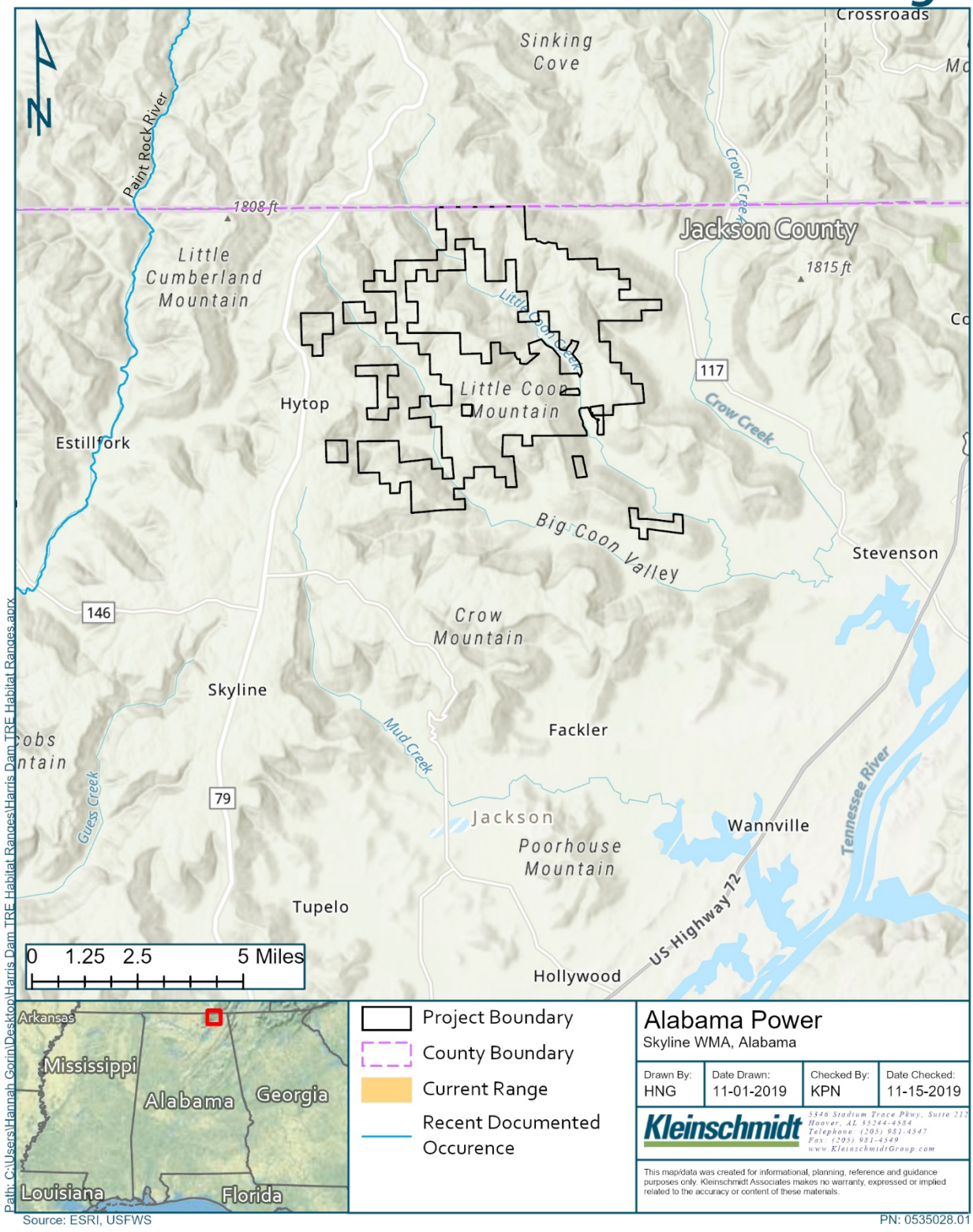


Figure 3.2-1

Spotfin Chub Current Habitat Range

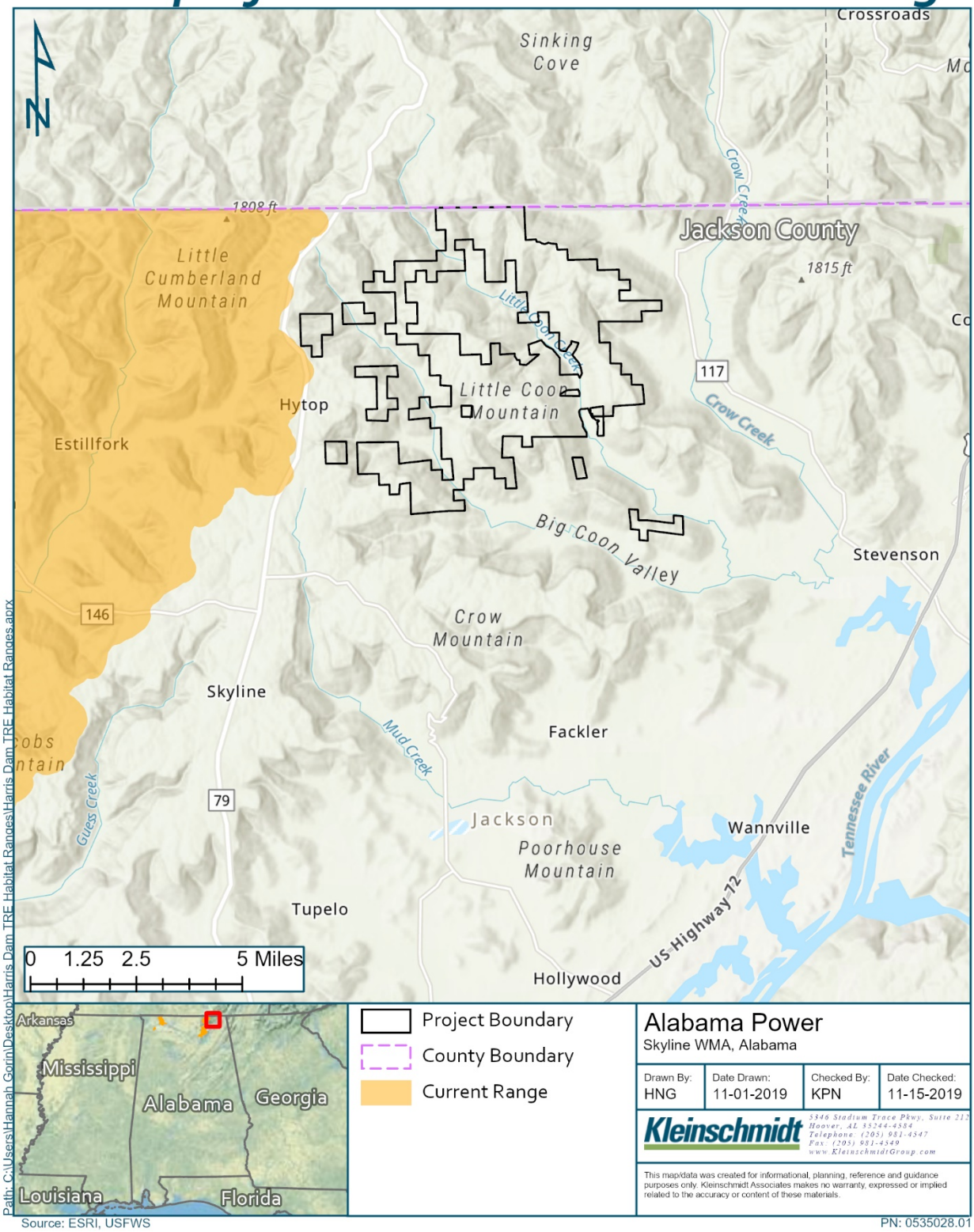


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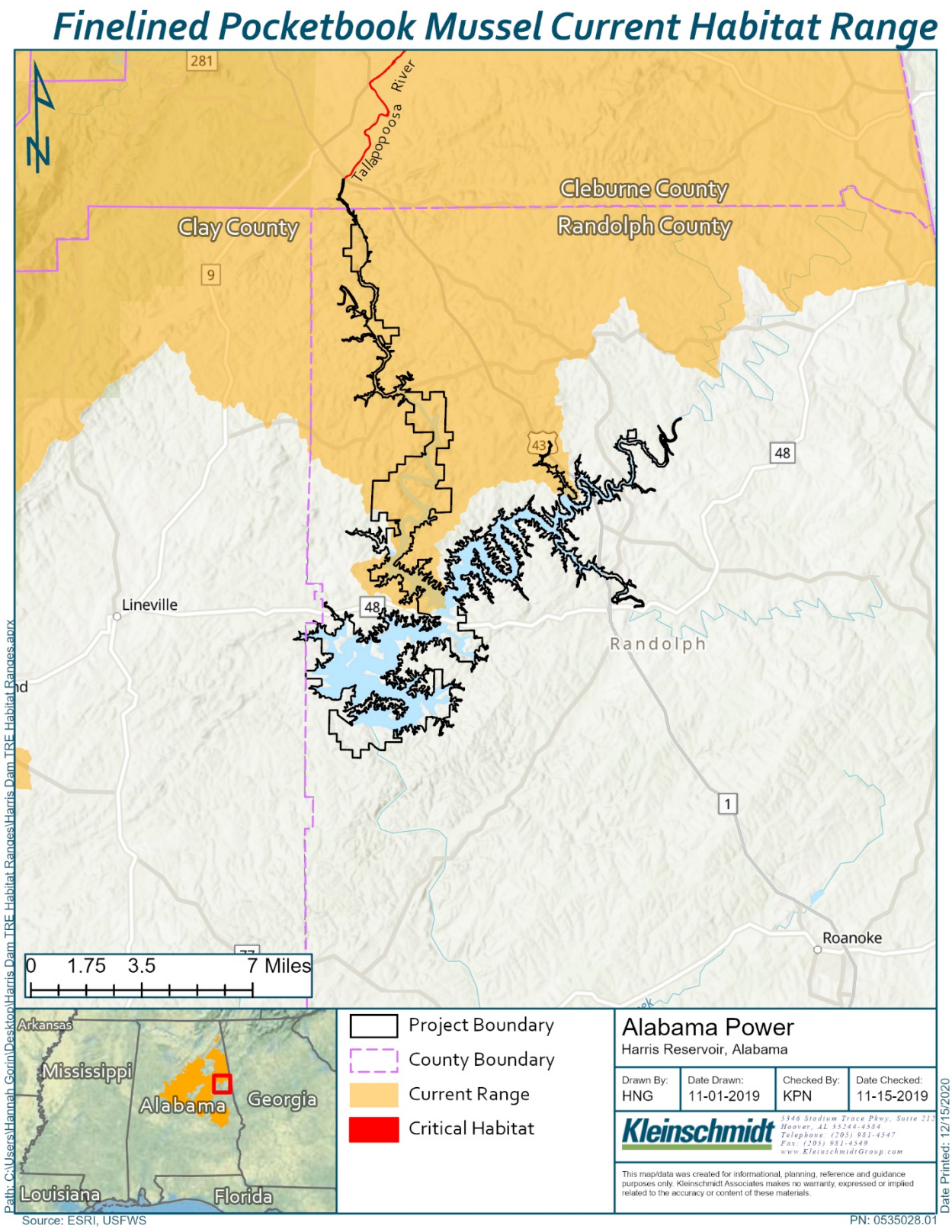

Finelined Pocketbook Mussel Current Habitat Range
281
Tallapoosa River
Cleburne County
Randolph County
Clay County
9
43
48
Lineville
Randolph
1
Roanoke
0 1.75 3.5 7 Miles
Arkansas
Mississippi
Alabama
Georgia
Louisiana
Florida
Project Boundary
County Boundary
Current Range
Critical Habitat
Alabama Power
Harris Reservoir, Alabama
Drawn By: HNG
Date Drawn: 11-01-2019
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Figure 3.4-1

Alabama Lampmussel Current Habitat Range

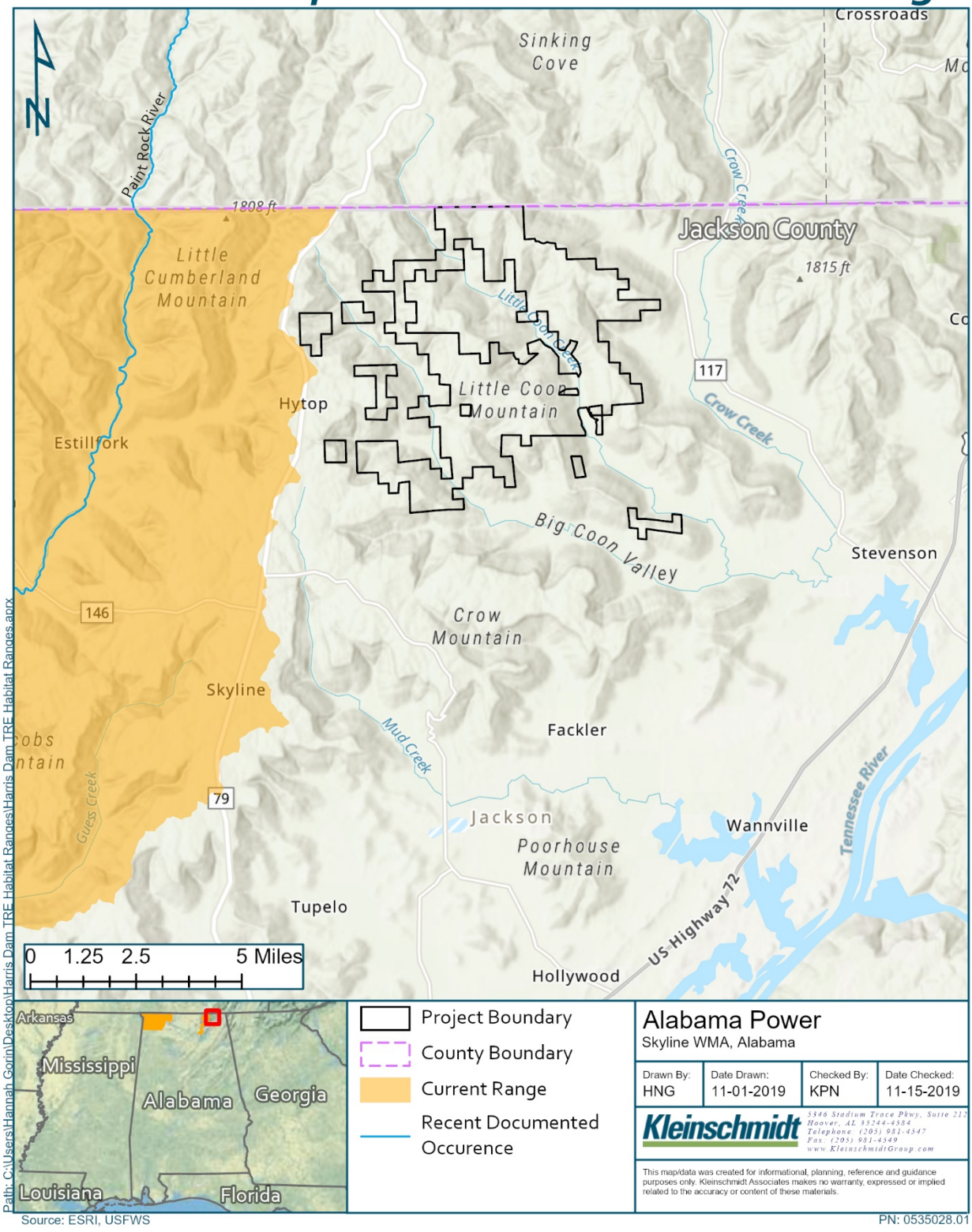


Figure 3.5-1

Cumberland Bean Current Habitat Range

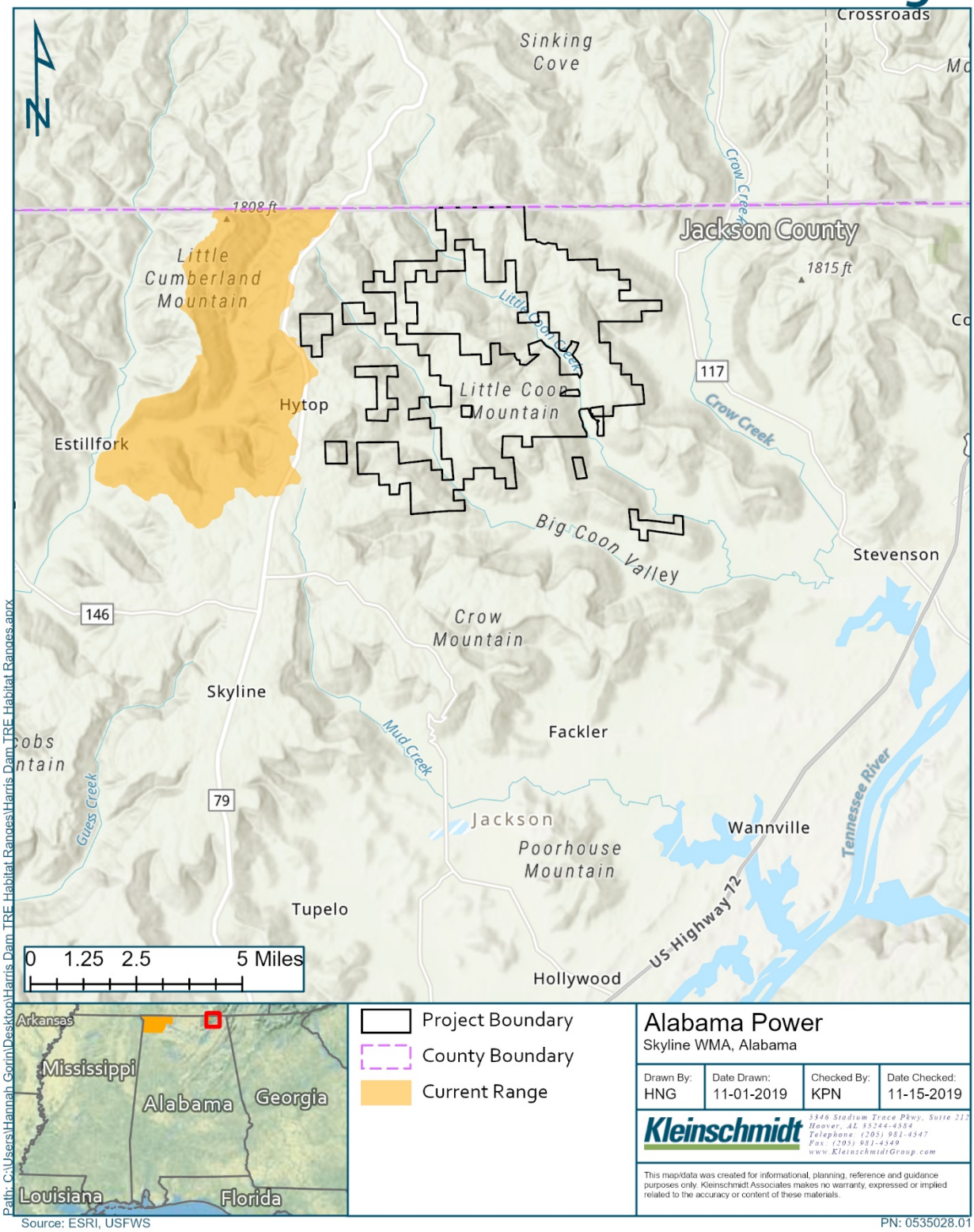


Figure 3.6-1

Fine-rayed Pigtoe Current Habitat Range

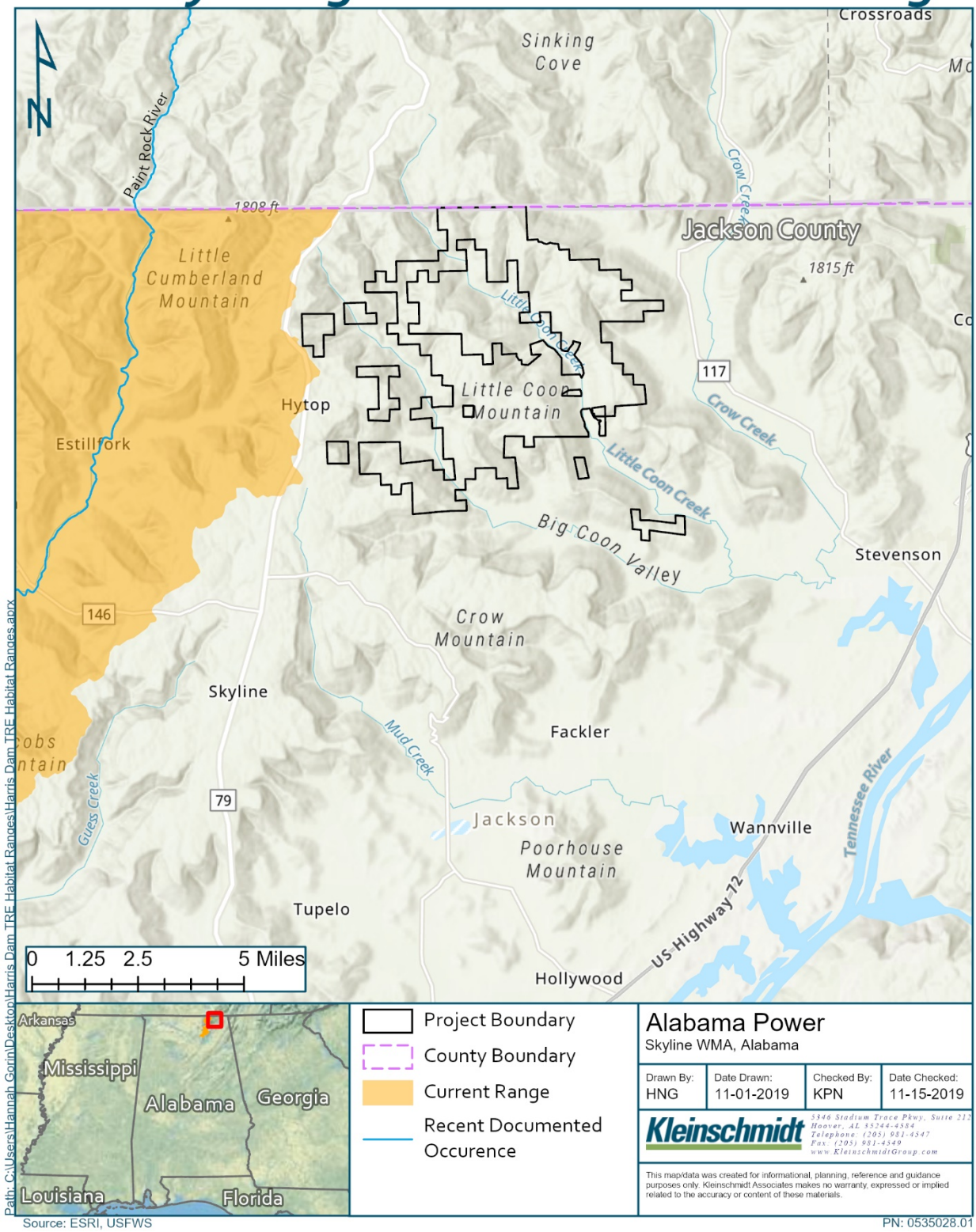


Figure 3.7-1

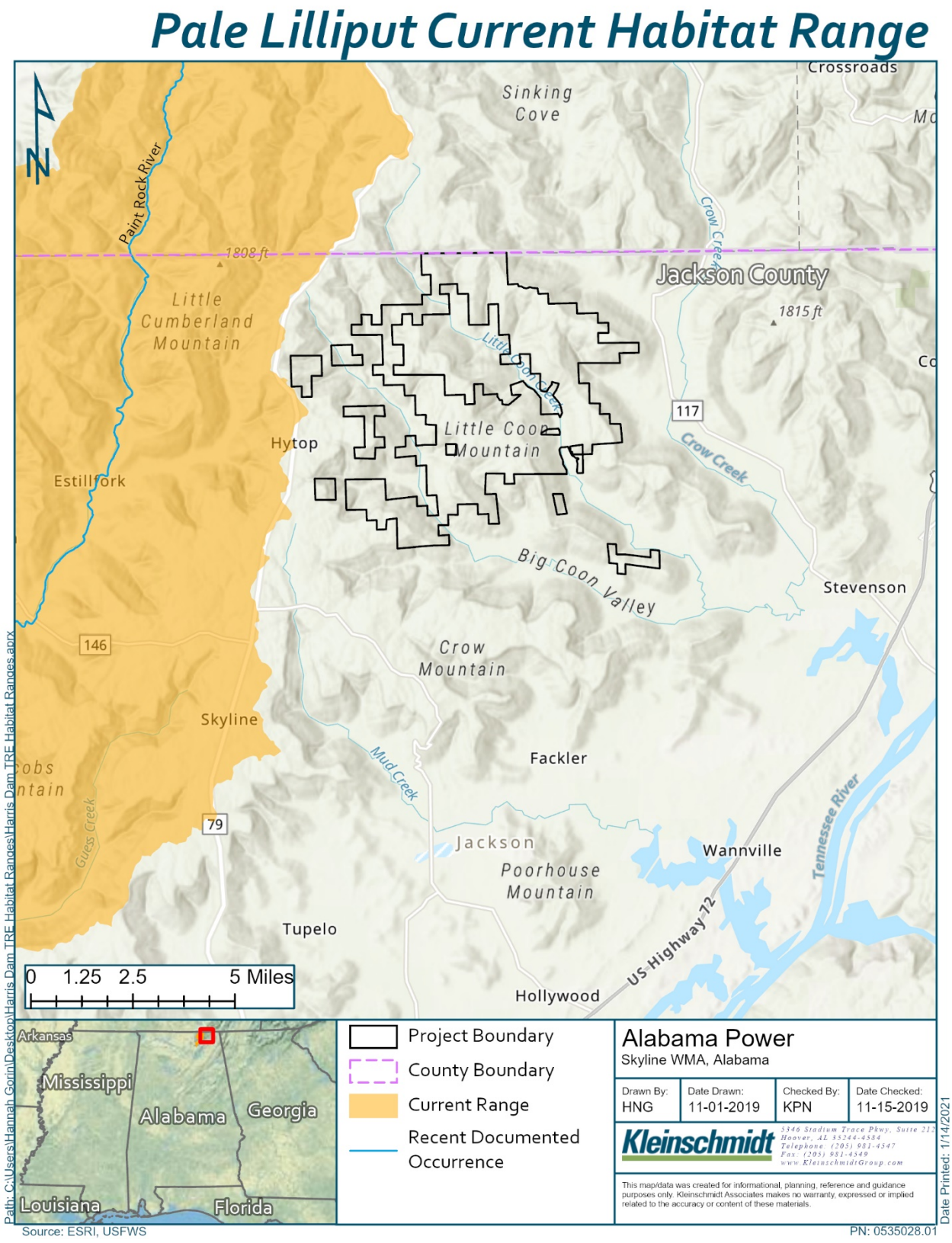

Pale Lilliput Current Habitat Range
Sinking Cove
Crossroads
Paint Rock River
1808 ft
Little Cumberland Mountain
Jackson County
1815 ft
Little Coon Mountain
Hytop
Estillfork
117
Crow Creek
Big Coon Valley
Stevenson
146
Crow Mountain
Skyline
Fackler
Mud Creek
Guess Creek
79
Jackson
Poorhouse Mountain
Wannville
Tennessee River
Tupelo
US Highway 72
Hollywood
0 1.25 2.5 5 Miles
Arkansas
Mississippi
Alabama
Georgia
Louisiana
Florida
Project Boundary
County Boundary
Current Range
Recent Documented Occurrence
Alabama Power
Skyline WMA, Alabama
Drawn By: HNG
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Figure 3.8-1

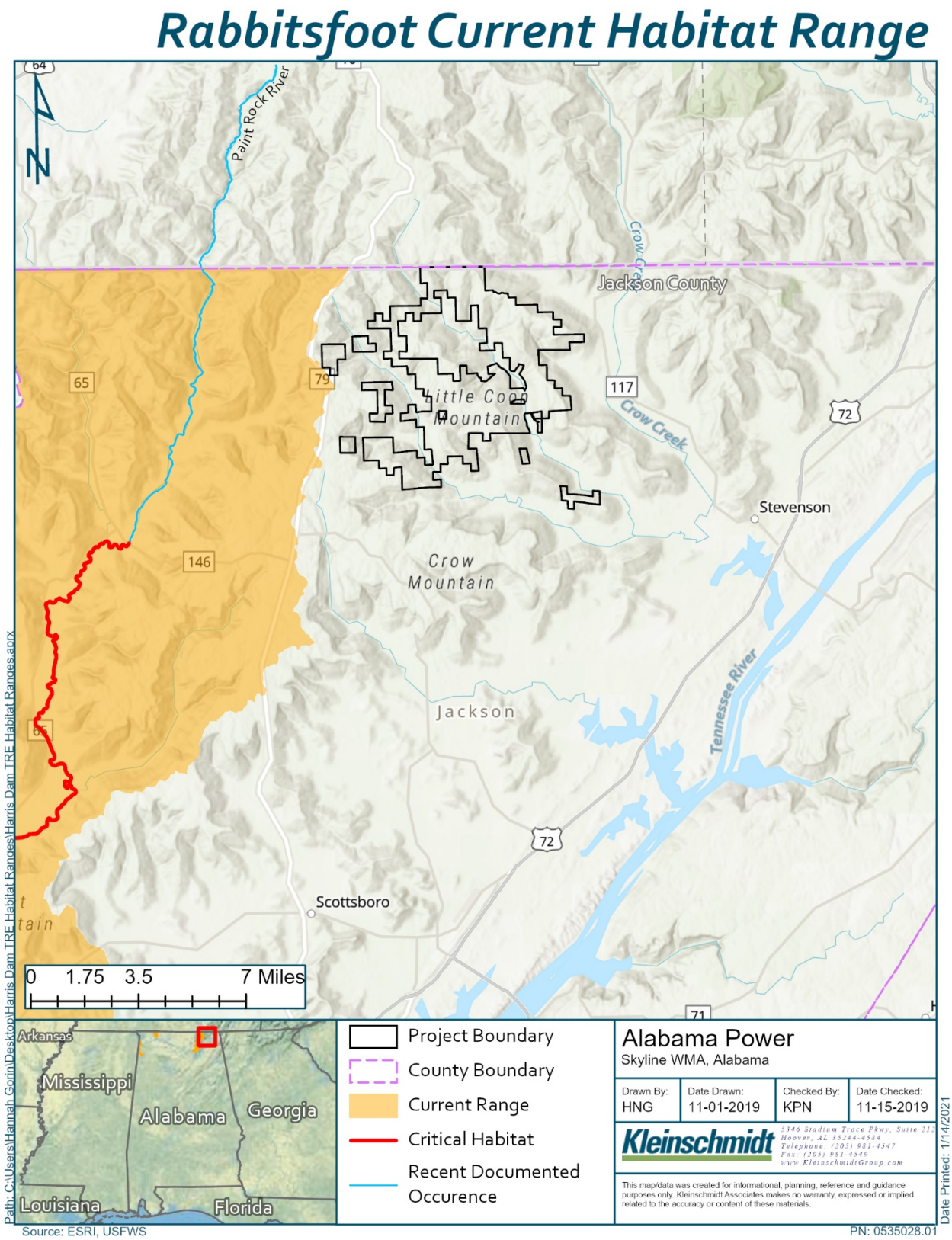

Rabbitsfoot Current Habitat Range
Paint Rock River
Jackson County
Crow Creek
Little Coon Mountain
Stevenson
Crow Mountain
Tennessee River
Jackson
Scottsboro
65
79
117
72
146
71
0 1.75 3.5 7 Miles
Arkansas
Mississippi
Alabama
Georgia
Louisiana
Florida
Project Boundary
County Boundary
Current Range
Critical Habitat
Recent Documented Occurence
Alabama Power
Skyline WMA, Alabama
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Figure 3.9-1

Snuffbox Mussel Current Habitat Range

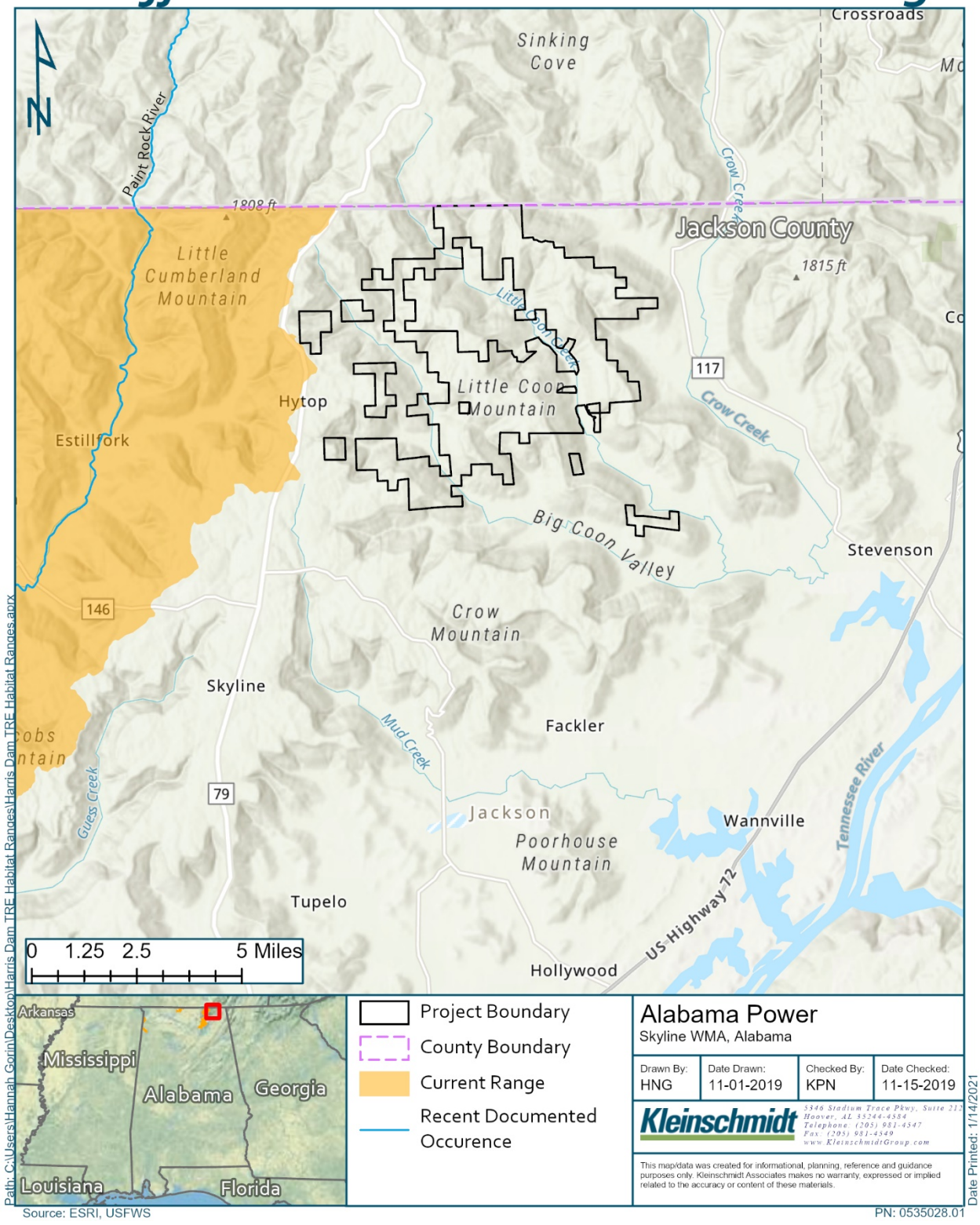


Figure 3.10-1

Shiny Pigtoe Current Habitat Range

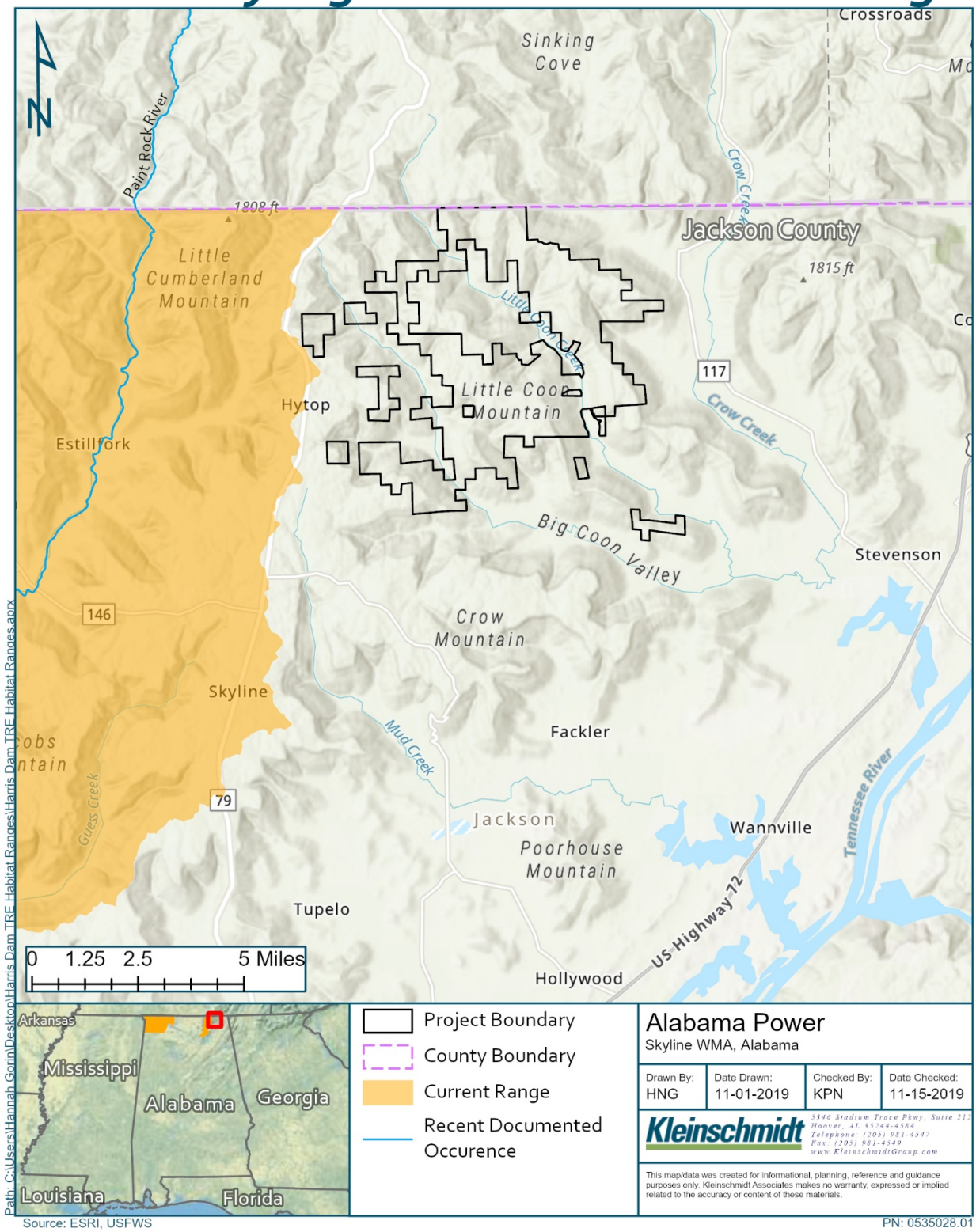


Figure 3.11-1

Southern Pigtoe Current Habitat Range

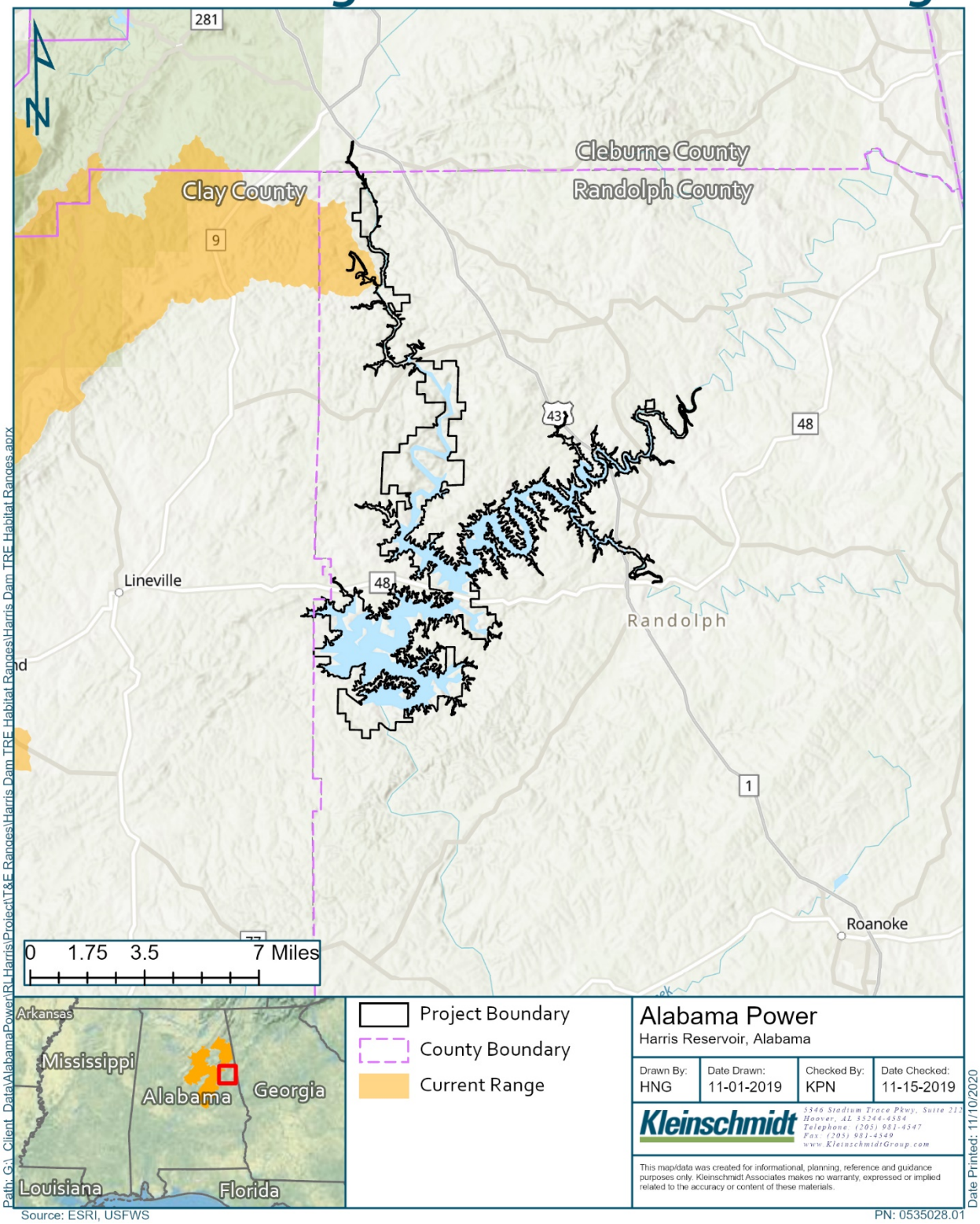


Figure 3.12-1

Slabside Pearlymussel Current Habitat Range

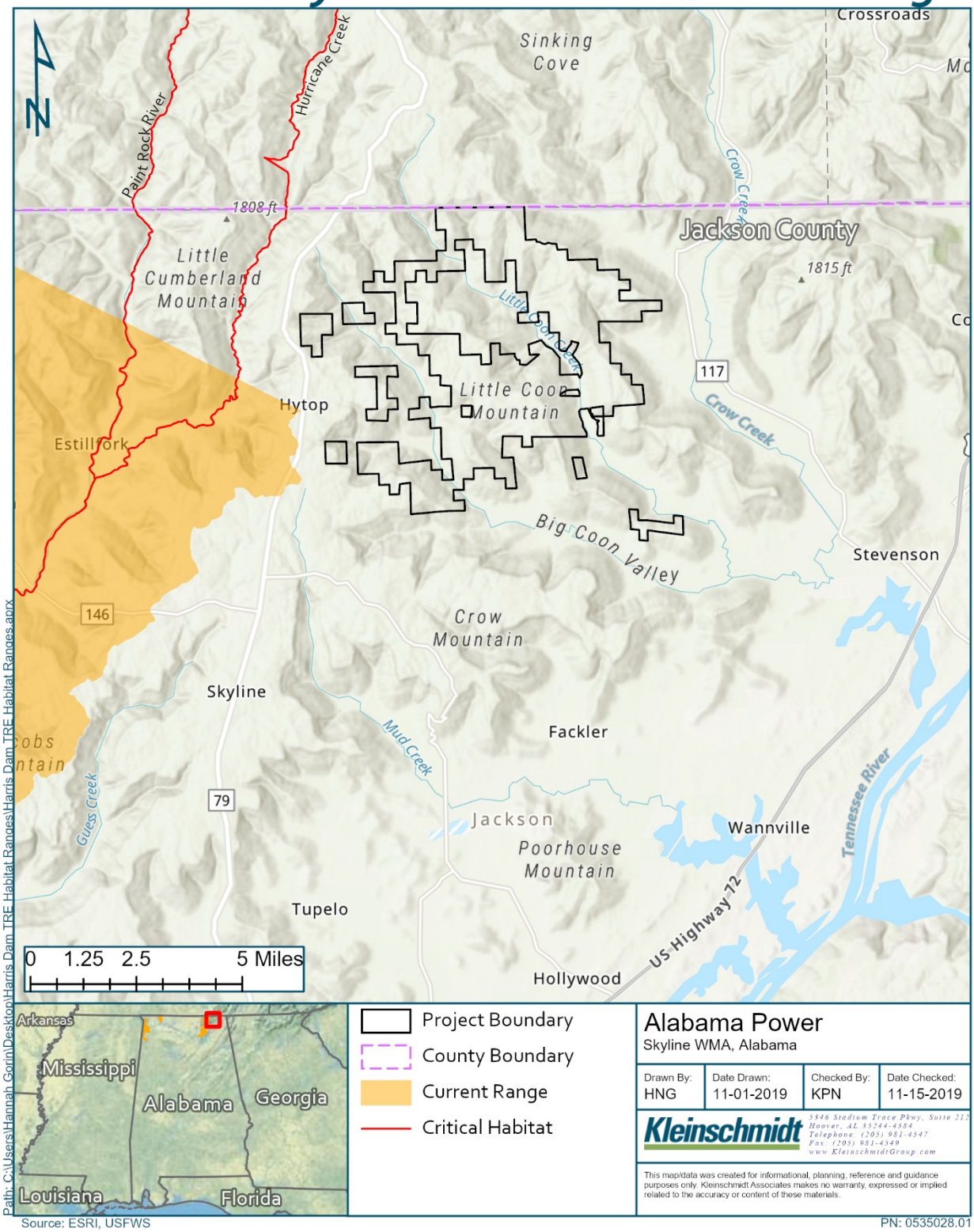


Figure 3.13-1

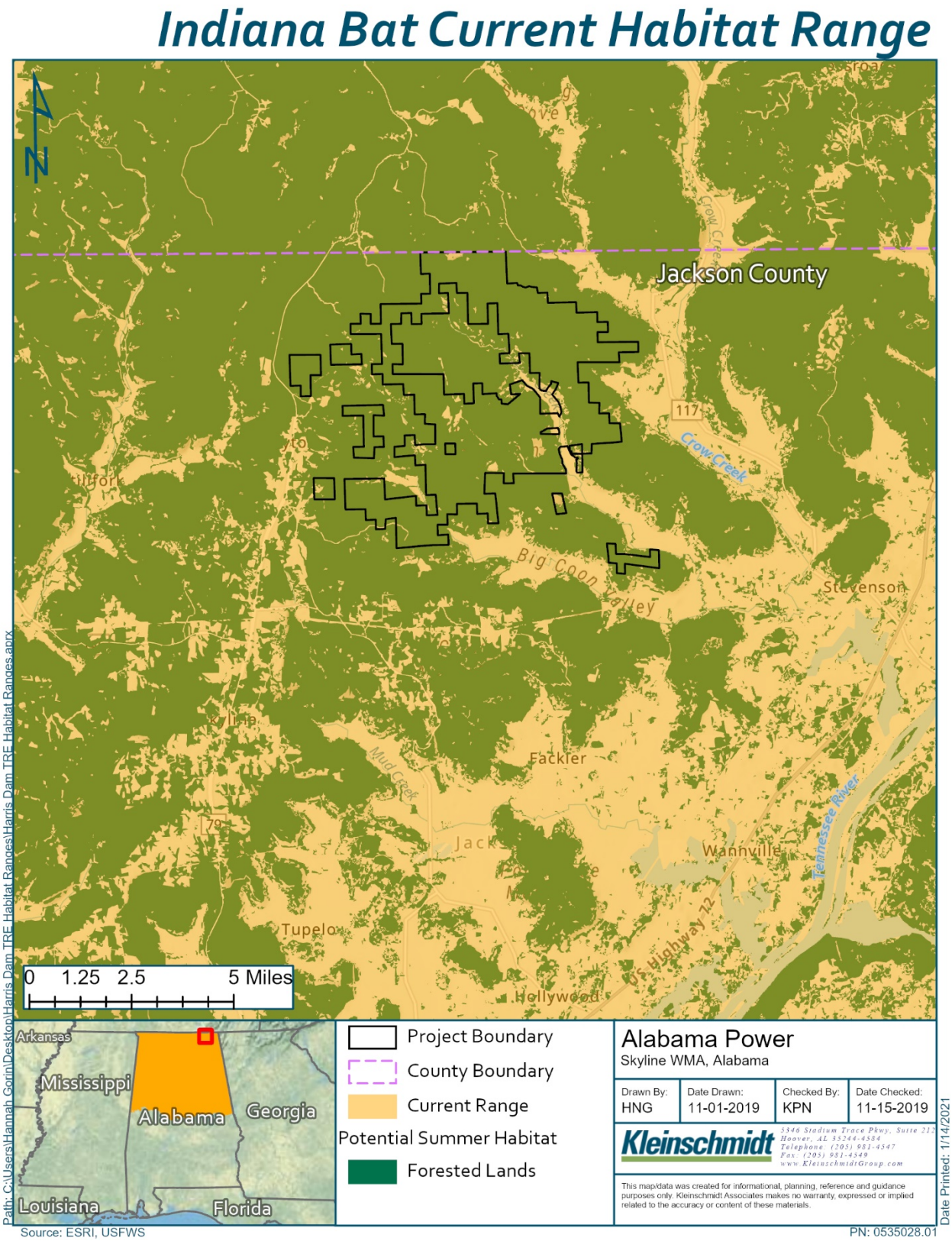

Indiana Bat Current Habitat Range
N
Jackson County
117
Crow Creek
Big Coon Valley
Stevenson
Fackler
Mud Creek
79
Wannville
Tennessee River
Tupelo
US Highway 72
Hollywood
0 1.25 2.5 5 Miles
Arkansas
Mississippi
Alabama
Georgia
Louisiana
Florida
Project Boundary
County Boundary
Current Range
Potential Summer Habitat
Forested Lands
Alabama Power
Skyline WMA, Alabama
Drawn By: HNG
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Figure 3.14-1

Indiana Bat Current Habitat Range

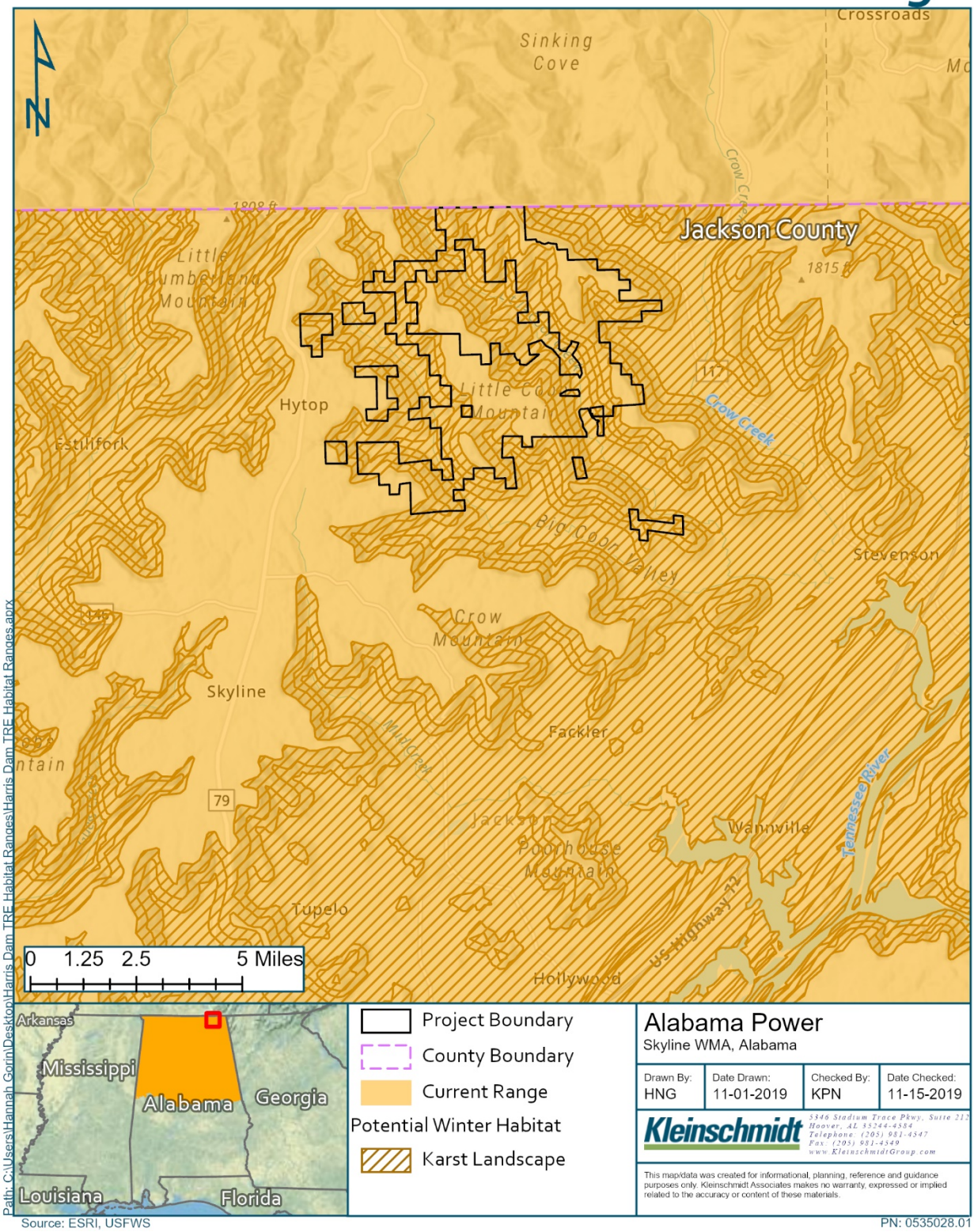


Figure 3.14-2

Indiana Bat Current Habitat Range

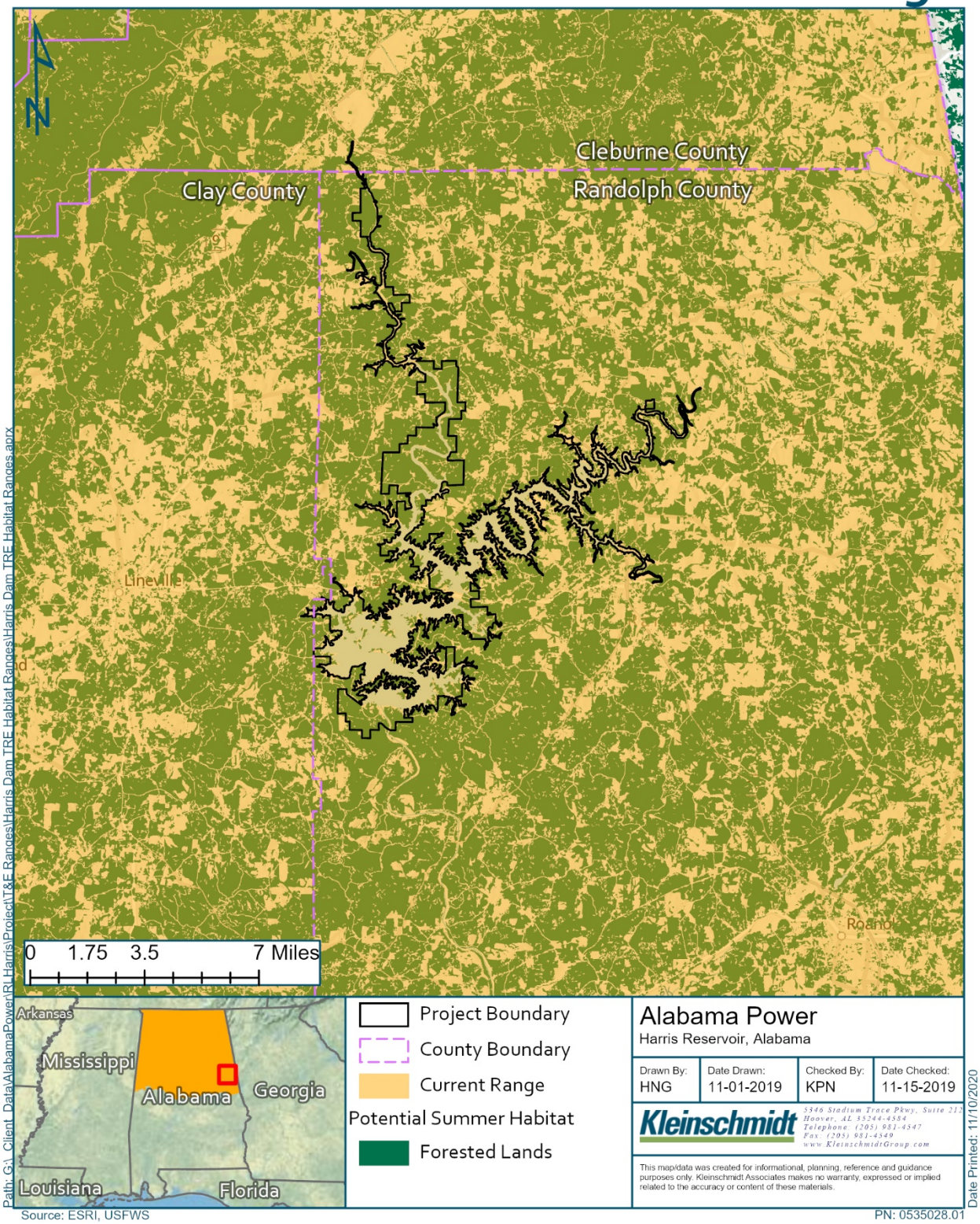


Figure 3.14-3

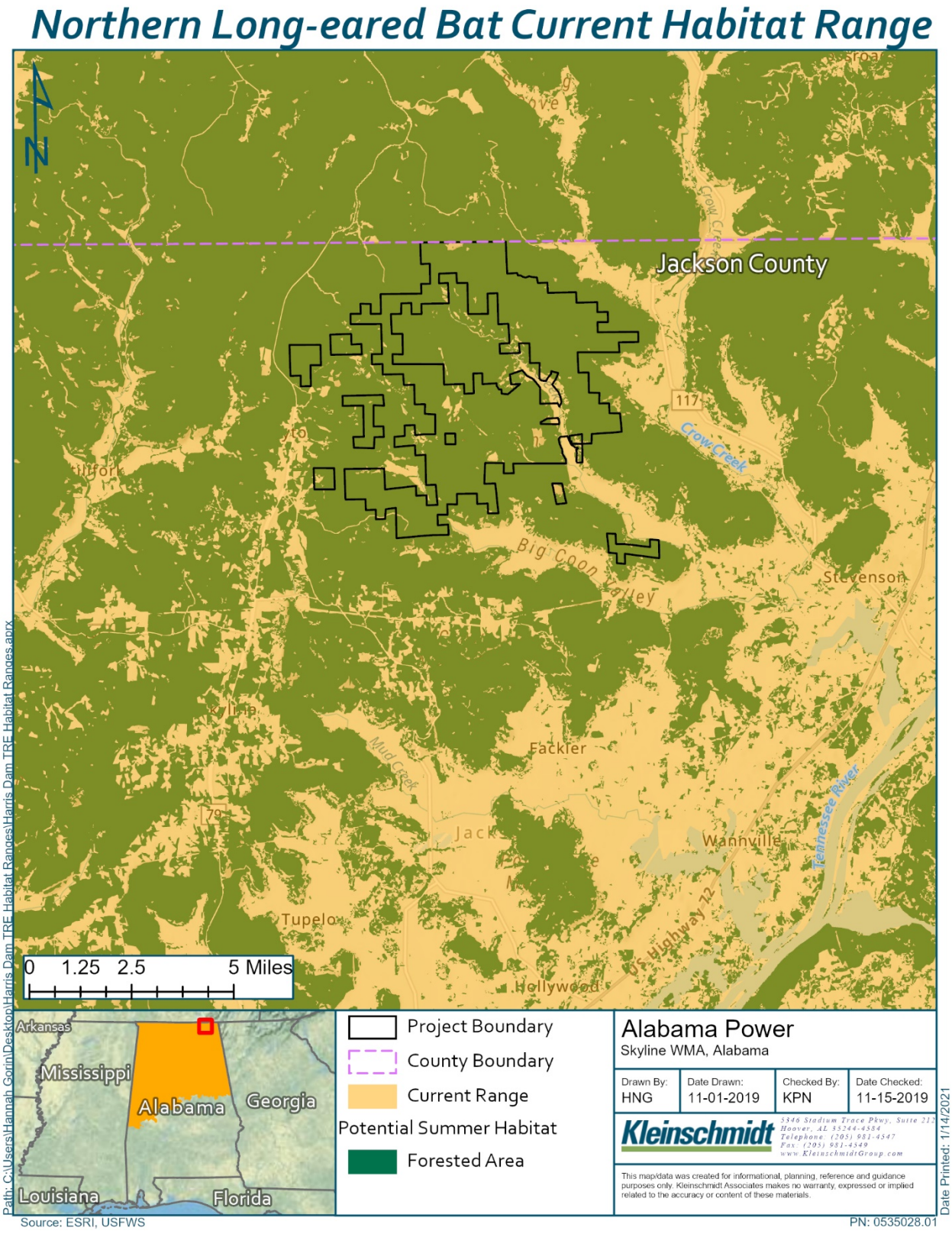

Northern Long-eared Bat Current Habitat Range
N
Jackson County
117
Crow Creek
Big Coon Valley
Stevenson
Fackler
Mud Creek
79
Wannville
Tennessee River
Tupelo
US Highway 72
Hollywood
0 1.25 2.5 5 Miles
Arkansas
Mississippi
Alabama
Georgia
Louisiana
Florida
Project Boundary
County Boundary
Current Range
Potential Summer Habitat
Forested Area
Alabama Power
Skyline WMA, Alabama
Drawn By: HNG
Date Drawn: 11-01-2019
Checked By: KPN
Date Checked: 11-15-2019
Kleinschmidt
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Hoover, AL 35244-4384
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Date Printed: 1/14/2021
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Figure 3.15-1

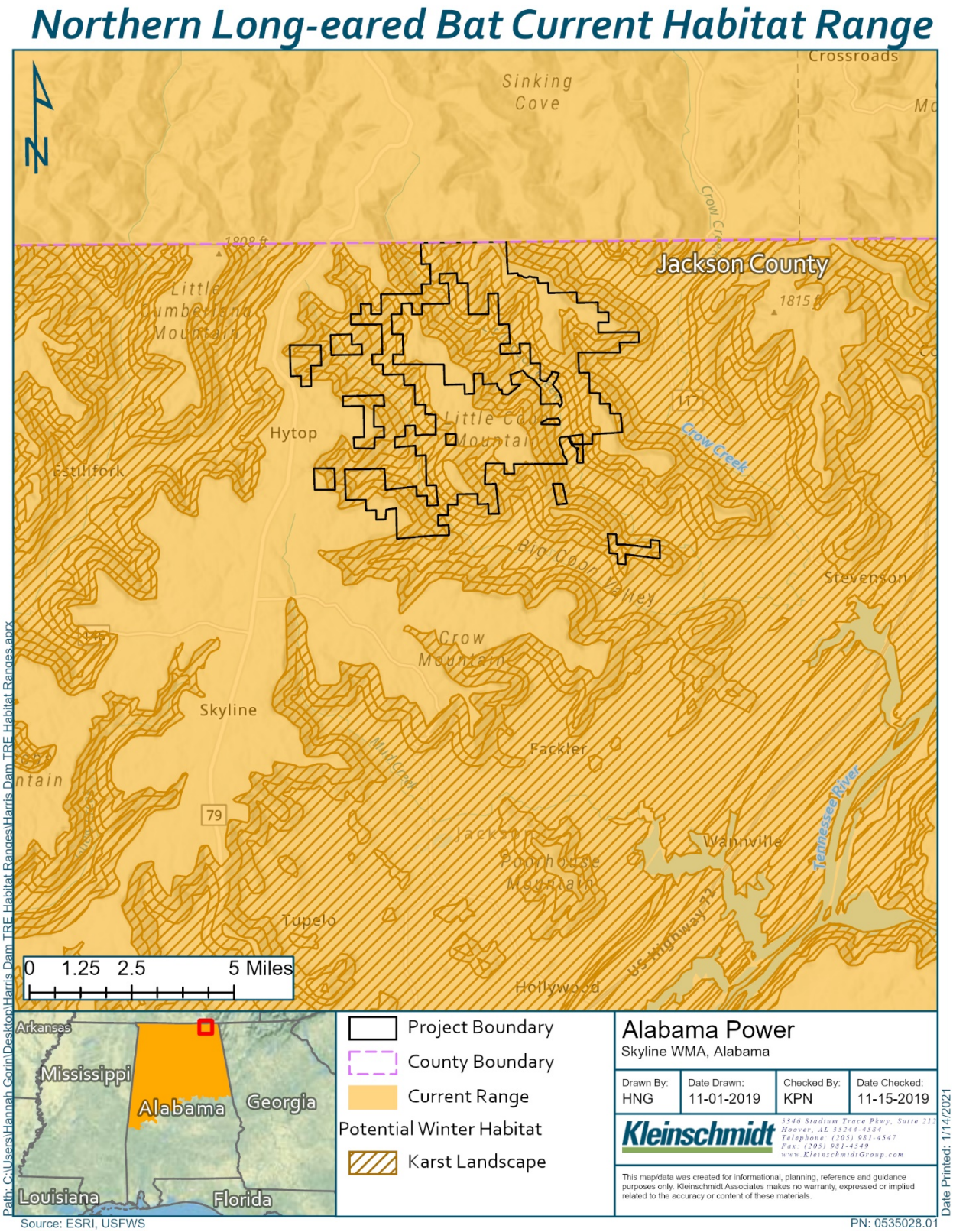

Northern Long-eared Bat Current Habitat Range
Sinking Cove
Crossroads
Jackson County
Little Cumberland Mountain
Hytop
Estillfork
Crow Creek
Big Coon Valley
Stevenson
Crow Mountain
Skyline
Fackler
Mud Creek
Jackson Poorhouse Mountain
Wannville
Tennessee River
Tupelo
US Highway 72
Hollywood
1808 ft
1815 ft
117
145
79
0 1.25 2.5 5 Miles
Arkansas
Mississippi
Alabama
Georgia
Louisiana
Florida
Project Boundary
County Boundary
Current Range
Potential Winter Habitat
Karst Landscape
Alabama Power
Skyline WMA, Alabama
Drawn By: HNG
Date Drawn: 11-01-2019
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Date Checked: 11-15-2019
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Figure 3.15-2

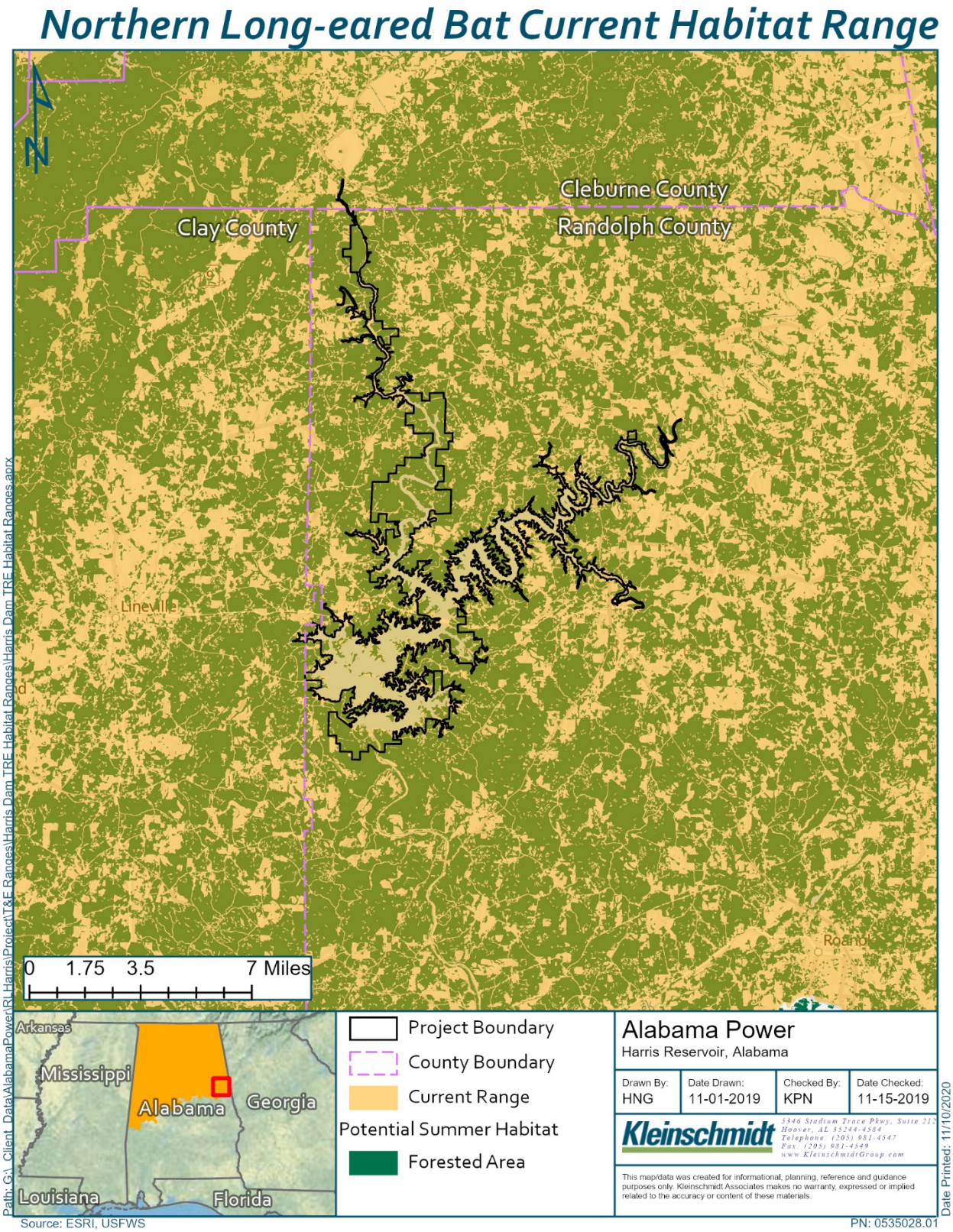

Northern Long-eared Bat Current Habitat Range
N
Cleburne County
Randolph County
Clay County
Lineville
Roanoke
0 1.75 3.5 7 Miles
Arkansas
Mississippi
Alabama
Georgia
Louisiana
Florida
Project Boundary
County Boundary
Current Range
Potential Summer Habitat
Forested Area
Alabama Power
Harris Reservoir, Alabama
Drawn By: HNG
Date Drawn: 11-01-2019
Checked By: KPN
Date Checked: 11-15-2019
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PN: 0535028.01

Figure 3.15-3

Gray Bat Current Habitat Range

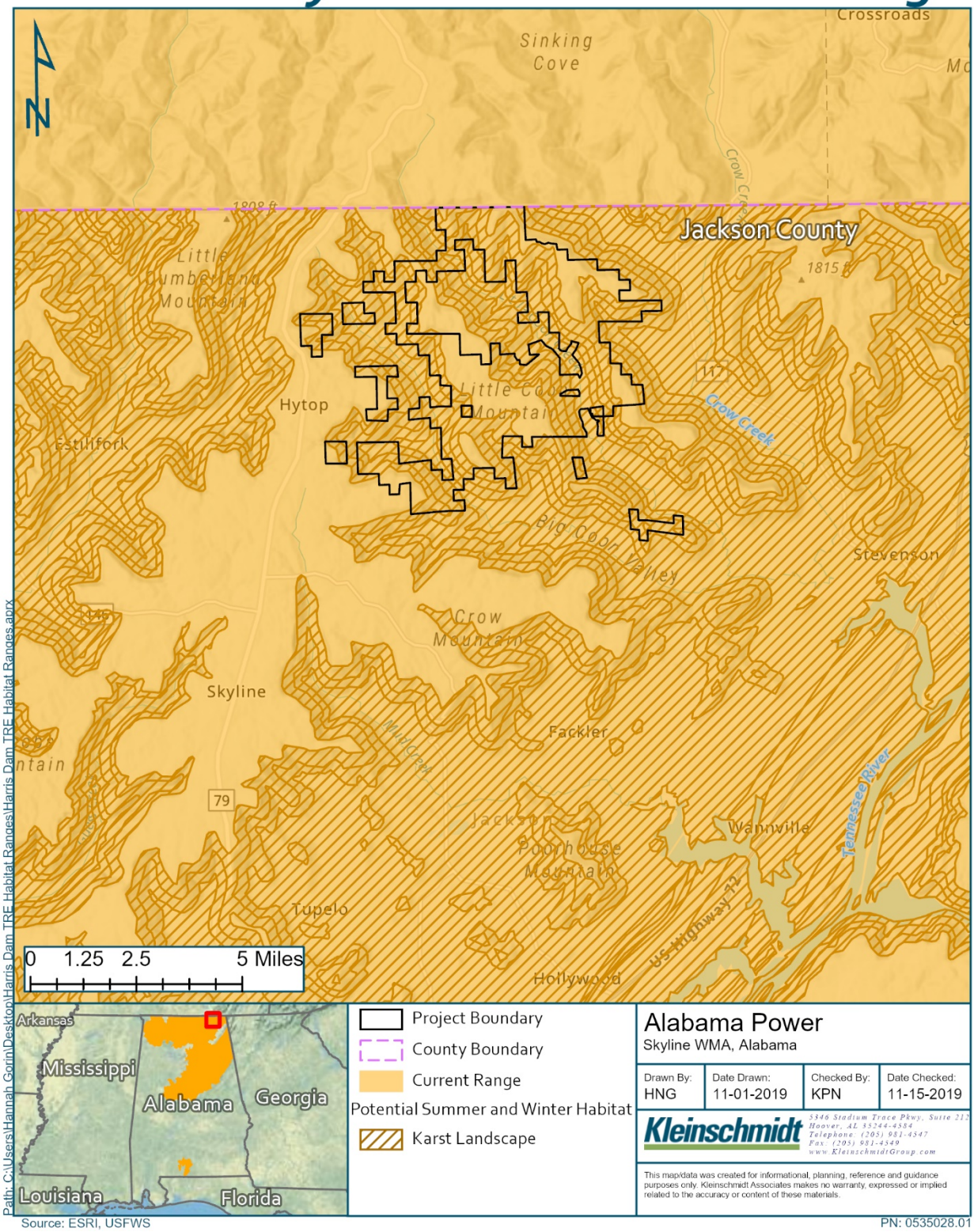


Figure 3.16-1

Gray Bat Current Habitat Range

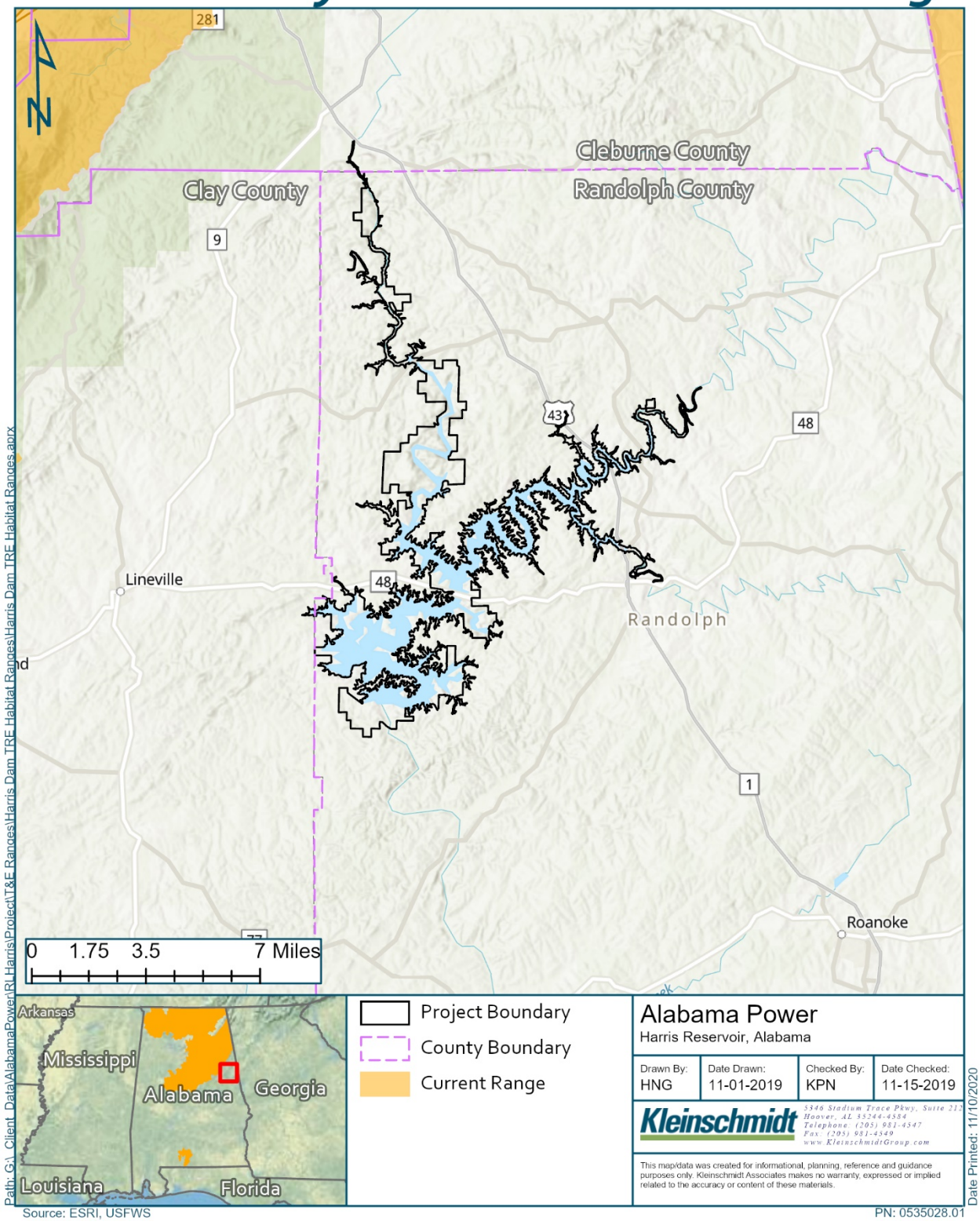


Figure 3.16-2

Little Amphianthus Current Habitat Range

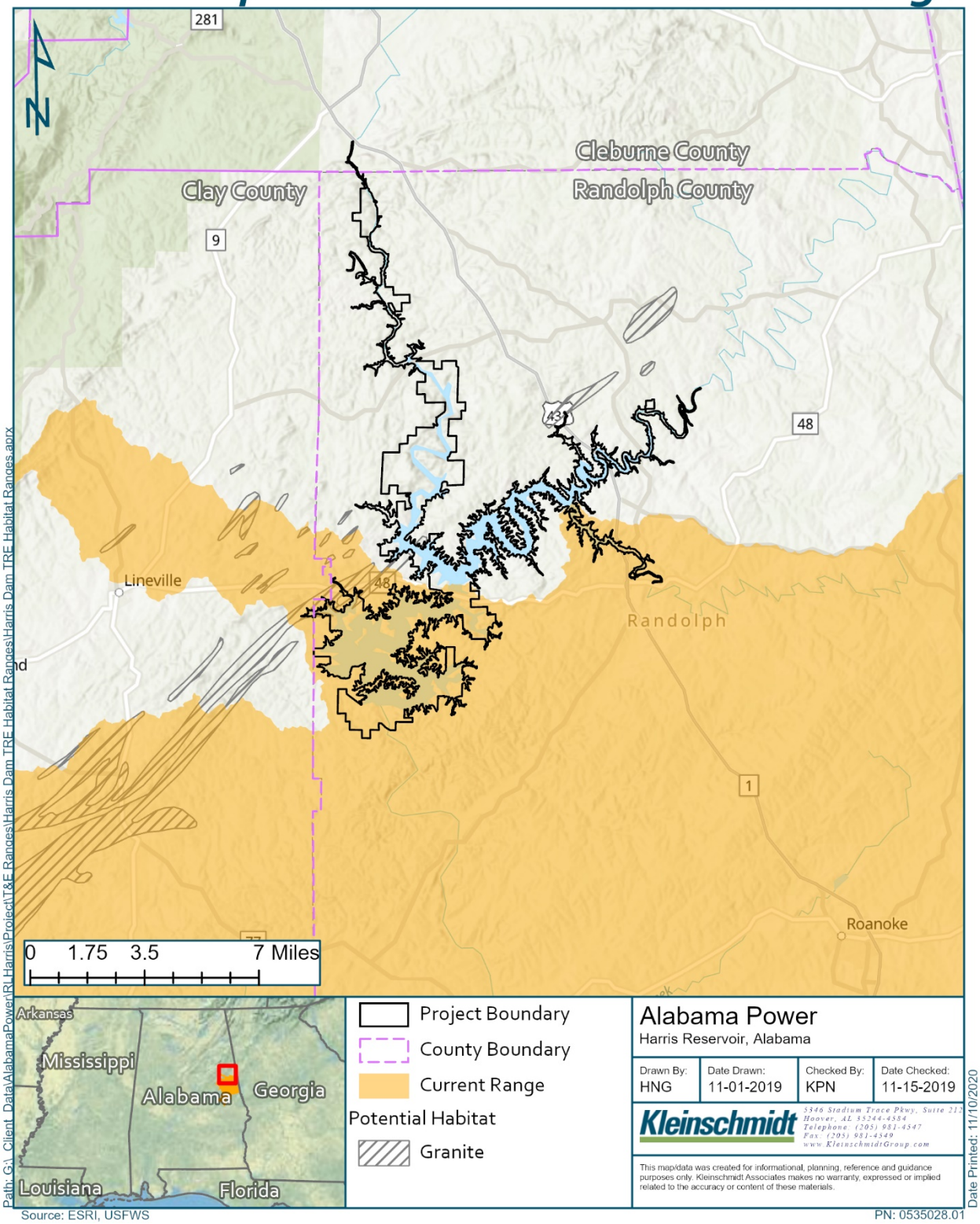


Figure 3.17-1

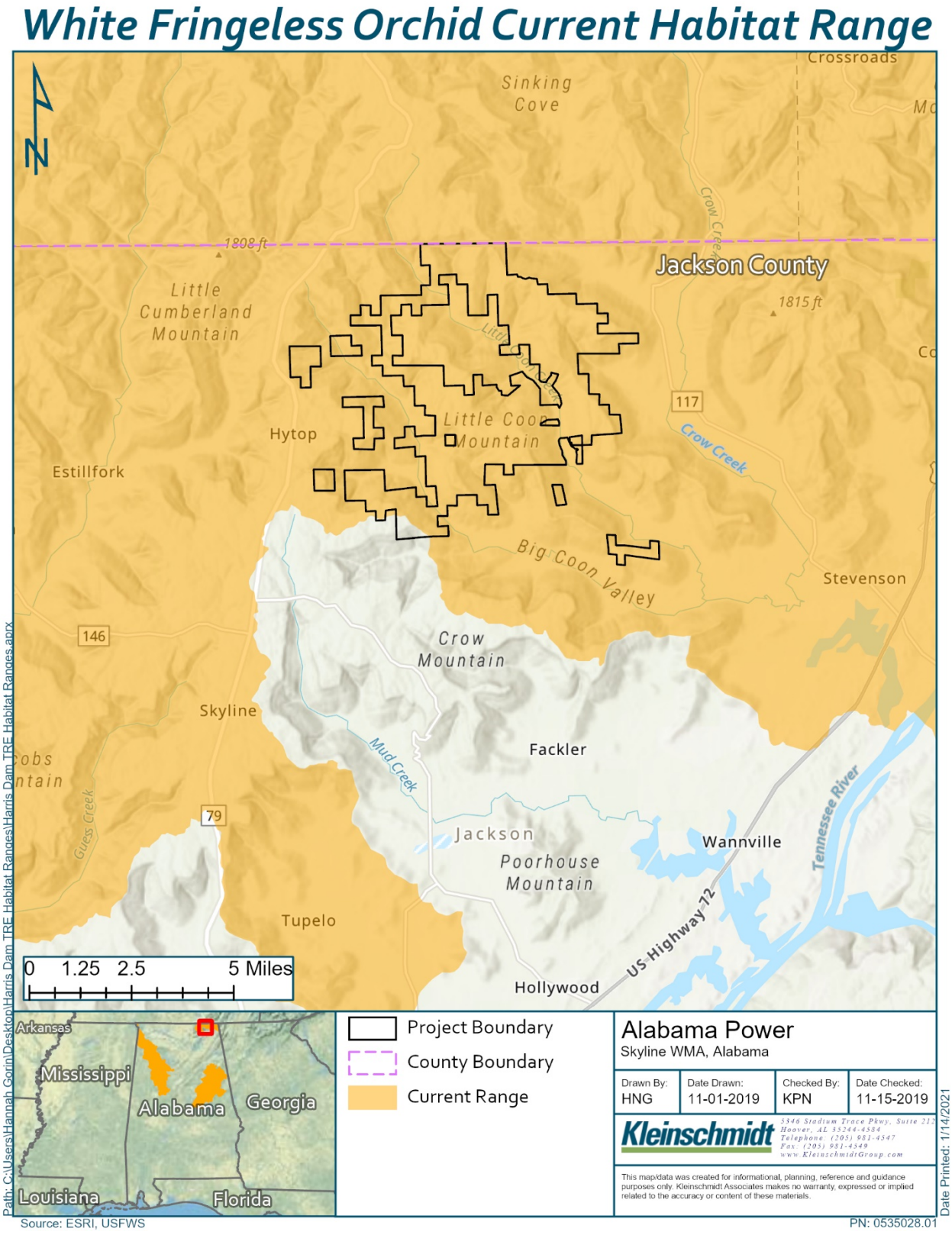

White Fringeless Orchid Current Habitat Range
N
Sinking Cove
Crossroads
1808 ft
Jackson County
1815 ft
Little Cumberland Mountain
Little Coon Mountain
Hytop
Estillfork
117
Crow Creek
Big Coon Valley
Stevenson
146
Crow Mountain
Skyline
Fackler
Mud Creek
79
Jackson
Poorhouse Mountain
Wannville
Tennessee River
US Highway 72
Tupelo
Hollywood
Guess Creek
0 1.25 2.5 5 Miles
Arkansas
Mississippi
Alabama
Georgia
Louisiana
Florida
Project Boundary
County Boundary
Current Range
Alabama Power
Skyline WMA, Alabama
Drawn By: HNG
Date Drawn: 11-01-2019
Checked By: KPN
Date Checked: 11-15-2019
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Figure 3.18-1

White Fringeless Orchid Current Habitat Range

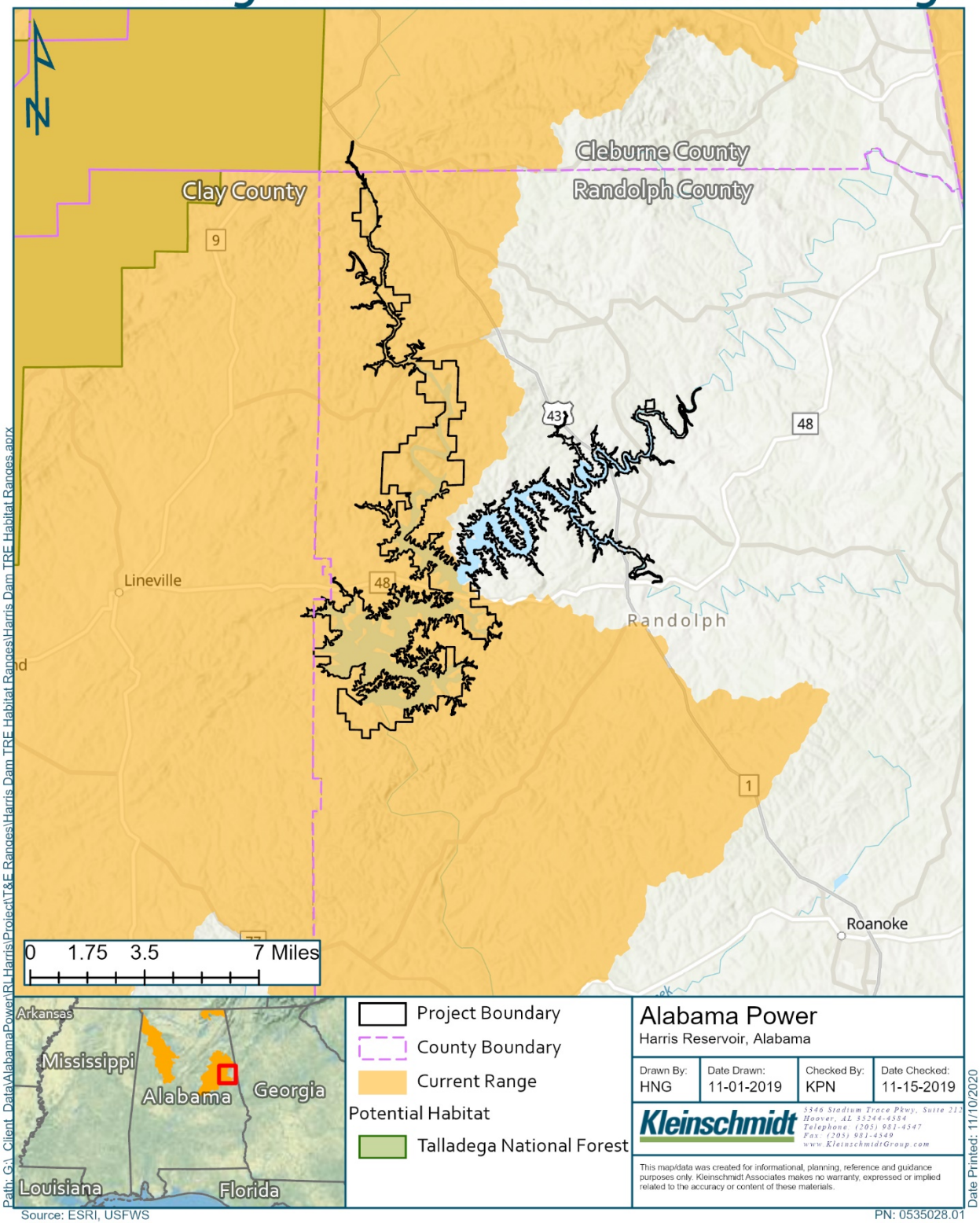


Figure 3.18-2

Price's Potato-bean Current Habitat Range

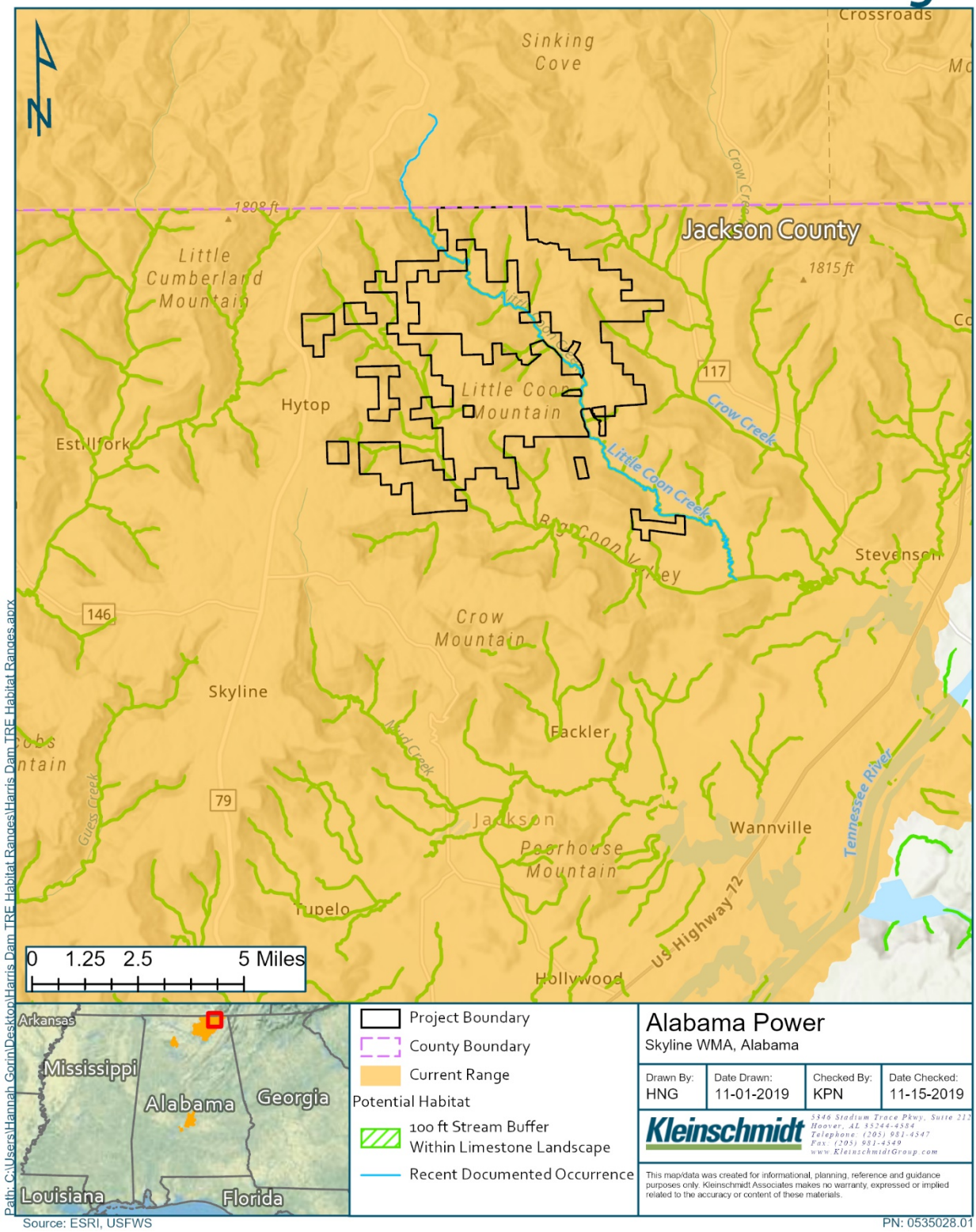


Figure 3.19-1

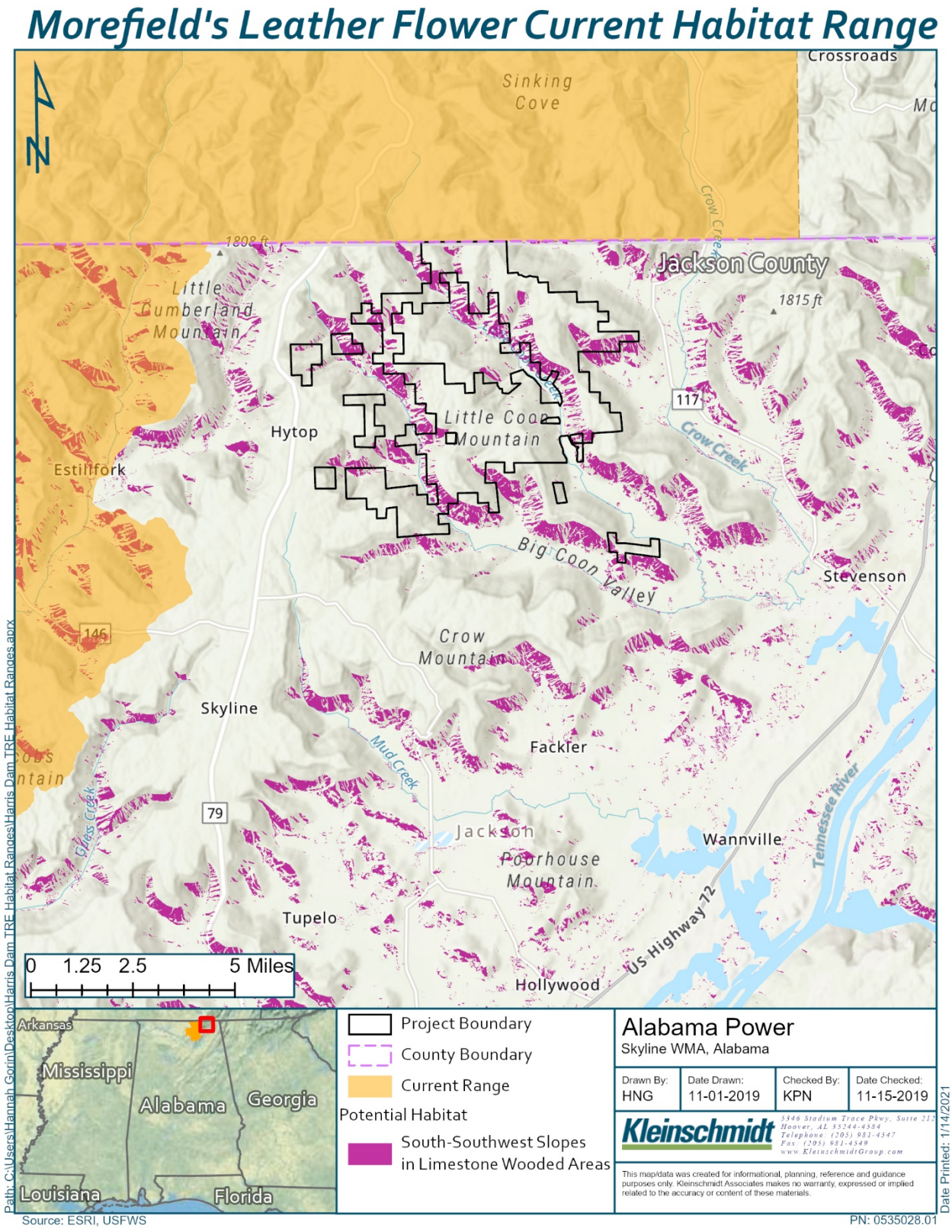

Morefield's Leather Flower Current Habitat Range
N
Sinking Cove
Crossroads
1808 ft
Little Cumberland Mountain
Jackson County
1815 ft
Little Coon Mountain
Hytop
117
Crow Creek
Estillfork
Big Coon Valley
Stevenson
146
Crow Mountain
Skyline
Fackler
Mud Creek
79
Jackson
Wannville
Poorhouse Mountain
Tennessee River
Tupelo
US Highway 72
Hollywood
0 1.25 2.5 5 Miles
Arkansas
Mississippi
Alabama
Georgia
Louisiana
Florida
Project Boundary
County Boundary
Current Range
Potential Habitat
South-Southwest Slopes in Limestone Wooded Areas
Alabama Power
Skyline WMA, Alabama
Drawn By: HNG
Date Drawn: 11-01-2019
Checked By: KPN
Date Checked: 11-15-2019
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PN: 0535028.01

Figure 3.20-1

APPENDIX C

RED-COCKADED WOODPECKER (PICOIDES BOREALIS) HABITAT SURVEY REPORT

Red-cockaded Woodpecker (*Picoides borealis*) Habitat Survey Report

R.L. Harris Hydroelectric Project

HARRIS DAM RELICENSING



Prepared by:

Alabama Power Company

and

Kleinschmidt Associates

October 2020

Alabama Power

Kleinschmidt

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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 Project.

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, 2019. As part of phase one of the FERC-approved Threatened and Endangered Species Study Plan, Alabama Power conducted a desktop assessment of threatened and endangered species (**T&E Species Desktop Assessment [harrisrelicensing.com]**). The desktop assessment includes a description and maps of the project, reviews of existing information, and maps depicting known ranges and habitat. While preparing the desktop assessment, Alabama Power determined it was unclear if some species or their suitable habitats occur within the Harris Project Boundary. Subsequently, Alabama Power requested guidance from the U.S. Fish and Wildlife Service (USFWS), the Alabama Department of Conservation and Natural Resources (ADCNR), and the Alabama Natural Heritage Program as to whether surveys for four species or assessments of habitat suitability are advised. A habitat suitability assessment was advised for the Red-cockaded Woodpecker (RCW) (*Picoides borealis*).

The RCW is a relatively small species with black and white feathers and can be distinguished from other woodpecker species by their large white cheek patches. Males and females have similar plumage and can be difficult to distinguish when they are adults. However, as juveniles, the male can be distinguished by the presence of a red crown patch. This patch persists into adulthood but can be hard to discern. The RCW was once commonly distributed across the south-eastern United States, but due to habitat degradation it is now more limited in distribution. This species requires older living pine for nesting. It also requires open mature pine woodlands maintained by frequent fire. Habitat loss through fire suppression is one of the major threats to the species.

Survey methods for RCW habitat were based on standard survey methods. This survey report describes the methods that Alabama Power used to assess the habitat of RCW in the study area.

2.0 METHODS

Alabama Power performed habitat assessments at six locations near the R.L. Harris Reservoir (Figure 2-1). GIS and aerial imagery were used to identify coniferous forest within the Project Boundary. All contiguous stands 60 acres or greater in size were selected for the habitat suitability assessment. Stand data, habitat descriptions included in the Red-cockaded Woodpecker Recovery Plan (USFWS 2003), and the surveyors' extensive experience with the species were used to make qualitative assessments of habitat suitability. Assessments of nesting and foraging habitat; including surveying for larger older longleaf pine with little or no hardwood midstory and overstory trees, were performed using a meandering survey across the entire survey area. Mature pines, where present, were viewed from all angles to detect potential signs of use by RCW. A general habitat description of the site was recorded.

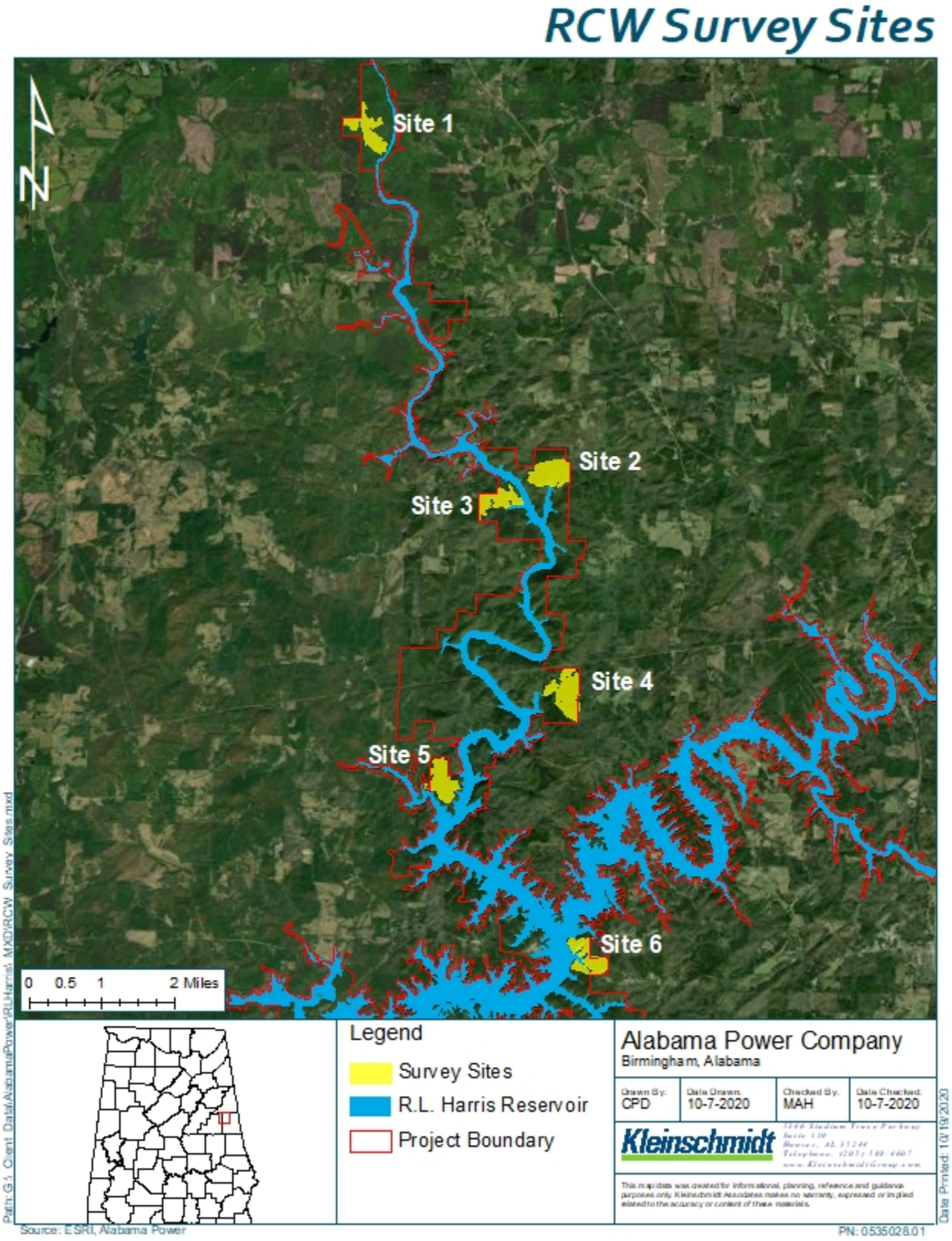


Figure 2-1 Harris RCW Habitat Survey Areas

3.0 RESULTS

Surveys were conducted on September 22, 2020. Sites 1, 3, and 6 were comprised of older pine (58-63 years) and were considered high priority search areas; however, suitable nesting habitat or foraging habitat was not identified at any of the sites. Table 3-1 shows the size and location of all sites. The following is a description of the results by site.

Table 3-1 Harris RCW Habitat Assessment Sites

Site Number	Site Size (acres)	Site Location	Habitat Suitability*
1	84	33.474752, -85.620624	U
2	105	33.407346, -85.574600	U
3	69	33.401295, -85.586397	U
4	116	33.364561, -85.574204	U
5	95	33.348224, -85.601981	U
6	85	33.307157, -85.563305	U

*Habitat Suitability: Suitable = S, marginal = M, unsuitable = U

3.1 Site 1

Site 1 was the most northerly occurring site and was a natural Loblolly Pine (*Pinus taeda*)/hardwood stand (Figure 3-1). Pine occurring on the site was approximately 63 years old with a 11" average diameter at breast height (dbh). It was identified as a priority search area based on the age of the stand. The site was characterized by a dense mix of hardwoods and Loblolly Pine. Dominant hardwoods in the tree stratum included White Oak (*Quercus alba*), hickory (*Carya* spp.), and Red Oak (*Quercus rubra*). Typical sapling species included Sourwood (*Oxydendrum arboreum*), Sweetgum (*Liquidambar styraciflua*), and Red Maple (*Acer rubrum*). Ground cover was dominated by Sparkleberry (*Vaccinium arboreum*), Highbush Blueberry (*Vaccinium corymbosum*), and Muscadine (*Vitis rotundifolia*). There was no discernible evidence of the area being maintained by fire and the dense vegetation was typical of a fire suppressed area. The habitat was not suitable for nesting or foraging by RCW.

3.2 Site 2

Site 2 was situated along the eastern side of the Tallapoosa stem of Harris Reservoir upstream of the confluence with the Little Tallapoosa river. It was a 17-year-old planted Loblolly Pine plantation with a dense stand of hardwoods mixed throughout (Figure 3-2). Hardwoods in the tree stratum included Tulip Poplar (*Liriodendron tulipfera*), Sweetgum, and Red Maple. The sapling layer was comprised of Sweetgum, Red Maple, and Sparkleberry. Ground cover was dominated by Muscadine. There was no discernible

evidence of the area being maintained by fire and the dense vegetation was typical of a fire suppressed area. The habitat was not suitable for nesting or foraging by RCW.

3.3 Site 3

Site 3 was immediately west of Site 2 and was an approximately 63-year-old natural Loblolly/Shortleaf Pine (*Pinus echinata*) stand (Figure 3-3). It was identified as a priority search area based on the age of the stand. However, there was a dense hardwood stand throughout the site. Hardwoods in the tree stratum include Southern Red Oak (*Quercus falcata*), Common Persimmon (*Diospyros virginiana*), Sourwood, and White Oak. The sapling layer was dominated by Red Maple, Water Oak (*Quercus nigra*), Southern Red Oak, and American Holly (*Ilex opaca*). The ground cover was comprised of Sparkleberry and Muscadine. There was no discernible evidence of the area being maintained by fire and the dense vegetation was typical of a fire suppressed area. The habitat was not suitable for nesting or foraging by RCW.

3.4 Site 4

Site 4 was a 29-year-old planted Loblolly Pine plantation with a dense understory of mixed hardwoods (Figure 3-4). Hardwoods included Sweetgum, Tulip Poplar, Red Maple, Common Persimmon, and Sourwood. Muscadine was common in the herb layer. There was no discernible evidence of the area being maintained by fire and the dense vegetation was typical of a fire suppressed area. The habitat was not suitable for nesting or foraging by RCW.

3.5 Site 5

Site 5 was a 28-year-old planted Loblolly Pine plantation with a dense hardwood understory predominately in the sapling stage (Figure 3-5). Hardwoods included Sweetgum, elm (*Ulmus* spp.), Chinese Privet (*Ligustrum* sinense), and Sourwood. Muscadine was the dominant ground cover. There was no discernible evidence of the area being maintained by fire and the dense vegetation was typical of a fire suppressed area. The habitat was not suitable for nesting or foraging by RCW.

3.6 Site 6

Site 6 was a natural Loblolly/Longleaf Pine (*Pinus palustris*) stand approximately 58 years old (Figure 3-6). It was identified as a priority search area based on the age of the stand. However, there was a dense hardwood stand mixed throughout the site. Hardwoods were common in both the tree and sapling layer and include Red Oak, hickory, Red Maple, and Tulip Poplar. Sparkleberry was common in the shrub layer and Muscadine was the most common ground cover. There was no discernible evidence of the area being maintained by fire and the dense vegetation is typical of a fire suppressed area. The habitat was not suitable for nesting or foraging by RCW.



Figure 3-1 Site 1: Natural Loblolly Pine Stand



Figure 3-2 Site 2: Planted Loblolly Pine Stand



Figure 3-3 Site 3: Natural Loblolly/Shortleaf Pine Stand



Figure 3-4 Site 4: Planted Loblolly Pine Stand



Figure 3-5 Site 5: Planted Loblolly Pine Stand



Figure 3-6 Site 6: Natural Loblolly/Long Leaf Pine Stand

4.0 SUMMARY AND CONCLUSIONS

A total of six sites were assessed for RCW habitat suitability. Although stand data used for site identification indicated areas that met habitat survey guideline criteria, foraging habitat was of marginal quality at best and very few standing snags were observed. Additionally, the thick understory would make utilization of the larger pines for foraging unlikely. The nearest known RCW occurrence is approximately 15 miles away, and there are no known nesting birds within the Project Boundary. It is unlikely that any of these birds would use the habitat along Harris for foraging. Furthermore, excavation of starter cavities or resin wells were not observed in any of the mature pine evaluated during this survey.

5.0 REFERENCES

U.S. Fish and Wildlife Service (USFWS). 2003. Recovery Plan for the Red-cockaded Woodpecker (*Picoides borealis*) Second Revision. U.S. Fish and Wildlife Service Southeast Region, Atlanta, GA.

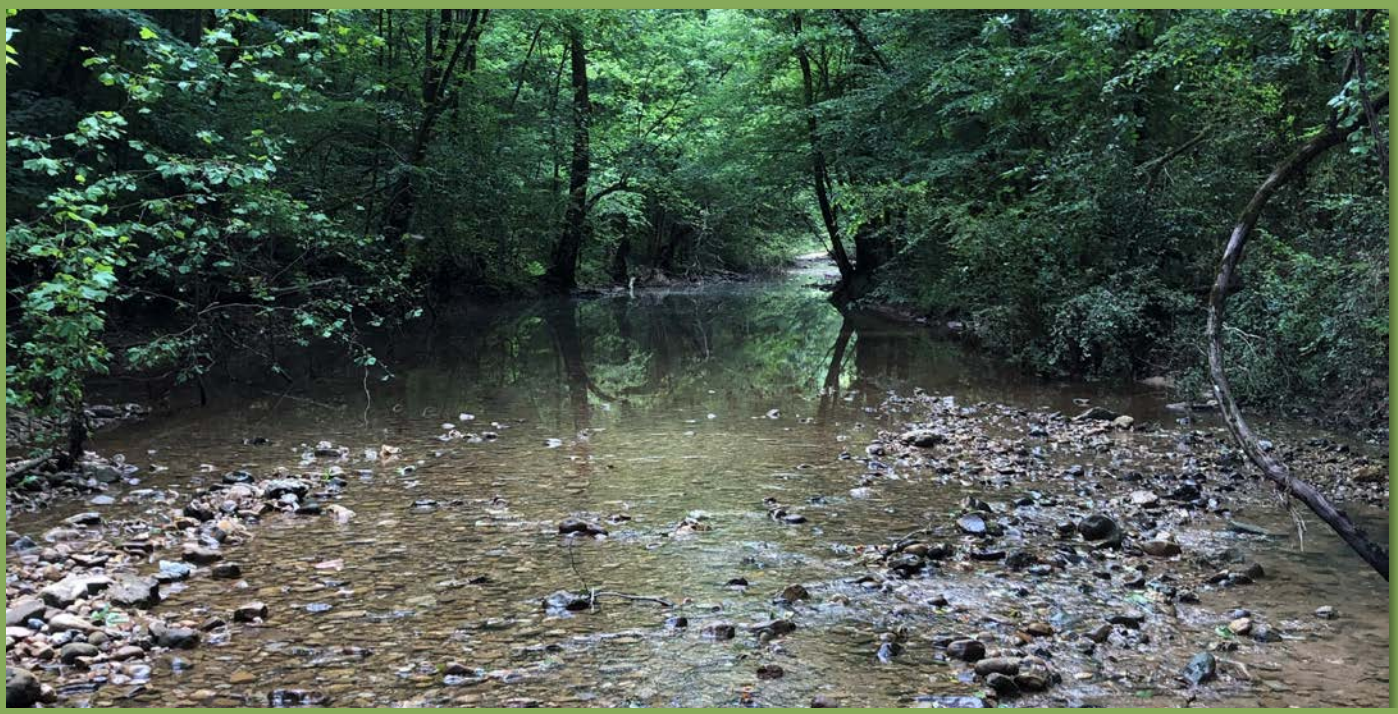
APPENDIX D

PALEZONE SHINER (NOTROPIS ALBIZONATUS) SURVEY REPORT

Palezone Shiner (*Notropis albizonatus*) Survey Report

R.L. Harris Project

FERC No. 2628



Prepared by:

Alabama Power Company

and

Kleinschmidt Associates

July 2020

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Appendix A Field Forms

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 Project.

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, 2019. On August 27, 2019, the Harris Action Team (HAT) 3 met to discuss components of the Threatened and Endangered Species Study Plan. At that meeting, the U.S. Fish and Wildlife Service (USFWS) noted that Palezone Shiner (*Notropis albizonatus*), a federally endangered fish species, occurs in tributaries of the Tennessee River near the Project Boundary at Skyline in Jackson County, Alabama. The USFWS subsequently recommended that Alabama Power perform surveys to determine if Palezone Shiner occur within or near the Project Boundary in Little Coon Creek.

The Palezone Shiner is a small, slender minnow species with a pointed snout and large eyes. It has a small, dark, wedge-shaped spot at the base of the caudal fin and may exhibit a light yellow color at the base of its pectoral fins during breeding. Historically, this species was found in the Tennessee and Cumberland River systems; however, the only known extant populations occur in the Paint Rock River watershed (Tennessee River tributary), and the Little South Fork of the Cumberland River (ADCNR 2020). Palezone Shiner are found in runs and pools of large creeks and small rivers with clean bedrock, cobble, gravel, and sand. Spawning likely occurs between May and July, peaking in June.

This survey report describes the methods that Alabama Power used to assess the occurrence of Palezone Shiner in the study area.

2.0 METHODS

Alabama Power performed surveys at four locations on Little Coon Creek (Figure 2-1). Little Coon Creek flows into Big Coon Creek before entering the Tennessee River. The locations were selected based on accessibility, proximity to the Project Boundary at Skyline, and proximity to locations at which the Alabama Department of Environmental Management (ADEM) performs periodic water quality and biota assessments.

Table 2-1 Palezone Shiner Survey Locations

Site Number	Miles Upstream of Mouth	Description
1	1.8	County Road 53
2	7.0	County Road 566
3	8.6	County Road 567
4	10.8	County Road 54

Surveyors from Alabama Power and ADEM performed fish Index of Biotic Integrity (IBI) sampling according to methods in O'Neil and Shepard (2010). Sites were sampled by backpack electrofishing and seining and stratified over riffle, run, pool, and shoreline habitats. Ten sampling efforts were expended proportionally in each of the riffle, run, and pool habitat types and two efforts were expended along stream shorelines. All captured fish were identified to species and released.

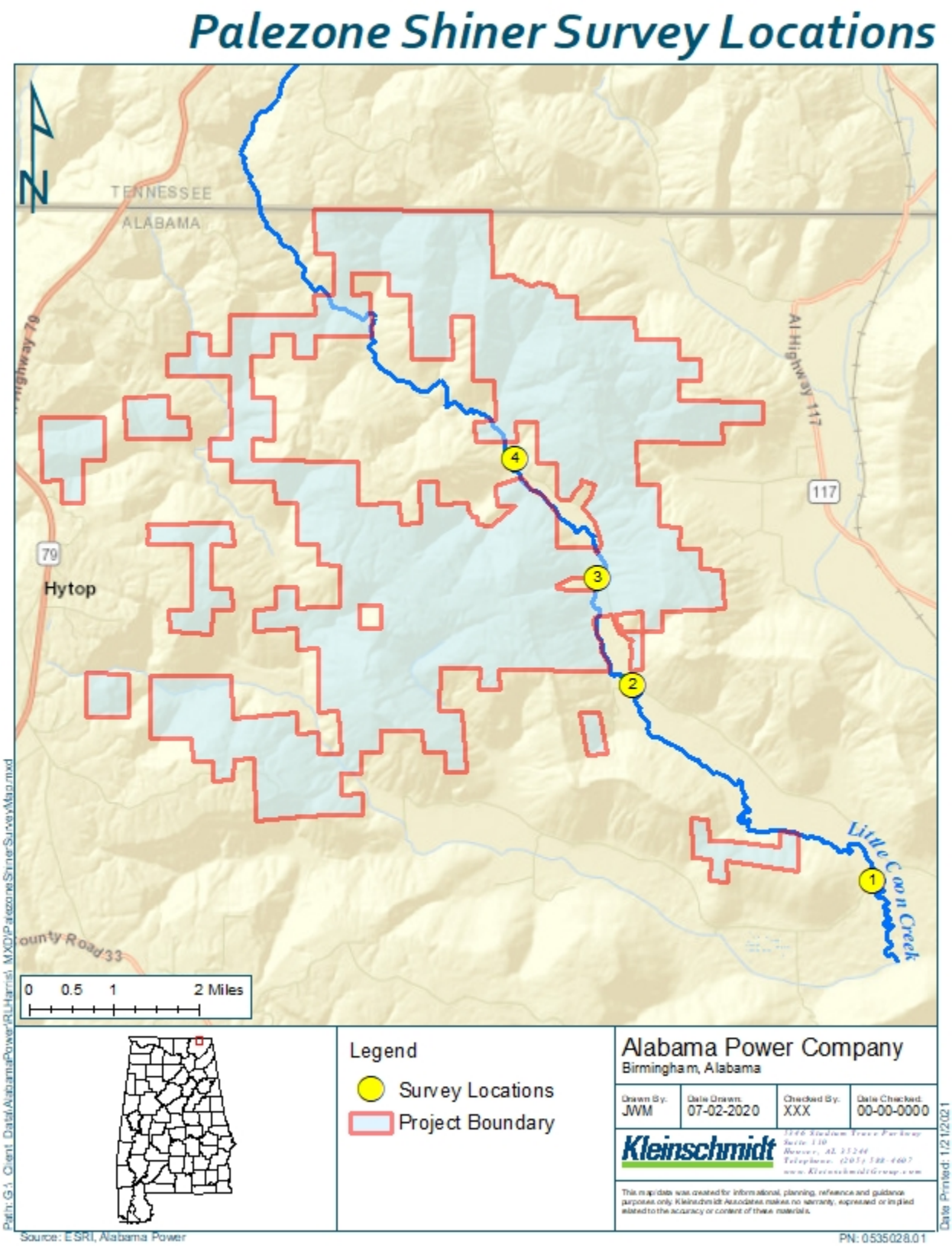


Figure 2-1 Palezone Shiner Survey Location Map

3.0 RESULTS

Surveys were conducted on June 10-11, 2020. No Palezone Shiners were collected or observed at any of the four survey sites. The following is a description of the results by site.

3.1 Site 1

Site 1, located downstream of the Skyline Management Area, has been channelized and was extremely turbid on the day of sampling. Loose, shifting, sand and silt was present across the entire channel. Sampling at this site was aborted due to extremely low catch rate and instream conditions. Furthermore, habitat is highly degraded at this site. However, Geological Survey of Alabama (GSA) does have historical sample records for this site and the Palezone Shiner has not been collected.

3.2 Site 2

Site 2 is very near the Project Boundary. Heavy siltation was observed throughout the sample reach at this site as well. The entire channel has been altered by severe siltation and sand deposits. A complete IBI sample, resulting in a "poor" score of 28, was performed but no Palezone Shiners were collected. A total of 15 species from seven families were collected. Banded Sculpin (*Cottus carolinae*) was the most commonly encountered species. Bluegill (*Lepomis macrochirus*) was the next most commonly encountered species at this site (Table 3-1). GSA also has records of historical sampling at this site, but Palezone Shiners have not been collected. Aerial imagery of the site indicated a relatively narrow riparian area between the stream and the surrounding pasture. Field observations confirmed this and the ADEM Physical Characterization Field Data Sheet indicated that the riparian zone scored in the marginal range (Appendix A).

3.3 Site 3

Site 3 was within the Project Boundary at Skyline. Substrate conditions were much improved at this site, but the fish community was similar to the degraded Site 2. A total of 16 species form six families were collected. Like Site 2, Banded Sculpin was the most commonly collected species. Other relatively common species included Striped Shiner (*Luxilus chrysocephalus*), Bluntnose Minnow (*Pimephales notatus*), and Bluegill. A complete fish IBI was performed, but Palezone Shiners were not collected. IBI scores for Site 3 resulted in a score of 26, putting it in the "very poor" range (Table 3-1). Like Site 2, aerial

imagery of the site indicated a relatively narrow riparian area between the stream and the surrounding pasture. Field observations confirmed this and the ADEM Physical Characterization Field Data Sheet indicated that the riparian zone scored in the sub-optimal range (Appendix A).

3.4 Site 4

Site 4 was narrow compared to downstream sample reaches and appeared to be more typical of a headwater stream. A complete IBI was not performed due to the low number of fish collected. Neither mollusks nor aquatic macroinvertebrates were observed at this site. This section of Little Coon Creek and sections upstream of this point may be intermittent, going seasonally dry in summer and/or fall.

Table 3-1 Adult Fishes Collected in Little Coon Creek

Scientific Name	Common Name	Site 2	Site 3	Totals
Campostoma oligolepis	Largescale Stoneroller	9	2	**11**
Hemitremia flammea	Flame Chub	5		**5**
Luxilus chrysocephalus	Striped Shiner	3	36	**39**
Lythrurus fasciolaris	Scarlet Shiner	1	12	**13**
Pimephales notatus	Bluntnose Minnow	4	24	**28**
Rhinichthus atratulus	Blacknose Dace	7	4	**11**
Catostomus commersoni	White Sucker		1	**1**
Moxostoma erythrurum	Golden Redhorse	1	1	**2**
Ameiurus natalis	Yellow Bullhead	1		**1**
Fundulus olivaceus	Blackspotted Topminnow	12	5	**17**
Cottus carolinae	Banded Sculpin	78	102	**180**
Lepomis auratus	Redbreast Sunfish		1	**1**
Lepomis cyanellus	Green Sunfish	2	6	**8**
Lepomis gulosus	Warmouth	1		**1**
Lepomis macrochirus	Bluegill	14	23	**37**
Lepomis microlophus	Redear Sunfish		1	**1**
Etheostoma duryi	Black Darter	2	12	**14**
Perca flavescens	Yellow Perch		1	**1**
Percina kathae	Mobile Logperch	1	3	**4**
	Total	**141**	**234**	**375**
	IBI Score	**28**	**26**	
	IBI Range	**Poor**	**Very Poor**	



Figure 3-1 View Looking Upstream at Site 2



Figure 3-2 View Looking Downstream at Site 2



Figure 3-3 View Looking Upstream at Site 3



Figure 3-4 View Looking Downstream at Site 3



Figure 3-5 View Looking Upstream at Site 4



Figure 3-6 View Looking Downstream at Site 4

4.0 SUMMARY AND CONCLUSIONS

A total of 19 species, from seven families, were collected at sites 2 and 3. Banded Sculpin was by far the most commonly encountered species; followed by Striped Shiner, Bluegill, and Bluntnose Minnow. Much of the stream substrate in this section of Little Coon Creek is degraded. The surrounding land use and narrow riparian buffers likely contribute to the substrate conditions. Conditions improve as you move up the watershed, but the stream becomes more typical of a headwater stream and may be seasonally dry in areas. The absence of historical records for Palezone Shiner in Little Coon Creek, substrate conditions throughout much of the stream, and the failure to detect this species during this collection effort indicate that it is unlikely that the species occurs in Little Coon Creek.

5.0 REFERENCES

Alabama Department of Conservation and Natural Resources (ADCNR). 2020. Palezone Shiner. Available at: https://www.outdooralabama.com/shiners/palezone. Accessed July 2, 2020.

O'Neil, P.E. and T.E. Shepard. 2010. Calibration of the Index of Biotic Integrity for the Tennessee Valley Ichthyoregion in Alabama. Open-File Report 1004. Geological Survey of Alabama, Tuscaloosa, Alabama.

APPENDIX A

FIELD FORMS

FISH COMMUNITY IBI SURVEY FORM

Site Little Coon Creek Cave Springs Rd/CR 54 Date 6/10

Riffles	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Runs	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15) (16) (17) (18) (19) (20)
Pools	(1)	(2)	(3)	(4)	5	6	7	8	9	10	11	12	13	14	15 (21) (22) (23) (24) (25)
Shorelines	(1)	(2)	3	4	5	6	7	8	9	10	Time start 1200				
No fish	1	2	3	(4)	5	6	7	8	9	10	Time end 1320				(26)

Minimum of 10 run, 10 riffle, 10 pool and 2 shoreline efforts. An effort is approximately equal to one seine haul through a pool for about 25 feet with a 10 foot seine; or a riffle/run set with a 10 foot seine for about 15 to 20 feet upstream with shocker; a shoreline effort is 150 feet of shoreline sampled with shocker and dip nets. If habitat is poorly represented at a site, substitute other habitats to yield 30 efforts + minimum of two shoreline efforts.

	Species	
1	Banded Sculpin	☒☒☒☒☒☒☒☐
2	Large Scale Stoneroller	☒
3	Warmouth	•
4	Bluegill	☒ : :
5	Flame Chub	=
6	Green Sunfish	: :
7	Black nosed dace	☐
8	Scarlet Shiner	·
9	Bluntnose minnow	: :
10	Striped Shiner	: :
11	Blackspotted Topminnow	☒ : :
12	Yellow Bullhead	·
13	Black Darter	: :
14	Golden Redhorse	·
15	Logperch	·
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ADEM - FIELD OPERATIONS DIVISION

PHYSICAL CHARACTERIZATION FIELD DATA SHEET W/DATALOGGER IMPORT

Trip Name APCO HARRIS DAM MITIGATION PROJECT ***Station #*** LITTLE CANOE CR @ CAVE SPRINGS RD

Visit Date 10 JUN 2020 ***Visit Time*** 1200 ***Collector Names*** CJ / APCO CREW - JB/DS/CF

Trip Comments:

STATION VISIT COMMENTS (REACH DESCRIPTION)

(For COC Purposes: D.O =) SEVERE SILTATION IMPAIRMENT - CORN COBS AND CORN STALKS IN STREAM. NO RIFFLES PRESENT DUE TO LARGE SILT AND SAND DEPOSITS

ALAWADR/ BIOWADR STATION VISIT ACTIVITIES (*ACTIVITY TIMES ONLY NEEDED IF DIFFERENT FROM STATION VISIT TIME)

	Activity Time* (24hrs):		Replicate Time (24hrs):	Activity Conducted?
☑ Field Form: *Phys Char Form*		☐ *Rep 1*		☐ Activity Not Conducted
☑ Field Form: *Substrate Composition & Habitat Assessment Form*				☐ Activity Not Conducted
☐ Datalogger Import		☐ *Rep 1*		☐ Activity Not Conducted
☐ MB-I Inverts		☐ *Rep 1*		☐ Activity Not Conducted
☐ Peri Chl *a*		☐ *Rep 1*		☐ Activity Not Conducted
☒ Fish IBI		☐ *Rep 1*		☐ Activity Not Conducted

If any activity is not conducted, Why? ☐ No Flow ☐ Intermittent Pools ☐ Too Deep ☐ Too Turbid ☐ Dry Streambed ☐ Equipment Malfunctioned ☐ Inaccessible ☐ Dangerous Flow ☐ Dangerous Weather ☐ Other: Note in Comments

☑ Pictures Taken (Notes:)

RIPARIAN LANDUSE & VEGETATION

Land use at Reach *(Check all)*: ☐ Pasture ☐ Fields ☐ CAFO ☑ Crops ☐ Residential ☐ Industrial ☐ Forest ☐ Commercial ☐ Mixed Urban ☐ silviculture

Dominant Riparian Vegetation Present *Select Only One*: ☒ Trees ☐ Herbaceous ☐ Shrubs ☐ Grasses

Canopy Cover: ☐ Open 0-20% ☐ Mostly Open 20-40% ☐ Est 50/50 40-60% ☒ Mostly Shaded 60-80% ☐ Shaded 80-100%

Type: ☒ Deciduous ☐ Coniferous ☐ Mixed

INSTREAM FEATURES

Stream Morphology Est.

Reach Length 1200 ft
Stream Width 35 ft
Bank Height: High 6 ft
Low 4 ft
High Water Mark 10 ft

Channelized? ☑ Yes ☐ No

% of Total Reach (Must add up to 100%)

Riffle Habitat	0 %
Rootbank Habitat	5 %
Rock/log Habitat	50 %
CPOM Habitat	10 %
Sand Habitat	30 %
Macro Habitat	0 %
Unsuitable Substrates	5 %

Stream Depth

Riffle 0 ft
Run 1.00 ft
Pool 1.75 ft

Proportion of

Riffle 0 %
Run 90 %
Pool 10 %

Dam Present ☒ No ☐ Yes

Relation to Reach: ☐ Above ☐ Below ☐ Within

If Yes, Kind?: ☐ Beaver ☐ Debris ☐ Low-head ☐ Mill ☐ Culvert ☐ Hydropower

Est. Gradient (Over 300ft): ☒ Low <1ft ☐ High >3ft ☐ Moderate 1-3 ft

AQUATIC VEGETATION

Total % of wetted reach with aquatic vegetation present 0 %

For species list see plant guide of common species of AL

Dominant Vegetation Type: *(Select only one)*: ☐ Rooted Emergent ☐ Rooted Submergent ☐ Floating Algae ☐ Rooted Floating ☐ Attached Algae ☐ Free Floating

(Optional) Type	*% of Wetted Reach*	*Species*	*Type*	*% of Wetted Reach*	*Species*
Rooted Emergent	%		Attached Algae	%	
Rooted Floating	%		Floating Algae	%	
Rooted Submergent	%		Free Floating	%	

SEDIMENT / SUBSTRATE

Sediment Odors (Select One): ☐ None ☐ Chemical ☐ Sewage ☒ Anaerobic ☐ Petroleum ☐ Fishy

Oils (Select One): ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

Deposits (Select One): ☐ None ☐ Paper Fiber ☑ Silt ☐ Sand ☐ Gravel ☐ Sawdust ☐ Sludge ☐ Coal Fines

Looking at stones that are not deeply embedded, are the undersides black in color? ☐ Yes ☐ No ☒ N/A

WATER QUALITY INDICATORS

Water Odors (Select One): ☑ Normal/None ☐ Chemical ☐ Raw Sewage ☐ Treated Sewage ☐ Fishy ☐ Anaerobic ☐ Petroleum

Surface Oils: ☑ None ☐ Flecks ☐ Sheen ☐ Slick ☐ Globs

Water Color (Select One): ☐ Clear/No Color ☐ Grey ☐ Green ☐ Purple ☒ Brown (Mud) ☐ Red (Dye) ☐ Chalky White ☐ Blue ☐ Lt .Tannic ☐ Dk. Tannic

Biological Indicators (Select all): ☐ Mussels ☒ Fish ☒ Crayfish ☐ Snails ☐ Macroinvertebrates ☒ Fresh Beaver Sticks

ADEM - FIELD OPERATIONS DIVISION

PHYSICAL CHARACTERIZATION FIELD DATA SHEET W/DATALOGGER IMPORT

Trip Name 2020 HARRIS DAM MITIGATION PROJECT *Station #* LITTLE CANOE CR. D CAVE SPRINGS AL

Visit Date 10 Sept 2020 *Visit Time* 1100 *Collector Names* [illegible]/APCO CREW - BIDS/ICT

Trip Comments:

STATION VISIT COMMENTS (REACH DESCRIPTION)

(For COC Purposes: D.O =) WATER SITTATION IMPAIRMENT - 2020 LOSS AND NORM STATUS

IN STREAM, NO RIFFLES PRESENT DUE TO LARGE SILT AND SAND DEPOSITS

ALAWADR/ BIOWADR STATION VISIT ACTIVITIES (*ACTIVITY TIMES ONLY NEEDED IF DIFFERENT FROM STATION VISIT TIME)

	Activity Time* (24hrs):		Replicate Time (24hrs):	Activity Conducted?
☑ Field Form: *Phys Char Form*		☐ *Rep 1*		☐ Activity Not Conducted
☑ Field Form: *Substrate Composition & Habitat Assessment Form*				☐ Activity Not Conducted
☐ Datalogger Import		☐ *Rep 1*		☐ Activity Not Conducted
☐ MB-I Inverts		☐ *Rep 1*		☐ Activity Not Conducted
☐ Peri Chl *a*		☐ *Rep 1*		☐ Activity Not Conducted
☑ Fish IBI		☐ *Rep 1*		☐ Activity Not Conducted

If any activity is not conducted, Why? ☐ No Flow ☐ Intermittent Pools ☐ Too Deep ☐ Too Turbid ☐ Dry Streambed ☐ Equipment Malfunctioned ☐ Inaccessible ☐ Dangerous Flow ☐ Dangerous Weather ☐ Other: Note in Comments

☑ Pictures Taken (Notes:)

RIPARIAN LANDUSE & VEGETATION

Land use at Reach (Check all): ☐ Pasture ☐ Fields ☐ CAFO ☑ Crops ☐ Residential ☐ Industrial ☐ Forest ☐ Commercial ☐ Mixed Urban ☐ silviculture

Dominant Riparian Vegetation Present Select Only One: ☒ Trees ☐ Herbaceous ☐ Shrubs ☐ Grasses

Canopy Cover: ☐ Open 0-20% ☐ Mostly Open 20-40% ☐ Est 50/50 40-60% ☒ Mostly Shaded 60-80% ☐ Shaded 80-100%

Type: ☒ Deciduous ☐ Coniferous ☐ Mixed

INSTREAM FEATURES

Stream Morphology Est.

Reach Length 300 ft

Stream Width 15 ft

Bank Height: High 10 ft

Low 4 ft

High Water Mark 10 ft

Channelized? ☑ Yes ☐ No

% of Total Reach (Must add up to 100%)

Riffle Habitat	0 %
Rootbank Habitat	5 %
Rock/log Habitat	50 %
CPOM Habitat	0 %
Sand Habitat	30 %
Macro Habitat	0 %
Unsuitable Substrates	5 %

Stream Depth

Riffle 0 ft

Run 100 ft

Pool 175 ft

Proportion of

Riffle 0 %

Run 90 %

Pool 10 %

Dam Present ☒ No ☐ Yes

Relation to Reach: ☐ Above ☐ Below ☐ Within

If Yes, Kind?: ☐ Beaver ☐ Debris ☐ Low-head ☐ Mill ☐ Culvert ☐ Hydropower

Est. Gradient (Over 300ft): ☒ Low <1ft ☐ High >3ft ☐ Moderate 1-3 ft

AQUATIC VEGETATION

Total % of wetted reach with aquatic vegetation present 0 %

For species list see plant guide of common species of AL

Dominant Vegetation Type (Select only one): ☐ Rooted Emergent ☐ Rooted Submergent ☐ Floating Algae ☐ Rooted Floating ☐ Attached Algae ☐ Free Floating

(Optional) Type	*% of Wetted Reach*	*Species*	*Type*	*% of Wetted Reach*	*Species*
Rooted Emergent	___ %		Attached Algae	___ %	
Rooted Floating	___ %		Floating Algae	___ %	
Rooted Submergent	___ %		Free Floating	___ %	

SEDIMENT / SUBSTRATE

Sediment Odors (Select One): ☐ None ☐ Chemical ☐ Sewage ☑ Anaerobic ☐ Petroleum ☐ Fishy

Oils (Select One): ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

Deposits (Select One): ☐ None ☐ Paper Fiber ☑ Silt ☐ Sand ☐ Gravel ☐ Sawdust ☐ Sludge ☐ Coal Fines

Looking at stones that are not deeply embedded, are the undersides black in color? ☐ Yes ☐ No ☒ N/A

WATER QUALITY INDICATORS

Water Odors (Select One): ☑ Normal/None ☐ Chemical ☐ Raw Sewage ☐ Treated Sewage ☐ Fishy ☐ Anaerobic ☐ Petroleum

Surface Oils: ☑ None ☐ Flecks ☐ Sheen ☐ Slick ☐ Globs

Water Color (Select One): ☐ Clear/No Color ☐ Grey ☐ Green ☐ Purple ☒ Brown (Mud) ☐ Red (Dye) ☐ Chalky White ☐ Blue ☐ Lt .Tannic ☐ Dk. Tannic

Biological Indicators (Select all): ☐ Mussels ☒ Fish ☑ Crayfish ☐ Snails ☐ Macroinvertebrates ☑ Fresh Beaver Sticks

Cave Spring Rd

VISIT OBSERVATIONS AND MEASUREMENTS

Was Flow Measured?	☐ Yes - ADEM: Abbrev Meter (*cfs*)	☐ No - Not wadeable (too deep)	☒ No - Not Required	☐ No - Meter Malfunctioned
	☐ Yes - USGS: Gauge (*cfs*)	☐ No - Flow conditions hazardous	☐ No - Flow not visible	☐ Data Collected but Lost or Corrupted
	☐ Yes - Facility (*mgd*)	☐ No - Visible but not measurable	☐ No - Braided/Swamp	
	USGS Gage # or Flow--Meter #:		**Flow (*cfs*) or (*mgd*):**	

Now	***Weather***	*Past 24 hrs*
☐	Clear / Cloudless	☐
☐	Partly Cloudy	☒
☐	Mostly Cloudy	☐
☐	Cloudy	☐
☐	Fog	☐
☐	Light Rain / Drizzle	☐
☐	Rain	☐
☐	Thunderstorms	☐
☐	Freezing Precipitation	☐

Flow Stage
- ☐ Flood (out of banks)
- ☐ Above Normal
- ☐ Normal
- ☐ Low

Heavy Rain in last 7 Days?
☐ Yes ☐ No

Velocity
- ☐ Swift >3 ft / Sec
- ☐ Moderate 1.5 – 3 ft / Sec
- ☐ Slow <1.5 ft / Sec

Parameter	***Value***	***Replicate***	***Unit***
Datalogger Serial#		*N/A*	#
Total Depth @ FM Pt			*ft*
Air Temp.		*N/A*	*°C*
Turbidity Meter #		*N/A*	#
Turbidity			*NTU*
Depth of Turbidity:	☐ Surface ☐ Mid-Depth ☐ _____ ft		

SUBSTRATE COMPOSITION & HABITAT ASSESSMENT FORM

Index To Use:
- ☒ High Gradient
- ☐ Low Gradient

Est. % Composition In Sampling Area

Type	Diameter	Percent	Stable
Bedrock		0	1/2
Hardpan Clay		0	1/2
Boulder	>10 in.	0	Yes
Cobble	2.5 - 10 in.	0	Yes
Gravel	0.1 - 2.5 in.	5	Yes
Sand	Gritty	35	
Silt		10	
Clay	Slick	5	
Detritus	Stick/Wood	35	Yes
	CPOM	10	
Muck	Fine Org.		
	Total	100%	

	Name of Collector / **Riffle / Run HA**	*Collector 1* Score (LB/RB)	*Collector 2* Score (LB/RB)
1	Instream Cover	12	11
2	Epifaunal surface	3	3
3	Embeddedness	5	4
4	Velocity/Depth	0	0
5	Channel Alteration	12	13
6	Sediment Deposition	5	3
7	Frequency of Riffles	2	2
8	Channel Flow Status	10	11
9	Condition of Banks	9	7
10	Bank Veg. Protection	7/7	7/7
11	Disruptive Pressure	0/0	0/0
12	Riparian Veg. zone	5/5	6/6
13	Rip Veg Zone Quality	3/3	5/5

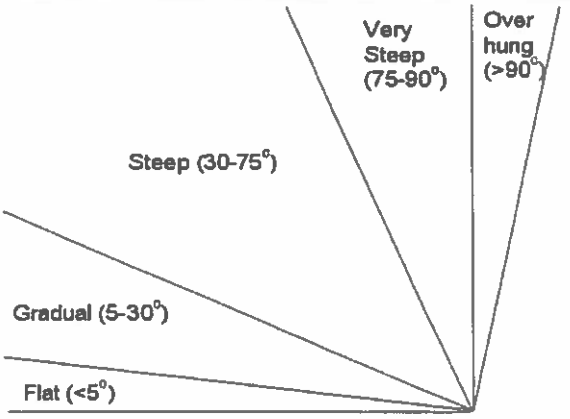
	Name of Collector / **Glide / Pool HA**	*Collector 1* Score (LB/RB)	*Collector 2* Score (LB/RB)
1	Instream Cover		
2	Pool Substrate Char.		
3	Pool Variability		
4	Channel Alteration		
5	Sediment Deposition		
6	Channel Sinuosity		
7	Channel Flow Status		
8	Condition of Banks		
9	Bank Veg. Protection	/	/
10	Disruptive Pressure	/	/
11	Riparian Veg. Zone	/	/
12	Rip Veg Zone Quality	/	/

Frequency of Riffles/ Bends (Distance between riffles/bends ÷ stream width)

Computer Measurement	<5	5	6	7	8	9	11	13	15	16	18	21	23	25	26	28	30	32	34	≥35

Check One for each Bank:

Left Bank Angle	☐ Flat	☐ Gradual	☐ Steep	☒ Very Steep	☐ Overhung
Right Bank Angle	☐ Flat	☐ Gradual	☐ Steep	☒ Very Steep	☐ Overhung



FISH COMMUNITY IBI SURVEY FORM

Site Little Corn Creek at CR 567 Date 6/11/20

Riffles	(1)	(2)	3	4	5	6	7	8	9	10	11	12	13	14	15
Runs	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Pools	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	13	14	15
Shorelines	(1)	(2)	3	4	5	6	7	8	9	10	Time start	0930			
No fish	1	2	3	4	5	6	7	8	9	10	Time end	1050			

Minimum of 10 run, 10 riffle, 10 pool and 2 shoreline efforts. An effort is approximately equal to one seine haul through a pool for about 25 feet with a 10 foot seine; or a riffle/run set with a 10 foot seine for about 15 to 20 feet upstream with shocker; a shoreline effort is 150 feet of shoreline sampled with shocker and dip nets. If habitat is poorly represented at a site, substitute other habitats to yield 30 efforts + minimum of two shoreline efforts.

	Species	
1	Striped Shiner	⊠⊠⊠::
2	Black Darter	⊠··
3	Banded Sculpin	⊠⊠⊠⊠⊠⊠⊠⊠⊠⊠··
4	Blunt nose minnow	⊠⊠::
5	Scarlet Shiner	⊠··
6	Black Sp Topminnow	::
7	Bluegill	⊠⊠·:
8	Red-ear Sunfish	·
9	Golden Redhorse	·
10	Redbreast sunfish	·
11	Green sunfish	::
12	Black nosed dace	::
13	Logperch	:·
14	Yellow Perch	·
15	Large SC stoneroller	··
16	White Sucker	·
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VISIT OBSERVATIONS AND MEASUREMENTS

Was Flow Measured?	☐ Yes - ADEM: Abbrev Meter (*cfs*)	☐ No - Not wadeable (too deep)	☒ No - Not Required	☐ No - Meter Malfunctioned
	☐ Yes - USGS: Gauge (*cfs*)	☐ No - Flow conditions hazardous	☐ No - Flow not visible	☐ Data Collected but Lost or Corrupted
	☐ Yes - Facility (*mgd*)	☐ No - Visible but not measurable	☐ No - Braided/Swamp	
	USGS Gage # or Flow--Meter #:		**Flow** (*cfs*) or (*mgd*):	

Now	*Weather*	*Past 24 hrs*
☐	Clear / Cloudless	☐
☒	Partly Cloudy	☒
☐	Mostly Cloudy	☐
☐	Cloudy	☐
☐	Fog	☐
☐	Light Rain / Drizzle	☐
☐	Rain	☐
☐	Thunderstorms	☐
☐	Freezing Precipitation	☐

Flow Stage
- ☐ Flood (out of banks)
- ☐ Above Normal
- ☒ Normal
- ☐ Low

Heavy Rain in last 7 Days?
- ☐ Yes
- ☒ No

Velocity
- ☐ Swift >3 ft / Sec
- ☐ Moderate 1.5 – 3 ft / Sec
- ☒ Slow <1.5 ft / Sec

Parameter	*Value*	*Replicate*	*Unit*
Datalogger Serial#		*N/A*	#
Total Depth @ FM Pt			*ft.*
Air Temp.		*N/A*	*°C*
Turbidity Meter #		*N/A*	#
Turbidity			*NTU*
Depth of Turbidity:	☐ Surface ☐ Mid-Depth ☐ _____ ft		

SUBSTRATE COMPOSITION & HABITAT ASSESSMENT FORM

Index To Use:
- ☒ High Gradient
- ☐ Low Gradient

Est. % Composition In Sampling Area

Type	Diameter	Percent	Stable
Bedrock		0	1/2
Hardpan Clay		0	1/2
Boulder	>10 in.	2	Yes
Cobble	2.5 - 10 in.	3	Yes
Gravel	0.1 - 2.5 in.	20	Yes
Sand	Gritty	30	
Silt		0	
Clay	Slick	5	
Detritus	Stick/Wood	30	Yes
	CPOM	10	
Muck	Fine Org.	0	
	Total	100%	

	Name of Collector / **Riffle / Run HA**	*Collector 1* Score (LB/RB)	*Collector 2* Score (LB/RB)
	Name of Collector	CS	JB
1	Instream Cover	17	17
2	Epifaunal surface	11	12
3	Embeddedness	16	16
4	Velocity/Depth	17	18
5	Channel Alteration	15	15
6	Sediment Deposition	16	17
7	Frequency of Riffles	8	7
8	Channel Flow Status	18	19
9	Condition of Banks	13	14
10	Bank Veg. Protection	8 / 6	9 / 7
11	Disruptive Pressure	9 / 9	9 / 9
12	Riparian Veg. zone	8 16	8 / 7
13	Rip Veg Zone Quality	6 16	7 / 7

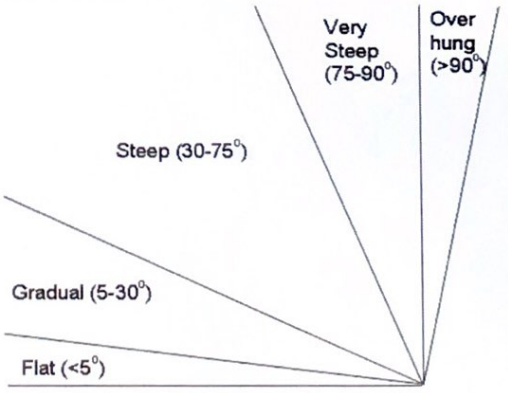
	Name of Collector / **Glide / Pool HA**	*Collector 1* Score (LB/RB)	*Collector 2* Score (LB/RB)
	Name of Collector		
1	Instream Cover		
2	Pool Substrate Char.		
3	Pool Variability		
4	Channel Alteration		
5	Sediment Deposition		
6	Channel Sinuosity		
7	Channel Flow Status		
8	Condition of Banks		
9	Bank Veg. Protection	/	/
10	Disruptive Pressure	/	/
11	Riparian Veg. Zone	/	/
12	Rip Veg Zone Quality	/	/

Frequency of Riffles/ Bends (Distance between riffles/bends ÷ stream width)

Computer Measurement	<5	5	6	7	8	9	11	13	15	16	18	21	23	25	26	28	30	32	34	≥35

Check One for each Bank:

Left Bank Angle	☐ Flat	☐ Gradual	☐ Steep	☒ Very Steep	☐ Overhung
Right Bank Angle	☐ Flat	☐ Gradual	☐ Steep	☒ Very Steep	☐ Overhung



ADEM - FIELD OPERATIONS DIVISION

PHYSICAL CHARACTERIZATION FIELD DATA SHEET W/DATALOGGER IMPORT

367

Trip Name APCO HARRIS DAM RELICENSING PROJECT *Station #* LITTLE COON CREEK @ JACKSON CO HWY 56

Visit Date 11 JUN 2020 *Visit Time* 930 *Collector Names* CS/APCO CREW JB/DS/CF

Trip Comments:

STATION VISIT COMMENTS (REACH DESCRIPTION): (For COC Purposes: D.O =) BETTER HABITAT THAN D/S SAMPLE @ CAVE SPRING LOW SILTATION, WORKED D/S OF BRIDGE AND FINISHED SAMPLE IN @ RIFFLE @ BRIDGE.

ALAWADR/ BIOWADR STATION VISIT ACTIVITIES (*ACTIVITY TIMES ONLY NEEDED IF DIFFERENT FROM STATION VISIT TIME)

	Activity Time* (24hrs):		Replicate Time (24hrs):	Activity Conducted?
☒ Field Form: *Phys Char Form*		☐ *Rep 1*		☐ Activity Not Conducted
☒ Field Form: *Substrate Composition & Habitat Assessment Form*				☐ Activity Not Conducted
☐ Datalogger Import		☐ *Rep 1*		☐ Activity Not Conducted
☐ MB-I Inverts		☐ *Rep 1*		☐ Activity Not Conducted
☐ Peri Chl *a*		☐ *Rep 1*		☐ Activity Not Conducted
☒ Fish IBI		☐ *Rep 1*		☐ Activity Not Conducted

If any activity is not conducted, Why? ☐ No Flow ☐ Intermittent Pools ☐ Too Deep ☐ Too Turbid ☐ Dry Streambed ☐ Equipment Malfunctioned ☐ Inaccessible ☐ Dangerous Flow ☐ Dangerous Weather ☐ Other: Note in Comments

☒ Pictures Taken (Notes:)

RIPARIAN LANDUSE & VEGETATION

Land use at Reach (Check all): ☒ Pasture ☐ Fields ☐ Industrial ☐ Crops ☐ Residential ☐ Mixed Urban ☒ Forest ☐ Commercial ☐ silviculture ☐ CAFO

Dominant Riparian Vegetation Present Select Only One: ☒ Trees ☐ Herbaceous ☐ Shrubs ☐ Grasses

Canopy Cover: ☐ Open 0-20% ☐ Mostly Open 20-40% ☐ Est 50/50 40-60% ☒ Mostly Shaded 60-80% ☐ Shaded 80-100%

Type: ☒ Deciduous ☐ Coniferous ☐ Mixed

INSTREAM FEATURES

Stream Morphology Est.: Reach Length 1200 ft; Stream Width 35 ft; Bank Height: High 10 ft; Low 4 ft; High Water Mark 12 ft

Channelized? ☐ Yes ☒ No

% of Total Reach (Must add up to 100%): *Riffle Habitat* 5 %; *Rootbank Habitat* 7 %; *Rock/log Habitat* 53 %; *CPOM Habitat* 10 %; *Sand Habitat* 20 %; *Macro Habitat* 3 %; *Unsuitable Substrates* 2 %

Stream Depth: Riffle .50 ft; Run 1.25 ft; Pool 1.75 ft

Proportion of: Riffle 5 %; Run 50 %; Pool 45 %

Dam Present ☒ No ☐ Yes

Relation to Reach: ☐ Above ☐ Below ☐ Within

Est. Gradient (Over 300ft): ☐ Low <1ft ☐ High >3ft ☒ Moderate 1-3 ft

If Yes, Kind?: ☐ Beaver ☐ Debris ☐ Low-head ☐ Mill ☐ Culvert ☐ Hydropower

AQUATIC VEGETATION

Total % of wetted reach with aquatic vegetation present 3 % — *For species list see plant guide of common species of AL*

Dominant Vegetation Type: (Select only one) ☐ Rooted Emergent ☒ Rooted Floating ☐ Rooted Submergent ☐ Attached Algae ☐ Floating Algae ☐ Free Floating

(Optional) Type	% of Wetted Reach	Species	Type	% of Wetted Reach	Species
Rooted Emergent	%		Attached Algae	%	
Rooted Floating	%		Floating Algae	%	
Rooted Submergent	%		Free Floating	%	

SEDIMENT / SUBSTRATE

Sediment Odors (Select One): ☒ None ☐ Chemical ☐ Sewage ☐ Anaerobic ☐ Petroleum ☐ Fishy

Oils (Select One): ☒ Absent ☐ Moderate ☐ Slight ☐ Profuse

Deposits (Select One): ☒ None ☐ Paper Fiber ☐ Silt ☐ Sand ☐ Gravel ☐ Sawdust ☐ Sludge ☐ Coal Fines

Looking at stones that are not deeply embedded, are the undersides black in color? ☐ Yes ☐ No ☒ N/A

WATER QUALITY INDICATORS

Water Odors (Select One): ☒ Normal/None ☐ Chemical ☐ Raw Sewage ☐ Treated Sewage ☐ Fishy ☐ Anaerobic ☐ Petroleum

Surface Oils: ☒ None ☐ Flecks ☐ Sheen ☐ Slick ☐ Globs

Water Color (Select One): ☒ Clear/No Color ☐ Grey ☐ Green ☐ Purple ☐ Brown (Mud) ☐ Red (Dye) ☐ Chalky White ☐ Blue ☐ Lt .Tannic ☐ Dk. Tannic

Biological Indicators (Select all): ☐ Mussels ☒ Fish ☒ Crayfish ☐ Snails ☒ Macroinvertebrates ☐ Fresh Beaver Sticks

ADEM - FIELD OPERATIONS DIVISION

PHYSICAL CHARACTERIZATION FIELD DATA SHEET W/DATALOGGER IMPORT

Trip Name APCO HARRIS DAM RELICENSING PROJECT *Station #* LITTLE COON CREEK @ JACKSON CO HWY 9

Visit Date 11 JUN 2020 *Visit Time* 930 *Collector Names* CG/APCO CREW JB/DS/CF

Trip Comments:

STATION VISIT COMMENTS (REACH DESCRIPTION)

(For COC Purposes: D.O =) BETTER HABITAT THAN D/S SAMPLE @ CAVE SPRING

LOW SILTATION. WORKED D/S OF BRIDGE AND FINISHED SAMPLE IN Ø RIFFLE @ BRIDGE

ALAWADR/ BIOWADR STATION VISIT ACTIVITIES (*ACTIVITY TIMES ONLY NEEDED IF DIFFERENT FROM STATION VISIT TIME)

	Activity Time* (24hrs):		Replicate Time (24hrs):	Activity Conducted?
☒ Field Form: *Phys Char Form*		☐ *Rep 1*		☐ Activity Not Conducted
☒ Field Form: *Substrate Composition & Habitat Assessment Form*				☐ Activity Not Conducted
☐ Datalogger Import		☐ *Rep 1*		☐ Activity Not Conducted
☐ MB-I Inverts		☐ *Rep 1*		☐ Activity Not Conducted
☐ Peri Chl *a*		☐ *Rep 1*		☐ Activity Not Conducted
☒ Fish IBI		☐ *Rep 1*		☐ Activity Not Conducted

If any activity is not conducted, Why? ☐ No Flow ☐ Intermittent Pools ☐ Too Deep ☐ Too Turbid ☐ Dry Streambed ☐ Equipment Malfunctioned ☐ Inaccessible ☐ Dangerous Flow ☐ Dangerous Weather ☐ Other: Note in Comments

☒ Pictures Taken (Notes:)

RIPARIAN LANDUSE & VEGETATION

Land use at Reach (Check all): ☒ Pasture ☐ Fields ☐ CAFO ☐ Industrial ☐ Crops ☐ Residential ☐ Mixed Urban ☒ Forest ☐ Commercial ☐ silviculture

Dominant Riparian Vegetation Present (Select Only One): ☒ Trees ☐ Herbaceous ☐ Shrubs ☐ Grasses

Canopy Cover: ☐ Open 0-20% ☐ Mostly Open 20-40% ☐ Est 50/50 40-60% ☒ Mostly Shaded 60-80% ☐ Shaded 80-100%

Type: ☒ Deciduous ☐ Coniferous ☐ Mixed

INSTREAM FEATURES

Stream Morphology Est.

Reach Length 1200 ft
Stream Width 35 ft
Bank Height: High 10 ft
Low 4 ft
High Water Mark 12 ft

Channelized? ☐ Yes ☒ No

% of Total Reach (Must add up to 100%)

Riffle Habitat	5 %
Rootbank Habitat	7 %
Rock/log Habitat	53 %
CPOM Habitat	10 %
Sand Habitat	20 %
Macro Habitat	3 %
Unsuitable Substrates	7 %

Stream Depth

Riffle .50 ft
Run 1.25 ft
Pool 1.75 ft

Proportion of

Riffle 5 %
Run 50 %
Pool 45 %

Dam Present ☒ No ☐ Yes

Relation to Reach: ☐ Above ☐ Below ☐ Within

Est. Gradient (Over 300ft): ☐ Low <1ft ☐ High >3ft ☒ Moderate 1-3 ft

If Yes, Kind?: ☐ Beaver ☐ Debris ☐ Low-head ☐ Mill ☐ Culvert ☐ Hydropower

AQUATIC VEGETATION

Total % of wetted reach with aquatic vegetation present 3 % — *For species list see plant guide of common species of AL*

Dominant Vegetation Type: (Select only one) ☐ Rooted Emergent ☒ Rooted Floating ☐ Rooted Submergent ☐ Attached Algae ☐ Floating Algae ☐ Free Floating

(Optional) Type	*% of Wetted Reach*	*Species*	*Type*	*% of Wetted Reach*	*Species*
Rooted Emergent	____ %		Attached Algae	____ %	
Rooted Floating	____ %		Floating Algae	____ %	
Rooted Submergent	____ %		Free Floating	____ %	

SEDIMENT / SUBSTRATE

Sediment Odors (Select One): ☒ None ☐ Chemical ☐ Sewage ☐ Anaerobic ☐ Petroleum ☐ Fishy

Oils (Select One): ☒ Absent ☐ Moderate ☐ Slight ☐ Profuse

Deposits (Select One): ☒ None ☐ Paper Fiber ☐ Silt ☐ Sand ☐ Gravel ☐ Sawdust ☐ Sludge ☐ Coal Fines

Looking at stones that are not deeply embedded, are the undersides black in color? ☐ Yes ☐ No ☒ N/A

WATER QUALITY INDICATORS

Water Odors (Select One): ☒ Normal/None ☐ Chemical ☐ Raw Sewage ☐ Treated Sewage ☐ Fishy ☐ Anaerobic ☐ Petroleum

Surface Oils: ☒ None ☐ Flecks ☐ Sheen ☐ Slick ☐ Globs

Water Color (Select One): ☒ Clear/No Color ☐ Grey ☐ Green ☐ Purple ☐ Brown (Mud) ☐ Red (Dye) ☐ Chalky White ☐ Blue ☐ Lt .Tannic ☐ Dk. Tannic

Biological Indicators (Select all): ☐ Mussels ☒ Fish ☒ Crayfish ☐ Snails ☒ Macroinvertebrates ☐ Fresh Beaver Sticks

CR 567

VISIT OBSERVATIONS AND MEASUREMENTS

Was Flow Measured?	☐ Yes - ADEM: Abbrev Meter (*cfs*)	☐ No - Not wadeable (too deep)	☒ No - Not Required	☐ No - Meter Malfunctioned
	☐ Yes - USGS: Gauge (*cfs*)	☐ No - Flow conditions hazardous	☐ No - Flow not visible	☐ Data Collected but Lost or Corrupted
	☐ Yes - Facility (*mgd*)	☐ No - Visible but not measurable	☐ No - Braided/Swamp	
	USGS Gage # or Flow--Meter #:		**Flow (*cfs*) or (*mgd*):**	

Now	*Weather*	*Past 24 hrs*
☐	Clear / Cloudless	☐
☒	Partly Cloudy	☒
☐	Mostly Cloudy	☐
☐	Cloudy	☐
☐	Fog	☐
☐	Light Rain / Drizzle	☐
☐	Rain	☐
☐	Thunderstorms	☐
☐	Freezing Precipitation	☐

Flow Stage
- ☐ Flood (out of banks)
- ☐ Above Normal
- ☒ Normal
- ☐ Low

Heavy Rain in last 7 Days?
- ☐ Yes
- ☒ No

Velocity
- ☐ Swift >3 ft / Sec
- ☐ Moderate 1.5 – 3 ft / Sec
- ☒ Slow ≤1.5 ft / Sec

Parameter	*Value*	*Replicate*	*Unit*
Datalogger Serial#		*N/A*	#
Total Depth @ FM Pt			*ft*
Air Temp.		*N/A*	℃
Turbidity Meter #		*N/A*	#
Turbidity			*NTU*
Depth of Turbidity:	☐ Surface ☐ Mid-Depth ☐ _____ ft		

SUBSTRATE COMPOSITION & HABITAT ASSESSMENT FORM

Index To Use:
- ☒ High Gradient
- ☐ Low Gradient

Est. % Composition In Sampling Area

Type	Diameter	Percent	Stable
Bedrock		0	1/2
Hardpan Clay		0	1/2
Boulder	>10 in.	2	Yes
Cobble	2.5 - 10 in.	3	Yes
Gravel	0.1 - 2.5 in.	20	Yes
Sand	Gritty	30	
Silt		0	
Clay	Slick	5	
Detritus	Stick/Wood	30	Yes
	CPOM	10	
Muck	Fine Org.	0	
	Total	100%	

	Name of Collector / Riffle / Run HA	Collector 1 Score (LB/RB)	Collector 2 Score (LB/RB)
	Name of Collector	CS	JB
1	Instream Cover	17	17
2	Epifaunal surface	11	12
3	Embeddedness	16	16
4	Velocity/Depth	17	18
5	Channel Alteration	15	15
6	Sediment Deposition	16	17
7	Frequency of Riffles	8	7
8	Channel Flow Status	18	19
9	Condition of Banks	13	14
10	Bank Veg. Protection	8 / 6	9 / 7
11	Disruptive Pressure	9 / 9	9 / 9
12	Riparian Veg. zone	8 16	8 / 7
13	Rip Veg Zone Quality	6 / 6	7 / 7

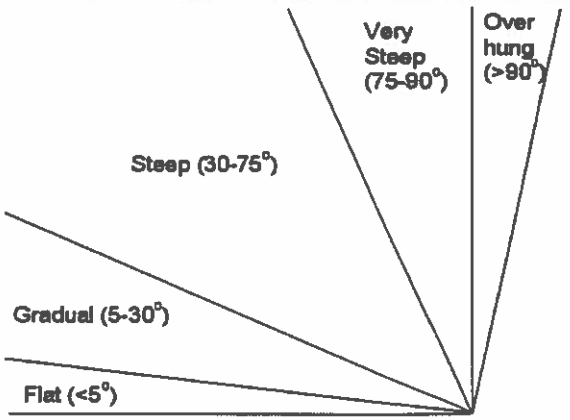
	Name of Collector / Glide / Pool HA	Collector 1 Score (LB/RB)	Collector 2 Score (LB/RB)
	Name of Collector		
1	Instream Cover		
2	Pool Substrate Char.		
3	Pool Variability		
4	Channel Alteration		
5	Sediment Deposition		
6	Channel Sinuosity		
7	Channel Flow Status		
8	Condition of Banks		
9	Bank Veg. Protection	/	/
10	Disruptive Pressure	/	/
11	Riparian Veg. Zone	/	/
12	Rip Veg Zone Quality	/	/

Frequency of Riffles/ Bends (Distance between riffles/bends ÷ stream width)

Computer Measurement	<5	5	6	7	8	9	11	13	15	16	18	21	23	25	26	28	30	32	34	≥35

Check One for each Bank:

Left Bank Angle	☐ Flat	☐ Gradual	☐ Steep	☒ Very Steep	☐ Overhung
Right Bank Angle	☐ Flat	☐ Gradual	☐ Steep	☒ Very Steep	☐ Overhung



APPENDIX E

FINELINED POCKETBOOK (HAMIOTA ALTILIS) SURVEY REPORT

Finelined Pocketbook (*Hamiota altilis*) Survey Report

R.L. Harris Hydroelectric Project

FERC No. 2628

HARRIS DAM RELICENSING



Prepared by:

Alabama Power Company

and

Kleinschmidt Associates

October 2020

Alabama Power

Kleinschmidt

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Figure 3-22 View Looking Downstream at Pineywood Creek Site 2 23

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 Project.

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, 2019. On August 27, 2019, the Harris Action Team (HAT) 3 met to discuss components of the Threatened and Endangered Species Study Plan. At that meeting, Alabama Rivers Alliance (ARA) asked if the June 2019 removal of the Howle and Turner Dam on the Tallapoosa River upstream of Lake Harris could affect critical habitat of the Finelined Pocketbook (*Hamiota altilis*). The U.S. Fish and Wildlife Service (USFWS) stated that some investigation could be warranted due to the proximity of Finelined Pocketbook's critical habitat to the Project Boundary, specifically noting an area near the Highway (Hwy) 431 bridge on the Tallapoosa River.

The Finelined Pocketbook mussel is a suboval shaped mussel that has a maximum length of approximately 3⅜ inches (Mirarchi et al. 2004). This mussel lives in large to small streams in habitats above the fall line having stable sand/gravel/cobble substrates and moderate to swift currents. Historically, this mussel was found in the Alabama, Tombigbee, Black Warrior, Cahaba, Tallapoosa, and Coosa Rivers, and their tributaries (USFWS 2004). Regarding reproduction, the Finelined Pocketbook mussel releases glochidia as a super-conglutinate from March through June, and confirmed host species include Blackspotted Topminnow (*Fundulus olivaceus*), Redeye Bass (*Micropterus coosae*), Spotted Bass (*Micropterus punctulatus*), Largemouth Bass (*Micropterus salmoides*), and Green Sunfish (*Lepomis cyanellus*) (Mirarchi et al. 2004).

Survey methods for the Finelined Pocketbook were developed in consultation with USFWS. This survey report describes the methods that Alabama Power used to assess the occurrence of Finelined Pocketbook at the Harris Project.

2.0 METHODS

Suitable habitat for Finelined Pocketbook is more likely to be upstream of Lake Harris than in the reservoir itself, so Alabama Power performed surveys in the rivers and tributaries upstream of the reservoir. If specimens were found, surveys would continue downstream to determine if populations extended into the Harris Project. The rivers and tributaries surveyed were the mainstem Tallapoosa River and four of its tributaries (Carr Creek, Ketchepedrakee Creek, Little Ketchepedrakee Creek, and Mad Indian Creek) and the mainstem Little Tallapoosa River and one of its tributaries (Pineywood Creek) (Table 2-1). Little Ketchepedrakee Creek and Mad Indian Creek were selected for surveys during a reconnaissance trip on June 24, 2020. Additional tributaries accessed for suitability included Sandy Creek, Gobbler Creek, and Lost Creek, but they had either a narrow (10-15 feet) wetted channel or were heavily silted and were therefore not surveyed for mollusks.

Table 2-1 Finelined Pocketbook Survey Locations

Tributary	Site Number	Miles Upstream of Mouth*	Description
Tallapoosa River	1	4.6	Downstream of Co. Rd. 36 crossing to just downstream of Hwy 431 crossing
	2	4.4	
	3	4.2	
	4	4.0	
	5	3.3	
	6	0.7	
Carr Creek	1	0.1	Upstream of Tallapoosa River Site 6
Ketchepedrakee Creek	1	1.8	Upstream (Site 1) and downstream (Site 2) of Co. Rd. 201 crossing
	2	1.1	
Little Ketchepedrakee Creek	1	1.9	Downstream of Co. Rd. 313 crossing
Mad Indian Creek	1	3.1	Upstream of Co. Rd. 113 crossing
Little Tallapoosa River	1	3.2	Downstream of Co. Rd. 59 crossing to upstream of reservoir
	2	1.3	
	3	0.6	
	4	0.1	
Pineywood Creek	1	2.5	Co. Rd. 270 crossing (Site 1) and Hwy 431 crossing (Site 2)
	2	1.9	

*The mouths of the Tallapoosa River and Little Tallapoosa River in this table are where Lake Harris begins, at an elevation of 793 feet mean sea level.

Surveyors from Alabama Power and their representatives, Kleinschmidt Associates, the Alabama Department of Conservation and Natural Resources (ADCNR), and USFWS performed mussel surveys in areas with suitable habitat for Finelined Pocketbook. Viewing buckets and snorkeling equipment were used to search the substrate for mollusks for a minimum of one hour of qualitative effort, unless site characteristics precluded this level of effort.

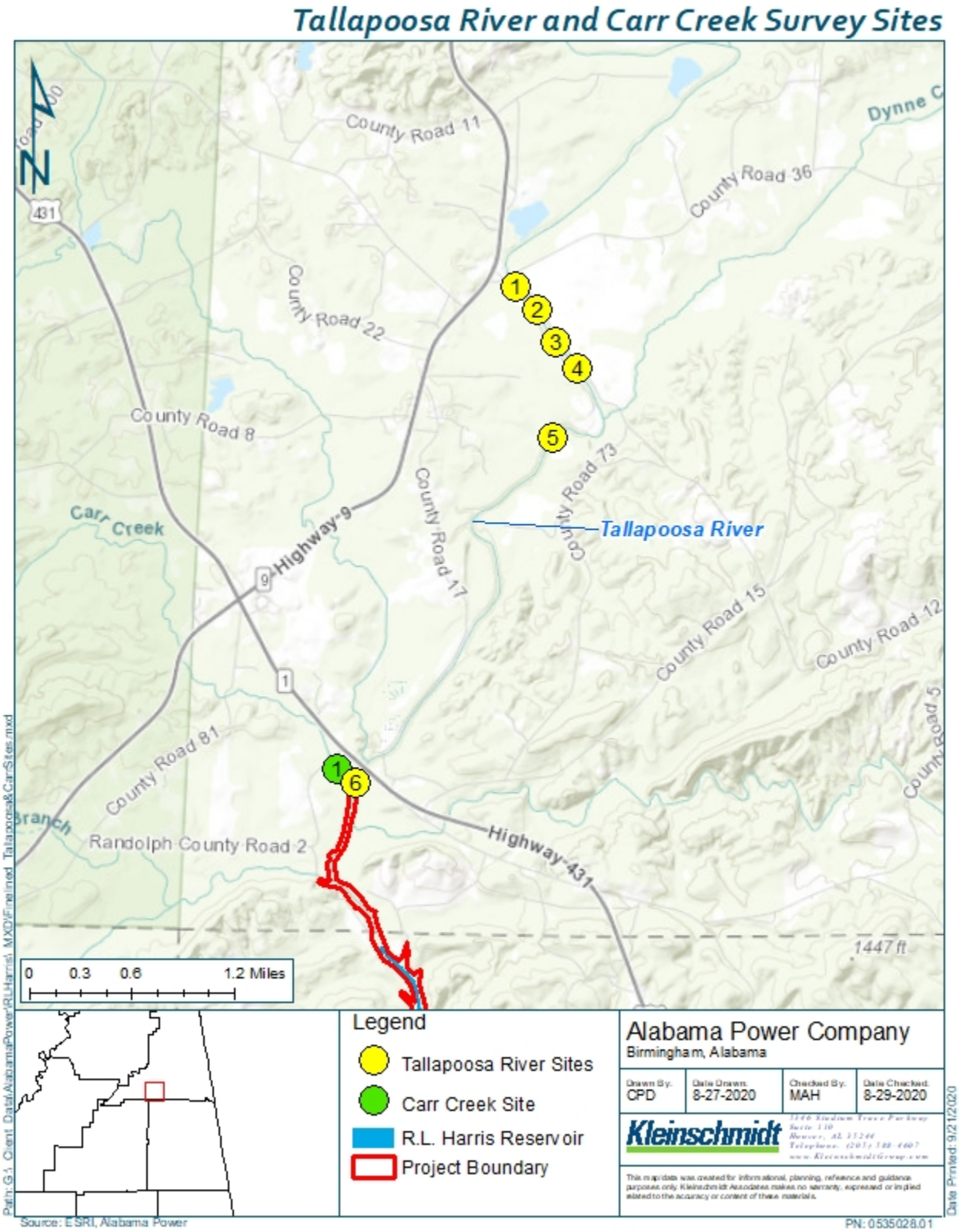


Figure 2-1 Tallapoosa River and Carr Creek Survey Sites

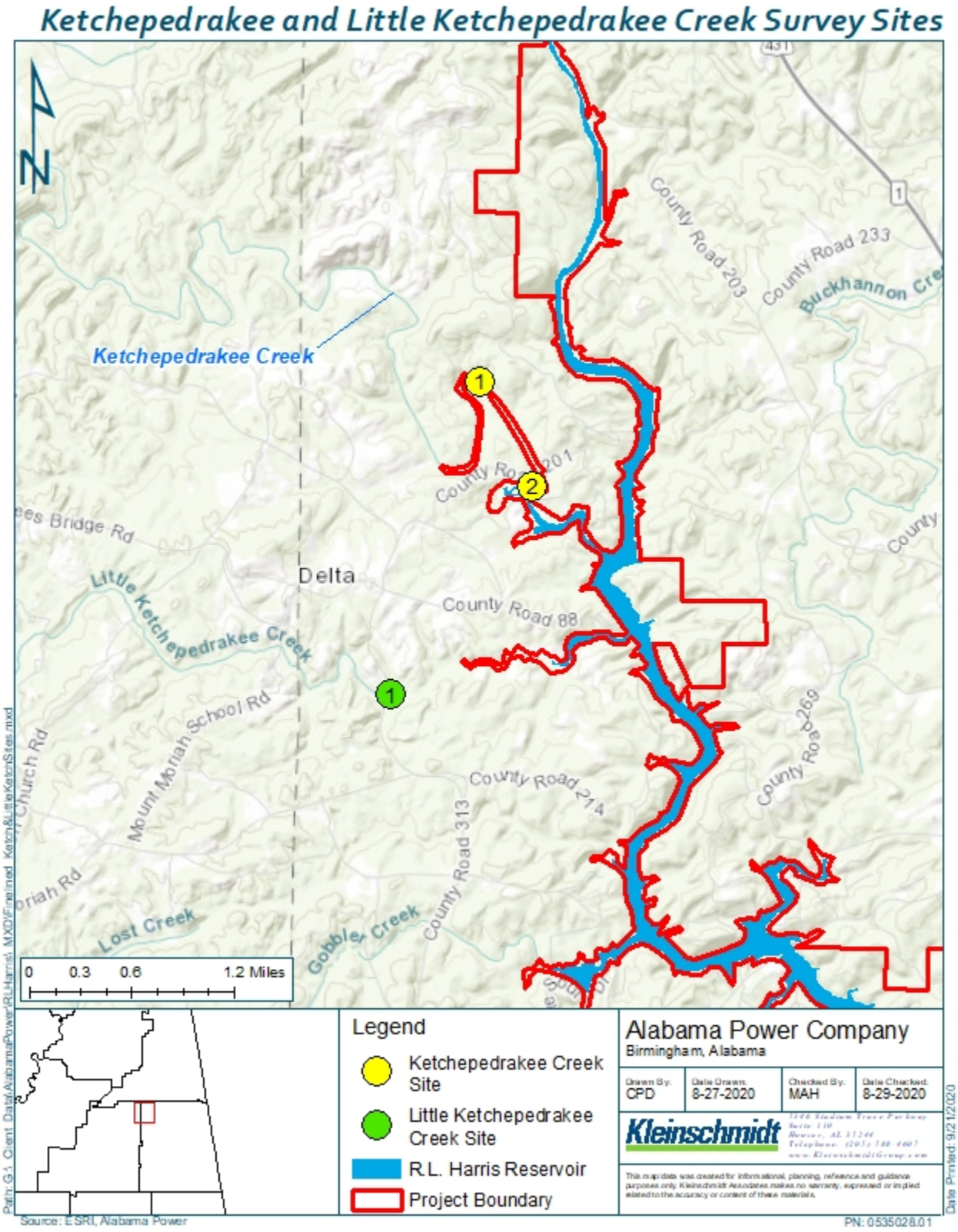


Figure 2-2 Ketchepedrakee Creek and Little Ketchepedrakee Creek Survey Sites

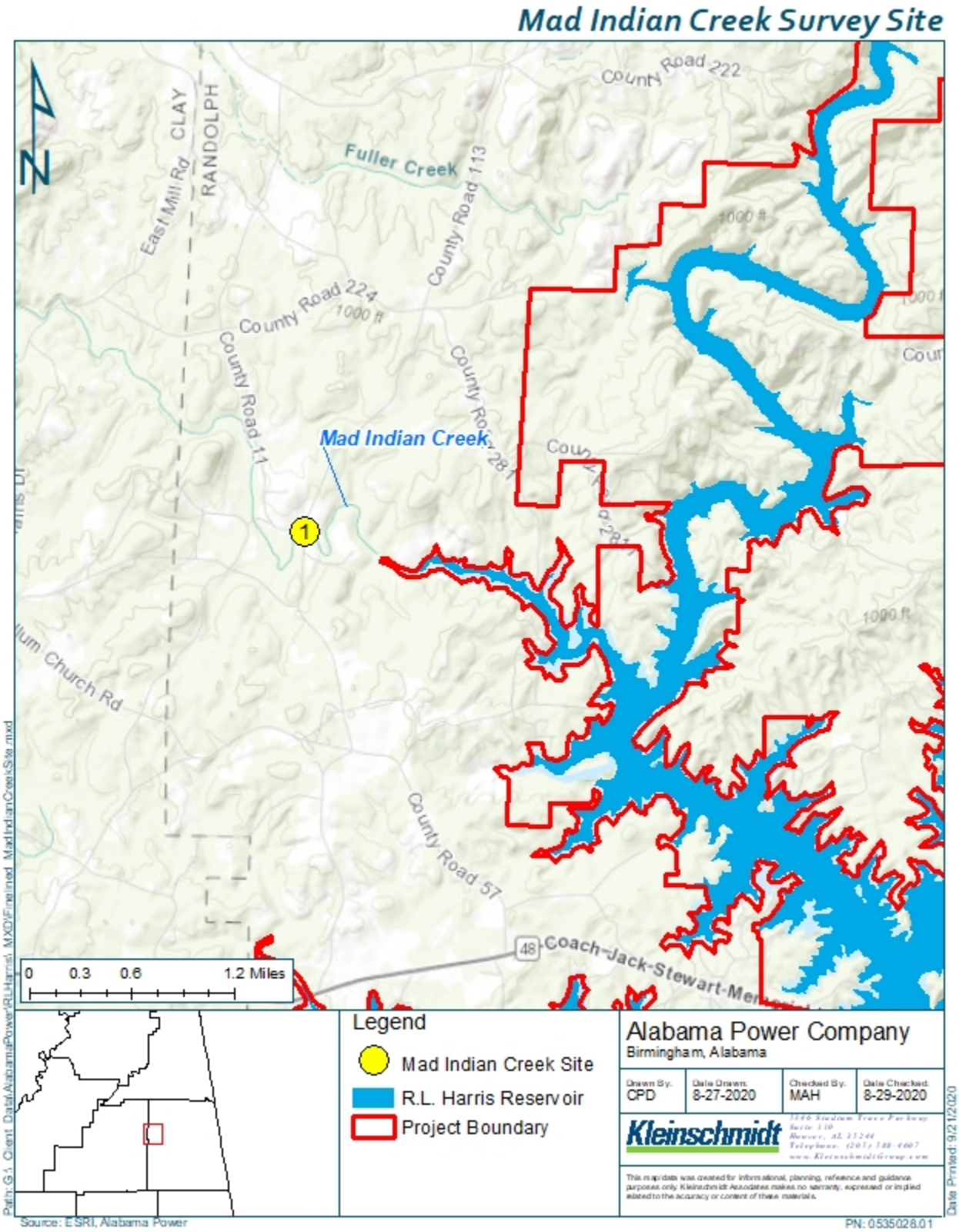


Figure 2-3 Mad Indian Creek Survey Site

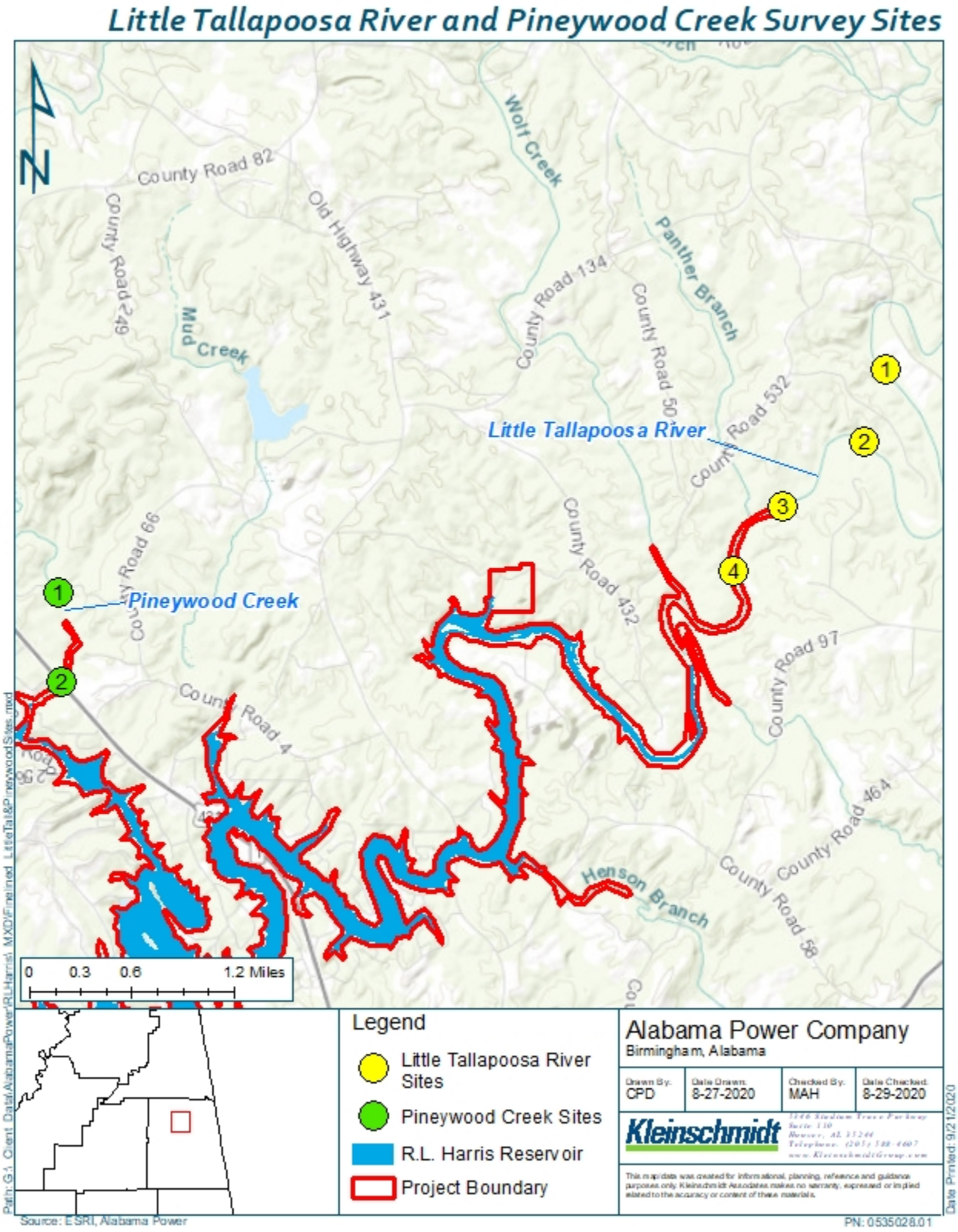


Figure 2-4 Little Tallapoosa River and Pineywood Creek Survey Sites

3.0 RESULTS

No Finelined Pocketbook specimens were collected or observed at any of the survey sites. The following is a description of the results by survey site.

3.1 Tallapoosa River

The Tallapoosa River was surveyed by Alabama Power and their representatives, Kleinschmidt Associates, and USFWS on November 21, 2019 and by Alabama Power and ADCNR on July 7, 2020, and August 12, 2020. Six sites were sampled for a minimum of 60 minutes total qualitative effort[1] each unless unfavorable conditions or available habitat warranted less sampling effort. Sites were numbered from upstream to downstream starting near the County Road (Co. Rd.) 36 bridge crossing and ending just downstream of the Hwy 431 bridge crossing. Sites 4 and 5 were identified as having the greatest potential for Finelined Pocketbook to occur and were surveyed for 120 minutes and 180 minutes, respectively. An additional site (Site 6) with suitable habitat downstream of Hwy 431 was surveyed for 60 minutes. Sites 4 and 5 were revisited on July 7 and August 12, 2020 and were surveyed for an additional 150 and 300 minutes, respectively; however, turbid conditions on July 7, 2020 made surveying difficult.

Site 1 was a shallow shoal with gravel and sand substrate just downstream of the Co. Rd. 36 bridge crossing. Site 1 was surveyed for a total of 120 minutes *Elimia* spp. and *Corbicula fluminea* (corbicula) were collected.

Site 2 was a one to two-foot run with a mixture of cobble, gravel, and sand as substrate. Site 2 was surveyed for a total of 120 minutes. *Elimia* spp. and corbicula were collected.

Site 3 was a deep run (3 feet) that was too deep to effectively sample or evaluate substrate. Sampling time was therefore reduced to 30 minutes and no specimens were collected.

Site 4 was a shallow channel-wide run comprised of loose sand and gravel with some embedded areas. Material has been deposited over bedrock. Site 4 was surveyed for a total of 270 minutes. *Elimia* spp. and corbicula were common.

Site 5 was a shallow riffle-run complex comprised of a mixture of gravel, cobble, and sand over bedrock. Some boulders were present in the area. Site 5 was surveyed for a total of

[1] Total qualitative effort is the aggregate amount of time expended by all surveyors in which specimens are collected or observed, but not enumerated.

480 minutes. One *Elliptio* sp. relic[2] and one live Little Spectaclecase (*Villosa lineosa*) were collected. *Elimia* spp. and corbicula were common.

Site 6 was a 2.5-foot run with a substrate of cobble and some sand. Site 6 was surveyed for a total of 60 minutes on November 21, 2020. Only corbicula relics were collected. On July 7, 2020, Carr Creek was surveyed instead of Site 6 due to more favorable water clarity.

3.2 Carr Creek

Carr Creek was surveyed by Alabama Power and ADCNR instead of Tallapoosa River Site 6 during the July 7, 2020 survey. Carr Creek enters the Tallapoosa River on the right descending bank just upstream of Tallapoosa River Site 6 and visibility was good compared to conditions in the mainstem Tallapoosa that day. The substrate was comprised of cobble and gravel with a fine layer of silt. Carr Creek was surveyed for a total of 200 minutes and a few live *Elimia* spp. and corbicula relics were collected.

3.3 Ketchepedrakee Creek

Ketchepedrakee Creek was surveyed by Alabama Power on June 24-25, 2020 at two sites.

Site 1 was a shallow riffle-run complex approximately 50 feet wide located upstream of the Co. Rd. 201 bridge crossing. Dominant substrate at the site was comprised of cobble and boulder with some sand. Water willow was common. Site 1 was surveyed for a total of 135 minutes. *Elimia* spp. and corbicula relics were collected.

Site 2 was an area along the margins of a small island downstream of the Co. Rd. 201 bridge crossing. The substrate was comprised of sand, silt, and gravel. Site 2 was surveyed for a total of 60 minutes. Only a single corbicula relic was collected at this site.

3.4 Little Ketchepedrakee Creek

Little Ketchepedrakee Creek was surveyed by Alabama Power on June 24-25, 2020. The survey site was located just downstream of the Co. Rd. 313 bridge crossing. The substrate was comprised of bedrock and boulder overlain with sand and silt and the area was predominately exposed rock. Little Ketchepedrakee Creek was sampled for a total of 60 minutes. A few live and relic corbicula were observed.

[2] For the purpose of this survey, a relic is defined as the remains of a mussel or clam, characterized by an empty shell or shell material, and ranging from fresh to weathered.

3.5 Mad Indian Creek

Mad Indian Creek was surveyed by Alabama Power on June 24-25, 2020. The survey site was located upstream of the Co. Rd. 113 bridge crossing. The area was a shallow run with a substrate comprised of a mixture of moderately stable gravel, sand, and silt. Mad Indian Creek was surveyed for a total of 60 minutes. Corbicula relics and approximately 30 live corbicula were collected.

3.6 Little Tallapoosa River

The Little Tallapoosa River was sampled by Alabama Power and ADCNR on July 21, 2020. Four sites were sampled for a minimum of 60 minutes total effort each and were numbered from upstream to downstream starting near the Co. Rd. 59 bridge crossing and ending just upstream of the summer pool elevation.

Site 1 was a shallow riffle-run complex with a substrate of cobble over bedrock. Water willow was common. Site 1 was surveyed for a total of 100 minutes. *Elimia* spp. and corbicula relics were common.

Site 2 was a shallow run with a substrate of gravel and some cobble overlain with silt and sand. Site 2 was surveyed for a total of 110 minutes. *Elimia* spp., corbicula relics, and one weathered Little Spectaclecase relic was observed.

Site 3 was a shallow run. The dominant substrate was cobble, gravel, and sand over bedrock. Site 3 was surveyed for a total of 125 minutes. *Elimia* spp. and corbicula relics were common and a single live *Toxolosama* sp. was collected.

Site 4 occurred just upstream of the summer pool elevation. The substrate was comprised of cobble, gravel, and sand with some boulder. Site 4 was surveyed for a total of 150 minutes. *Elimia* spp. and corbicula relics were common.

3.7 Pineywood Creek

Pineywood Creek, a tributary of the Little Tallapoosa River, was surveyed by Alabama Power on June 24, 2020. Survey sites were located at the Co. Rd. 270 and Hwy 431 bridge crossings.

Site 1 was located just downstream of the Co. Rd. 270 bridge crossing and was a riffle-run complex. Substrate was comprised of bedrock overlain with boulder and with some sand and silt. Site 1 was surveyed for a total of 90 minutes. Only corbicula relics were collected.

Site 2 was located immediately upstream of the Hwy 431 bridge crossing and was a shallow run terminating at an upstream riffle. Substrate was comprised of a layer of sand with small areas of gravel. Site 2 was sampled for a total of 90 minutes. Only corbicula relics were observed.

Table 3-1 Effort and Mollusk Species Collected at Each Survey Site

Tributary	Site Number	Total Effort (minutes)	Species
Tallapoosa River	1	120	*Elimia* spp., corbicula
	2	120	*Elimia* spp., corbicula
	3	30	None
	4	270	*Elimia* spp., corbicula
	5	480	*Elimia* spp., corbicula, *Ellipto* sp. (relic), Little Spectaclecase (*Villosa lineosa*)
	6	60	corbicula (relics)
Carr Creek	1	200	*Elimia* spp., corbicula (relics)
Ketchepedrakee Creek	1	135	*Elimia* spp., corbicula (relics)
	2	60	corbicula (relic)
Little Ketchepedrakee Creek	1	60	corbicula (live and relics)
Mad Indian Creek	1	60	corbicula (live and relics)
Little Tallapoosa River	1	100	*Elimia* spp., corbicula (relics)
	2	110	*Elimia* spp., corbicula (relics), Little Spectaclecase (relic)
	3	125	*Elimia* spp., corbicula (relics), *Toxolosama* sp.
	4	150	*Elimia* spp., corbicula (relics)
Pineywood Creek	1	90	corbicula (relics)
	2	90	corbicula (relics)



Figure 3-1 View Looking Upstream at Tallapoosa River Site 5



Figure 3-2 View Looking Downstream Tallapoosa River Site 5



Figure 3-3 Live *Villosa lienosa* from Tallapoosa River Site 5

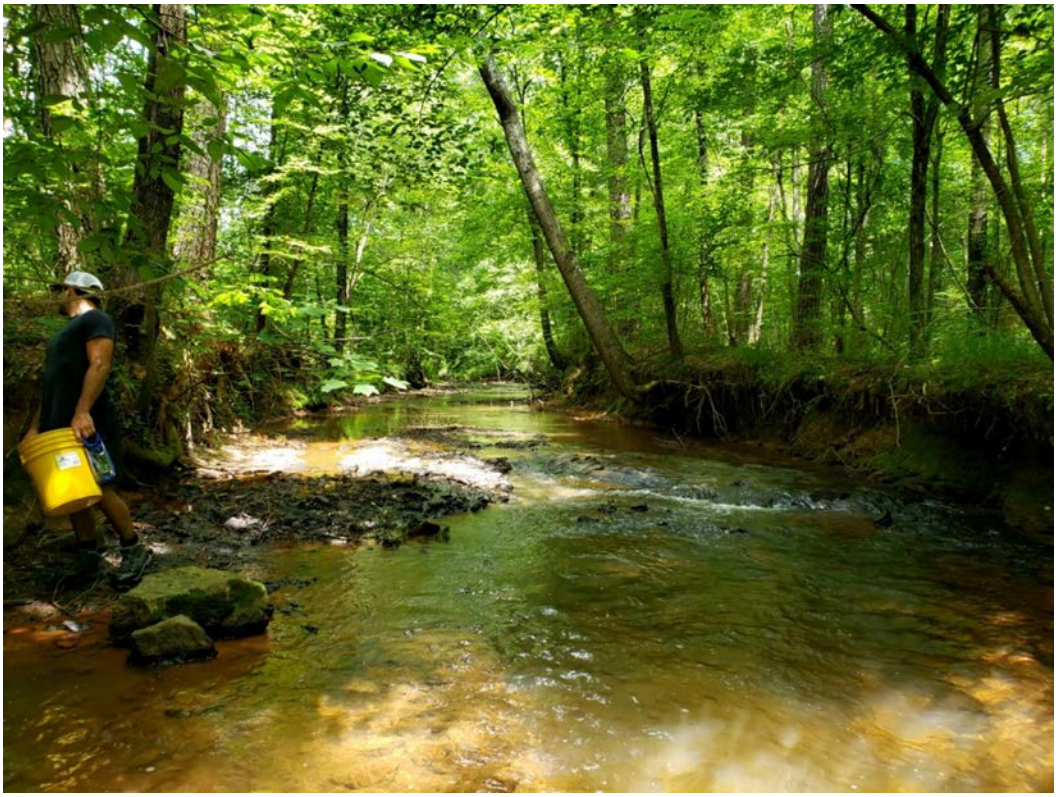


Figure 3-4 View Looking Upstream at Carr Creek



Figure 3-5 View Looking Downstream at Carr Creek



Figure 3-6 View Looking Downstream at Ketchepedrakee Creek



Figure 3-7 Ketchepedrakee Creek



Figure 3-8 View Looking Upstream at Little Ketchepedrakee Creek



Figure 3-9 View Looking Downstream at Little Ketchepedrakee Creek



Figure 3-10 Surveying at Little Ketchepedrakee Creek



Figure 3-11 View Looking Upstream at Mad Indian Creek



Figure 3-12 View Looking Downstream at Mad Indian Creek



Figure 3-13 Mad Indian Creek



Figure 3-14 View Looking Downstream at Little Tallapoosa River Site 1



Figure 3-15 Little Tallapoosa River Site 2



Figure 3-16 View Looking Upstream at Little Tallapoosa River Site 2



Figure 3-17 View Looking Upstream at Little Tallapoosa River Site 3



Figure 3-18 Live *Toxolosma* spp. from Little Tallapoosa River Site 3



Figure 3-19 View Looking Downstream at Little Tallapoosa River Site 4



Figure 3-20 View Looking Upstream at Pineywood Creek Site 1



Figure 3-21 Pineywood Creek Site 2



Figure 3-22 View Looking Downstream at Pineywood Creek Site 2

4.0 SUMMARY AND CONCLUSIONS

Unionid diversity and density was very low at all sites surveyed. Finelined Pocketbook was not collected at any site. Although the stretch of the Tallapoosa River surveyed during this study has been designated as critical habitat, much of it has been degraded by siltation. Secondary tributaries surveyed also lacked suitable habitat. Most areas were either exposed bedrock or had been impacted by siltation. Mad Indian Creek exhibited the most suitable habitat of all secondary tributaries surveyed and this is where the greatest number of live corbicula were collected. The best available habitat surveyed occurred in the Little Tallapoosa River. However, only one live unionid, other than corbicula, was collected in a total of 485 minutes survey effort. Similarly, only one live unionoid, other than corbicula, was collected in a total of 1,080 minutes survey effort in the Tallapoosa River. No Finelined Pocketbook were reported in previous surveys of the Tallapoosa River and tributaries immediately upstream of Lake Harris (Johnson 1997).

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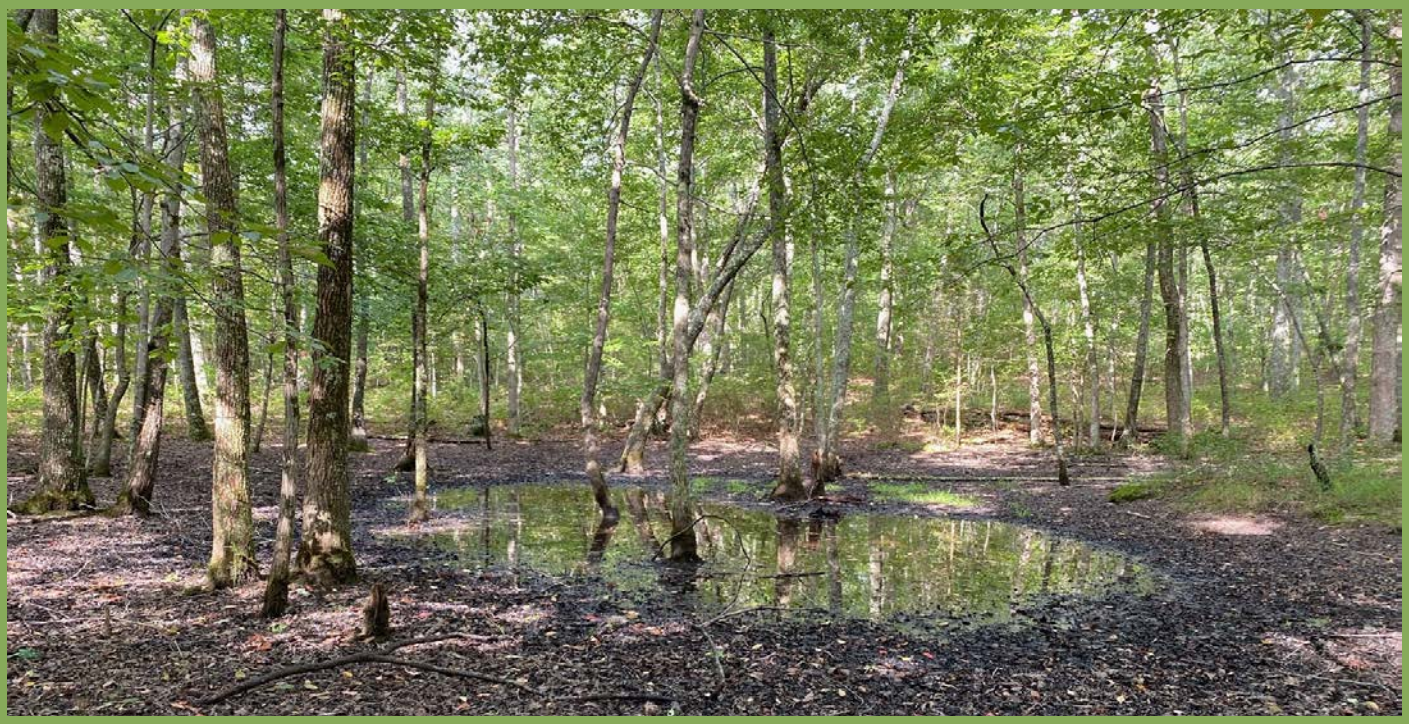
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APPENDIX F

WHITE FRINGELESS ORCHID (PLATANTHERA INTEGRILABIA) AND PRICE'S POTATO-BEAN (APIOS PRICEANA) SURVEY REPORT

White Fringeless Orchid (*Platanthera integrilabia*) & Price's Potato-bean (*Apios priceana*) Survey Report

HARRIS DAM RELICENSING



Prepared by:

Alabama Power Company

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Kleinschmidt Associates

October 2020

Alabama Power

Kleinschmidt

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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 or 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 Project.

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, 2019. On August 27, 2019, the Harris Action Team (HAT) 3 (Fish & Wildlife) met to discuss components of the Threatened and Endangered Species Study Plan. At that meeting, the potential use of Geographic Information System (GIS) data (National Wetland Inventory data, specifically) was discussed to determine if habitat requirements of the White Fringeless Orchid (*Platanthera integrilabia*) align with potential habitat available within the Harris Project Boundary. However, the National Wetland Inventory data was found to not be detailed enough to identify wetlands containing the plant's unique habitat characteristics, so field surveys were used to determine whether White Fringeless Orchid was present within the Harris Project Boundary.

The White Fringeless Orchid is a slender, erect, perennial herb that grows in colonies. The fragrant, white flowers grow in loose, round to elongated, terminal clusters with 6 to 15 flowers in each cluster. The stem is light green, smooth, and can grow up to 3.6 inches. The orchid blooms from late July to early September with fruits maturing in October. The White Fringeless Orchid typically occurs in wet, flat, or boggy areas with acidic muck or sand. This plant prefers partially shaded areas at the head of streams or seepage slopes. Common herbaceous associates of White Fringeless Orchid include Cinnamon Fern (*Osmunda cinnamomea*), Netted Chain Fern (*Woodwardia areolata*), New York Fern (*Thelyptris novaboracensis*), and sphagnum moss (*Sphagnum* spp.) (Zettler and Fairey 1990 as cited in Federal Register 2015; Shea 1992 as cited in Federal Register 2015; Patrick 2012, personal communication, as cited in Federal Register 2015).

Alabama Power developed survey methods for the White Fringeless Orchid in consultation with the United States Fish and Wildlife Service (USFWS). This survey report describes the methods that Alabama Power used to assess the occurrence of the White Fringeless Orchid at the Harris Project.

A secondary objective during the White Fringeless Orchid surveys was to note the presence of Price's Potato-bean (*Apios priceana*) habitat or specimens within the Project

Boundary at Skyline. Price's Potato-bean is a twining, herbaceous perennial vine that grows from a tuber and has greenish-white or brownish-pink flowers. This species is found in open, bottom areas near or along the banks of streams and rivers, sometimes near the base of limestone bluffs. Since publication of this species' recovery plan (USFWS 1993), many new populations have been discovered. Twenty of the 25 populations included in the recovery plan are still extant and apparently stable (USFWS 2016). According to the five-year review, there are currently 16 extant populations of Price's Potato-bean in Alabama distributed among nine counties: Autauga (2), Butler (1), Dallas (2), Jackson (2), Lawrence (1), Madison (5), Marshall (1), Monroe (1), and Wilcox (1). The populations in Jackson County occur on Sauta Cave National Wildlife Refuge and near Little Coon Creek in the Skyline Wildlife Management Area (WMA). One extant population intersects the Project Boundary at Skyline and comprises 11 percent of the extant population in Little Coon Creek; however, 89 percent of this one population occurs outside of the Project Boundary at Skyline.

The USFWS did not request that Alabama Power survey for Price's Potato-bean; however, a field survey was completed to document absence or presence near a known population. This survey report describes the methods that Alabama Power used to assess the occurrence of Price's Potato-bean at the Harris Project.

2.0 METHODS

2.1 White Fringeless Orchid

Wetlands were identified using the National Wetland Inventory map (USFWS 2020), springs were identified using a Geological Survey of Alabama spring shapefile database (Smith (in review)), and ponds were identified using aerial imagery and the National Wetland Inventory map (USFWS 2020). Surveys were performed in areas of potentially suitable habitat within and adjacent to the Project Boundaries at Lake Harris and Skyline. Surveyors from Alabama Power surveyed 12 sites at Lake Harris containing wetlands on August 27, 2020. Surveyors from Alabama Power and Kleinschmidt Associates surveyed eight sites at Skyline containing springs, ponds, or wetlands on September 2 and 3, 2020. A ninth site at Skyline (Site 9) was attempted, but the area was blocked by private property and did not contain suitable habitat, at least within the Project Boundary, upon closer inspection in the field (Table 2-1).

Table 2-1 White Fringeless Orchid Survey Locations

Survey Location	Site Number	Survey Date	Site Description	Habitat Suitability**
Lake Harris	1	8/27	forested/shrub wetland w/ TLROW*	M
	2	8/27	emergent wetland	U
	3	8/27	emergent wetland	U
	4	8/27	forested/shrub wetland	U
	5	8/27	forested/shrub wetland	U
	6	8/27	emergent wetland	U
	7	8/27	forested/shrub wetland	U
	8	8/27	emergent wetland	U
	9	8/27	emergent wetland	U
	10	8/27	emergent wetland	U
	11	8/27	forested/shrub wetland	U
	12	8/27	forested wetland	U
Skyline	1	9/2	spring	U
	2	9/2	pond	M
	3	9/2	spring	U
	4	9/2	spring	U
	5	9/2	pond	M
	6	9/2	pond	M
	7	9/3	pond	U
	8	9/3	pond	M
	9	9/3	forested wetland	U

*Transmission line right-of-way = TLROW

**Habitat Suitability: Suitable = S, marginal = M, unsuitable = U

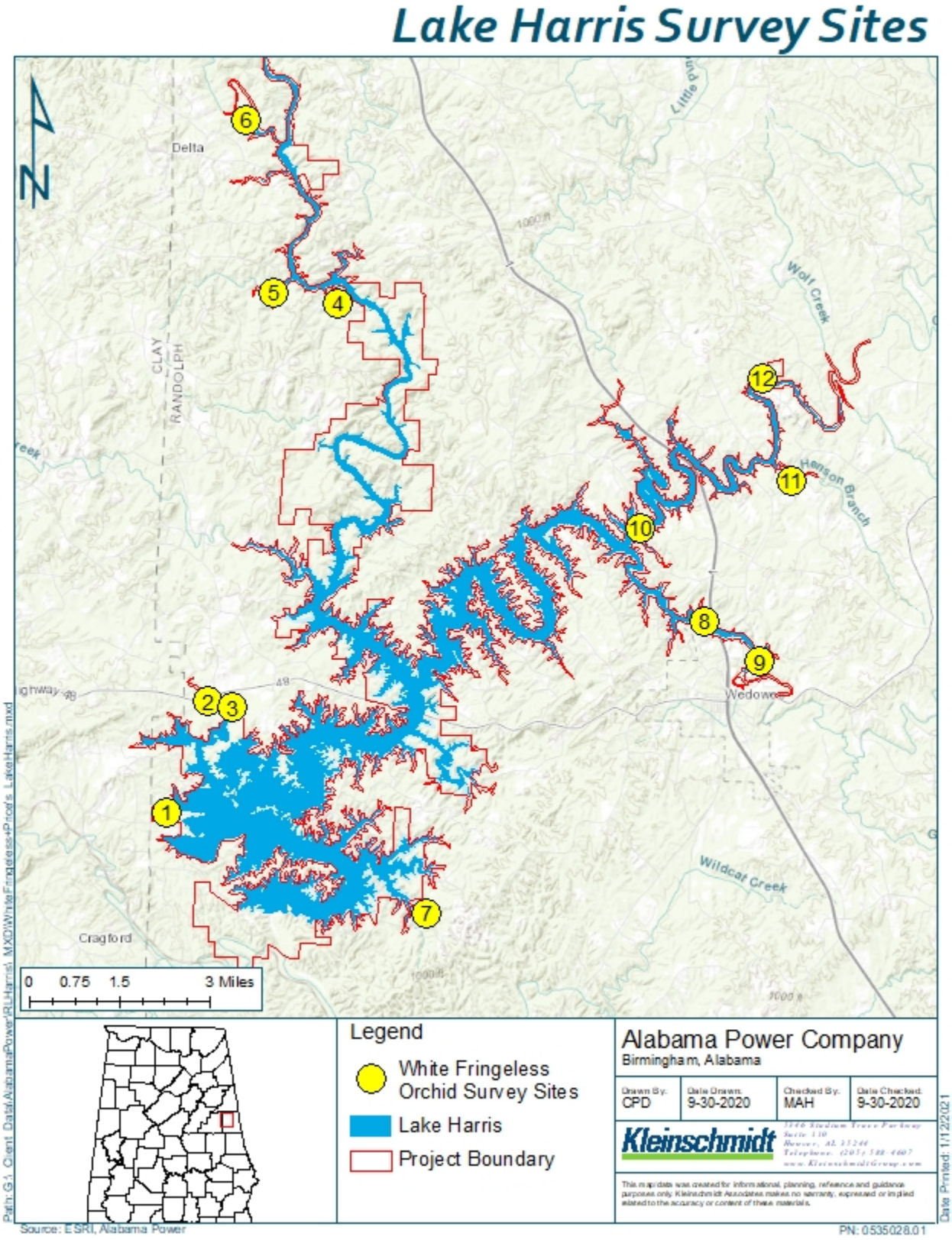


Figure 2-1 Lake Harris Survey Sites

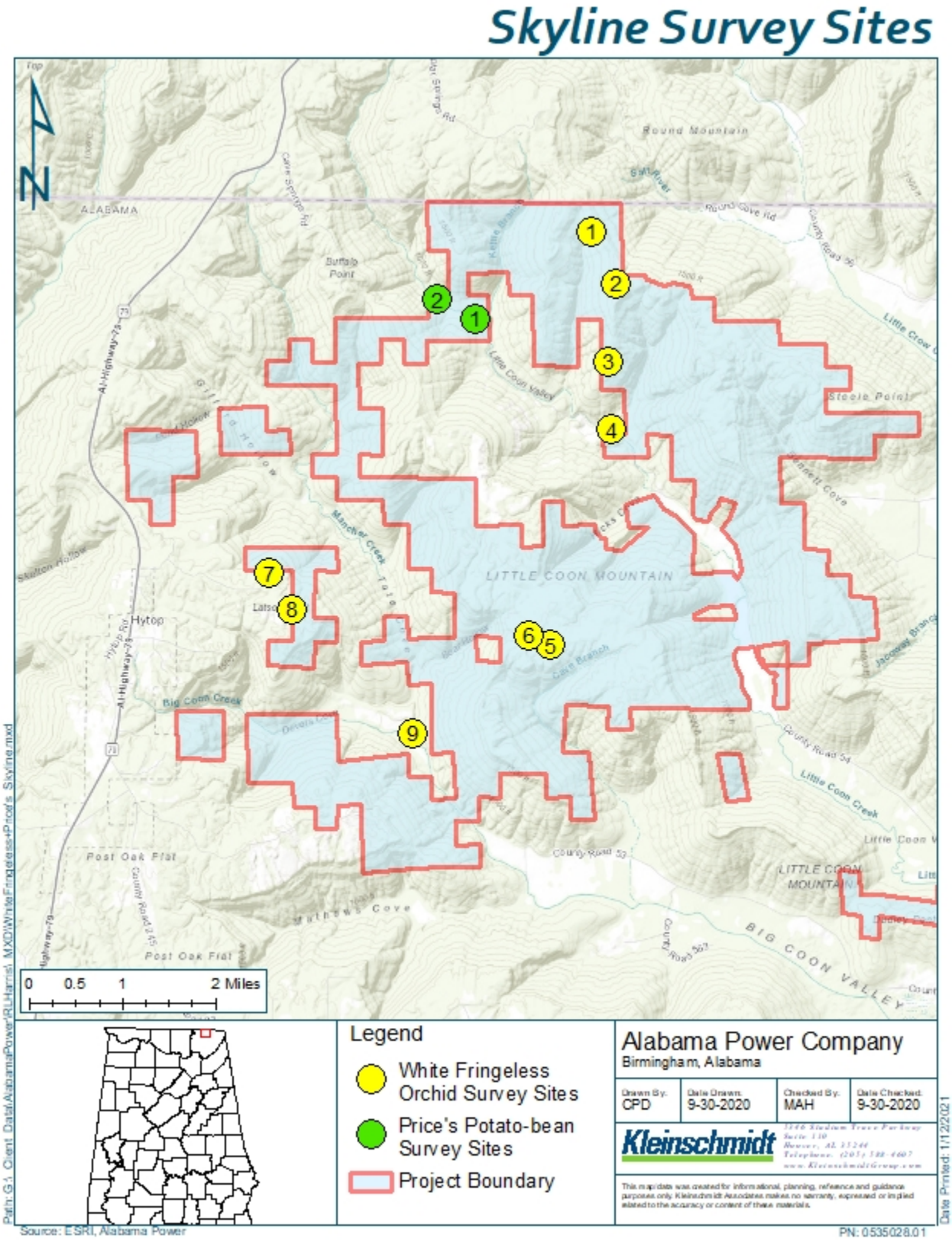


Figure 2-2 Skyline Survey Sites

2.2 Price's Potato-bean

A secondary objective during the White Fringeless Orchid surveys on September 2 and 3, 2020 was to make note of any Price's Potato-bean habitat or specimens within the Project Boundary while traveling between White Fringeless Orchid survey sites. On September 3, 2020, the four surveyors from Alabama Power and Kleinschmidt Associates searched for Price's Potato-bean for approximately 30 minutes at and in the proximity of the known population located within the Skyline WMA but outside of the Project Boundary. The plant prefers lightly disturbed areas, and the road and dry creek channel leading to the location of the known population meet this description.

On September 29, 2020, three surveyors from Alabama Power returned to Skyline to survey two sites with suitable habitat for Price's Potato-bean (Figure 2-2). Effort was expended in the best available habitat within the Project Boundary at Skyline nearest to the location of the known population.

3.0 RESULTS

3.1 White Fringeless Orchid

No White Fringeless Orchid specimens were collected or observed at any of the survey sites. The following describes the results by survey site.

3.1.1 Lake Harris

Site 1 was a freshwater forested/shrub area near a transmission line right-of-way (Figure 3-1). The southern end of the area had wetland vegetation dominated by Wingleaf Primrose-willow (*Ludwigia decurrens)*, Swamp Smartweed (*Polygonum hydropiperoides*), Woolgrass (*Scirpus cyperinus*), Soft Rush (*Juncus effusus*), meadow beauty (*Rhexia* spp.), and Woolly Rosette-panicgrass (*Dichanthelium scabriusculum*). Dan Spaulding (Anniston Museum of Natural History) had previously surveyed this area and found specimens of the Small Green Wood Orchid (*Platanthera clavellata*) approximately 0.25 miles from the site on July 26, 2020 (Figure 3-2) and adjacent to the transmission line right-of-way on August 23, 2020 (Figure 3-3) (D. Spaulding 2020, personal communication), but no specimens were found at the time of this survey. The Small Green Wood Orchid is known to occur along with the White Fringeless Orchid, but White Fringeless Orchid was not observed during the surveys performed by Dan Spaulding or Alabama Power. Habitat was marginal at this site, based on saturated soils observed underneath the transmission line right-of-way immediately adjacent to the reservoir. However, associates other than Small Green Wood Orchid were not observed.

Site 2 was a small freshwater emergent wetland with steep banks throughout the site. Bridge construction was underway on Hwy 48 at the time of the survey (Figure 3-4). The habitat was not suitable for White Fringeless Orchid.

Site 3 was a freshwater emergent wetland (Figure 3-5). The dominant vegetation was Soft Rush, Witchgrass (*Panicum capillare*), American Water-willow (*Justicia americana*), Buttonbush (*Cephalanthus occidentalis*), and meadow beauty. The habitat was not suitable for White Fringeless Orchid.

Site 4 was a freshwater forested/shrub wetland (Figure 3-6). Dominant trees were Water Oak (*Quercus nigra*) and Sweetgum (*Liquidambar styraciflua*). Dominant vegetation was Buttonbush, Soft Rush, American Water-willow, and Field Blackberry (*Rubus arvensis*). The habitat was not suitable for White Fringeless Orchid habitat.

Site 5 was a marginal freshwater forested/shrub wetland (Figure 3-7). Dominant trees were White Oak (*Quercus alba*), Water Oak, and Pignut Hickory (*Carya glabra*). Other dominant plants were Sparkleberry (*Vaccimunum arboreum*) and Woodoats (*Chasmanthium latifolium*). The habitat was not suitable for White Fringeless Orchid.

Site 6 was a freshwater emergent wetland that was inundated at the time of the survey (Figure 3-8). Dominant trees were Smooth Alder (*Alnus serrulata*), Field Blackberry, American Hornbeam (*Carpinus caroliniana*), and American Sycamore (*Platanus occidentalis*). Other dominant plants were Giant Cane (*Arundinaria gigantea*), Woolgrass, Netted Chain Fern, and Muscadine (*Vitis rotundifolia*). The habitat was not suitable for White Fringeless Orchid.

Site 7 was a freshwater forested/shrub wetland (Figure 3-9). The habitat was mostly upland with wet depressions devoid of vegetation. The understory was dominated by azalea (*Rhododendron* spp.) with thick canopy cover overhead. There was a small drain present approximately 4 feet in width. The habitat was not suitable for White Fringeless Orchid.

Site 8 was a freshwater emergent wetland that was adjacent to residential lawns. The area was largely inundated and unsuitable for White Fringeless Orchid. No photos were taken of Site 8.

Site 9 was a freshwater emergent wetland adjacent to a corn field that was largely inundated with stagnant water (Figure 3-10). The majority of the site was typical inundated swamp habitat and was not accessible. The periphery of the inundated areas was assessed (Figure 3-11), and there were marginal fringe wetlands present. Wetland vegetation

included meadow beauty, Cardinal Flower (*Lobelia cardinalis*), Giant Cane, dogwood (*Cornus* spp.), and Soft Rush. There was very little to no White Fringeless Orchid habitat.

Site 10 was a freshwater emergent wetland in a highly residential area. The lake level at full pool overlapped with upland hardwood forest (Figure 3-12). There were no wetland plants present and the habitat was not suitable for White Fringeless Orchid.

Site 11 was a freshwater forested/shrub wetland (Figure 3-13). There was a creek present with high banks and dense canopy cover throughout the area. A distribution line crossed a drain in the area near a greenfield adjacent to the site (Figure 3-14). Wetland vegetation was very limited and included meadow beauty, Woolly Rosette-panicgrass, Giant Cane, and Giant Ironweed (*Veronia gigantea*). The habitat was not suitable for White Fringeless Orchid.

Site 12 was a freshwater forested wetland that was limited to the periphery of a large inundated area (Figures 3-15 and 3-16). The tributary creek had high banks with some wetland vegetation (Figure 3-17) but dense canopy cover throughout. The habitat was not suitable for White Fringeless Orchid.

3.1.2 Skyline

Site 1 was the headwaters of a spring-fed stream that led to a narrow flat area (Figure 3-18). The habitat was not boggy and consisted mostly of steep slopes. Vegetation was dominated by Water Hickory (*Carya aquatica*), Silver Maple (*Acer saccharinum*), White Oak, and Chestnut Oak (*Quercus montana*). The herbaceous layer was dominated by Longleaf Woodoats (*Chasmanthium sessiliflorum*). The habitat was not suitable for White Fringeless Orchid.

Site 2 was a freshwater pond that appeared to be part of a sink hole with no drains flowing into it (Figure 3-19). The canopy consisted of Sweetgum, Silver Maple, and various oaks. The shrub layer was dominated by Sassafras (*Sassafras albidum*) and Field Blackberry. The site was somewhat boggy and therefore considered marginal habitat for White Fringeless Orchid, but plants commonly associated with White Fringeless Orchid were absent.

Site 3 was a spring-fed drain with a wetland fringe (Figure 3-20). Dominant trees were Shagbark Hickory (*Carya ovata*), Water Oak, Swamp Chestnut Oak (*Quercus michauxii*), American Hornbeam, and Sweetgum. Other dominant plants were Sassafras and Longleaf Woodoats. The habitat was not suitable for White Fringeless Orchid.

Site 4 was a spring-fed tributary flowing into a high-velocity creek (Figures 3-21 and 3-22). The area was largely inundated at the time of the survey. The habitat consisted of slopes with boulders and was not boggy. Dominant trees were Tulip Poplar (*Liriodendron*

tulipifera), Sweetgum, River Birch (*Betula nigra*), and persimmon (*Diospyros* spp.). The shrub layer was dominated by Christmas Fern (*Polystichum acrostichoides*) and common vine species included Poison Ivy (*Toxicodendron radicans*), Roundleaf Greenbriar (*Smilax rotundifolia*), and Virginia Creeper (*Parthenocissus quinquefolia*). The habitat was not suitable for White Fringeless Orchid.

Site 5 was a shallow (0.5-foot) freshwater pond ~0.1 of an acre in size (Figure 3-23). There was a marginal area of sphagnum moss along the periphery of the pond. Some sedges (*Carex* spp.) were mixed in with the sphagnum moss. The dominant trees were Sweetgum, Black Gum (*Nyssa sylvatica*), and Red Maple (*Acer rubrum*). The habitat was considered marginal for White Fringeless Orchid due to the species' common association with sphagnum moss; however, other plants commonly associated with White Fringeless Orchid, such as Cinnamon Fern, Netted Chain Fern, and New York Fern, were absent. Furthermore, the habitat was likely too shady, with very little herbaceous cover present, to be considered suitable for White Fringeless Orchid.

Site 6 was a shallow (~1-foot) freshwater pond ~0.2 of an acre in size (Figure 3-24). There was a marginal area of sphagnum moss along the periphery of the pond. Longleaf Woodoats were mixed in with the sphagnum moss. The dominant trees were Sweetgum and Black Gum, and the dominant shrub was Sparkleberry. Site 6 was considered marginal due to the presence of sphagnum moss, but other species commonly associated with White Fringeless Orchid were absent. Furthermore, the habitat was likely too shady, with very little herbaceous cover present, to be considered suitable for White Fringeless Orchid.

Site 7 was a mostly dry freshwater pond that was not very boggy at the time of the survey (Figure 3-25). The dominant trees were Sweetgum, Black Gum, and White Oak. Other dominant plants were Longleaf Woodoats and Roundleaf Greenbriar. There was very little ground cover at this site. The habitat was not suitable for White Fringeless Orchid.

Site 8 was a freshwater pond (Figure 3-26). Dominant plants were Fragrant Flatsedge (*Cyperus odoratus*), smartweed (*Polygonum* spp.), and sphagnum moss. The periphery of the pond was comprised of White Oak, Sweetgum, Black Gum, and Red Maple. Habitat was considered marginal for White Fringeless Orchid due to the presence of sphagnum moss, but other plants commonly associated with White Fringeless Orchid were absent.

Site 9 was a freshwater forested area that could not be accessed due to nearby private property. Surveyors were able to get close enough to the site to field proof the unsuitability of the habitat. There was a spring and wetland north of the Project Boundary with one small corner of the Project Boundary intersecting a greenfield. The remaining Project Boundary near the mapped wetland was characterized by upland slope. No photos were taken of Site 9.



Figure 3-1 Lake Harris Site 1: Transmission Line



Figure 3-2 Lake Harris Site 1: Small Green Wood Orchid ~0.25 Mile from Site

D. Spaulding 2020, personal communication



Figure 3-3 Lake Harris Site 1: Small Green Wood Orchid Near Transmission Line

D. Spaulding 2020, personal communication



Figure 3-4 Lake Harris Site 2: Disturbed Area Adjacent to Site



Figure 3-5 Lake Harris Site 3



Figure 3-6 Lake Harris Site 4



Figure 3-7 Lake Harris Site 5



Figure 3-8 Lake Harris Site 6



Figure 3-9 Lake Harris Site 7



Figure 3-10 Lake Harris Site 9: Open Wetland



Figure 3-11 Lake Harris Site 9: Inundated Area



Figure 3-12 Lake Harris Site 10: Upland and Inundated Areas



Figure 3-13 Lake Harris Site 11



Figure 3-14 Lake Harris Site 11: Greenfield Adjacent to Site



Figure 3-15 Lake Harris Site 12: Wetland Along Inundation



Figure 3-16 Lake Harris Site 12: Upland Area Near Inundated Area



Figure 3-17 Lake Harris Site 12: Small Area with Wetland Ground Cover



Figure 3-18 Skyline Site 1



Figure 3-19 Skyline Site 2



Figure 3-20 Skyline Site 3

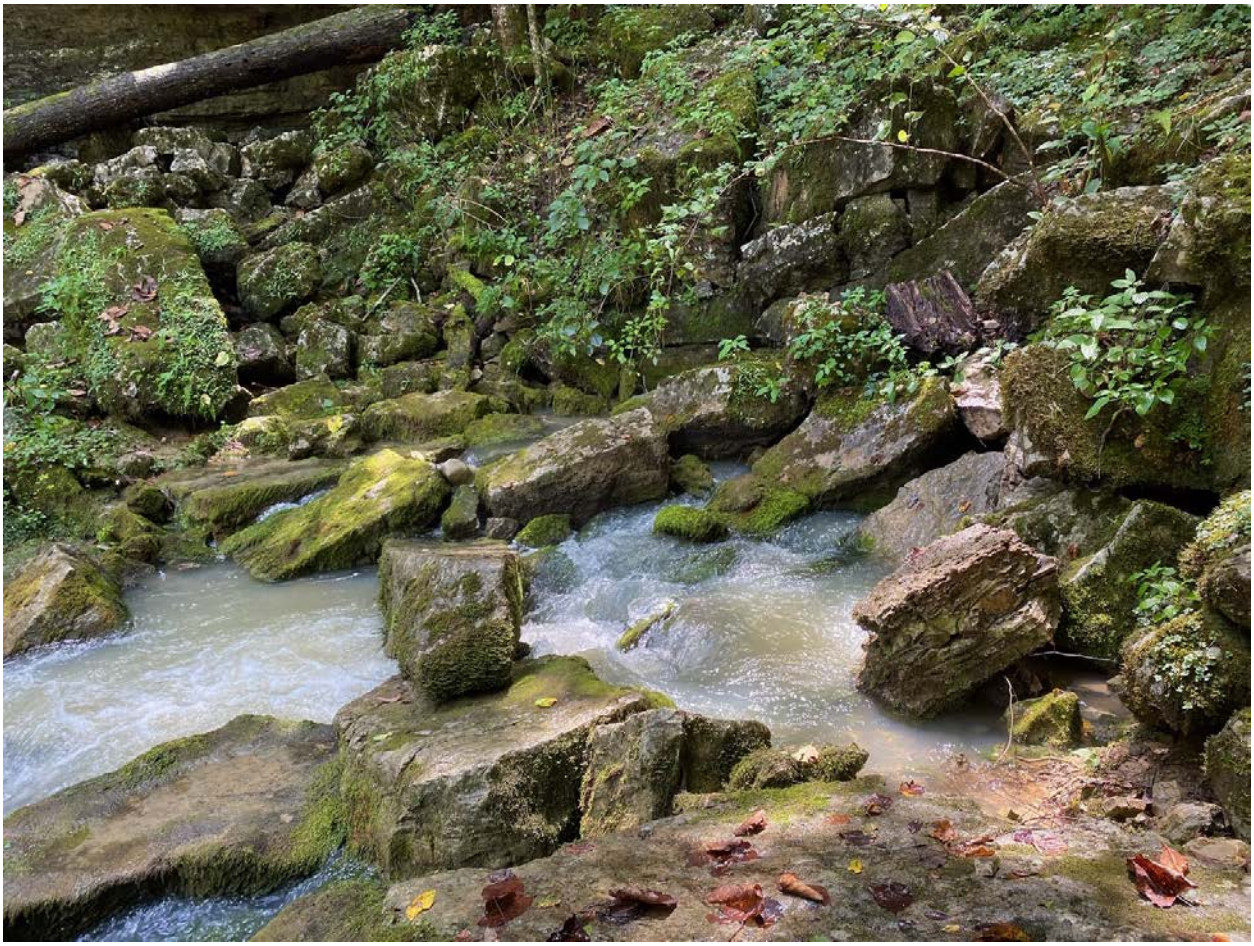


Figure 3-21 Skyline Site 4



Figure 3-22 Skyline Site 4: Spring Flowing into Tributary



Figure 3-23 Skyline Site 5



Figure 3-24 Skyline Site 6



Figure 3-25 Skyline Site 7



Figure 3-26 Skyline Site 8

3.2 Price's Potato-bean

No Price's Potato-bean specimens were observed during the White Fringeless Orchid survey at the location of the known population or as surveyors travelled through the Project Boundary at Skyline; however, some suitable habitat was observed, particularly at the portion of the Project Boundary nearest to the known Price's Potato-bean site.

Both Site 1 (Figure 3-27) and Site 2 (Figure 3-28), surveyed during a subsequent visit, were sloping areas that graded into the bottom of Little Coon Creek. Most effort was concentrated in more open areas near the creek where light filtered through to the forest floor. Approximately 0.5 acres were surveyed at Site 1 for a total qualitative effort[1] of 60 minutes, and approximately 7.7 acres were surveyed at Site 2 for a total qualitative effort

[1] Total qualitative effort is the aggregate amount of time expended by all surveyors in which specimens are collected or observed, but not enumerated.

of 75 minutes. Habitat for Price's Potato-bean was observed at both sites, but no specimens were found.



Figure 3-27 Price's Potato-bean Site 1



Figure 3-28 Price's Potato-bean Site 2

4.0 SUMMARY AND CONCLUSIONS

4.1 White Fringeless Orchid

Sites were selected to be surveyed based on the presence of wetlands, springs, or ponds; however, habitat was often found to be unsuitable for White Fringeless Orchid due to

excessive amounts of shade from thick canopies, disturbance, soil type, inundation, vegetation community, and steep slopes. Habitat was considered marginal if it was boggy or contained sphagnum moss, but other plants commonly associated with White Fringeless Orchid such as Cinnamon Fern, Netted Chain Fern, and New York Fern were not present at any of the sites. No suitable habitat was observed during surveys. The best habitat surveyed was a wetland at Lake Harris adjacent to a transmission line right-of-way (Lake Harris Site 1); however, it was considered only marginal because the only saturated soil observed was underneath the transmission line right-of-way immediately adjacent to the reservoir. Remaining wooded portions of the wetland lacked the saturated soils typical for this species. The Small Green Wood Orchid had previously been seen at this site (D. Spaulding 2020, personal communication) but was not seen during the survey on August 27, 2020. Furthermore, White Fringeless Orchid was not observed at this site during either survey. Results of these surveys suggest that the White Fringeless Orchid is not present within the Project Boundary.

4.2 Price's Potato-bean

During White Fringeless Orchid surveys, Price's Potato-bean was passively searched for as a secondary objective. Some suitable habitat but no specimens were observed during the surveys; however, no specimens were observed at the location of the known population outside of the Project Boundary either, so it is possible that specimens were present but not detected. Surveyors returned to two locations near the known population with suitable habitat but did not find any specimens. Canopy cover may have been too dense in some locations to support Price's Potato-bean populations.

5.0 REFERENCES

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