



# R. L. Harris Hydroelectric Project

## FERC No. 2628

### Harris Action Teams 1 & 5 Meeting Summary

June 4, 2020

9:00 am to 11:00 am

Conference Call

#### **Participants:**

See Attachment A

#### **Action Items:**

- Alabama Power determine what historic LiDAR data are available and provide the information to FERC via email.
- Kevin Nebiolo will revise figures so that inundated and non-inundated structures will be differentiated on the figures and these figures will also include the winter pool level (i.e., 1 ft, 2 ft, etc.).

#### **Meeting Summary:**

Angie Anderegg (Alabama Power Company (Alabama Power)) opened the meeting by introducing everyone and stated the purpose of the meeting: 1) to present the methodology for analyzing the number of usable recreation structures on Lake Harris at the current winter operating curve and the winter operating curve alternatives; and 2) to present the methodology for analyzing how structures located downstream of Harris Dam might be affected by a change in the winter operating curve during a 100-year flood event.

Colin Dinken (Kleinschmidt Associates (Kleinschmidt)) presented the methods for analyzing recreation structure (i.e., boat dock, pier, etc.) usability at current winter pool and the proposed operating curve change alternatives. Light detection and ranging (LiDAR) was used to gather elevation data around the reservoir. The elevation data will be used to measure the depth of water at each recreation structure at each of the proposed winter operating curve elevations. Field observations will occur during full pool (summer 2020) to verify a subset of structures on Lake Harris, namely those that are not visible on the aerial imagery used for this analysis.

Barry Morris (Lake Wedowee Property Owners Association) asked if the usability of sloughs at the winter operating curve change alternatives was being assessed or was this analysis only for structures. Colin said he was not looking into the usability of the sloughs and Angie emphasized that slough usability at the winter operating curve alternatives is not in the overall study plan.

Keith Henderson (Alabama Department of Conservation of Natural Resources (ADCNR)) stated that ADCNR was not involved in the construction of all public ramps on the Harris reservoir, so it cannot be assumed that every ramp has a 15 percent grade at the bottom. Colin noted he can generate a slope analysis on any ramp to determine the grade.

Sarah Salazar (Federal Energy Regulatory Commission (FERC)) asked what the collection year is for the LiDAR data used for this analysis and if there was historical LiDAR data for comparison. Jason Moak (Kleinschmidt) said the LiDAR data was from 2015 and that it covers all of the surrounding banks of the Harris reservoir but nothing beneath the water's surface. Sarah asked if there was historical LiDAR to be used for sedimentation analysis. Angie said

Alabama Power will determine what historic LiDAR data are available and provide the year information to FERC and stakeholders.

Albert Eiland (Downstream Property Owner) expressed concern that raising the winter operating curve would result in additional water released downstream and subsequent flooding. He noted that for every foot the lake is raised it would increase inundation of downstream property. Colin explained that Kevin Nebiolo (Kleinschmidt) would present the proposed methods for analyzing how an increase in the winter operating curve would affect downstream structures.

James Hathorn (United States Army Corps of Engineers (USACE)) asked if there would be an analysis on the percent of time structures are useable. Kelly Schaeffer (Kleinschmidt) stated this study is determining structure usability during winter pool.

Kevin presented the methods to evaluate how an increase in the winter operating curve could affect downstream structure inundation.

David Bishop (Downstream River User) asked if this analysis was related to the lake or just downstream. Angie replied that this methodology focuses on the structures downstream of Harris Dam. David asked about the accuracy of the generation schedule. Angie noted that this issue has been brought to Alabama Power's attention and they are looking into the best way to address it.

Sarah asked if different types of structures will be differentiated in this analysis. Kevin said this analysis is for any type of structure, habitable or not. Land use data could potentially be differentiated. Sarah said that some landowners have expressed concern about structures such as stairways. Kevin explained the LiDAR provides four points per square meter, which is accurate enough to detect a shed but not necessarily stairs.

James asked if this downstream structure analysis would extend downstream of Martin. Kevin replied that it is extending to Jaybird Landing, the uppermost hydraulic point for Lake Martin.

Sarah asked if there would be maps showing the location of inundated structures for both the lake and downstream. Angie said Alabama Power is only evaluating impacts downstream for a change in the winter pool; therefore, the impact is limited to inundation during a flood event where Alabama Power would be operating under flood control procedures. Kelly stated that for the Operating Curve Change Feasibility Analysis study, Alabama Power is modeling the 100-year design flood to analyze the effect of that flow on downstream structures IF the Harris reservoir is operating one to four feet higher than existing conditions. Sarah commented that hopefully there will be some additional suggested downstream releases to review. The Downstream Release Alternatives study is separate from the Operating Curve Change Feasibility Study, and those downstream release alternatives in that study are not affected by the 100-year flood. Mike Hross (Kleinschmidt) stated that the range of minimum flows in the Downstream Release Alternatives study would likely have a negligible effect on inundation downstream compared to the flood flow. The HEC-ResSim model could evaluate normal and flood control operations at Harris Dam with other minimum flow alternatives to determine any downstream effects on structures.

James asked if any other high flow events (i.e., 10, 15, 25, 50-year flood events) other than the 100-year flood would be analyzed. Angie explained that the 100-year flood event scenario is used by the Federal Emergency Management Agency (FEMA) and Alabama Power will be using

that flood event scenario to make decisions regarding changes in Harris Project operations. If FERC requires additional high flow events for their analysis, Alabama Power will model those additional high flow events. Sarah stated if the USACE or other stakeholders have a high flow event scenario they want Alabama Power to analyze, this request should be filed with comments on the Initial Study Report (ISR) by June 11, 2020. Kelly stated that any requests for additional analysis and/or additional studies need to follow FERC regulations. Sarah agreed and said that if anyone wants to request additional studies or request additional analyses that were not incorporated into the April 12, 2019 FERC-approved study plan, stakeholders should follow 18 CFR §5.15.

Martha Hunter (Alabama Rivers Alliance (ARA)) asked if the 100-year flood was happening more often. Kenneth Odom (Alabama Power) said the 100-year storm is a design storm based on an actual event that was scaled to reflect a 100-year event. Stacey Graham (Alabama Power) noted that the 2003 flood event was closest to a 100-year event during the 60 years of data in the flood frequency analysis. Stacey explained that there was enough data from both dry and wet years in the flood frequency analysis to be confident in the 100-year design flood. James stated the USACE will likely submit comments to analyze other high flow scenarios but may have to wait until an operating curve change is selected. Monte Terhaar (FERC) noted that now is the time to state and evaluate any other modeling scenarios.

Sarah asked about the induced surcharge function and storage areas and if these areas are where erosion is occurring. Mike said the location of storage areas (backwater areas and tributaries) will be defined in the Final Operating Curve Change Feasibility Analysis study report and it is possible to overlay those areas with areas that are of concern with regard to erosion.

Charles Denman (Downstream Property Owner) asked about the duration of the 100-year storm event and whether a map showing the contours, flooded land, and structures would be developed. Stacey noted that both the beginning and the end of an event were captured and Mike explained there was no actual hydrologic simulation, just flow analysis. Kenneth stated Alabama Power uses the duration of the actual storm event rather than a set duration. Angie stated that this information is further described in the Phase 1 Draft Operating Curve Change Feasibility Analysis Report. Kevin noted that during this Phase 2 analysis, Alabama Power will provide maps showing the contours and inundated structures.

Jack West (ARA) asked about the primary benefits of raising the winter operating curve. Angie explained that the primary reason for assessing the winter operating curve change is the potential for increased recreation opportunities during the winter. An operating curve change was requested by stakeholders during 2017 discussions. Alabama Power is evaluating both beneficial and adverse effects of raising the winter operating curve in Phase 2 of this study.

Albert asked how raising the winter pool would affect areas downstream. Kenneth explained that using a 100-year design storm, a one to four-foot increase in winter pool would increase the water surface elevation downstream from the increased releases from Harris Dam. Kelly emphasized that Alabama Power is still gathering information and data from other relicensing studies and that they have not proposed any changes in Harris Project operations at this time.

Linda Allen (Downstream Property Owner) stated that most of the acreage her family owns is an island called Price Island (~19 acres) and asked if it would be evaluated. Angie and Sarah emphasized that the scope of the study is from Harris Dam downstream through Horseshoe Bend.

David asked if there are any studies detailing the difference between a 50-year flood and a 100-year flood. He also asked how similar downstream conditions are (in terms of elevation and inundation) to a 100-year flood when both generators are operating. There is no comparison since normal operations is far less than a 100-year flood event. Angie explained that Alabama Power is assessing modifications to current Harris Project operations, not pre-dam conditions. David asked if Alabama Power was prepared for a 100-year flood event and asked how the project would operate. Angie noted that detailed information on how the project operates and the models used for these studies can be found on the project website ([www.harrisrelicensing.com](http://www.harrisrelicensing.com)). One meeting that may be particularly helpful to review is the HAT 1 meeting from September 11, 2019. Kenneth added that a 100-year flood basically has a 1 percent chance of occurring in any given year and Alabama Power operates according to flood control guidelines developed and approved by the USACE. Monte stated that in most cases, FERC uses the 100-year flood scenario as their standard, but that does not exclude the analysis of other flood events. Kenneth concluded that Alabama Power works with the National Weather Service and USACE on Harris Project operations during flood events.

Donna Matthews (Downstream Property Owner) asked if basing the model on a 100-year flood potentially reduces the overall impact on downstream resources compared to effects from more frequent but lesser storm events. Kenneth said the 100-year flood analysis does not decrease the effect of smaller events and that smaller events have not been modeled.

Albert mentioned the gage at Wadley and a high flow event in early 2020. Angie stated that this particular question was addressed during the ISR meeting and a response provided in the ISR meeting summary.

Sarah commented that the maps shown in Kevin's presentation identify all structures using the same color regardless of whether they were within the inundation boundary and requested that the final analysis display inundated structures with a different color than non-inundated structures. Kevin said that inundated and non-inundated structures will be differentiated on the figures and these figures will also include the winter pool level (i.e., 1 ft, 2 ft, etc.).

David asked if FERC had ever denied a license for a project as large as Harris. Sarah was not familiar with any but encouraged David to send her an email so she could contact him with that information.

Sarah reviewed the relicensing schedule, reminding everyone the information gathering process is ongoing and Alabama Power's draft proposal for Harris Project operations will be presented in the Preliminary Licensing Proposal. Alabama Power will file their Final License Application in November 2021. The schedule is available in the November 16, 2018 Scoping Document 2. Sarah encouraged everyone to read that document and contact her with any questions.

Angie concluded that the meeting notes will be posted to [harrisrelicensing.com](http://harrisrelicensing.com) and reiterated that comments on the ISR are due June 11, 2020 and should be filed with FERC.

ATTACHMENT A  
HARRIS ACTION TEAMS 1 AND 5 MEETING ATTENDEES

Linda Allen – Downstream Property Owner  
Angie Anderegg – Alabama Power Company (Alabama Power)  
Dave Anderson – Alabama Power  
Jeff Baker – Alabama Power  
David Bishop – Downstream Property Owner  
Allan Creamer – Federal Energy Regulatory Commission (FERC)  
Charles Denman – Downstream Property Owner  
Colin Dinken – Kleinschmidt Associates (Kleinschmidt)  
Albert Eiland – Downstream Property Owner  
Amanda Fleming – Kleinschmidt  
Todd Fobian – Alabama Department of Conservation of Natural Resources (ADCNR)  
Tina Freeman – Alabama Power  
Chris Goodman – Alabama Power  
Stacey Graham – Alabama Power  
James Hathorn – United States Army Corps of Engineers (USACE)  
Keith Henderson – ADCNR  
Martha Hunter – Alabama Rivers Alliance (ARA)  
Mike Hross – Kleinschmidt  
Carol Knight – Downstream Property Owner  
Fred Leslie – Alabama Department of Environmental Management (ADEM)  
Matthew Marshall – ADCNR  
Donna Matthews – Downstream Property Owner  
Rachel McNamara – FERC  
Tina Mills – Alabama Power  
Jason Moak – Kleinschmidt  
Barry Morris – Lake Wedowee Property Owners Association  
Kevin Nebiolo – Kleinschmidt  
Kenneth Odom – Alabama Power  
Jennifer Rasberry – Alabama Power  
Sarah Salazar – FERC  
Kelly Schaeffer – Kleinschmidt  
Chris Smith – ADCNR  
Sheila Smith – Alabama Power  
Thomas St. John – Alabama Power  
Monte Terhaar – FERC  
Jack West – ARA

# **R.L. Harris Dam Relicensing FERC No. 2628**

## **HAT 1 & 5 Meetings June 4, 2020**





# Operating Curve Change Feasibility Analysis

## Phase II Lake Recreation Structure Usability at Winter Pool Alternatives





# 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
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# RECREATION STRUCTURE USABILITY AT WINTER POOL ALTERNATIVES



## Objectives Described in the Study Plan

- Evaluate “...the number of private docks usable during the current winter drawdown and the lowest possible elevation that public boat ramps can be used.”
- Private docks defined as boathouses, floats, piers, wet slips, and boardwalks
- Will “...compare the number of access points (both private docks and public boat ramps) available at each 1-foot increment change...”

## Methods

- LiDAR used to measure elevation (785, 786, 787, 788, 789 ft msl contours)
- Elevation data used to calculate depth at point
- Depth for points beyond the 785 ft msl contour will be estimated by slope analysis



### Legend

- Elevation 785 (Base Case)
- Elevation 786
- Elevation 787
- Elevation 788
- Elevation 789



# RECREATION STRUCTURE USABILITY AT WINTER POOL ALTERNATIVES



## Boathouses

- Point moved to the back of each of these structures
- Structure considered usable with 2 ft of water at the back edge



# RECREATION STRUCTURE USABILITY AT WINTER POOL ALTERNATIVES



## Floats

- Point moved to the back of each of these structures
- Structure considered usable with 2 ft of water at the back edge



# RECREATION STRUCTURE USABILITY AT WINTER POOL ALTERNATIVES



## Piers

- Classified into 3 subcategories:
  - Platform (*bottom left*):
    - Piers with a square-shaped platform on the end
    - Point moved to back edge of the platform
    - Analyzed similarly to floats
  - Mooring (*bottom right*):
    - Straight piers > 30 ft
    - Point moved 30 ft back from front edge
  - Fishing (*right*):
    - Straight piers  $\leq$  30 ft
    - Point moved halfway back from the front edge
- Depth of 2 ft to be usable



# RECREATION STRUCTURE USABILITY AT WINTER POOL ALTERNATIVES



## Wet Slips

- Some oriented parallel to the bank (*bottom left*) and some perpendicular (*bottom right*)
- The back edge is always the outside edge facing the bank
- Wet slips with multiple slips (*right*) will be considered usable when all slips are usable
- Depth of 2 ft to be usable



# RECREATION STRUCTURE USABILITY AT WINTER POOL ALTERNATIVES



## Boardwalks

- Point moved to front of structure
- Objective is aesthetics
- Depth of 1 ft at point



# RECREATION STRUCTURE USABILITY AT WINTER POOL ALTERNATIVES



## Public Boat Ramps

- ADCNR typically uses the following criteria for public ramps at low pool:
  - 15% grade at bottom portion of ramp
  - Depth of 4.5 ft at the end of the ramp
  - Able to launch up to 26 ft boat at low pool



# RECREATION STRUCTURE USABILITY AT WINTER POOL ALTERNATIVES



## Public Boat Ramps

- Highway 48 Bridge:
  - Built using ADCNR standards
  - Usable at 785 ft msl



# RECREATION STRUCTURE USABILITY AT WINTER POOL ALTERNATIVES



## Public Boat Ramps

- Lee's Bridge:
  - Bottom of ramp is ~785.5 ft msl
  - Use a slope analysis to determine the grade
  - Possibly usable ~790.0 ft msl



# RECREATION STRUCTURE USABILITY AT WINTER POOL ALTERNATIVES



## Field Observations

- No imagery (*left*):
  - Imagery predates structures
  - ~10.0% of structures
- Not visible (*right*):
  - Structure obscured by foliage or shadow
  - ~2.5% of structures



# RECREATION STRUCTURE USABILITY AT WINTER POOL ALTERNATIVES



## Presentation of Data: All Structures

The number and percentage of all usable structures at each winter pool alternative

Winter Pool Elevation (feet msl)	Number of Usable Structures	Percent Usable Structures
785		
786		
787		
788		
789		
>789		



# RECREATION STRUCTURE USABILITY AT WINTER POOL ALTERNATIVES



## Presentation of Data: By Structure

The number and percentage of usable structures by type at each winter pool alternative

Winter Pool Elevation (feet msl)	Number of Usable Structures	Percent Usable Structures
<b>Boardwalks</b>		
785		
786		
787		
788		
789		
>789		
<b>Boathouses</b>		
785		
786		
787		
788		
789		
>789		
<b>Floats</b>		
785		
786		
787		
788		
789		
>789		





Questions?

# HARRIS DAM

## RELICENSING



Alabama Power

# **R.L. Harris Dam Relicensing FERC No. 2628**

**HAT 1 Meeting  
June 4, 2020**





# Operating Curve Change Feasibility Analysis

## Phase II Downstream Structure Survey





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# Harris Downstream Structure Survey

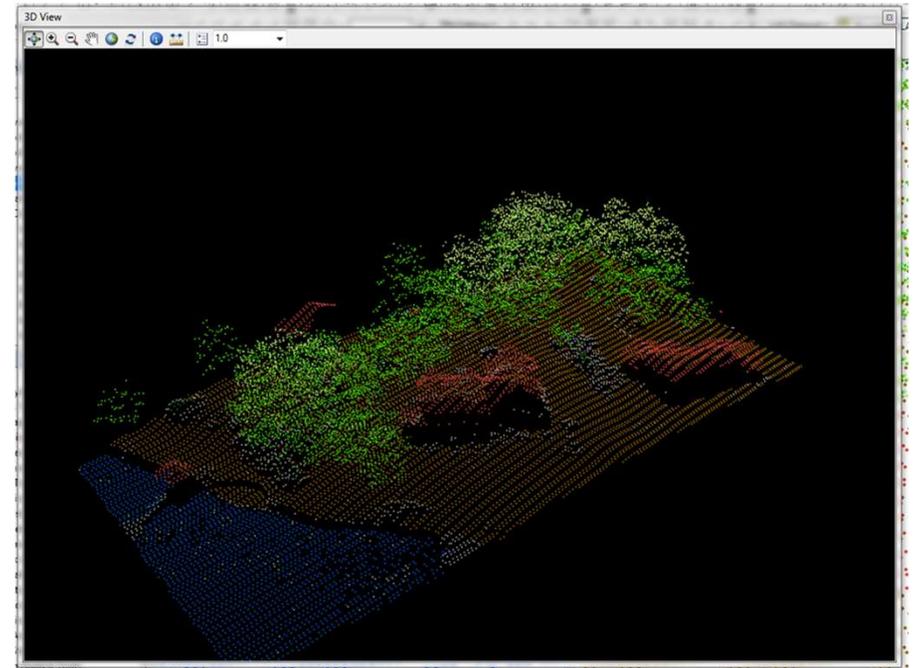


- An operating curve change may affect areas downstream of Harris Dam
  - Effects are associated with flooding
- Phase 2 of the Operating Curve Change Feasibility Analysis will include:
  - Identifying affected structures
  - # of structures
  - Location
  - Depth & duration of inundation
- Identifying structures is no small task



# Methods: Remote Sensing

- LiDAR – 4 points per m<sup>2</sup>
- 1 m USDA NAIP 4 band image (R, G, B, NiR)
- Classification Workflow:
  - Data management
  - Create training data
  - Classify image pixels
  - QAQC – Confusion Matrix



# Methods: OBIA

- Object Based Image Analysis in ArcGIS Pro Image Analyst

1. Group pixels into objects - segmentation
2. Create training data
3. Classify Image
4. Assess quality with Confusion Matrix
5. Heads up digitizing
6. Spatial intersection & summarize



# Anticipated Output

- Once identified – we will use a GIS to find structures impacted with a spatial intersection
- Series of maps showing location of all structures with symbols for flooded vs. not flooded
- Summary statistics in report
  - # of structures affected by rule curve
  - Min., Avg., Max. depth of inundation
  - Min., Avg., Max. duration of inundation
- Results will be in Phase II Report

