October 1, 2018

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

RE: R.L. Harris Hydroelectric Project (P-2628-065) of the Tallapoosa River, Alabama; scoping comments regarding PAD/SD1

Dear Secretary Bose:

On behalf of the Alabama Rivers Alliance, Inc. and American Rivers, Inc., please accept the following comments on the relicensing of FERC Project No. 2628, R.L. Harris Dam Hydroelectric Project. In response to the Federal Energy Regulatory Commission's ("FERC") July 31st Scoping Document 1 ("SD1"), these comments will identify important environmental issues associated with the Harris Dam Project and the Tallapoosa River located in Randolph, Clay, and Cleburne Counties, Alabama. These comments will also address the Pre-Application Document ("PAD") that Alabama Power Company ("APC") submitted to FERC on June 1st, which included multiple proposed study plans.

Alabama Rivers Alliance ("the Alliance") is an Alabama-based nonprofit organization dedicated to protecting the 132,000 miles of rivers and streams in Alabama. The Alliance includes over 50 environmental partner organizations in the state, as well as hundreds of individual members, that share the goal of achieving better protection for local water quality and quantity. The Alliance's point person for this project is Curt Chaffin, who can be reached at cchaffin@alabamarivers.org, by phone at 205.322.6395, and by mail at 2014 6th Ave N, Suite 200, Birmingham, AL 35203. American Rivers is a national, non-profit, 501(c) (3) conservation organization that protects wild rivers, restores damaged rivers, and conserves clean water for people and nature. Since 1973, American Rivers has protected and restored more than 150,000 miles of rivers through advocacy efforts, on-the-ground projects, and an annual *America's Most Endangered Rivers*® campaign. Headquartered in Washington, DC, American Rivers has offices across the country and more than 275,000 members, supporters, and volunteers including those who use and value the Tallapoosa River for its natural and recreational values. Our point of contact for the Harris Relicensing is Gerrit Jöbsis. He can be reached by email at gjobsis@americanrivers.org, by telephone at 803.771.7114 and his mailing address is 215 Pickens Street, Columbia, SC 29205.

In keeping with our above missions, we offer the following comments to assist FERC and APC during the Integrated Licensing Process ("ILP") and the Environmental Study process. We understand the relicensing process is long and complex, so we appreciate the opportunity to comment on the project and look forward to working with the Commission on the issues identified in these comments.

I. Introduction

R.L. Harris Dam is a hydroelectric facility located in eastern Alabama on the Tallapoosa River. The Tallapoosa River spans over 260 miles in the Piedmont Region of the United States. The Tallapoosa is a large component of the Mobile River Basin, the largest Gulf Coast drainage system east of the Mississippi. The River originates just east of Atlanta, flows through eastern Alabama, joins the Coosa River to form the Alabama River, and eventually flows into Mobile Bay. The watershed is regularly referred to as America's Amazon, supporting uncommonly high biodiversity and a vast number of endemic and native aquatic species. The Tallapoosa River is among the most important rivers in this basin, as it contains some of the longest free-flowing stretches of Piedmont rivers still in existence. It is also the home to multiple whitewater rapids, local businesses like river outfitters, and popular fishing destinations. The river system, while rich in biodiversity and recreation, is not without encumbrances or impairments. Four hydroelectric facilities, including the Harris Dam Project, exist in the area between where the Tallapoosa enters the state of Alabama and where it forms the Alabama River. These facilities provide important benefits to the public, namely electricity and recreation like boating and fishing.

APC constructed the R.L. Harris Hydroelectric Project near Lineville, Alabama, obtaining its first license from FERC in 1973. The project dammed the aforementioned Tallapoosa River by adding among other things a 151 feet-high concrete dam wall, a 186 feet-high–by–150 feet-long concrete powerhouse, two electric turbines, five 40 feet–by–40 feet radial gates, and 1.5 miles of transmission lines. These additions created R.L. Harris Reservoir, also known as "Lake Wedowee" to locals. The reservoir extends up the river for approximately 27 miles. The dam is a "peaking dam" meaning that its two turbines generate power intermittently during the week to meet peak power demands. When releasing the water necessary to operate those turbines, up to 16,000 CFS can be added to an approximately 45 miles-long reach of the Tallapoosa River below project facilities that otherwise has a flow under one hundred CFS. While the goal of generating electricity is a necessary task in modern society, the project's volatile and extreme flow regime has caused many environmental issues downstream of the dam.[1]

[1] *See generally* Attachments 3-9.

In the years after the initial project was built, the aquatic health of the Tallapoosa suffered greatly. The physical, chemical, and biological integrity of the river from Harris Dam to Horseshow Bend was severely impaired; whole stretches of the river were dry during nongeneration, and the tremendous biodiversity regularly existing in the region plummeted. As fishes and mussels disappeared and recreation stopped, there was significant public outcry for operational change. The environmental issues were so pronounced that in 2005 APC formally created an Adaptive Management Project to solve the environmental problems downstream of the dam. Working with state and federal agencies, academia, citizens, and non-governmental organizations, it created a new operational regime known as the "Green Plan."[2]

The Green Plan was supposed to be the first step in an adaptive management process. To alleviate the effects of the flashy, all-or-nothing generation peaks, the Green Plan instituted a series of pulses to allow a more consistent amount of water to flow downstream. In some regards this was an important first step. These intermittent releases increased the wetted habitat and kept certain reaches from repeatedly drying up. The scientific literature indeed showed some forward progress, as some fish species—mostly persistent and generalist species—were finally able to survive. Others were not so lucky. Many of the species failed to recover or actually declined; incubation rates were still elongated and growth rates still slowed. In the 13 years that followed, a plethora of academic articles, presentations, and papers have shown the stunted recovery of the downstream reaches. This is not to say that the Green Plan was a failure, merely that it was an important *first step* of many. Rather than continue the adaptive management process, though, APC decided the Green Plan alone was adequate for the last 13 years.

Scoping Document 1 states that APC wishes to continue the status quo: "Alabama Power is currently proposing to continue the project with the environmental protection, mitigation, and enhancement (PM&E) measures…the potential need for additional measures will be evaluated during the relicensing process." SD1 at p. 10. We believe the record shows that problems still exist, additional changes should be made, and progress is still obtainable. As such, we sincerely appreciate the chances we have received so far to speak frankly and in good faith with APC about additional PM&E measures. Ultimately, we desire operational changes that better protect the riverine health in Lake Wedowee and the Tallapoosa River below the project. The first step is to clearly understand the problems at hand. APC should build from the extensive research already completed to get a full picture of what is happening. We appreciate this task is time-consuming and expensive, but APC must fully gather this information *before* determining which operational changes will give the greatest assistance to the Tallapoosa River and its numerous wildlife species. It is our desire that a decision for complying with applicable state and federal environmental law that substantially improves the health of the Tallapoosa River can be agreed upon through a collaborative and uncontroversial process, and that a well-designed adaptive management process will be agreed upon for guiding the project's operations in the future.

[2] For a general background of the Green Plan, *see* PAD, Appendix E.

II. PAD deficiencies regarding environmental issues identified in scientific literature

Since the late 1990s, and especially since the creation of the Green Plan in 2005, researchers and professors have published a tremendous amount of academic literature regarding the downstream stretches of the Tallapoosa River. The PAD gives a rather cursory synopsis of those studies; while it lists many of them in its bibliography, it does little to present the data and findings found therein. There is no requirement for the PAD to recite an exhaustive list of environmental issues identified in the academic literature. Still, we believe certain findings should be highlighted to give a clearer picture of the natural resources connected to this project.

Alabama Power's PAD listed twenty-two studies analyzing downstream water quality, quantity, and biological health.[3] Overall, each of the studies showed that regulated, downstream reaches of the Tallapoosa diverged from unregulated, upstream sites. The scientific record of Alabama Power's Adaptive Management Plan or "Green Plan" is revealing. While there have been some benefits, invertebrate and fish species still suffer from flow and temperature variations in regulated downstream areas. As Kosnicki found, "There were significant differences between upstream and downstream invertebrate populations." Kosnicki 2017. She identified these species as being especially good examples of riverine health. The differences suggest that flow and temperature conditions to support life were very different and correlated with distance from the dam. *Id.* Dr. Elise Irwin has repeatedly found this to be true for fishes. For example, Redhorse occupancy, persistence, and density was much lower in regulated reaches. 2011 Irwin. Based on the record, the current method of pulsing is not adequately protecting biota downstream of the dam. Fish and invertebrate species in regulated stretches were less prevalent and less persistent, while also having slower growth rates and longer incubation times. Early concluded that growth rates were impaired in 2012, as did Goar and Irwin in 2013 and 2015. Early wrote: "Overall growth rates for Alabama Bass and Redeye Bass were higher in the unregulated sites, than either regulated sites." Early 2012. The twenty-two studies almost unanimously attributed those differences to flow and temperature, two measures unarguably caused by the project's flow regime and pulsing. Early, for example, identified "Cortisol response is a good indicator of acute stress and additional measurements of stress include leukocyte profiles, with neutrophils increasing and lymphocytes decreasing (N:L). The physiological stress response was studied in both Alabama Bass and Redeye Bass, to determine if the altered flow regime has any impact. Results showed that there is a trend for both baseline cortisol levels and N:L to be higher in the fish found at the disturbed location." *Id.* Several species appear to suffer from the dam, but Channel catfish, Alabama Bass, Tallapoosa Bass, and Redbreast Sunfish were repeatedly found to be impaired. Irwin 2015.

[3] S*ee generally* Counihan, et al., "Can data from disparate long-term fish monitoring programs be used to increase our understanding of regional and continental trends in large river assemblages?" [Attachment 3]

We join the Environmental Protection Agency in calling for APC to include additional information from these academic sources in its PAD, proposed studies, and *Baseline Water Quality Report*. Adding the findings, results, and data from more of these studies will provide a much more specific and accurate characterization of downstream environmental issues. Accuracy at this stage is of the utmost importance. Not only is it required under federal law, it is what the next steps of the relicensing process will depend on. The above quotations are but a small fraction of the scientific record. With such high overall significance, we suggest an even more thorough literature review and presentation of past findings. There is little-to-no acknowledgement of this history in SD1, and the PAD has scant allusions to the findings, while also ignoring their results with statements such as "it appears that the Green Plan has resulted in positive fish community response due to increased habitat diversity." *Fisheries Study Plan* at p. 2. Statements like these are questionable at best—with no accompanying scientific findings or justifications—and can set an improper baseline for determining project impacts.

We would like to thank APC for promptly supplying the Alliance with copies of the sources identified in the PAD. That list can be found in Attachment 2 to these comments. These sources were illustrative of the environmental effects that have occurred downstream of the Harris Dam. In addition to those studies already in the record, we would like to provide seven additional studies to further supplement the evidence.[4] First, Counihan *et al*. recently published the article "Can data from disparate long-term fish monitoring programs be used to increase our understanding of regional and continental trends in large river assemblages?". We believe this publication will further supplement the existing literature with important, if not similar, overall findings. Counihan writes "Prior to implementation of pulsing discharges in 2005, low discharges were lower in magnitude, more frequent, and discharge conditions were less stable. When adaptive discharge management ensued in 2005 (Fig 6), hydraulic conditions improved; however, our results indicate that a fish assemblage level response has not." This conclusion further supports the finding that downstream biota are negatively affected by the Dam's flow regime.

Next, we offer the article "Thermal wave dynamics in rivers affected by hydropeaking" authored by Marco Toffolon in 2010. This publication takes the data displayed on graphs from Dr. Irwin's publications, which are already in the record, and makes estimates about the thermal regime. Basically, he simulates the best conditions that could allow the disturbance waves to separate and the thermal regime to recover, finding that it still took about 36 hours between releases for the external forces (e.g. tributary inflow, radiation, etc.) to act on the river to allow the thermal regime to recover. This measure is only under conditions of very low hydropeaking magnitude ($q^*<5$), and this is not often the case (q^* is reported up to 40, see page 12). What is especially worrying, is that peaking usually occurs within 36 hours of the previous peak,

[4] *See* Attachments 3-9.

meaning that the River is seldom given a chance to recover. We believe this article is essential for the present relicensing decision. If possible, APC should replicate these methodologies with more current data.

We also submit "Defining ecological and economical hydropower operations: a framework for managing dam releases to meet multiple conflicting objectives" by Irwin in 2005; "Flow and Habitat Effects on Juvenile Fish Abundance in Natural and Altered Flow Regimes" by Freeman in 2001; "Modeling the Relations Between Flow Regime Components, Species Traits, and Spawning Success of Fishes in Warmwater Streams" by Craven in 2010; "Engaging Stakeholders for Adaptive Management Using Structured Decision Analysis" by Irwin and Kennedy in 2009; "Experimental stocking of sport fish in the regulated Tallapoosa River to determine critical periods for recruitment" by Lloyd in 2017; and "Long-Term Fish Monitoring in Large Rivers: Utility of "Benchmarking" across Basins" by Ward in 2017. We believe each of these studies offers an important perspective of the state of the environment in the Tallapoosa River. We urge APC SD1 to review these studies and update their documents to correspond with those findings.

We appreciate APC's willingness to consult with stakeholders in advance of filing its PAD and NOI, and for seeking stakeholder input into its study plans. While this is not a requirement of FERC's integrated licensing process, it is our experience that advance stakeholder involvement is one of the components of a successful hydropower relicensing, and APC deserves credit for its initial efforts in this area. It is our sincere hope that APC continues to work collaboratively with all interested parties to ensure that issues that have been identified during that process as well as in this scoping and study plan development process are fully considered and resolved. In particular, we stress the need for high-quality studies which can fill all gaps in existing information so that the environmental analysis and the subsequent final license decision will be supported by substantial evidence. We also stress the need for inclusive dialogue with all stakeholders as proposed license conditions are being developed. While there is a great deal of useful information in the PAD, we are concerned that there are also several remaining gaps. Some of these gaps can be addressed through existing information that was not included in the PAD. Others can be addressed in the study phase, either through APC's proposed studies with the recommended improvements below, or through additional studies as proposed by other actors.

III. National law regarding the Harris Dam Project

Large hydroelectric projects undergoing licensing must demonstrate compliance with numerous federal laws, including the Federal Power Act, the National Environmental Protection Act, and the Clean Water Act. The scoping process for which Alabama Rivers Alliance and

American Rivers now comment is dedicated to complying with those federal statutes. As FERC identified in Scoping Document 1, the scoping process "ensure[s] that all pertinent issues are identified and analyzed and that the NEPA document is fair and balanced." SD1 at p. 5. As all comments and proposed studies shall relate to these federal statutes, it is important to first characterize those laws and identify specific criteria within them.

a. **Federal Power Act**

Part 1 of the Federal Power Act ("FPA") was written to regulate hydroelectric projects and facilitate the modern licensing process. 16 U.S.C. § 792 *et seq.* The FPA authorizes FERC to grant hydroelectric licenses for projects that are best adapted to a comprehensive plan for *development of the waterway and consistent with the public interest*. *Id.* at § 803(a) (emphasis added). Section 10 of the FPA instructs FERC that "development consistent with the public interest" might include hydropower generation but also includes public beneficial uses like recreation and wildlife health. *Id.* To protect those environmental uses, FERC has historically denied licenses or conditionally granted licenses on several occasions. Ultimately, it is up to FERC and not APC to weigh those often competing uses during the licensing process.

i. **FERC will need to weigh the environmental effects of this project when comparing them to the benefits of electricity generation.**

Pursuant to the FPA, FERC may deny or condition relicensing based on environmental reasons. The first example of such a rejection came in 1953 when FERC denied Namekagon Hydro Company's application for a license. *See* In re *Namekagon Hydro Company*, 216 F.2d 509 (7th Cir. 1954). Specifically, FERC rejected the license due to the project's potential environmental effects on the Namekagon River—looking at recreation below the dam, fishery health, and the social benefits of enjoying steadily flowing, uninterrupted rivers. *Id.* The Seventh Circuit opined that FERC must require certain environmental safeguards before granting a license: "We think that it is a necessary corollary to the power of the Commission to grant a license when certain conditions are met, that the Commission has the right to deny such license for failure to comply." *Id.* FERC's commitment to environmental health should extend to new projects and existing projects alike. *See S.C. Electric & Gas Co*., 30 F.P.C. 1338, 1342-43 (1963) (Ross, dissenting). Commissioner Ross made clear that FERC should consider environmental consequences whenever a facility applies for a new license, asking important questions before granting or renewing a license.[5] *Id.* We endorse that view of relicensing and urge FERC to ask those questions in the current case.

[5] "We should not lose sight of our obligation to properly utilize and conserve our natural resources. For an agency merely to say we have no objection…is not the searching type of review I consider necessary or appropriate. Would recreation be increased, would stream flow regulation be improved, would stream pollution be lessened, would fish runs be restored, would fish and wildlife be benefitted by either the removal of the project or conversion to

FERC must give full consideration of all factors, including the preservation of natural resources, natural beauty, and historic sites. Once again, all projects must pass the statutory test of being "best adapted to a comprehensive plan for improving or developing a waterway [for] water-power development, and for other beneficial public uses, including recreational purposes." 16 U.S.C. § 803(a). In addition to the questions presented by Commissioner Ross, the D.C. Circuit has further defined this requirement and FERC's environmental analysis under the Federal Power Act. *See generally Scenic Hudson Preservation Conference v. Federal Power Comm'n*, 354 F.2d 608 (D.C. Cir. 1965). The *Scenic Hudson* court identified "recreational purposes" as an important consideration: "The phrase undoubtingly encompasses the conservation of natural resources, the maintenance of natural beauty, and the preservation of historic sites." *Id.* FERC is responsible for the public interest, and that right "must receive active and affirmative protection at the hands of the Commission." *Id.*. In *Scenic Hudson*, the court rejected FERC's license because the Commission did not properly evaluate the project. It made clear that economic factors do not alone settle licensing decisions: "in our affluent society, the cost of a project is only one of several factors to be considered." *Id.* As such, it is FERC's responsibility to properly weigh those factors when granting a license. *Id*

ii. Additional information is needed to determine whether the Harris Dam project satisfies the FPA, but certain conditions must be made regardless.

The Green Plan—and the Harris Dam Project as a whole—has been measured for over a decade and it has repeatedly failed to restore the Tallapoosa River. Downstream water quality and aquatic wildlife health are of serious concern. We believe conditions addressing these issues are necessary for the restoration and preservation of the Tallapoosa River's natural resources, and without them the project fails the balancing test defined in Section 10 of the Federal Power Act. While we understand the scoping process is predominantly used to identify and evaluate NEPA related issues, and not the FPA, we also understand that FERC has the ability to require conditions to quell the underlying concerns. The questions asked during the scoping process are virtually the same questions that Commissioner Ross identified as important during relicensing under the FPA; instream flow, fisheries health, water quality, and recreation are all subjects of this NEPA process. We suggest to APC and FERC that the next steps of the ILP be designed to accomplish the goals of the FPA as well as NEPA.

b. National Environmental Policy Act

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nonpower uses? These questions and similar ones should be asked each time an applicant for a constructed project comes before us."

Independent of the FPA, the National Environmental Policy Act (NEPA), 42 U.S.C. § 4321 *et seq*., requires that the Commission assess the past, present, and reasonably foreseeable environmental impacts of the hydroelectric Project licensing and evaluate alternatives that would avoid these impacts. *Id.* This requirement applies to applications for new licenses for existing projects because relicensing constitutes a new, irreversible, and irretrievable commitment of a public resource. The license application must, therefore, be adequate for FERC's NEPA review. Thus, it must contain substantial evidence about the baseline condition and action alternatives to address any potentially significant adverse impacts on the beneficial uses of these resources. At this early phase, plainly it is not necessary for APC and other parties to agree whether an impact is actually significant, or whether a measure is actually feasible, in order for a study to be done. Instead, a study should be conducted if it will help resolve uncertainty about potentially significant impacts and potentially feasible measures.

Today, the protection and restoration of the ecosystem integrity of our rivers and public recreation opportunities are widely recognized by citizens of Alabama as among the highest public priorities. Accordingly, substantial emphasis should be placed on opportunities to further these priorities during the relicensing process. While we understand APC's interest in maintaining the Harris Project as a power producing operation, it is critical that the company develop a complete factual record on which the Commission can give equal consideration to power and non-power values, including restoration and enhancement of the Tallapoosa River ecosystem and its recreational values. In addition, there must be biologically and scientifically sound information upon which agencies can base their terms, conditions, and recommendations. This requires that APC evaluate a range of protection, mitigation, and enhancement (PM&E) measures and operational alternatives to current operations, including removal of parts of or all of the Project, and run-of-river operations.

i. NEPA requires a *de novo* review of hydroelectric projects, including the cumulative environmental impacts of the Harris Dam operations.

Hydroelectric relicensing projects are reviewed *de novo*. *Yakima Indian Nation v. FERC*, 746 F. 2d 466 (9th Cir. 1981). Even if operators propose to continue operate the project without any changes, a full environmental review under NEPA is required. *Id.* As such past and present effects will be taken into consideration during NEPA review and FERC decision making.

NEPA requires all environmental documents to consider the cumulative environmental impacts relating to the proposed action. *See* 40 C.F.R. § 1508.7. Agencies cannot overlook large-scale impacts by considering a project in piecemeal sections with relatively small impacts. Rather, the environmental study must look at the aggregated impacts of those individual sections. As defined under the law, cumulative impacts are "the incremental impact of the action [on the environment] when added to other past, present, and reasonably foreseeable future actions

regardless of what agency or person undertakes such other actions." *Id.* This assessment "must give a realistic evaluation of the total impacts and cannot isolate a proposed project, viewing it in a vacuum." *Grand Canyon Tr. v. F.A.A.,* 290 F.3d 339 (D.C. Cir. 2002), as amended (Aug. 27, 2002). Other projects on the Tallapoosa River must be considered for an accurate cumulative impact analysis. According to the D.C. Circuit, "it makes sense to consider the incremental impact of project for possible cumulative effects by incorporating the effects of other projects into the background data base of the project as issue." *Coal. on Sensible Transp., Inc. v. Dole*, 826 F.2d 60 (D.C. Cir. 1987). On the Tallapoosa, three other dams are downstream of Harris Dam before the River joins the Coosa. With such clear proximity, these other projects must be evaluated during the scoping process and environmental review.

Cumulative impacts also include past impacts. FERC and the courts agree that "cumulative-effects analysis [has] to account for all past impacts of…construction and operation, including the enduring or ongoing effects of past actions." It is especially important to consider past harms when they are attributable to the project at issue. The D.C. Circuit recently invalidated the NEPA process relating to the FERC projects on the Coosa River in Alabama because of a failure to properly consider temporal cumulative impacts:

> The Service's failure to factor the damage already wrought by the construction of dams into the cumulative impacts analysis fatally infected this aspect of the Commission's NEPA decision as well. The Commission gave scant attention to those past actions that had led to and were perpetuating the Coosa River's heavily damaged and fragile ecosystem. Nor did it offer any substantive analysis of how the present impacts of those past actions would combine and interact with the added impacts of the 30-year licensing decision. The Commission's cumulative impact analysis left out critical parts of the equation and, as a result, fell far short of the NEPA mark.

Am. Rivers v. Fed. Energy Regulatory Comm'n, 895 F.3d 32, 55 (D.C. Cir. 2018). FERC and APC must be careful not to make the same mistakes during the current relicensing. Harris Dam's downstream effects are significant and numerous; closely analyzing the cumulative impacts in time and geography will be important and revealing.

In SD1, FERC proactively identified the resources that could be cumulatively affected in the current matter: "Based on information in the PAD…we have identified water quantity, water quality, and fishery resources as resources that could be cumulatively affected by the proposed continued operation." SD1 at p. 14. Still, the existing PAD and study proposals do not fully reflect the cumulative impact standards listed above.

In terms of temporal scope, it is absolutely crucial to examine the past impacts of the Harris Dam, as required by NEPA. Based on the existing scientific literature alone, it is clear that

the project has had considerable impacts. Comparing current aquatic health in regulated stretches with (1) unregulated areas upstream and (2) historic trends of the same stretches before project construction should yield valuable information regarding cumulative impacts. Moreover, APC should consider future quantity restraints upstream of the project. Due to population growth, climate variation, increased droughts, and interstate water conflicts with Georgia, the Tallapoosa River is very likely to face increased strains in the coming decades. Georgia, for example, has repeatedly attempted to create a reservoir on the Little Tallapoosa River to aid in drinking water supply for the City of Atlanta. We strongly urge FERC, APC, and all federal and state agencies to remember this cumulative-impacts lens when examining any environmental effects associated with the project.

Similarly, the geographic scope of studies must be of sufficient breadth to identify all Project impacts and a full range of PM&E measures. It is important to bear in mind that short of Project removal, significant environmental impacts, e.g. inundation of habitat, will persist. Appropriate mitigation for those impacts may warrant action in other areas of the Tallapoosa Basin outside the Project boundaries. The scope of the studies must provide information to allow for this possibility. Finally, the studies must be supported by scientifically credible, current, and relevant data.

Here, the geographic scope is closely connected to cumulative impacts. Throughout this process, APC has defined the geographic scope of the project as extending to the Horseshoe Bend National Military Park. Considering (1) fish species have been considerably affected in those reaches, (2) the thermal band from pulsing and generation extends to those waters, and (3) the water level can change up to two feet during generation at the park,[6] it is significantly likely that Harris Dam's impacts extend farther than the geographic scope listed in the PAD and proposed study plans. Again, multiple hydroelectric facilities besides Harris Dam exist on the Tallapoosa. APC has repeatedly denied that Harris Dam affects water quality or wildlife health in Lake Martin or other downstream projects, despite the fact that they are directly downstream. APC has shown no evidence to support this assertion, however. To comply with the bounds of NEPA, APC should evaluate Harris Dam's impacts on reaches beyond Horseshoe Bend, which should include detailed analysis of its interaction with Martin Project. These changes would better represent the cumulative impacts that have taken the Tallapoosa from being an incredibly biodiverse Piedmont river to now being impaired and relatively empty.

ii. NEPA requires proper analysis of project alternatives, which includes "run-of-river" operations.

[6] All of these effects are laid out in Attachments 3-9.

The discussion of alternatives to the proposed action is the "heart" of the environmental document. 40 C.F.R. § 1502.14; *see also* 42 U.S.C. § 4332(c)(iii). The environmental document should "present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision-maker and the public." *Id*. The Commission must "[r]igorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated." *Id*. It must also "[d]evote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits." *Id*. As lead agency under NEPA, the Commission must explore possible environmental measures before approving the license application. *Id*. FERC's Scoping Document identifies only one action alternative—a change to the winter water level on Lake Wedowee—in addition to APC's proposed no-action alternative. SD1 at p. 8. While we expect that the study results will help the Commission and other stakeholders to develop and analyze a range of reasonable alternatives to the proposed action, we find it necessary to first measure all environmental harms before proceeding to proposals. While this is not the right time to submit alternatives, a house turbine, skimmer, or some other mechanism that releases different levels of flow at the right temperature will likely be an attractive alternative. We do recommend that the commission consider the environmentally based alternative below in addition to the alternatives proposed in the Scoping Document.

Modifications to the natural hydrograph caused by peaking or load-following operations at hydropower dams often have significant adverse impacts to the downstream ecosystem. FERC should consider an action alternative in which the operations of Harris Dam are modified from a peaking/storage facility to a "run-of-reservoir" facility where the instantaneous inflow into the project reservoir is roughly equivalent to the outflow. Run-of-reservoir operations typically have fewer adverse impacts on water quality, erosion, and aquatic ecosystems than peaking/storage operations. While many social and economic changes would result from this proposed alternative, the ecological, aesthetic, and environmental benefits would be considerable. Run-of-reservoir operations would lead to more stable lake levels, enhance recreational opportunities within the project boundary and on the Tallapoosa River below Martin and Thurlow Dam, and improve fish production. These benefits would likely occur even if Harris were operated in a modified run-of-river or run-of-reservoir mode that allowed slight modifications to accommodate flood control requirements and downstream minimum flow requirements. FERC's analysis of this alternative should at a minimum consider both scenarios. In its analysis of this alternative, we recommend that FERC consider the effects of the proposed operational changes on downstream flows; erosion and sedimentation in the project area and in the free-flowing section of the Tallapoosa downstream; water quality including temperature; impacts and benefits to fish and wildlife habitat within the project boundary and within the free-flowing section of the Tallapoosa River below Thurlow Dam. It should also consider APC's ability to meet flow targets and flood control requirements.

iii. An Environmental Impact Study will be necessary on the Harris Dam project.

Given the size and scope of the project, we recommend that FERC prepare an Environmental Impact Statement (EIS). The Harris Dam Project generates over 150,000 megawatt-hours per year and impounds nearly 30 miles of river, creating an entire reservoir. The project's operations are the primary driver for flows in the mainstem Tallapoosa River downstream, causing significant daily flow fluctuations that can be seen dozens of miles downstream. The scope and significant impact of this project necessitates that the Commission prepare an EIS. If, however, the Commission deems that an EA is sufficient, we request that the Commission publish a draft EA and allow adequate time for public review and comment, consistent with 40 C.F.R. § 1501.4(e). Opportunity for public comment on both the draft and final EA documents is consistent with the Council on Environmental Quality's regulations, which provide "public scrutiny [is] essential to implementing NEPA." 40 C.F.R. 1500.1(b).

iv. Additional information is needed to determine the exact extent of environmental harm at the Harris Dam project.

Fulfilling the legal mandates of the FPA, NEPA, and other applicable statutes requires a comprehensive study plan that will yield information necessary for the Commission to (1) determine all Project impacts–including cumulative impacts; (2) evaluate a range of alternatives to current Project operations–including removal of the Project; (3) identify and analyze potential, protection, mitigation, and enhancement measures; and (4) if the Project is to be relicensed, identify the amount of protection, mitigation, and enhancement that is "adequate and equitable" and consistent with the public interest. These questions cannot be answered if the studies are of insufficient temporal or geographic scope, rely on insufficient, outdated information, or fail to analyze all Project effects and reasonable alternatives. Understanding historic conditions to the extent possible is essential to evaluating ongoing impacts of the Project and discerning the key ecological components of a healthy Tallapoosa River. Identifying the historic fish and wildlife populations, and the conditions within which they existed is essential to understanding the key conditions required for healthy, self-sustaining fish and wildlife populations. Only then can effective PM&E measures be developed. As the Ninth Circuit Court of Appeals noted, information describing a pre-project or no-project environment can serve to describe the current cumulative effect on natural resources. *American Rivers v. FERC*, 187 F.3d 1007 (9th Cir. 1999).

IV. Comments regarding the Proposed Studies in the PAD

In order to satisfy the legal requirements imposed by the National Environmental Protection Act, the power company must complete an adequate environmental review of the proposed actions. Based on the abundant literature discussed in Section II of these comments, it is clear that additional studies are needed to determine the seriousness of environmental degradation as well as potential operational alternatives to lessen the impacts. As a part of the PAD, Alabama Power Company has published six proposed study plans to better understand the "project-specific and cumulative effects associated with relicensing the Harris Project." Scoping Document 1, p. 22. It supplemented these studies with two more on September 16th. Many of these studies were well crafted and will help better understand environmental harms. Other studies, however, need additional components before being able to fully evaluate the issues and ultimately complying with federal law. This section will make recommendations on specific study plans and reiterate some of the general comments listed in sections above.

General Comments

The issues identified in the previous sections may be deemed comments about the PAD in general, but they also hold true for the proposed studies listed in Appendix T. Accurate measurement of baseline, geographic scope, cumulative impacts, and alternatives are necessary to satisfy legal standards found in NEPA. Additionally, thelp determine what's gone wrong and how to fix it. If APC prescribes a narrow definition of "cumulative impacts" or "baseline" on paper, then we will miss a prime opportunity to remedy real-world effects. As such, we reiterate the above comments regarding NEPA and the FPA for each of the proposed study plans.

APC should use this process to continue its adaptive management process ("AMP"). The Green Plan was originally used to revive an almost completely dead river back to life. Since then, it appears to have met sparingly and never adapted its operations or recommendations. APC should reinstate its AMP. Attaching the AMP to the next Harris Project license would help ensure APC maintains progress and can handle additional environmental concerns. It also gives important stakeholders like state and federal agencies and members of the public the ability to monitor environmental standards and address worrying trends.

To further enhance the relicensing process and the ability of stakeholders to fully participate, we request that APC post copies of comments filed by stakeholders on the relicensing website. This will enable all stakeholders to more fully understand the various positions and issues of the numerous relicensing participants. Full copies of the stakeholder comments on the website could supplement any summary documents APC prepares. In this same vein, APC should be transparent during its own decision making process, including a cost-benefit analysis of (1) potential plans, (2) PM&E measures, and (3) operational changes. Each

study plan should include an estimate of cost. It should be clear what is included in these costs. Please revise the study plans to include a more detailed explanation of the cost estimate with subcategories such as subcontractor personnel, APC personnel, equipment costs/rental, supplies, and lab analysis. Breaking down those factors will help stakeholders work with APC, negotiate details, and make effective comments.

Fisheries and Wildlife study

FERC identifies "Fish and Aquatic Resources" as one of the resource issues to be addressed in the environmental document. SD at p. 16-17. This inclusion is an obvious one, as wildlife and aquatic biota are most likely to be subject to a dam's environmental impacts. To address this potentially affected resource area, APC proposed a fishery study before later supplementing that study in mid-September. Aside from the comments listed below, the updated fishery study should give a decent picture of how certain fish species in certain locations react to the dam's flow regime. First, the fishery study is too narrow to be the only study measuring wildlife. As mentioned previously, the Tallapoosa is home to several species of fish, mollusks, macroinvertebrates, and reptiles. Looking at three species of fish in a lab setting cannot be the only study of wildlife species. For example, macroinvertebrates downstream of the Harris Dam are arguably *more* impaired than fish species.[7] Equally, mussel species are susceptible to extreme flow and temperature variations such as the ones under the Green Plan. Moreover, APC should increase its scope beyond the species currently present in the project's boundaries. APC should either (1) significantly expand the scope of this study or (2) create a new study that looks at other wildlife species. At this step of the process, the goal is to achieve a complete picture of environmental harms. Unless these studies seek to measure the health of all wildlife in the area, that purpose will go unrealized.

When APC constructed the dam, it significantly altered the ecosystem. Some historically present species may have disappeared as a consequence. APC should assess whether these species existed and whether reintroduction may be appropriate. To aid this examination, we have attached a list of species that may be affected by the operations of Harris Dam.[8]

Next, we are concerned about tributary *habitat connectivity* in the Harris Project. The Fishery study will rightfully investigate the effects of inconsistent flows and low temperatures, but it will not asses the effects on migration and genetic variability of tributary species. Fish and mussel species in the Tallapoosa were able to migrate and mate prior to the dam's construction in the 1970s. This freedom allowed for multiple food sources and a variety of gene pools—not too mention the availability of additional tributaries and reaches during poor conditions like the ones

[7] *See generally* Kosnicki, Ely, K. Ouellette, C. Lloyd, and E. Irwin, "Harris AMP Invertebrate Analysis Summary Report" (2006).
[8] *See* Attachment 1.

now existing. Mussels are especially vulnerable to events like drought, pollution, and food shortages and cannot easily relocate under ordinary circumstances. Mussel health is also closely connected to fish mobility, as species depend on "host fish" to carry their young to other locations, thus increasing resilience and genetic diversity. We request that APC identify species in the various waters surrounding the Harris Dam and assess the impacts that project operations may have on mobility and population health.

APC should ask how seasonal and daily flow patterns affect migratory species. It should specifically asses the effects on susceptible migratory species stemming form (1) physical passage impediment at Harris Dam, (2) effects of the flow regime, such as dry or unconnected, on physical migration, (3) effects of flow regime on biological migration cues, and (4) effects of project-related water quality impacts on migration. The existing fishery study proposal would importantly assess effects of water quality like temperature and flow *via* a bioenergetics setting. APC should specify whether this analysis will measure water quality effects on migration, and address those issues if does not. Through this analysis, isolated and impaired species can be identified with stakeholders, then determining the changes in project operations necessary for remediation.

Population connectivity does not exclusively impact migratory species. The Tallapoosa is home to many non-migratory species of fish and mussels that reside in smaller tributaries like streams and creeks. In the years prior to construction of the impoundment, these species received the much needed benefits listed above. APC should study existing species that fit that description, but also analyze whether other species common in the region but not existing in the project boundaries may have been impacted by immobility. It would be unreasonable to discount species that may have disappeared because of the dam's effect on connectivity. This method would be consistent with the NEPA standard of assessing a projects previous impacts.

Next, we have multiple recommendations for APC regarding phase 3 of the proposed fishery study. APC states that, while describing the state of current fishery, "sampling will be conducted quarterly in reaches at varying distances downstream of Harris Dam." *Revised Fishery Study* at p. 4. It is unclear for how many quarters those samples will last. We recommend that these samples span multiple years to account for natural variability or inconsistent results. Crews should collect general data about the characteristics of each site, including parameters such as depth, gradient, vegetation, and the size and areal extent of rock present. We also strongly suggest collecting macroinvertebrates at each site. The scientific record clearly shows these species are impaired, even measuring communities at the very sites listed in the proposal. These organisms are used as forage by fish species and may uncover further details about aquatic fauna that could prove helpful in determining preferences for potential operational changes. We commend APC for stating "the gut contents, scales, otoliths, and spines of some species may be retained to obtain age, growth, and diet data for use in bioenergetics modeling." *Revised Fishery*

Study at p. 4. We strongly urge APC to take this measure to assess the food web of the various reaches, using stable isotope analysis if necessary.

Additionally, it is unclear which areas will be analyzed for the community surveys. APC and researches from Auburn University will examine sites near Malone, Wadley, and Horseshoe Bend according to the revised study proposal. If these are the only sites now proposed for study, we suggest the inclusion of additional sites. That geographic scope is nearly 45 miles; studying more than three areas would give a clearer picture of current fishery health. Choosing a high number of sites assures good coverage across the range of variation of important indices. We understand these sites were likely chosen because they correspond with the research done by Dr. Elise Irwin. Still, additional sites would decrease unreliability. We suggest that APC randomly select additional sites rather than purposefully select sites. Poor site selection may constrain statistical analyses and raise unnecessary questions of the findings.

Additional collection methods during this third phase would better measure fish health. APC will use backpack electrofishing to identify collected fish species and record length and weight. *Revised Fishery Study* at p. 4. While this is the only method listed in the study, we suggest the use of a number of other collection methods to gather this data. Electrofishing, as the sole method, may create misleading results. Fish of various size-classes and species have different susceptibility to various collection gears. We recommend including some passive collection methods like hoop or trap nets, minnow traps, and snorkeling. Next, we strongly recommend a more detailed analysis than basic species identification—as appears to be the case in the proposed study. APC should include evenness, diversity, and abundance in its analysis if does not already plan to do so. Traditionally, IBI has been the *modus operendi* to measure fishes on the Tallapoosa and generally in Alabama. As Dr. Irwin noted in her studies, this approach may not fully represent aquatic integrity: "The IBI is an inherently rigid measure of ecological condition. That is, it assumes that high numbers (or high percentages of individuals) of certain species are always preferable. We contest that this 'more is always better' assumption should be challenged in systems with high diversity and therefore dynamic community structure." Irwin, Elise, "Adaptive Management and Monitoring for restoration and faunal recolonization of Tallapoosa River shoal habitats" (2011). Consequentially, we suggest a detailed examination that takes into account these concerns, more appropriately measuring variables like fish density and species composition.

Finally, we strongly suggest broadening the scope of the fishery study to measure more than just "gamefish." The PAD is somewhat vague about *which* specific species will be measured. It proposes to determine the temperature requirements for only three species: "Target species will include a black bass species (likely a Tallapoosa bass, *Micropterus tallapoosae*), a catfish species (likely a Channel catfish, *Ictalurus punctatus*), and a species of sunfish (likely Redbreast sunfish, *Leopmis auritus*)." The bioenergetics model—the fourth and final step of the

fisheries study—will look at "the three target fish species." Moreover, one of the 4 main goals of this study is to "determine and compare the status of gamefish populations in the deep and shallow water habitats of the Tallapoosa." *Revised Fisheries Study* at p. 3. At the September 20th public meeting, APC suggested it choose three species "because they were gamefish" and after consulting with ADCNR. This step in the licensing process is used to determine environmental impacts associated with NEPA, which does not discriminate between gamefish and other species. Gamefish may be of special importance, considering their direct tie to "recreation,"[9] but they are not the only species that can be affected by hydroelectric facilities. As such, these three species should not make up the comprehensive list of fishes being studied. Besides being an incomplete measurement, this decision verges on arbitrary. APC does not include its decision making process for listing only these three species, nor does it identify the excluded species or explain why they were excluded.

Finally, it is imperative that Alabama ask the "right questions" during the bioenergetics study. APC should study indices relating to basic survival functions like foraging and mating, as well as growth and incubation. These samples should be varied and measure species during every life stage. The model should not just answer at what temperature and velocity do the fish die, but should answer for example, (1) At what velocity and temperature does each fish stop feeding, (2) How does temperature and velocity impact each fish's spawning and egg incubation? (3) What are the growth rates at the different temperatures and different velocities?

Threatened and Endangered Species Study Plan

We contend that the geographic scope listed in the proposal is inappropriate. While the requirement to assess cumulative impacts is present for every analysis, it is especially important when measuring Threatened and Endangered ("T&E") species. Again, the effects of the Harris Dam are significant and wide-reaching. Its interaction with the other three dams on the Tallapoosa—and by virtue the entire Mobile River Basin—is important to consider. The existing plan would only measure T&E species in the project boundary, losing sight of the possibility that it is adversely affecting downstream, upstream, or adjacent areas. APC does not include such language in its proposal or provide any evidence that Harris Dam's effects are geographically limited. We believe those changes would better comply with the requirements of NEPA and the Endangered Species Act.

The list of T&E species is relatively short in the current study project.[10] While that may statement may hold some truth, it depends on narrow and incorrect understanding of the "baseline" for measuring environmental impacts. Put frankly, if certain T&E species were

[9] Uses "best adapted to a comprehensive plan for improving or developing a waterway [for] water-power development, and for other beneficial public uses, including recreational purposes." 16 U.S.C. § 803(a).
[10] Listed on p. 4 of *Threatened and Endangered Study Plan.*

already extirpated, they will not show up for study now. Because FERC projects are reviewed *de novo* and the environmental analysis will include the project's previous impacts, previous species must also be identified and studied. This conclusion is a reasonable one; parties should not benefit in the present because of past misdeeds.

We deeply appreciate that it is difficult to know exactly which species existed prior to the construction of the Harris Dam and the other three dams on the Tallapoosa River. From (1) scientific assessments completed prior to the project's construction and (2) species lists from geographically and hydrologically similar stretches in the region, one can extrapolate potential species that were present prior to construction of the Harris Dam. If this analysis yields specific species, they may be suitable for reintroduction.

Erosion and Sedimentation

The Erosion and Sedimentation study plan will identify problematic erosion and sediment loading sites. The scope of the plan includes areas on "Lake Harris and the Tallapoosa River from Harris Dam downstream to Horseshoe Bend." *See Erosion and Sedimentation Study Plan* at p. 3. It is unclear whether tributaries of the project currently qualify for study. If not, we recommend APC include them for study. The construction of a dam can reduce the ability of tributaries to flush sediment downstream. As a result, the mouths of tributaries near impoundments often "fill up" with sediment that cannot be flushed out due to lack of flushing flows in the slow-moving impoundment. As sediment accumulates in the mouths of the tributaries, the function of the entire stream can be compromised. Stream volume is reduced as a result of sediment fill and waters in the stream rise, causing bank and streambed erosion as the stream seeks to reestablish its volume capacity. As the stream downcuts or widens, the process sometimes moves upstream as the stream attempts to find equilibrium. Thus, after a period of time, the stream may end up deeper and wider, with even more sediment accumulating in the mouth as a result of these geomorphologic processes.

The Alliance requests that APC perform a survey of the tributaries to the reservoir and determine if head cutting is occurring upstream of the impounded area and assess the level of sedimentation currently present in the mouths of the tributaries. To adequately determine the extent and seriousness of sedimentation, APC should examine (1) sediment supply, (2) sediment transportation, (3) characterization of channel morphology and bed surface texture, (4) bedload transport, (5) fine sediment transport, (6) distribution of side channels, (7) sediment storage, and (8) a sediment budget. We believe these indices, when measured at appropriate locations, will provide the findings necessary to evaluate the sedimentation effects of Harris Dam.

APC should elaborate on the definition of "hotspot" relating to the Erosion portion of the study. As stakeholders partially responsible for identifying problem areas, it would be helpful to

see more detail on the protocol for establishing erosion hotspots. We recommend greater specificity relating to what criteria researches will use to determine if an erosion site is a hotspot. It is also unclear if there are any limits on the number of hotspots or the geographic size of these hotspots.

Regarding the study schedule and sampling locations, the Alliance recommends that a survey for erosion hot-spots be performed in both high and low reservoir level conditions. Performing the survey in both conditions would offer a comparison of erosion conditions and may also help further identify the source of the erosion. There is also utility in establishing the rate of erosion if any hotspots are identified. This information would be extremely useful for monitoring the effectiveness of any protection, enhancement, and mitigation measures. As such, we recommend APC include some method to quantify erosion if researchers identify areas of accelerated erosion. One such method involves establishing erosion pins at target sites or hotspots. The distance from the exposed end of the pin to the soil is measured immediately after establishing the pin site. Researchers periodically visit the erosion monitoring sites and re-measure this same distance. Over time, the amount of soil erodes from the site and the rate at which soil erodes can be established.

With regards to the erosion worksheet attached to the plan, we recommend that item number two on the erosion worksheet be moved to the end. Asking the observer to identify the potential cause of erosion without first fully considering all the conditions of the site is premature. By moving item 2 to the end of the list, the field personnel would go through the other required observations before making a more informed decision about the cause of the erosion. We also request that blank lines be placed under the potential cause field to allow the field personnel to fully explain the rational behind their decision.

Finally, the Erosion and Sedimentation study plan proposes to identify (1) the locations of erosion and sediment loading and (2) the probable causes of erosion or sedimentation at those locations. These are very important steps for measuring environmental impacts, but we believe the study plan should also include a solutions-based evaluation; identifying potential remedies, as well as the cost and feasibility of improving "hotspots" should be included in the plan—or at the least APC should add language signaling its intention to do so at the next step of the licensing process.

Recreation

We appreciate APC's commitment to the Form 80 process in light of any potential changes in federal regulation. We agree that this methodology will help identify the use and capacity of specific recreation sites. We do believe the recreation assessment could be altered to better investigate downstream uses. Reaches of the Tallapoosa upstream of Lake Wedowee, in

addition to other stretches in the region, are very popular for paddling, fishing, and recreation. Anecdotally, the same cannot be said for the Tallapoosa River downstream of the dam. These stories are unsurprising, considering the extreme variability of the flow regime and the poor fisheries health. To better illustrate this point, multiple river outfitters operate upstream of the project, but conduct little-to-no business downstream. Considering this cause-and-effect relationship, it is logical to conduct a more detailed analysis of recreation downstream.

Section 10 of the FPA expressly identifies "recreation" as a publically beneficial use deserving of consideration during hydropower relicensing. FERC has rejected multiple licenses because of impacts on fishing, swimming, floating, and boating. This legal backdrop should underscore the importance of measuring downstream recreation, and the project's historic effect on such activities. Once again, there is significant anecdotal evidence concerning the dam's impact when it was first constructed. With all of this in mind, we recommend that APC revise its methods for measuring downstream recreation and the project's effects on downstream recreation. For these areas, APC will "compile existing available recreation use data from key recreational use areas, such as Horseshoe Bend National Military Park to characterize existing uses downstream of the Project.

This plan has two worrying deficiencies. First, Horseshoe Bend is over 40 miles downstream of the dam; it should not be the flagship location to determine downstream recreation. While the Park faces significant impairment from the Harris Project, upstream stretches are more emphatically affected. The park also has increased management from having a full-time staff and the cache of being a national park, meaning that recreation there may appear much larger than in other downstream reaches. Second, this method for assessing recreational use depends on data of existing use, which will show low demand due to the aforementioned environmental impacts. This logic is circular; it leads to the conclusion that no project changes are needed to preserve recreation because recreation is low in that area—but only because project changes were never made to increase recreation. It is conceivable that if flows normalized and fish communities strengthened, recreation would increase. We worry that this study would not reach that conclusion by depending on such self-fulfilling data. Instead, we recommend analysis of upstream uses and historic recreation rates to determine what recreation in the downstream portions of the Tallapoosa would look like *but for* the impairments caused by the Harris Dam Project.

"Inventory" studies like the one listed above generally focus on existing recreation resources and use, while avoiding evaluative information that describes what ought to occur. The output from these studies are broadly equivalent to the recreation section of an "affected environment" chapter of an agency NEPA document such as an Environmental Assessment or Environmental Impact Statement. "Impact/evaluation," on the other hand, assess how a hydroelectric project has affected or could affect recreation, or how recreation may be affecting

other resources. This has more evaluative information and comprises the alternatives/impacts analysis components of a typical NEPA document. Specific types of impact/evaluation studies common during relicensing include (1) flows and recreation, (2) reservoir levels and recreation, (3) facility need assessments, (4) use conflicts, (5) recreation capacity assessments, and (6) recreation economic studies. Integration of information from inventory and impacts studies forms the basis for developing and evaluating alternatives in a plan regarding management actions that might be taken to meet needs or address problems. Ultimately, the objective is a list of potential management measures and a description of how they might change recreation opportunities and quality. These could include cost estimates, implementation constraints, effects of creating new opportunities, and discussion of trade-offs from taking actions that enhance one opportunity but may diminish another.

APC also intends to predict future use. Once again, such a measurement is suspect. This method may not be viable for river reaches that do not have current use due to a lack of flows or access, or for predicting use of reaches or reservoirs whose characteristics will be modified by new operations. Efforts to estimate this demand generally require professional judgment and/or demand experiments, in addition to a review of trend information, but may also include analysis of survey responses to questions about future use—but recognizing that intentions are not always good predictors of behavior.

Finally, the study should build off of Dr. Elise Irwin's study of "boatable days" in downstream areas.[11] Dr. Iwin was able to calculate the amount of time in which the river supports boating and similar recreation. This information is directly illustrative of the Dam's effect on regional recreation and public beneficial use of the Tallapoosa. Closely related to this is the serious concern of recreational safety. Peaking does not just result in inconsistent or "flashy" water flow, it poses a significant threat to individuals attempting to recreate downstream. Flow-based boating, fishing, swimming, and wading would all be nearly impossible during hydro peaking. Mixed with the unpredictability of extreme releases and the difficulties of public notification, these recreational uses are unsafe. We hope this concern can be addressed in the scoping process and during the creation of the PM&E measures.

Operating Curve Change

The Operating Curve Change Feasibility Analysis will help APC determine "the feasibility of proposing an operating curve change as part of its license." *See Operating Curve Change Study Plan* at p. 3. APC explains that "the objective of this study is to use industry-accepted methods to develop simulation models for analyzing proposed alternatives to the existing (baseline) winter operating curve." *Id.* At the September 20th Harris Action Team meeting with Alabama Power it further elaborated that this study plan will be used to assess the

[11] *See generally* Attachment 2.

effects of operational changes, including flood control, drought response, navigation, and the Green Plan's PM&E measures. APC made it clear that it was soliciting recommendations for specific operational alternatives to measure. These goals are admirable, as a crucial part of the NEPA process is the consideration of project alternatives, but they are misguided at this point in the relicensing process.

This study plan includes the analysis of a proposed operational change, which has yet to be discussed in the relicensing process. Without an understanding of baseline impacts, APC should not yet be asking stakeholders to present operational alternatives. Instead, APC should continue to document and explain how current operations impact the environment and other resources. If we are forced to choose now, the science indicates that a run-of-the river operation is the best adapted to the survival of the natural resources. Many of the currently requested studies focus on existing conditions and how the project impacts the resources. Nearly all of the other study plans make reference to the need to coordinate with the operating curve change. This procedure is putting the cart before the horse. Once the stakeholders have had a chance to review the results of these other studies, then we may be able to make informed suggestions about the types of operations that can be analyzed for their own impact to the resources. A proposed change to the rule curve will have to be analyzed for its impacts to the environment and then compared to the current project operations to determine if there is any benefit from the proposal. Without the completion of the current studies, it is premature to study the impacts of the proposed rule curve change—winter flood pool levels—and any additional proposals.

Instream flow

We are appreciative that APC agreed to propose an instream flow study. We understand that it was the most recently developed plan, so it may be less detailed than the others. If possible, the study should seek to measure flow *and* temperature as a part of the model, or in the alternative, temperature should feature prominently during the analysis of the modelling results. Temperature and flow are inextricably linked at the Harris Dam project; the flow regime, specifically the technique for releasing water, cools the water by several degrees. We recommend that APC give close attention to that relationship, an acknowledgment that is that currently present in the instream flow study plan. Next, we would like to reiterate EPA's comments regarding the number of flow gauges included in the plan. We agree that the 43 miles of river below the dam are each intricate and unique. Thus, the variability likely warrants more than the 15 sites currently in the proposal.

In the past, American Rivers and the Alabama River Alliance have identified several issues concerning water quantity and Hydroelectric projects. An objective of ours to learn about the correlation between Lake Harris water storage and releases and Martin, Yates, and Thurlow water storage and intake, as well as Hydroelectric operations at all four projects and ecological

and navigational flow requirements in the Tallapoosa and Alabama Rivers. This level of inquiry also corresponds to NEPA's cumulative impacts analysis. To fully understand the impact of any new license proposal, one must understand how the project's proposed operations would contrast with the results of alternative operating proposals. The simplest way to accomplish this goal is to simulate the operation of the project over a long period of hydrologic history, taking into account other water withdrawals and returns in the basin.

It appears that water quality, fishery health, and other study plans will be closely connected to the instream flow study plan. The model should be applicable to the other potentially affected water issues. We hope with this plan APC creates an open, transparent water balance model that all participants can use to evaluate multiple alternative operational scenarios. As it reads, the study plan will use the model to determine "wetted habitat." This can be an important predictive measurement, but it does not alone provide findings for remediation or restoration. We hope the study will facilitate the collaborative resolution of issues related to flows, lake levels, and project releases—many of which are detailed in other proposed study plans. This model would allow a thorough examination of lake elevations in the Harris development, as well as flows at multiple points in the river over a long period of history. From these data, summary statistics could be generated that allow participants to understand the dynamics of the Tallapoosa system and the impact of the Harris Project's operations on this system. To facilitate this model and the understanding of the full range of operational possibilities, we also request that APC conduct any necessary tests or modeling that will allow stakeholders to understand APC's ability to operate the project at a full range of discharges, including those discharges that are outside of APCs operating experience.

Water quality

As it is currently written, the water quality study plan only includes the Harris Reservoir and the immediate tailrace. APC intends to monitor temperature and dissolved oxygen in this area until 2019. We recommend that downstream portions beyond the immediate tailrace be added to this geographic scope. The scientific record supports the finding that water quality, including temperature and dissolved oxygen, is negatively affecting biota well beyond the geographic scope proposed in the water quality study plan. While we understand APC (1) began its testing in 2017, (2) published a baseline report, and (3) consulted with the Department of Environmental Management ("ADEM") regarding 401 certification, we believe extending the geographic scope would give a more complete, more accurate view of how the project affects water quality.

The purpose of both this study plan and the scoping process is to determine a "list of issues and alternatives to be addressed in the NEPA document." Scoping Document 1, p. 1. The primary basis for the proposed geographic scope—given in the written proposal and the public meeting—is to comply with ADEM's issuance of a 401 certification. While 401 certifications is

an important step in the relicensing process, it does not stand in the place of the environmental analysis required under NEPA. Instead, APC must examine the environmental impacts for the entire project, which includes temperature and flow fluctuations in reaches beyond 1400 feet. 401 certification is a requirement of the Clean Water Act, not NEPA. While it may be appropriate for ADEM to begin their own process to investigate the environmental issues in the areas surrounding the project, it would be less appropriate for APC to base their entire water quality study on a state-level Clean Water Act process that will not officially begin for at least another two years. Moreover, APC did not give ample reason for the decision to limit the study to the tailrace—instead hanging its hat on ADEM's preliminary determination. The decision to limit the geographic scope of this study is curious and verges on arbitrary, especially when considering the geographic scope of the other studies extends over 40 miles. The PAD, SD1, this proposed study, and the *Baseline Water Quality Report* should each give greater attention to the previous water quality research. The findings in the scientific record support the simple statement that the Harris Dam impacts water quality downstream far beyond the immediate tailrace. Consequentially, it is reasonable that the water quality study seeks to investigate the chemical, biological, and physical integrity of those reaches.

The proposal should consider the project in relation to other impairments on water quality. The study states that the project's water quality is "influenced by point and non-point source pollution, annual hydrology, and weather patterns." *Water Quality Study Plan* at p. 3. Rather than investigating the inter-connected effects of those impairments and the dam's operations, the plan dismisses that relationship. Studying those effects in conjunction with one another would better meet the standard of cumulative impacts set by NEPA.

We support EPA's position regarding dissolved oxygen in the downstream portions of the Tallapoosa. The Alliance has previously commented to ADEM that dissolved oxygen downstream of dams is often a problem area, urging the state to eliminate its exception to DO water quality standards. Consequentially, APC should expand the Water Quality study to include DO sampling in the Harris Dam tailrace during periods of nongeneration. It may be true that DO is not a significant problem for the Harris Project, but that fact should first be proven. DO is known to drop during nongeneration for many dams, including ones in similar geographic areas, so it is appropriate for APC to measure it in the current case.

V. Conclusion and D.C. Circuit decision

In *American Rivers, et al v. FERC*, the two organization filing comments—American Rivers and Alabama Rivers Alliance—sued FERC and U.S. Fish and Wildlife for improper preparation and completion of a NEPA document looking at hydroelectric facilities on the Coosa River in Alabama. APC, the party now applying for relicensing was also a party to the lawsuit. That litigation spanned over a decade before finally concluding in federal court. It is our hope

that the same process is not necessary for the present relicensing; it delays the time during which crucial changes could be made to improve water quality and assist aquatic wildlife. What is disconcerting, though, is that it appears from the PAD and SD1 that many of the same mistakes are being made. We should learn from the D.C. Circuit opinion, giving special attention to baseline calculations, historic conditions, and cumulative impacts. We feel there are several common threads between these projects and that the court's reasoning is controlling for the present relicensing process. As such we have included the opinion as an attachment to these comments. It is our hope that FERC and APC update its drafts to be more in keeping with the decision.

On behalf of Alabama Rivers Alliance and American Rivers, we appreciate the opportunity to submit these comments, and look forward to collaborating with FERC staff, APC, and other stakeholders during the relicensing of this project. We equally appreciate the continued opportunity to comment to FERC and APC as the studies proceed and environmental impacts emerge.

Sincerely,

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cc: Sarah Stokes, Senior Attorney, Southern Environmental Law Center
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