



R. L. Harris Hydroelectric Project

FERC No. 2628

Meeting Summary
HAT 3 Meeting
March 31, 2021
9:00 am to 11:30 am
Conference Call

Participants:

Leslie Allen – Balch and Bingham
Angie Anderegg – Alabama Power Company (Alabama Power)
Dave Anderson – Alabama Power
Jeff Baker – Alabama Power
Jason Carlee – Alabama Power
Keith Chandler – Alabama Power
Evan Collins – United States Fish and Wildlife Service (USFWS)
Allan Creamer – Federal Energy Regulatory Commission (FERC)
Jim Crew – Alabama Power
Dennis Devries – Auburn University
Colin Dinken – Kleinschmidt Associates (Kleinschmidt)
Amanda Fleming – Alabama Power
Todd Fobian – Alabama Department of Conservation and Natural Resources (ADCNR)
Chris Goodman – Alabama Power
Jim Hancock – Balch and Bingham
Martha Hunter – Alabama Rivers Alliance (ARA)
Elijah Lamb – Auburn University
Donna Matthews – Downstream Property Owner
Lydia Mayo – Environmental Protection Agency (EPA)
Tina Mills – Alabama Power
Jason Moak – Kleinschmidt
Erin Padgett – USFWS
Sarah Salazar – FERC
Kelly Schaeffer – Kleinschmidt
Ehlana Stell – Auburn University
Jimmy Traylor – Downstream Property Owner
Sandra Wash – Kleinschmidt
Jack West – ARA
Rusty Wright – Auburn University

Meeting Summary:

Angie Anderegg (Alabama Power) opened the meeting and reviewed phone etiquette and explained that the purpose of the meeting was to review results of Auburn University's study, which will be filed as an appendix to Final Aquatic Resources Study Report on April 12, 2021.

Jason Moak (Kleinschmidt Associates) reviewed the background and purpose of the Aquatic Resources Study. Jason described the components of the study, which include the desktop

assessment, the temperature assessment of the Tallapoosa River conducted by Kleinschmidt and Alabama Power, and Auburn University's study.

Dr. Dennis Devries (Auburn University) reviewed the four target species and discussed the results of the literature review of temperature preferences and thresholds.

Ehlana Stell (Auburn University) reviewed the temperature analysis of downstream sites and at Heflin. Sarah Salazar (Federal Energy Regulatory Commission (FERC)) asked if a connection would be made between the temperature tolerances of the target species and the temperature regime of the river. Ehlana said that both variables were used to conduct growth simulations using a bioenergetics model. Jimmy Traylor (Downstream Property Owner) asked if it is correct that a 6 °C change is equivalent to a 42 °F change. Ehlana said that a temperature of 6 °C converts to 42 °F, but an increase or decrease in temperature of 6 °C in magnitude is about 11 °F. Dr. Rusty Wright (Auburn University) noted that the effect of temperature fluctuations on fish varies depending on whether the fluctuation is an increase or a decrease. Temperature fluctuations downstream of Harris Dam are greatest in the summer when water released from Harris Dam is cooler than ambient temperatures. Fish are typically more tolerant of sudden temperature decreases compared to sudden increases. Donna Matthews (Downstream Property Owner) asked if it was correct that 6 °C fluctuations never happened at the Heflin site. Ehlana stated that those fluctuations are very rare and noted that the Heflin site is more turbid and more insulated to changes in temperature. Donna asked if all this information was in the report, and Dr. Devries confirmed. Allan Creamer (FERC) stated that his understanding was that the Green Plan consisted of generation releases with pulse releases in between. Angie confirmed, stating that under the Green Plan, peaking occurs during peak generation demand and short pulses occur in between generation releases. Jimmy Traylor asked, regarding target species, which categories or families the Flathead Catfish (*Pylodictis olivaris*), Bowfin (*Amia calva*), carps, and suckers fall into. Dr. Wright stated that there are other kinds of catfish in the river, such as bullhead species, but Channel Catfish (*Ictalurus punctatus*) were chosen as a target species because they are very common. Flathead Catfish are in the family Ictaluridae along with other species of catfish; Bowfin are the only living species in the family Amiidae; carps belong in the family Cyprinidae along with minnows; and suckers belong in the family Catostomidae. Elijah Lamb noted that Flathead Catfish seemed common in the river.

Elijah Lamb (Auburn University) reviewed the fish community assessment. Jimmy stated that there were more crayfish in the river before construction of Harris Dam and asked about the variation in crayfish quantity. Dr. Devries said the diet data indicated that fish were eating them and they are therefore available, but pre-dam conditions cannot be used for quantity or density comparison because the data do not exist. Dr. Wright said the two species of black bass (Alabama Bass (*Micropterus henshalli*) and Tallapoosa Bass (*Micropterus tallapoosae*)) often consume crayfish if they are available. Jimmy stated he spent a lot of summers wading in No Business Creek, Cornhouse Creek, and others and said the difference in the ecosystem once you move away from the backflow of the river is noticeable and likely characteristic of what the river looked like before the dam. Dr. Wright said there were limitations on the number of areas they could sample, but creeks are not typically good control sites for mainstem rivers. They are definitely less influenced by the dam but not necessarily less influenced by other factors such as upstream watershed conditions. Sarah asked if Auburn University was able to distinguish between insect orders within the diet data (e.g., Diptera, Ephemeroptera, Plecoptera, and

Tricoptera). Elijah stated they have those data but reported all insects as one diet item in the report to reduce complexity of the figures and that those data could be used in the future for publications; however, order data was used for inputs in the bioenergetics model. Donna stated that maintaining the granularity of those data could be important for future work. Elijah stated that the more detailed diet data is archived at Auburn University. Donna asked what accounts for variation in sample size by location, noting that Auburn had very little control over sample size of fish and that fish movement over large distances of river was seemingly insignificant. She stated that one would assume that in a 40-mile stretch of river that the species would be fairly evenly distributed. Donna asked if there was a statistical procedure that spread the data out over the river so that inferences could be made about the entire system. Elijah stated that catch rates are usually used as indicators of abundance. Lower catch rates of a species indicate lower abundance of that species. Almost half of the species captured were found at all four study sites. Dr. Wright noted that no sampling gear is without bias. The equipment is going to be more efficient in some habitats over others, but sampling is standardized as much as possible to reduce that bias. Dr. Devries noted it would not be accurate to apply data from one site to the entire system as habitat availability could vary by site and river stretch. Jason Moak (Kleinschmidt Associates) asked what the strangest diet item found was, and Elijah stated maybe a seven or eight inch snake. Jimmy asked what the major difference was between Auburn University's study and Elise Irwin's (United States Geological Survey) previous studies. Elijah said Elise's studies used pre-positioned electrofishing grids that sampled shallow water areas roughly the size of a tabletop. The Auburn University study used boat and barge electrofishing to cover various habitats over a greater area. The Auburn University study also included the bioenergetics component.

Ehlana reviewed the respirometry trials and stated that Auburn University wanted to test the more extreme fluctuations seen downstream of Harris Dam, so 5 °C decreases in temperature were used to simulate releases. Evan Collins (United States Fish and Wildlife Service (USFWS)) asked if it was reasonable to conclude that physical refuge and habitat could possibly be more of a limiting factor or be a more important consideration than temperature and water velocity alone. Dr. Wright said that the species of this study could not maintain position in the water column during generation in areas near the dam. Having refuges where fish can get out of high flow events is important, but it would be important to know where fish go on a fine-scale tracking approach (e.g., behind a rock, tree). That information would be needed before refuge availability could be determined. It is evident that fish are not being completely washed downstream because Auburn University found them in the tailrace. Dr. Devries summarized that temperature and velocity are as important as refuge, and while it is not evident where fish are going during high flow events, they appear to be taking refuge. Sarah asked if these studies cover the full range of temperature and dissolved oxygen (DO) seen downstream of Harris Dam based on varying positions of the weir. Ehlana stated that DO was not measured as an independent variable. Angie stated that the skimmer weir has been in the topmost position for years, so it is always releasing from as high as possible in the water column. Ehlana stated that a specific temperature (5 °C) needed to be chosen for trials because the entire range seen downstream of Harris Dam could not be covered in the study. The number of temperatures that could be tested was limited by the sample size and the amount of time available to conduct the study. Jason M. stated that based on what Auburn did test, some inferences could possibly be made about the temperatures in between. Dr. Wright said the effect of temperature on growth is not linear, so the ability to make those inferences is somewhat limited. He also stated that the effects of a temperature decrease on

fish are typically not as negative or harmful as the effects of a temperature increase and that acclimation plays a large role in the temperature tolerances of fish.

Dr. Wright reviewed the bioenergetics modeling and growth simulations and stated that a Bluegill model was used to simulate growth rates of Redbreast Sunfish (*Lepomis auritis*). Jimmy asked how the fish per square mile or acre would vary. Dr. Wright said that they calculated catch-per-effort (CPE). Calculating fish per area is difficult and very intensive, but CPE could possibly be correlated to abundance. Jimmy stated he has fished the river from Harris Dam to below Horseshoe Bend, and that Auburn's data is good, but it does not include the habitat or availability of fish in these areas. Jimmy said the number of species encountered from Harris Dam to Malone is a lot less than around Horseshoe Bend. The water flow is less volatile around Horseshoe Bend, and snakes, bugs, and crayfish are more abundant, there is less bank erosion, and the environment in general is better. Jimmy said the fishing is bad near Malone, that things start to improve further downstream of Harris Dam, and that Auburn University's study is missing a habitat component. Ehlana stated that a habitat analysis was not a component of this study, and Angie stated that there is a robust downstream habitat study that will be released April 12, 2021. Dr. Devries said CPE can provide a picture of fish abundance, but to determine fish per area is extremely intensive. In pond systems for example, ponds are usually drained. In river systems, rotenone can be applied to an area, but the movement of water and habitat variability limits efficacy. Jimmy said the issue is that he is trying to compare the river to the way it was in the 1970s but only getting pieces of the puzzle. Dr. Devries replied that those comparisons could be made if Auburn University had similar data from the 1970s, but those data just don't exist. The data from the Auburn University study and the experience of downstream landowners does not necessarily disagree or differ in value, but making direct comparisons is not possible. Donna asked if data and anecdotes of angler experience could be used to make comparisons to today. Dr. Wright said there have been many studies on the Tallapoosa River downstream of Harris Dam over the years but many of them have taken very different approaches, so direct comparisons between them may not be entirely accurate. Auburn University took an approach that would incorporate the open channel habitats more than previous studies, which mostly sampled shallow water habitat. Dr. Devries said that community data from the pre-positioned electrofishing grids in other studies were representative of shallow water habitats. Colin Dinken (Kleinschmidt Associates) noted that the desktop assessment, which is being revised for the Final *Aquatic Resources Study Report*, contains findings from previous studies on the Tallapoosa River downstream of Harris Dam and reference sites. Some of the fish community findings in the Auburn University study were compared to findings from studies in the desktop assessment, and Auburn University has discussed the limitations of comparing their results to previous studies. Kelly Schaeffer (Kleinschmidt Associates) added that Appendix E of the Final *Recreation Evaluation Study Report* includes information on fishing effort, catch, and harvest by anglers in the Tallapoosa River downstream of Harris Dam. Sarah asked if it was possible to compare the bioenergetics results to those of similar rivers. Ehlana said different rivers could possibly be compared if there are a lot of similarities between the two systems. Dr. Devries said that studies used in the literature review of temperature requirements of the target species came from many different systems and regions (e.g., from ponds versus rivers or northern versus southern regions). Comparisons cannot be reliably made between systems or regions. A bioenergetics model from the northern United States could not be used in the southern United States. Only growth rates can be reliably compared using von Bertalanffy growth curves. Having growth records below Harris Dam would have been very helpful. Allan stated that the outcomes of the

inter-related studies being conducted for relicensing will need to be integrated to draw conclusions about different operating scenarios for Harris Dam. Allan noted the importance of understanding that only data and information from the record can be used for relicensing. If data does not exist for a certain time period, the best that can be done is to qualitatively describe what things may have been like at that time and try to draw some conclusions. Allan expressed concern about models that do not have good data going into them. He acknowledged that anecdotal information can contain inherent biases, and it is not necessarily information that should be used in a model. Angie stated that the pieces are starting to come together and that the purpose of the meeting today was only to present results of the Auburn University study.

Angie thanked everyone for attending the meeting and reiterated that the Auburn University report was sent to HAT 3 about a week prior to the HAT 3 meeting.