



ALABAMA POWER COMPANY

BIRMINGHAM, ALABAMA

MARTIN HYDROELECTRIC PROJECT

FERC NO. 349

STUDY PLAN 12 (E) – EFFECTS OF A RULE CURVE CHANGE ON FEDERALLY THREATENED AND ENDANGERED SPECIES AT THE MARTIN PROJECT AND IN THE TALLAPOOSA RIVER BELOW THURLOW DAM

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Prepared by:



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1.0 GOALS AND OBJECTIVES OF STUDY

Many stakeholder groups have requested that the Alabama Power Company (Alabama Power) investigate the feasibility of raising the winter rule curve at Martin. In Study Plan 12 (a), Alabama Power proposes to conduct a study that will model an increase in the winter pool elevation in increments of 1 foot from el. 481 ft. msl¹ to el. 486 ft. msl. as well as to examine extending the summer pool level in the shoulder seasons (later winter/early spring and early fall). As a result of this modeling study, Alabama Power must address potential impacts to federally threatened and endangered species associated with a Lake Martin winter rule curve that is higher than existing levels of el 481 ft. msl. and may cause an increase in frequency, duration, and/or magnitude of flooding downstream of Thurlow Dam in the Tallapoosa River.

Objectives of this study would:

- determine if increased flooding (magnitude, frequency and/or duration) would affect existing aquatic and terrestrial populations of federally threatened and endangered species in the lower Tallapoosa River from Thurlow Dam to the geographic scope described in Section 5.0;
- determine if a higher Martin lake level during the winter would potentially impact any existing aquatic and terrestrial populations of federally threatened and endangered species in the Martin Project boundary.

2.0 RELEVANT RESOURCE MANAGEMENT GOALS

The USFWS has mandatory federal authority under Section 7 of the Federal Power Act to identify and limit the impacts of hydropower projects on any Federally protected Threatened or Endangered species within the project boundary. Potential impacts to federally protected threatened or endangered (T&E) species as a result in change to project operations would be of concern to the USFWS. The ADCNR has developed a policy to enhance T&E species through protection of habitat, supplemental stocking, and/or reintroduction of species to historic habitats. Protection and or enhancement of any populations of aquatic and terrestrial T&E species within the project boundary would be a positive action for sustaining T&E species associated with the project. Populations potentially impacted by changes to existing project operations should also be identified.

3.0 BACKGROUND AND EXISTING INFORMATION

The Martin Preliminary Application Document (PAD) identified several federally protected species that are present in the Tallapoosa Basin and may be present in the Martin Project Boundary (Table 1). Preliminary surveys were performed during 2006 for unionids

¹ Elevation 481 ft msl is equivalent to el. 480 Martin Datum (MD).

(mussels and snails), red cockaded woodpecker (RCW), and bald eagles within the project boundary. Initial modeling analysis indicates that a change in the winter drawdown on Lake Martin could result in increased flooding on the Tallapoosa River downstream of Thurlow Dam.

Although no T&E species were detected during these 2006 surveys or during biological surveys performed in the Tallapoosa River downstream of Thurlow Dam, Alabama Power has agreed to perform additional surveys of aquatic and terrestrial habitats as outlined in Section 6 of this Study Plan.

Table 1: Federally Threatened, Endangered, and Candidate Species in Alabama Counties Occupied by the Martin Project

(Source: United States Fish and Wildlife Service, 2006a)

SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS ¹	COUNTY OF OCCURRENCE	OCCURRENCE IN BASIN ²	DOCUMENTED HISTORIC RANGE IN AL ³
<i>Picoides borealis</i>	Red-Cockaded Woodpecker	E	Coosa & Tallapoosa	Y	Statewide in appropriate habitat
<i>Haliaeetus leucocephalus</i>	Bald Eagle	P	Coosa, Elmore & Tallapoosa	Y	Statewide
<i>Cyprinella caerulea</i>	Blue Shiner	T	Coosa	N	Cahaba River, Coosa River system above fall line
<i>Tulotoma magnifica</i>	Tulotoma Snail	E	Coosa & Elmore	N	Coosa and Alabama River systems
<i>Pleurocera foremani</i>	Rough Hornsnail	C	Elmore	N	Coosa and Cahaba River systems
<i>Leptoxis foremani</i>	Interrupted rocksnail	C	Elmore	N	Coosa River system, from headwaters in GA downstream to Elmore Co.
<i>Pleurobema georgianum</i>	Southern Pigtoe Mussel	E	Coosa	N	Coosa River system
<i>Hamiota altilis</i>	Fine-lined Pocketbook Mussel	T	Coosa, Elmore & Tallapoosa	Y	Coosa, Tallapoosa, Cahaba River systems
<i>Sagittaria secundifolia</i>	Kral's Water-Plantain	T	Coosa	N	Little River Canyon in Coosa River Basin, West Sipsey Fork in the Warrior Basin, and Town Creek in Tennessee Basin (USFWS, 1991)
<i>Sarracenia rubra alabamensis</i>	Alabama Canebrake Pitcher Plant	E	Elmore	N	Coosa River Basin (USFWS, 1992)

SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS¹	COUNTY OF OCCURRENCE	OCCURRENCE IN BASIN²	DOCUMENTED HISTORIC RANGE IN AL³
<i>Arabis georgiana</i>	Georgia Rockcress	C	Elmore	Y	Gulf Coastal Plain, Piedmont, and Ridge and Valley physiographic provinces of Alabama and Georgia (USFWS, 2005)
<i>Amphianthus pusillus</i>	Little Amphianthus	T	Tallapoosa	Y	Granite outcrops in Piedmont of SC, GA, AL (USFWS, 1993)

1 E = Federally listed as Endangered, T = Federally listed as Threatened, C = Candidate for federal listing, P = not federally listed, but protected under Bald and Golden Eagle Protection Act and Migratory Bird Treaty Act

2 Indicates known or historic occurrence in the Tallapoosa River Basin.

3 Historic range as summarized in Mirarchi et al. (2004) unless otherwise cited.

4.0 PROJECT NEXUS

The Project is licensed by FERC and all proposed operational changes must be disclosed and affects addressed in the license application to FERC. The study would determine if any of the existing populations of T&E species within the project boundary and in the Tallapoosa River downstream of Thurlow Dam consistent with the geographic scope identified in Section 5.0 and those sites identified by the USFWS (see Section 8.0), would be impacted by a change in existing project operations.

5.0 STUDY AREA AND STUDY SITES

Alabama Power has identified Martin Project operation-related effects downstream to the USGS river gauge at Montgomery Water Works located on the Tallapoosa River at RM 12.9. The proposed geographic scope for this study would include the Tallapoosa River from the Project to the Montgomery Water Works river gauge. Alabama Power has selected the Montgomery Water Works location for three primary reasons. Having a geographic scope that includes 30+ miles below the Project will account for the principal effects of Martin's operations downstream. Also, the Montgomery Water works location has 18+ years of gage data that would be available for use in depicting elevations and Martin Project related effects on that gage. Finally, keeping the geographic scope limited to the Montgomery Water Works, compared to expanding the scope to the confluence of the Coosa and Tallapoosa Rivers, would minimize the hydrologic complexity of the Coosa and Alabama Rivers operations and intervening flows. Keeping the geographic scope to the Montgomery Water Works would focus on the effects of the Martin Project operations, including low, normal and high flow operations.

6.0 PROPOSED METHODOLOGY

The overall purpose of this study would be to compare the T&E survey information collected in Study Plan 5 with the information developed in Study Plan 12(a) Rule Curve Change

to determine if any populations of aquatic or terrestrial T&E species would be impacted by a change in the current project operations.

6.1 Data Analysis

Comparisons of the Rule Curve Model (flood flow changes) will be compared with spatial distribution data collected for aquatic and terrestrial T&E species in Study Plan 5. Any threatened or endangered species observed and their habitat “requirements” will be included in this comparison. Alabama Power will prepare a written recommendation regarding the impacts to T&E species and provide it to the MIGs 1 and 3. The results of this study will ultimately be used in development of a Biological Assessment for the project in cooperation with USFWS as part of the required Section 7 Consultation needs.

7.0 CONSISTENCY WITH GENERALLY ACCEPTED SCIENTIFIC PRACTICE

This study employs generally accepted practices for evaluating T&E distributions at hydroelectric projects. The study methodology provided here will be reviewed by the USFWS and the ADCNR prior to submission to the FERC.

8.0 PRODUCTS

This study will identify the potential impacts of project operation rule-curve change on existing populations of T&E species in the Lake Martin Project and at two sites on the Tallapoosa River downstream of the Thurlow Dam (between RM 10 and 49) as identified by USFWS. Data and analyses, including maps (both hard copy and electronic) from this study will be included in periodic reports to ADCNR, USFWS, and MIGs 1& 3². Draft reports will be distributed to the MIG 1&3 for review and comment upon completion of the product. Final reports will be provided for each product as part of the draft license application and will contain all necessary data in tabular and graphic form to depict T&E abundance and/or distribution within the Lake Martin Project.

9.0 SCHEDULE

This schedule corresponds to Alabama Power’s Process Plan and Schedule filed with FERC on February 16, 2009. Actual consultation meeting dates will be determined with MIG 1 members upon FERC approval of the study plan.

Alabama Power files Final Study Plan	March 2009
FERC Approval	April 2009
MIG 3 Consultation	May 2009 – December 2010
Review of Study 5 T&E Information.....	October 2009
Compare Model Data with.....	October – November 2009

² T&E location information is viewed as sensitive information and will not be distributed beyond state and federal agencies.

T&E Distribution data:

Initial Study Report.....	November 2009
Initial Study Report Meeting	December 2009
Draft Report	February 2010
Final Report	September 2010
FERC Updated Study Report	September 2010
Updated Study Report Meeting	September 2010

10.0 LEVEL OF EFFORT AND COST

Alabama Power estimates that consultation with the MIGs 1&3, comparison of the modeling data with the T&E distribution data, and analysis of the potential rule curve change at Lake Martin will cost approximately \$50,000.

11.0 REFERENCES

Alabama Power Company. 2008. Preliminary Application Document for the Martin Hydroelectric Project (FERC No. 349). Alabama Power Company, Birmingham, AL.