

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, DC 20426
April 17, 2009

OFFICE OF ENERGY PROJECTS

Project No. 349-150-Alabama
Martin Dam Hydroelectric Project
Alabama Power Company

Mr. Eugene B. Allison, Hydro General Manager
Alabama Power Company
600 North 18th Street
P.O. Box 2641
Birmingham, AL 35291

Reference: Study Plan Determination for the Martin Dam Hydroelectric Project

Dear Mr. Allison:

Pursuant to 18 CFR § 5.13(c) of the Commission regulations, this letter contains my study plan determination for Alabama Power Company's (Alabama Power) Martin Dam Project No. 349. This determination is based on staff's review of the revised study plan, comments made on the proposed and revised study plans, and other elements of the record.

Background

On November 17, 2008, Alabama Power filed a proposed study plan that included 21 studies on various resources and operations, including: fisheries (including a striped bass telemetry study); water quality; fish protection and passage; minimum flows; wildlife; threatened and endangered species; effects of proposed rule curve changes on various resources; erosion and sedimentation; shoreline management; nuisance aquatic plants and vector control; macroinvertebrates, historical and cultural resources; and recreation. On January 7, 2009, Alabama Power held a study plan meeting to discuss the proposed study plan.

Following the conclusion of the study plan meeting, Alabama Power revised the study plan and filed it with the Commission on March 18, 2009. Comments were filed on the study plan by the Alabama Department of Conservation and Natural Resources (Alabama DCNR), American Rivers and Alabama Rivers Alliance, the Lake Martin Homeowners and Boat Owners Association, Lake Martin Resource Association, U.S. Fish and Wildlife Service (FWS) and the World Wildlife Fund (WWF).

Study Plan Determination

Alabama Power's revised study plan filed on March 18, 2009, is approved, as modified by Appendix A, which describes the basis for the modifications. Appendix B contains a summary list of the approved and modified studies.

Geographic Scope

The geographic scope and analysis of effects proposed in your study plan are not consistent with staff's recommendation identified in Scoping Document 2 (SD2) for the Martin Dam Project issued on November 14, 2008. In SD2 staff stated that for fishery and water resources the geographic scope should extend from the upstream end of the project boundary, downstream to the project-affected waters below the Thurlow Development.¹

The Yates and Thurlow Project (P-2407) consists of two developments that are located downstream from the Martin Dam Project. The reservoir from the Yates Development extends upstream to the tailrace of the Martin Dam Project. The Thurlow Development is located downstream from the Yates Development and its reservoir backs up to the tailwaters of the Yates Development. The Yates and Thurlow Project operates in a run-of-river mode, passing the water released from the Martin Dam Project through it into the Tallapoosa River downstream from the Thurlow Development. The effects of peaking operation of the Martin Dam Project extends downstream from the Thurlow Development into the Tallapoosa River. However inadequate information has been provided by Alabama Power to make a determination exactly how far the Martin Dam Project's operational effects extend downstream in the Tallapoosa River below the Thurlow Development. In SD2 staff recommended that this issue be addressed as part of a study.

In proposed Study Plan 12 (e), you identified that Martin Dam operation-related effects occur downstream in the Tallapoosa River to the United States Geological Survey River Gage located at the Montgomery Water Works (located on the Tallapoosa River at River Mile 12.9). This reach includes 30 miles of river downstream from the Martin Dam Project and accounts for the principal effects of Martin Dam's operations downstream. The stream gage has 18 years of data to support an analysis of project related flows and stage elevations at this location. Accordingly, staff agrees that River Mile 12.9 is an appropriate ending point for the geographic scope to be evaluated in an

¹ The Thurlow Development is one of two developments (Yates is the second development) that comprise Alabama Power's Yates and Thurlow Project (P-2407).

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environmental document. Therefore, I conclude that you should integrate into the current Study Plan 12(e), measures that would quantitatively evaluate the degree to which peaking operation of the Martin Dam Project influences flows and stage elevations in the Tallapoosa River below Thurlow Dam to River Mile 12.9.

You have also indicated in several of the specific study plans (for example, in study plans 3, 5, 12(A), 12(D), and 12 (E), that you have extended the geographic scope of study for various resources to the mouth of the Tallapoosa River (to the Montgomery Water Works station). Based on the information available, I conclude that each study plan should utilize RM 12.9 as the geographic scope for determining what effects project operation has on fish and wildlife resources and water quality in project-affected waters.

If you have any questions, please contact Lee Emery at (202) 502-8379.

Sincerely,

J. Mark Robinson
Director
Office of Energy Projects

Enclosures: Appendix A, Study Request Issues
Appendix B, List of Approved Studies

cc: Mailing List
Public File

APPENDIX A – STUDY REQUEST ISSUES
Staff's Recommended Modifications to the Study Plan

Study Plan 2. Assessment of Fish Density and Species Composition Associated with Various Shoreline Types

This study would evaluate four different shoreline types to determine which physical shoreline structures and materials provide the most favorable refuge and aquatic habitats for aquatic species. These shoreline types determine the selection of measures that would protect shoreline and enhance fishery habitats. The study should be modified to include an evaluation of habitat for other aquatic and semi-aquatic species, such as amphibians and reptiles, using these four different shoreline habitat types. The survey length should be extended from April through September 15, if needed, as determined in consultation with the FWS and the Alabama DCNR, to capture usage of the sites by different life stages of aquatic and semi-aquatic organisms. The study should also be modified, at a minimum, to include identification of on-site aquatic vegetation, slope, morphometry, bottom soil types and substrates, and other physical site characteristics. These additional parameters and any others identified in consultation with the FWS and the Alabama DCNR, should be decided upon prior to initiating the study. Please file with the Director of Energy Projects, any new data parameters developed for the four study sites one week prior to initiating the study.

Study Plan 6. Striped Bass Telemetry Study

Determine Hooking Mortality on Striped Bass

I see no nexus between project operations and determining the hooking mortality on striped bass populations occurring in Lake Martin, which was one of three objectives identified for the *Striped Bass Telemetry Study*. Therefore, I am not requiring Objective 3—Hooking Mortality, be conducted as part of the *Striped Bass Telemetry Study*. Alabama Power can decide whether they wish to voluntarily conduct the hooking mortality effort. I approve the other two objectives identified as part of the *Striped Bass Telemetry Study* in *Study Plan 6*.

Study Plan 7. Wildlife Management Program

Study Plan 7, *Wildlife Management Program*, section 6.0, *Proposed Methodology*, should be modified to add the characterization and composition of riparian, wetland, and

littoral habitats within the project boundary to the list of GIS overlays and maps proposed by Alabama Power for the project.

Study Plan 10. Erosion and Sedimentation Study

In Study Plan 10, *Erosion and Sedimentation*, you propose to identify erosion hotspots along the shoreline of the Martin Dam Project's reservoir and immediately downstream of the project's tailrace. Alabama Power chose this study area because erosion hotspots related to project operations typically occur along the reservoir shoreline and immediately downstream of the tailrace.

In its comments on the revised study plan, the World Wildlife Fund (WWF) requested that the study area of the project be expanded to include erosion "hotspots" in the Tallapoosa River downstream from the Thurlow Development to the mouth of the Tallapoosa River. The WWF contends that project operations result in fluctuations in the Tallapoosa River, which in turn may contribute to erosion along the Tallapoosa River shoreline.

The project operations for the Martin Dam Project result in river fluctuations much further downstream than the Martin Dam Project tailrace. Flow releases from the project have been identified as affecting the shoreline of the Tallapoosa River downstream of Thurlow Development to RM 12.9. Therefore, to establish the project effects on erosion in the Tallapoosa River, the study area should be extended to RM 12.9 of the Tallapoosa River. The study should inventory the erosion hotspots (up to 10) that are to be assessed in Study Plan 12(D), *Effects of a Rule Curve Change on Lake and Downstream Erosion*, plus any others that are identified during the study inventory of the 30-mile-long stream reach.

Study Plan 12(G) Effects of Raising the Winter Pool Level and Increasing the Duration of Summer Pool on Lake Martin Recreation Use and Economic Indicators

In Study Plan 12 (G), you propose to study the effects of raising the winter pool level and increasing the duration of the summer pool on Lake Martin with respect to recreation use and economic indicators. Commission regulations² require us to treat recreation as a separate resource from socioeconomics. Therefore, I am requiring that the effects on each resource be studied independently, in separate studies.

² CFR § 5.6(d)(3).

As part of Study Plan 12 (G), section 1.0, *Goals and Objectives of Study*, the recreation use study should be modified to include only objectives 1, 2, and 5 regarding recreation use. The economics study should be modified to include only objectives 3 and 4 for recreation use, all six objectives for property values, and objectives 1 and 2 regarding lake-related business. Section 6.0, *Proposed Methodology*, should be modified to include Task I of Attachment A, Draft Scope of Work, for the recreation study and Tasks I, II, and III of Attachment A, Draft Scope of Work, for the economic study. I have presented below, the revised Study Plan 12(G), which becomes Study Plan 12(G) for recreation and Study Plan 12(H) for socioeconomics.

Revised Study Plan 12(G)—Effects of Raising Winter Pool Level and Increasing the Duration of Summer Pool on Lake Martin Recreation Use

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 the Martin Dam Project. In Study Plan 12 (A), Alabama Power proposes to conduct a study that would model an increase in the winter pool elevation in increments of 1 foot from elevation 481.0 feet (ft) mean sea level (msl)³ to 486.0 ft msl, as well as to examine extending the summer pool level in the shoulder seasons (later winter/early spring and early fall). Based on the modeling, Alabama Power would examine the effects on recreation use if these rule curve changes are implemented.

The objectives regarding recreation use are to:

1. estimate total recreational use of the lake, by month and by day type (weekday, weekend, holiday);
2. estimate recreational user characteristics (county of residence, activity participated in, shoreline property owner, etc.); and
3. estimate the effects of increasing the duration of the summer pool and increasing the elevation of winter pool on recreational use.

2.0 RELEVANT RESOURCE MANAGEMENT GOALS

³ Elevation 481.0 ft msl is equivalent to el. 480.0 Martin Datum (MD).

Fluctuating water levels at hydropower projects may affect resources associated with a hydroelectric project. Not only could fluctuating water levels affect the environmental resources (*i.e.*, fisheries, erosion, aquatic plants, etc.), they also affect recreation use. Many Lake Martin stakeholders have requested an examination of how a rule curve change at Lake Martin could potentially affect recreation visitation.

3.0 BACKGROUND AND EXISTING INFORMATION

Fishery Information Management Systems, Inc. (Fish Systems) conducted a study in the 1990's that estimated recreation visitation, trip expenses, distribution of recreation use, property values, and recreation-related business activity. Much of the information provided in the report (FIMS, 1997) is relevant to possible rule curve changes associated with the relicensing of the Martin Dam Project. The Fish Systems report will provide the basis for this study and will be used as a template for providing current effects of a possible rule curve change.

Furthermore, Alabama Power conducted a recreational use study in 2007 (Kleinschmidt, 2008) that provides recreational use patterns as well as an up-to-date inventory of on-the-water businesses at Lake Martin. However, this study was conducted during the drought of 2007, when the elevation of Lake Martin peaked at 487 ft msl (3 feet below the normal operating curve) and reached 481 ft msl (normal winter pool) by September 1, 2007 (when winter pool is normally reached on December 31). Nevertheless, this study could provide valuable information on the effects of reduced summer pool levels on recreation at the Project.

4.0 PROJECT NEXUS

The limit of the recreation study area is the Federal Energy Regulatory Commission (FERC) project boundary and general project vicinity.

5.0 STUDY AREA AND STUDY SITES

For the recreation use study, the study area is Lake Martin, from the dam to Irwin Shoals, including land-based recreation activity within 10 feet of summer pool level (491 ft msl).

6.0 PROPOSED METHODOLOGY

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Alabama Power proposes to examine the effects of a rule curve change on recreation use. This study will be performed by Southwick Associates. The methodology proposed by Southwick Associates is detailed in Attachment A of the revised study plan.

7.0 CONSISTENCY WITH GENERALLY ACCEPTED SCIENTIFIC PRACTICE

The methodologies outlined in Attachment A of the revised study plan are consistent with generally accepted survey and modeling techniques.

8.0 PRODUCTS

A draft report will be distributed to the MIG 3 for review and comment. A final report will be provided as part of the license application that will include a PDF copy of the literature/citations used in the report.

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 3 members upon FERC approval of the study plan.

Alabama Power files Final Study Plan	March 2009
Alabama Power request proposals for completion of study.....	November 2008
FERC Approval	April 2009
MIG 3 Meetings	May 2009 – Fall 2010
Initial Study Report.....	November 2009
Initial Study Report Meeting	December 2009
Data Collection	May 2009 – May 2010
Draft Report	Summer 2010
Final Report	Fall 2010
FERC Updated Study Report.....	September 2010
Updated Study Report Meeting	September 2010

10.0 LEVEL OF EFFORT AND COST

Alabama Power estimates the cost of conducting studies 12(G) and 12(H), including consultation with the MIG3, will be approximately \$500,000. For estimation purposes, FERC staff assumes the recreation study cost would be \$250,000.

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11.0 REFERENCES

Fishery Information Management Systems. 1997. Potential Impacts of Water Diversion on Recreational Use and Economic Values Associated with Six Alabama Reservoir Systems, Volume 6: The Martin Reservoir System. ADECA-OWR-97-07. Alabama Department of Economic and Community Affairs, Montgomery, AL.

Kleinschmidt. 2008. Martin Hydroelectric Project (FERC No. 349): Recreation Use Report. Kleinschmidt Associates, Pittsfield, ME.

New Study Plan 12(H)—Effects of Raising Winter Pool Level and Increasing the Duration of Summer Pool on Lake Martin Economic Indicators

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 Lake 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. msl⁴ 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 has agreed to examine the effects on property values and lake-related business sales if these rule curve changes are implemented.

There are multiple objectives associated with each component of the study. The objectives regarding recreation-related economics are:

1. estimate trip cost by various categories (e.g., fuel, food, bait, lodging, etc.);
2. estimate economic impacts (direct, indirect, induced, number of jobs) of recreational use;

The objectives regarding property values are to:

1. estimate characteristics of shoreline property owners and their property (e.g., shoreline footage, residence status [full or part time], recreational activities participated in from property);
2. estimate usability of shoreline structures (i.e., boat houses, docks) at various water levels;
3. estimate total value (current market value) of shoreline property;
4. estimate costs associated with construction and/or maintenance of houses and any shoreline structures (i.e., boathouse, docks, seawall);
5. estimate economic impact (direct, indirect, induced, number of jobs) of

⁴ Elevation 481.0 ft msl is equivalent to el. 480.0 Martin Datum (MD).

construction and/or maintenance costs; and

6. estimate the effects of increasing the duration of the summer pool and increasing the elevation of winter pool on shoreline property values.

Finally, the objectives regarding lake-related businesses are to:

1. estimate characteristics of business and business activity (e.g., on lake or off lake, type of business, length of time in business, months of operation, gross annual sales, etc.); and
2. estimate effects of increasing the duration of the summer pool and increasing the elevation of winter pool on business activity.

2.0 RELEVANT RESOURCE MANAGEMENT GOALS

Fluctuating water levels at hydropower projects may affect resources associated with a hydroelectric project. Not only could fluctuating water levels affect the environmental resources (*i.e.*, fisheries, erosion, aquatic plants, etc.), they also affect social and economic resources (recreation use, property values, etc.). Many Lake Martin stakeholders have requested an examination of how a rule curve change at Lake Martin could potentially affect property values and reservoir related businesses. This information will provide the Federal Energy Regulatory Commission (FERC) with necessary information regarding the social and economic impacts of the Project.

3.0 BACKGROUND AND EXISTING INFORMATION

Fishery Information Management Systems, Inc. (Fish Systems) conducted a study in the 1990s that estimated recreation visitation, trip expenses, distribution of recreation use, property values, and recreation-related business activity. Much of the information provided in the report (FIMS, 1997) is relevant to possible rule curve changes associated with the relicensing of Lake Martin. The Fish Systems report will provide the basis for this study and will be used as a template for providing current effects of a possible rule curve change.

Furthermore, Alabama Power conducted a recreational use study in 2007 (Kleinschmidt, 2008) that provides recreational use patterns as well as an up-to-date inventory of on-the-water businesses at Lake Martin. However, this study was conducted during the drought of 2007, when the elevation of Lake Martin peaked at 487 ft msl (3 feet below the normal operating curve) and reached 481 ft msl (normal winter pool) by

September 1, 2007 (when winter pool is normally reached on December 31). Nevertheless, this study could provide valuable information on the effects of reduced summer pool levels on recreation at the Project.

4.0 PROJECT NEXUS

The limit of the socioeconomic study area is the FERC project boundary and general project vicinity.

5.0 STUDY AREA AND STUDY SITES

For the shoreline property value component of the study, the study area is all shoreline property, defined as property that abuts Lake Martin at summer pool level (491 ft msl), from the dam to Irwin Shoals. For the lake-related business component, the study area will be limited to the three counties surrounding the Project (Coosa, Elmore, and Tallapoosa Counties).

6.0 PROPOSED METHODOLOGY

Alabama Power proposes to examine the effects of a rule curve change on property values and lake-related business sales. This study will be performed by Southwick Associates. The methodology proposed by Southwick Associates is detailed in Attachment A of the revised study plan.

7.0 CONSISTENCY WITH GENERALLY ACCEPTED SCIENTIFIC PRACTICE

The methodologies outlined in Attachment A of the revised study plan, are consistent with generally accepted survey techniques and economic modeling.

8.0 PRODUCTS

A draft report will be distributed to the MIG 3 for review and comment. A final report will be provided as part of the license application that will include a PDF copy of the literature/citations used in the report.

9.0 SCHEDULE

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10.0 LEVEL OF EFFORT AND COST

Alabama Power estimates the cost of conducting studies 12(G) and 12 (H), including consultation with the MIG3, will be approximately \$500,000. For estimation purposes, FERC staff assumes the socioeconomic study cost would be \$250,000.

11.0 REFERENCES

Fishery Information Management Systems. 1997. Potential Impacts of Water Diversion on Recreational Use and Economic Values Associated with Six Alabama Reservoir Systems, Volume 6: The Martin Reservoir System. ADECA-OWR-97-07. Alabama Department of Economic and Community Affairs, Montgomery, AL.

Kleinschmidt. 2008. Martin Hydroelectric Project (FERC No. 349): Recreation Use Report. Kleinschmidt Associates, Pittsfield, ME.

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APPENDIX B – APPROVED and MODIFIED STUDIES

Study Number	Study Description	Approved	Approved with Modifications	Final Report Due
1	Migratory Fish—Tallapoosa Basin Literature Review	X	---	May 2010
2	Assessment of Fish Density and Species Composition Associated with Various Shoreline Types	--	X	Feb. 2011
3	Evaluation of Minimum Flows Downstream of Martin Dam	X	--	May 2010
4	Fish Entrainment and Turbine Mortality	X	--	July 2010
5	Rare, Threatened, and Endangered Species Surveys	X	--	Sept. 2010
6	Striped Bass Telemetry Study	--	X	Sept. 2010
7	Wildlife Management Program	--	X	June 2010
8	Baseline Water Quality	X	--	Oct. 2010
9	Location of Regulated Discharges on Lake Martin	X	--	Jan. 2010
10	Erosion and Sedimentation	--	X	Dec. 2010
11	Water Quantity, Water Use, and Water Withdrawals	X	--	Dec. 2010
12 (A)	Rule Curve Change Modeling Analysis	X	--	May 2010
12 (B)	Effects of Rule Curve Change on Sedimentation Rates and Nuisance Aquatic Vegetation	X	--	Sept. 2010
12 (C)	Effects of Rule Curve Change on Water Quality	X	--	Oct. 2010
12 (D)	Effects of Rule Curve Change on Lake and Downstream Erosion	X	--	Dec. 2010
12 (E)	Effects of a Rule Curve Change on Federally Threatened and Endangered Species at the Martin Dam Project and in the Tallapoosa River Below Thurlow Dam	X	--	Sept. 2010
12(F)	Effects of a Rule Curve Change on Downstream Recreation	X	--	May 2010
12 (G)	Effects of Raising Winter Pool Level and Increasing the Duration of Summer Pool on Lake Martin Recreation	--	X	Fall 2010
12 (H)	Effects of Raising Winter Pool Level and Increasing the Duration of Summer Pool on Lake Martin Economic Indicators	--	X	Fall 2010
13	Shoreline Management Program	X	--	Jan. 2011
14	Recreation Plan	X	--	Dec. 2010
15	Cultural Resources Programmatic Agreement (PA) and Historic Properties Management Plan (HPMP)	X	--	Dec. 2010

Document Content(s)

P-349-150Letter3.DOC.....1-14