

Scoping Document 1

for the

Warrior River Project FERC No. 2165

Smith and Bankhead Developments

February 12, 2002

Prepared for

**Alabama Power Company
Birmingham, Alabama**

WARRIOR RIVER PROJECT (FERC No. 2165)

Scoping Document 1

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ACRONYMS AND ABBREVIATIONS

| | | |
|-------|---|----------------------------------------------------------|
| ACOE | - | Army Corp of Engineers |
| ACT | - | Alabama-Coosa-Tallapoosa |
| ADA | - | American with Disabilities Act |
| ADCNR | - | Alabama Department of Conservation and Natural Resources |
| ADEM | - | Alabama Department of Environmental Management |
| AL | - | Alabama |
| ALP | - | Alternative Licensing Procedures |
| APC | - | Alabama Power Company |
| APCA | - | Alabama Power Cooperative Approach |
| APEA | - | Applicant Prepared Environmental Assessment |
| CCRT | - | Coosa Cooperative Relicensing Team |
| CE | - | Coosa Ecological (when referencing issue statements) |
| CEQ | - | Council of Environmental Quality |
| CFR | - | Code of Federal Regulations |
| cfs | - | cubic feet per second |
| CR | - | Coosa Recreation (when referencing issue statements) |
| CWA | - | Clean Water Act |
| DO | - | dissolved oxygen |
| DEA | - | Draft Environmental Assessment |
| DEIS | - | Draft Environmental Impact Statement |
| EA | - | Environmental Assessment |
| EAP | - | Emergency Action Plan |
| ECPA | - | Electric Consumers Protection Act |
| EIS | - | Environmental Impact Statement |
| EPAct | - | Energy Policy Act |
| ESA | - | Endangered Species Act |
| FERC | - | Federal Energy Regulatory Commission |
| FPA | - | Federal Power Act |
| FPC | - | Federal Power Commission (predecessor of FERC) |
| ft | - | feet or foot |
| GIS | - | Geographic Information System |
| IAG | - | Issue Action Group |
| IIP | - | Initial Information Package |
| kW | - | Kilowatt |
| msl | - | mean sea level |
| MW | - | Megawatt |
| NEPA | - | National Environmental Policy Act |
| NGOs | - | Non-Government Organizations |
| NHPA | - | National Historic Preservation Act |
| NMFS | - | National Marine Fisheries Service |
| NWI | - | National Wetland Inventory |
| PDEA | - | Preliminary Draft Environmental Assessment |

| | | |
|--------|---|-----------------------------------------|
| pdf | - | Portable Document Format |
| PM&E | - | Protection, Mitigation and Enhancement |
| RAT | - | Resource Advisory Team |
| RecRAT | - | Coosa Recreation Resource Advisory Team |
| SD | - | Scoping Document |
| SHPO | - | State Historic Preservation Officer |
| USDA | - | United States Department of Agriculture |
| USFS | - | United States Forest Service |
| USFWS | - | United States Fish and Wildlife Service |
| WCRT | - | Warrior Cooperative Relicensing Team |

1.0 INTRODUCTION

Alabama Power Company (APC) operates three hydroelectric developments on the Warrior River, Alabama, under two licenses issued by the Federal Energy Regulatory Commission (FERC). The Warrior River Project license, which consists of the Smith and Bankhead¹ developments, is the subject of this document and this relicensing process. The Holt Project (FERC No. 2203) located downstream of Bankhead and near the City of Tuscaloosa, Alabama, has a license that expires on August 31, 2015, and is not included in this relicensing.

The operating license for the Warrior River Project expires in August 2007. In order for APC to continue operating the Project, APC must obtain a new operating license from FERC. Obtaining a new operating license requires APC to complete a multi-year application process and file a license application with FERC by July 31, 2005. This process is called relicensing.

Successfully completing the relicensing process involves identifying and resolving project issues in consultation with the many federal and state resource agencies, local and national non-governmental organizations (NGOs), home and boat owner associations, and individuals that have an interest in the Project. These entities and individuals are commonly referred to as “stakeholders”.

To encourage the participation of stakeholders, APC has developed a unique relicensing method called the Alabama Power Cooperative Approach (APCA). The APCA promotes and facilitates active participation of stakeholders in the process with the goal of resolving resource issues at the local level and presenting those resolved issues to FERC in a license application. The APCA is used for both developments on the Warrior River.

¹ The FERC license for Bankhead includes the powerhouse only. The dam and reservoir are owned and operated by the U.S. Army Corp of Engineers.

1.1 Regulatory Framework

Most non-federal hydroelectric projects in the United States are operated under licenses issued by FERC. The Federal Power Act (FPA) gives FERC the exclusive authority to issue licenses to construct, operate, and maintain certain non-federal hydropower projects. The Warrior River Project (FERC No. 2165) license was issued in 1957 and expires on August 31, 2007.

FERC must give equal consideration to power and non-power values when deciding how projects should be operated during the new license term, which is typically a period of 30 to 50 years. Non-power values include fish and wildlife, terrestrial resources, cultural resources, aesthetic and scenic resources, recreation, energy conservation, flood control, water use and quality and other environmental aspects.

Before FERC issues a new operating license, it must first complete an environmental review of the project pursuant to the National Environmental Policy Act of 1969 (NEPA). NEPA requires that FERC examine the Project's effects on the physical and human aspects of the environment and identify and analyze the various project alternatives and associated effects.

1.2 FERC's Relicensing Process

Alternative Licensing Procedures

The FPA requires that a licensee seeking to renew an operating license must submit an application to FERC two years prior to the expiration of the existing license. APC will submit one license application for the Smith and Bankhead developments on the Warrior River —on or before July 31, 2005. Developing this license application takes place during the relicensing process.

In October 1997, FERC issued new rules that provide hydro licensees with an option to relicense their project using regulations commonly known as “Alternative Licensing Procedures (ALP).” The ALP allows licensees to “customize” the relicensing process by combining the consultation, study and environmental review processes. Instead of waiting until the licensee files its license application, the environmental review required by NEPA and other federal and state statutory reviews is conducted before the licensee files the application with FERC.

The ALP also allows licensees to develop an applicant prepared environmental assessment (APEA) to file with the license application in lieu of the Environmental Report (License Exhibit E). The Exhibit E report summarizes the existing environment, the environmental studies, and the licensee’s proposed environmental protection, mitigation, and enhancement (PM&E) measures. The Exhibit E also includes agency and other stakeholders’ proposed PM&E measures, but does not typically include an analysis of these measures or a cumulative effects analysis. The APEA analyzes how the proposed operation and the proposed PM&Es will effect the project's environmental and economic resources and reasonable operating alternatives and then recommends an project operation and management plan that best balances power and non-power values. Scoping, an activity that FERC typically conducts once the application is filed, is conducted early in the ALP relicensing process.

Since the responsibility of the environmental review pursuant to NEPA ultimately rests with FERC, FERC conducts an independent evaluation once the APEA is filed. FERC will then issue its own NEPA document, which is either an Environmental Assessment (EA) or Environmental Impact Statement (EIS). EA and EIS documents produced by FERC’s Office of Energy Projects are very similar in their content, but the outline and presentation of information may vary slightly. The NEPA process at FERC, whether an EA or EIS document is produced, is the same: public scoping, thorough environmental and economic analysis, including cumulative effects, and public comment on the NEPA documents.

The ALP is designed to help licensees and stakeholders identify issues early and attempt to resolve them at the local level, *i.e.*, “local issues, local solutions.” The process encourages settlement agreements but must have stakeholders that are willing to work cooperatively with the licensee and each other to meet reasonable goals.

APC has worked with stakeholders to gain a consensus regarding the APCA, and filed its request to use an ALP on September 22, 2000. The request was approved by FERC on January 29, 2001. Both the request and FERC approval letters can be viewed on APC’s website at www.southerncompany.com/alpower/hydro.

1.3 The Alabama Power Cooperative Approach (APCA)

The APCA involves stakeholders throughout the process and includes early implementation of the NEPA process. The APCA promotes and facilitates early identification of issues and targets the eventual resolution of those issues. The APCA is used for the Warrior River Project.

The key elements of the APCA are: 1) educating stakeholders through outreach activities; 2) using an ALP and communication plan; 3) sharing project information through the Initial Information Packages (IIPs); 4) hosting Issue Identification Workshops; 5) forming Resource Advisory Teams and Cooperative Relicensing Teams; 6) conducting NEPA Scoping and applicable studies; 7) negotiating to resolve Project issues; and 8) filing a license application and APEA with FERC by July 31, 2005.

APC began scoping issues and identifying potential stakeholders and educating them about the process in January 1999. APC began the relicensing process by contacting federal, state, and local agencies, NGOs, and members of the public (both organized groups and individuals), to solicit support for using the ALP. In November 2000, APC also held informal scoping meetings open to the public, which were called Issue Identification Workshops. For these meetings, APC also issued press releases and public notices of Issue Identification Workshops for the Warrior River Project. During

the Issue Identification Workshops and follow up communications, all interested stakeholders were invited to work cooperatively with the licensee to address the issues. The Warrior Cooperative Relicensing Team (WCRT) was formed in January 2001 for the Warrior River relicensing. The WCRT membership includes APC, state, federal, and local agencies, as well as NGOs and homeowners representatives. The WCRT focuses on process issues and ecological and recreational issues at the project. Various Issue Action Groups (IAGs) were also formed to address specific ecological and recreational issues. IAGs are smaller groups that focus on specific resource issues, when deemed necessary by the WCRT (see Figure 1-1).

One on one meetings with stakeholders, Issue Identification Workshops, as well as the forming of relicensing teams and work groups has produced a thorough compilation of the issues related to relicensing the Warrior Project. Issues raised during these scoping activities were compiled into issue statements and distributed to all interested stakeholders. The issue statements (Appendix C) describe the issue, list questions raised about the issue, denote the geographic scope of analysis, existing information, information that is needed, and how the issue might potentially be resolved. These issue sheets are an important tool for working through the variety of issues and providing a mechanism to track progress on the issues on the Warrior Projects.

During 2000 and 2001, APC has hosted a total of six WCRT meetings to accomplish the following:

- introduce and establish consensus for using the ALP,
- develop the ground rules for working together,
- develop communication procedures,
- identify and document stakeholder concerns and interests,
- identify issues to be studied in relicensing,
- develop issue sheets that describe the issues in depth, and
- cooperatively develop study scopes to identify the approaches to be taken in studying the identified issues.

In addition to the WCRT meetings, APC has also hosted numerous IAG meetings to address specific issues via face-to-face meetings and conference calls. Appendix B provides a summary of all relicensing team meetings to date. Meeting summaries for all team relicensing meetings can be found on APC's website at www.southerncompany.com/alpower/hydro.

1.4 NEPA Scoping

NEPA scoping is a formal process required by FERC to identify issues and alternatives for analysis in the NEPA document. FERC will be responsible for organizing and conducting the NEPA scoping meetings with input and participation by APC and stakeholders. Because the Smith development includes lands of the United States Forest Service (USFS), the USFS has statutory authority to request conditions in the new license on those USFS lands affected by the Smith development. The USFS is also required by NEPA to conduct an analysis of its lands affected by the project or the issuance of special use permits. Therefore, the USFS could use this NEPA Scoping process to fulfill their requirements.

The purposes of NEPA scoping include:

- increasing participation of federal, state and local agencies, NGOs, home and boat owners associations and other interested individuals.
- identifying significant environmental, recreational and developmental issues related to the proposed actions and action alternatives.
- identifying and determining reasonable alternatives to be evaluated in an EA or EIS.
- determining the geographic scope and level of analysis for environmental, recreational and developmental resources for evaluation in the EA or EIS.
- identifying issues that do not need detailed study or analysis.

Because of the degree of stakeholder participation and public outreach that has been conducted, many of the issues and some alternatives have been identified, as presented in Section 5.0 of this document.

After the needed studies are complete, the WCRT, with public participation and input, will work to reach agreement on project operations and future management that will be presented as the “Preferred Alternative” in the NEPA document. APC will prepare its draft license application and APEA. The draft application will be distributed to all stakeholders for review and comment. APC will revise the application and APEA based on comments and further negotiations, and file it with FERC by July 31, 2005.

It is APC’s goal that the license application and APEA reflect Project operations and management practices, as well as protection and enhancement measures, that are supported by all stakeholders.

FERC will review the license application and NEPA document to be sure it meets FERC regulations. FERC will issue a public notice requesting final terms, conditions, prescriptions, and recommendations from resource agencies and other stakeholders and invite parties to intervene in the process. Intervening in the FERC process means that an agency, organization or individual officially requests (in written form) party status in the process, which guarantees that they will be notified of any official meetings between FERC and other parties in the relicensing process and receive copies of official correspondence. Receiving "Intervenor" status also grants those entities other recognized rights in the FERC process. A stakeholder may not officially intervene in the process until after the license applications and NEPA documents have been filed with FERC.

Once FERC receives final recommendations, FERC staff will prepare their NEPA document (either an EA or EIS) and issue it for a public comment, usually within 30 to 45 days. FERC will incorporate comments and issue a final EA followed by the license order, which will contain the terms of the new license. If FERC issues an EIS rather than an EA, there will be at least a thirty-day period between any EIS and order.

If an ALP process is used and agreement regarding project operation and PM&E measures is achieved between APC and stakeholders, the time from the conclusion of the relicensing and NEPA process to the issuance of a new license should take no longer than one year. This should ensure that a new license will be received on or before the current license expires. If a new license is not granted to APC prior to expiration of the existing license, APC will continue to operate the project under the terms and conditions of their existing license.

1.5 NEPA Scoping Meeting

The purpose of the NEPA scoping meeting is to capture any additional issues and public input in order to further refine this process and move forward in resolving the issues. APC, federal, state, and local agencies, NGOs, home and boat owners associations, and other individuals have spent many hours discussing, refining and developing recommendations for these issues. Therefore, potential attendees and other interested parties are strongly encouraged to review the attached issue sheets prior to the scoping meeting.

FERC will hold a NEPA Scoping meeting on March 12th from 7 to 9 PM in Birmingham, AL. All interested parties are invited to attend the meeting to further define and scope the issues related to the Warrior River relicensing.

Interested parties who choose not to speak, or are unable to attend these meetings, may provide written statements, comments or information no later than 30 days following this Public Scoping Meeting. All comments should be filed with FERC with a copy transmitted to APC. All correspondence sent to FERC should be addressed to Magalie Roman Salas with a copy to Ron McKitrick.

Ms. Magalie Roman Salas, Secretary
888 First Street, N.E.
Washington, DC 20426

Mr. Ron McKitrick
3125 Presidential Pkwy
Atlanta, GA 30340

All correspondence sent to APC should be addressed to either Jim Crew for ecological issues or Barry Lovett for recreation and land use issues.

Ecological Issues

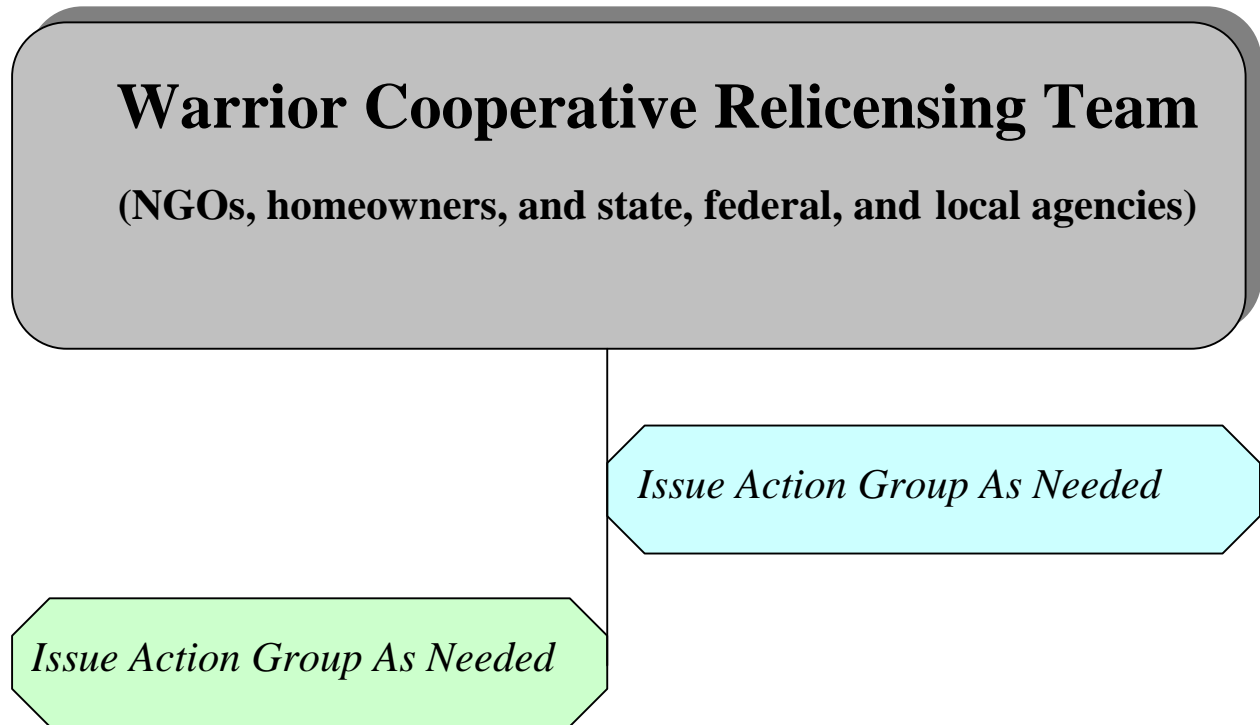
Jim Crew
600 North 18th Street
P.O. Box 2641
Birmingham, AL 35291

Recreational/Land Use Issues

Barry Lovett
600 North 18th Street
P.O. Box 2641
Birmingham, AL 35291

Opportunities to visit the various developments on the Warrior River will occur during 2002 in conjunction with IAG and WCRT meetings. These meetings will be posted on the website. If you are interested in site visits, please contact Viki Jenkins at APC to be notified when these site visits are scheduled.

Figure 1-1 Structure of the Warrior Relicensing Teams



2.0 BACKGROUND

APC has developed a website, which facilitates the dissemination of relicensing information to stakeholders, the general public, and FERC. The web address for this site is:

<http://www.southerncompany.com/alpower/hydro/>

This website contains information related to every aspect of the Warrior River's relicensing. All documents generated as part of the relicensing process will be placed on the site in Adobe Acrobat PDF format to allow anyone with an Internet connection a way to view and print these documents.

The following is a list of major items of interest on the website:

- Relicensing Process
 - FERC relicensing
 - NEPA scoping
 - Alabama Power Cooperative Approach
- Public Information File lists and request instructions
- Warrior River Project Information
 - Operations descriptions for both developments
 - ALP request and approval letters
 - Initial Information Package
 - Mission Statements (WCRT)
 - Team information
 - Meeting packages (pre-meeting mailouts)
 - Meeting summaries
 - News/Press releases
 - Calendar of Events

- Contact information
 - APC
 - FERC
 - WCRT member lists

The above documents can also be obtained by contacting Ms. Viki Jenkins at (205)-257-2211 or vrjenkin@southernco.com.

2.1 Project Description

Table 2-1 Summary of major project features for the Warrior River Project

| DESCRIPTION | Number or Fact |
|----------------------------------------------------------|--------------------------------------------------------------------|
| SMITH | |
| FERC No. | 2165 |
| Type of Project | Storage |
| Licensed Capacity | 157,500 kw |
| Estimated Average Annual Generation (1/1/90 to 12/31/99) | 282,864 MWh |
| Number of Units | 2 |
| Project Location | Counties of Winston, Walker, Cullman; 443 river miles above Mobile |
| Pool Elevations: | |
| Maximum | 522 ft msl |
| Normal | 510 ft msl |
| Minimum | 496 ft msl |
| Length of Impoundment | 35 miles |
| Total Area Encompassed by Existing Project Boundary | 26,823 acres |
| Acres of Water Within Existing Project Boundary | 21,200 acres |
| Acres of Mainland Within Existing Project Boundary | 5,623 acres |
| Miles Shoreline at 510 ft msl | 500 miles |
| BANKHEAD | |
| FERC No. | 2165 |
| Type of Project | Peaking |
| Licensed Capacity | 53,550 kw |
| Estimated Average Annual Generation (1/1/90-12/31/99) | 180,230 MWh |
| Number of Units | 1 |
| Project Location | County of Tuscaloosa; 366 river miles above Mobile |
| Pool Elevations: | |
| Normal | 255 ft msl |
| Length of Impoundment | 77.8 miles |
| Total Area Encompassed by Existing Project Boundary | 126 acres |

| | |
|----------------------------------------------------|-----------|
| Acres of Water Within Existing Project Boundary | 0 acres |
| Acres of Mainland Within Existing Project Boundary | 126 acres |
| Miles Shoreline at 255 ft msl | 400 miles |

2.2 Project Operations

2.2.1 Smith development

Typical Operations

APC operates the Smith development principally to produce peaking power. From early April through the end of June the lake is operated near the normal full pool level of el. 510 ft above mean sea level (msl). Drawdown begins in early July and ends in late November near the winter pool level of 496 ft msl. The winter pool level is maintained until January 31, and the lake is refilled from early February through the end of March. The plant normally schedules power operations on the basis of system demands and availability, seeking to keep the pool at or below el. 510 ft msl at all times except during flood conditions. Power generation may be restricted during periods of downstream flooding and may be increased to release flood control storage within the limitations described below.

Flood Control Operations

The lake's flood control pool is from el. 510 to 522 ft msl and provides 280,600 acre-ft of storage. This volume is equivalent to 5.6 inches of runoff from the drainage area and is sufficient, within the prescribed plan of operation, to contain the runoff from the flood of March 15 through 18, 1951, the maximum of record at the site prior to the beginning of construction. Smith Lake is typically lowered to near el. 496 ft msl during the winter which can result in additional flood storage.

Operations for flood control are based on the following requirements: The storage space between elevations 510 and 522 ft msl is available for flood control use.

During flooding when reduction of flow is necessary in view of downstream conditions, outflows are to be restricted as specified by the Army Corps of Engineers (ACOE) regulation plan down to but not lower than 2,100 acre-feet each 24-hour period.

After passage of the flood peak downstream, the flood storage is to be emptied as soon as reasonable and practicable by discharge up to full plant capacity each 24-hour period when the pool is at or above el. 513 ft msl and up to one-half of plant capacity each 24-hour period when the pool is between el. 513 and el. 510 ft msl.

The ACOE regulation plan will be followed unless special instructions are issued by the district engineer through the Reservoir Regulation Section of the Planning and Reports Branch.

Low Water Operations

During periods of low inflows downstream, the Smith development releases water for the benefit of navigation. The development is expected to contribute a daily average of 245 cubic feet per second (cfs) to downstream inflows during those dry periods.

Nonpower Operations

In addition to power production, Smith provides other benefits to the immediate vicinity and region including recreational and environmental enhancements.

In the spring, operators at Smith stabilize lake levels during bass spawning. After notification by the Alabama Department of Conservation and Natural Resources (ADCNR), the lake level is held constant or slightly rising for a period of 14 days provided the level remains below 510 ft msl. This action enhances fish spawning habitats in the lake.

Although the ACOE has the right to request operators at Smith release water for navigation, special releases for this purpose are not frequently required. Normal power releases, combined with other inflow to Bankhead Lake, are usually sufficient for navigation purposes. However, additional flow may be required during periods of extreme drought, after floods (if shoaling occurs in the upper reaches of Bankhead Lake), and during any extended drawdown of Bankhead Lake.

For a more detailed description of project operations at the Smith development, see the Project Operations and Management (Section 3.0) in the [Smith - Bankhead Initial Information Package](#).

2.2.2 Bankhead development

Typical Operations

APC operates the Bankhead powerhouse principally to produce peaking power, either locally or remotely from the Alabama Control Center (ACC) in Birmingham. The ACC monitors APC's electrical system and directs the generation schedule. The plant may be brought on line at any time to most effectively meet system load requirements. Usable storage of 26,000 acre-ft is provided by an allowable daily drawdown of 3 ft to el. 252 ft above msl. The normal tailwater elevation is 186.5 ft msl, providing 68.5 ft of gross head at normal full pool.

The Bankhead development is operated as a run-of-river project which means that whatever water enters the lake each day is released that same day. The unit in the powerhouse is operated daily to maintain the proper lake elevation while generating electricity during the peak use times. When high inflows to the lake exceed turbine discharge capacity, APC notifies the ACOE lock operator that spillway gates should be opened. The lock operator raises the required spillway gates to manage the proper lake elevation. When the high inflows decrease, the spillway gates are closed and the water level is managed by turbine releases.

Flood Control Operations

All flood routing and spillway operations for the Bankhead Dam are the responsibility of the ACOE. The ACOE notifies APC of all planned flood control operations. The flood of record for the facility occurred in April 1979 with a peak daily flow rate of 143,000 cfs. During this event, plant flow was 9,000 cfs and peak spillway flow was 162,300 cfs, for a total peak flow of 171,300 cfs.

Low Water Operations

Because the Bankhead development is a run-of-river project, water releases during low inflow conditions are equal to inflow. The lack of seasonal storage prevents the development from making sustained releases in excess of inflows.

Nonpower Operations

The Bankhead powerhouse does not perform any nonpower operations. For a more detailed description of operations at the Bankhead development, see the Project Operations and Management (Section 3.0) in the [Smith - Bankhead Initial Information Package](#)

3.0 ***PROPOSED ACTION***

The federal “action” is the proposed relicensing of the Warrior Project.

3.1 Alabama Power’s Proposal

In general, APC’s proposal is for the continued operation of the Project in accordance with existing guidelines for operations. During the course of this process and in cooperation with stakeholders, APC proposes to identify project-related recreational, environmental and developmental issues and, if necessary, conduct studies to address these issues. In order to obtain a new license for the continued operation of the Project, APC will consider and may propose reasonable and appropriate PM&E measures to project-related resources, including facilities, changes to operations, and environmental enhancements.

3.2 Other Alternatives for Continued Project Operations

To date, APC and stakeholders have not developed specific alternatives for continued operation of the Project to evaluate in the PDEA. Stakeholders have identified issues relative to existing project operation. These issues are currently being discussed and recommendations will be made for various alternatives. Once the team decides upon the specific alternatives, these will be evaluated in the PDEA.

3.3 No-Action Alternative

Under the no-action alternative the Warrior River Project would continue to operate under the terms of the existing FERC license. No new environmental, recreational or other PM&E measures would be implemented in this alternative. The no-action alternative serves as the baseline condition for all resources from which proposed actions are evaluated.

3.4 Alternatives and Issues Considered but Eliminated from Further Study

This section discusses issues that have been raised and discussed during Team meetings and that have been eliminated from a detailed analysis in the EA or EIS. Items that may be included in this section are federal government takeover, nonpower license, and decommissioning.

4.0 ***SCOPE AND ANALYSIS OF ENVIRONMENTAL RESOURCE ISSUES***

4.1 Cumulative Effects

The Council of Environmental Quality's (CEQ) regulations (40 CFR 1508.7) implementing NEPA define cumulative effects as: the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other action. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time and include hydropower and other land and water activities.

For example, cumulative effects of water quality might include discussing how the water quality of the Warrior River is affected by point and non-point sources (water withdrawals on the reservoir, cattle or feed lots adjacent to the water, agricultural practices, mining, *etc.*) above Smith dam, as well as looking at the affects of the operation of the project. The idea of cumulative affects is to make the public aware of the role other activities have in adversely or beneficially affecting the resource.

4.1.1 Geographic Scope

The geographic scope of the environmental analysis defines the physical limits or boundaries of the Proposed Action's effects on the specific resource. Because the Proposed Action affects some of the resources differently, the geographic scope for the different resources varies. The geographic scope of analysis for each resource is being defined in consultation with the stakeholders in this process and, where identified thus far, is listed on the issue sheets.

The geographic scope of analysis for cumulatively affected resources is defined for the Warrior River relicensing by the physical limits or boundaries of: (1) the Proposed

Actions' effects on recreational and environmental resources, and (2) contributing effects of other hydropower and non-hydropower activities within the Warrior River Basin.

4.1.2 Temporal Scope

The Temporal Scope for the Warrior River relicensing will include an analysis of past, present, and relatively foreseeable future actions and their effects on each resource that could be cumulatively affected. The baseline for the analysis will be defined as the conditions of the river basin beginning at the end of project construction. Pre-project conditions will not be analyzed, but existing data, when available, may be used for analysis. Complying with the new licenses, we will look into actions that are reasonably foreseeable for 30 to 50 years. For example, if we know of two additional water withdrawal requests, we would discuss these projects briefly and attempt to anticipate the possible effects as a result of the new water withdrawals. However, we must recognize that projecting data and possible actions and effects that far in the future will be difficult.

5.0 ***ISSUES IDENTIFIED & ISSUE SHEETS***

5.1 Resource Issues Identified for Analysis in the EA

Through extensive stakeholder participation between 1999 and the present, various ecological and recreational issues have been identified. Using stakeholder input we have designed “Issue Sheets”, which attempt to categorize the issues of similar concern. The “Issue Sheets” describe a statement of the issue, the geographic scope of analysis, any specific issues, requests or information about the issue and provide a placeholder for the resolution of the issue. The Warrior River Issue Sheets can be found in Appendix C.

The following is a list of “Issue Statements” that address the major issues identified by stakeholders. These statements are separated into Warrior recreational (WR) and Warrior ecological issues (WE). These issues will be discussed in the following resource areas:

1. Aquatic Resources
2. Terrestrial Resources
3. Cultural Resources
4. Recreation Resources
5. Land Use Resources

Aquatic Resources

- **Point Source and Non-point Source Pollution** (WE1) – Effects of the various sources of pollution (*e.g.*, both point, non-point, trash, *etc.*) that originate within the Warrior Basin on the water quality of the lakes and rivers of the project study area.
- **Erosion and Siltation** (WE2) – Effect of the existing (and estimated future) levels of erosion and siltation within the Warrior Basin on the public uses and water quality of the lakes and rivers in the project study area.
- **Water Quality in Lakes, Rivers, and Tributaries** (WE3) – Effect of current project operations on the water quality of the project study area.
- **Water Quantity, Water Use, and Water Withdrawals** (WE4) – Effect of current water uses in the Warrior Basin (water withdrawals, drought/flood operations, navigation flow requirements, *etc.*) on the aquatic resources of the project study area.
- **Toxins** (WE5) - Effect of toxins (*e.g.*, mercury and other heavy metals) in the Warrior Basin on the aquatic resources of the project study area.

- **Threatened & Endangered Species (T&E) (WE6)**– Effect of project operations on threatened, endangered, or sensitive species (aquatic and terrestrial) that inhabit the project study area.
- **Exotic Species and Aquatic Plant Management Program (WE7)** – Effectiveness of the existing programs (both APC and non-APC) for controlling exotic species, nuisance aquatic vegetation, and vectors (mosquitoes) in the project study area.
- **Lake Levels Fluctuations (WE8)** - Effect of project-related lake level fluctuations on the aquatic resources of the project study area
- **Ecological Habitat Fragmentation (WE9)** – Effect of habitat fragmentation of the rivers and tributaries within the project study area related to the construction of Smith Dam and the operation of the Smith and Bankhead reservoirs on the aquatic resources of the project study area.
- **Project Releases (WE10)** – Effect of altered hydrology on the aquatic resources of the project study area (*i.e.*, tailwater areas below each powerhouse).
- **Entrainment & Impingement (WE11)** – Effect of fish impingement, entrainment, and turbine mortality/injury at each of the project powerhouses on the aquatic resources of the project study area.

Terrestrial Resources

- **Threatened & Endangered Species (T&E) (WE6)** – Effect of project operations on threatened, endangered, or sensitive species (aquatic and terrestrial) that inhabit the project study area.
- **Exotic Species and Aquatic Plant Management Program (WE7)** – Effectiveness of the existing programs (both APC and non-APC) for controlling exotic species, nuisance aquatic vegetation, and vectors (mosquitoes) in the project study area.
- **Wetlands (WE12)** – Effect of project operations on wetlands within the project study area.
- **Wildlife Management Plan (WE13)** – Management of the aquatic and terrestrial resources within the project study area.

Cultural Resources

- **Cultural Resources (WR7)** – Potential impact of the project and/or project operations on cultural resources, including historic and prehistoric properties.

Recreation Resources

- **Recreation Management (Access, Facilities, and Use) (WR1)** - Ability of project lands and waters (including existing recreation facilities and access) to accommodate current and future recreation demand while protecting public safety and the environment.
- **Public Safety (WR2)** - Effect of project facilities, operations, and/or uses on public safety.
- **Lake Level Fluctuations (WR3)** - Effects of project operations and lake level fluctuations on lake oriented and tailwater recreation access and use.
- **Downstream Flows (WR4)** – Impact of downstream releases on tailwater and lake-oriented recreation opportunities.

- **Flood Control (WR5)** – Impact of potential operational changes for recreation or other resource protection on downstream flood protection and the potential impact of flood control measures on recreation.
- **Federal Lands & Waters (WR9)** - Potential impact of the project on federal lands including, but not limited to designations, such as Wilderness Areas and Wild and Scenic Rivers.

Land Use Resources

- **Shoreline Development (WR6)** – Management and enforcement of shoreline development to protect public safety, access, aesthetics, terrestrial and aquatic habitats, and other resource values.

Other

- **Public Education (WR8)** – Identify existing and potential opportunities that promote increased public education regarding the project, recreation opportunities, public safety, and conservation of natural resources, including interpretive opportunities.
- **Energy Conservation Program (WE14)** – Identify customer incentives and technological developments that could decrease the demand for electricity.

5.2 Proposed Studies

Proposed studies are being discussed with the WCRT.

6.0 ENVIRONMENTAL ASSESSMENT

6.1 PDEA and License Application Preparation Schedule

APC will work with the WCRT to prepare the PDEA. This document will be distributed to all interested parties, including those individuals and agencies on the FERC mailing list, as well as all team members and other stakeholders on APC's mailing list. The FERC will publish a notice, as soon as, 30-60 days after the application is filed requesting final terms and conditions, recommendations, and prescriptions. Figure 6-1 shows target milestone dates for preparation of the EA and notice.

6.2 Proposed PDEA Outline

The preliminary draft outline for the Warrior River Project EA is as follows:

Executive Summary

I. Application

II. Purpose and Need for Power

- A. Purpose of Action
- B. Need for Power
- C. Scope of EA
 - 1. Geographic Scope
 - 2. Temporal Scope

III. Proposed Action and Alternatives

- A. Project Descriptions
- B. Description of Current Project Operations
- C. Proposed Actions
- D. Alternatives to the Proposed Actions
 - 1. Proposed Action with Additional Measures
 - a. Mandatory Conditions

- b. Agency Recommendations
- c. Additional Staff Recommendations

- E. No-Action
- F. Alternatives Considered but Eliminated from Further Consideration
- G. Economic Comparison of Alternatives

IV. Affected Environment

- A. General Description of the Warrior Basin
- B. Project Interaction and Cumulative Effects
- C. Site Specific Resources
 - 1. Aquatic Resources (water quality, quantity, fisheries, geology and soils)
 - 2. Terrestrial Resources
 - 3. Cultural Resources
 - 4. Recreation Resources (this section will include Socioeconomic resources)
 - 5. Land Use Resources (this section will include Aesthetic resources)

V. Environmental Consequences

- A. Proposed Actions
 - 1. Aquatic Resources
 - 2. Terrestrial Resources
 - 3. Cultural Resources
 - 4. Recreation Resources
 - 5. Land Use Resources
- B. Alternatives to the Proposed Actions
 - 1. Aquatic Resources
 - 2. Terrestrial Resources
 - 3. Cultural Resources
 - 4. Recreation Resources
 - 5. Land Use Resources
- C. No-Action
 - 1. Aquatic Resources

2. Terrestrial Resources
3. Cultural Resources
4. Recreation Resources
5. Land Use Resources

- D. Compliance and Relationship to Laws and Policies
- E. Unavoidable Adverse Effects
- F. Irreversible and Irretrievable Commitment of Resources

VI. Developmental Analysis

- A. Power and Economic Benefits
- B. Cost of Environmental Protection, Mitigation, and Enhancement Measures
- C. No-Action
- D. Pollution Abatement

VII. Comprehensive Development and Recommended Alternatives

- A. Recommended Alternative
- B. Conclusion

VIII. Literature Cited

IX. List of Preparers

Appendix A
Glossary

GLOSSARY

| | |
|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| acre-foot | The amount of water it takes to cover one acre to a depth of one foot, 43,560 cubic feet or 1,233.5 cubic meters |
| Alternative Licensing Procedures (ALP) | The ALP allows licensees to “customize” the relicensing process by combining the consultation, study and environmental review processes. |
| anadromous fish | Fish that live in saltwater habitats most of their lives, but periodically migrate into freshwater to spawn and develop to the juvenile stage (e.g., alewife). |
| Applicant Prepared Environmental Assessment (APEA) | The ALP process allows licensees to file an APEA with the license application in lieu of the Environmental Report (License Exhibit E). The APEA analyzes how the proposed operation and the proposed PM&Es will effect the project’s environmental, operational, economic resources and recommends a project operation and PM&E management plan that best balances power and non-power values. |
| aquatic life | Any plants or animals which live at least part of their life cycle in water. |
| baseline | A set of existing environmental conditions upon which comparisons are made during the NEPA process. |
| bypass reach | The original water channel of the river that is directly affected by the diversion of water though the penstocks to the generating facilities. This portion of the river, the “bypassed reach” may remain watered or become dewatered. |
| capacity | The load for which an electric generating unit, other electrical equipment or power line is rated. |
| catadromous fish | Fish that live in freshwater most of their lives, but periodically migrate to the sea to spawn (e.g., American eel). |
| conservation | A process or program designed to increase the efficiency of energy and water use, production, or distribution. |
| cubic feet per second (cfs) | A measurement of water flow representing one cubic foot of water moving past a given point in one second. One cfs is equal to 0.0283 cubic meters per second and 0.646 mgd. |
| cultural resources | Includes items, structures, etc. of historical, archaeological, or |

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|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | architectural significance. |
| cumulative impacts | The effect on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseen future actions. Can result from individually minor but collectively significant actions taking place over a period of time. |
| dam | A structure constructed across a water body typically used to increase the hydraulic head at hydroelectric generating units. A dam typically reduces the velocity of water in a particular river segment and increases the depth of water by forming an impoundment behind the dam. It also generally serves as a water control structure. |
| dissolved oxygen (DO) | Perhaps the most commonly employed measure of water quality. Low DO levels adversely affect fish and other aquatic life. The total absence of DO leads to the development of an anaerobic condition with the eventual development of odor and aesthetic problems. |
| drawdown | The distance the water surface of a reservoir is lowered from a given elevation as the result of releasing water. |
| emergent aquatic vegetation | Plants rooted in substrate covered by shallow water (of up to 6.6 ft depth), with most of the parts out of the water. |
| energy | Average power production over a stated interval of time, expressed in kilowatt-hours, megawatt-hours, average kilowatts and average megawatts. |
| Environmental Assessment (EA) | An environmental review document prepared pursuant to NEPA to determine if there is a finding of significant impact from a particular action. |
| Environmental Impact Statement (EIS) | An environmental review document prepared under NEPA to determine the environmental impact of a specific action. A Draft Environmental Impact Statement (DEIS) is prepared and circulated for public comment. After incorporation of public comments, a Final Environmental Impact Statement (FEIS) is published. |
| Federal Energy Regulatory Commission (FERC) | The governing internal regulatory federal agency responsible for overseeing the licensing/relicensing and operation of hydroelectric projects in the United States. |

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| Federal Power Act (FPA) | Federal statute enacted in 1920 that established the Federal Power Commission (now FERC) and the statutes for licensing hydroelectric projects. |
| Federal Power Commission (FPC) | Predecessor of FERC |
| Federal Register | A publication of the Federal Government that includes official transactions of the U.S. Congress, as well as all federal agencies such as FERC. Copies of the Federal Register are usually available at large public and university libraries. |
| flow | The volume of water passing a given point per unit time. |
| generation | The process of producing electricity from other forms of energy, such as steam, heat, or water. Refers to the amount of electric energy produced, expressed in kilowatt hours. |
| habitat | The locality or external environment in which a plant or animal normally lives and grows. |
| hydraulic | Relating to water in motion. |
| hydroelectric plant | A facility at which the turbine generators are driven by falling water. |
| hydroelectric power | Capturing flowing water to produce electrical energy. |
| hydroelectric project | The complete development of a hydroelectric power site, including dams, reservoirs, transmission lines, and accessories needed for the maintenance and operation of the powerhouse and any other hydroelectric plant support facilities. |
| impoundment | The body of water created by a dam. |
| Initial Information Package (IIP) | A document containing detailed information on a hydroelectric project; the document is used to describe the project and its resources and to start the applicant's consultation process with resource agencies and the public. |
| license | FERC authorization to construct a new project or continue operating and existing project. The license contains the operating conditions for a term of 30 to 50 years. |
| maximum drawdown elevation | The lowest surface elevation to which a reservoir can be lowered and still maintain generation capability. This is usually |

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|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | somewhat lower than the minimum operating elevation. |
| maximum normal operating elevation | The maximum surface elevation to which the reservoir can be raised without surcharging or exceeding the license provisions. |
| minimum normal operating elevation | The lowest elevation to which a reservoir is normally lowered during power generation operations. Below this point power output and generation efficiency is significantly impacted. |
| National Environmental Policy Act (NEPA) | A law passed by the U.S. Congress in 1969 to establish methods and standards for review of development projects requiring Federal action such as permitting or licensing. |
| Non-Governmental Organizations (NGOs) | Local, regional and national organizations such as conservation, sportman's or commerce groups. |
| normal operating elevation | The reservoir elevation approximating an average surface elevation at which a reservoir is kept. |
| normal operating elevation range | The elevation difference between the normal maximum and normal minimum operating elevations. |
| off peak | A period of relatively low demand for electrical energy, such as the middle of the night. |
| on peak | A period of relatively high demand for electrical energy. |
| outage | The period during which a generating unit, transmission line, or other facility is out of service. |
| peaking operations | A powerplant that is scheduled to operate during peak energy demand. |
| ponding operations | The process of storing and releasing water based on electric demand or flood control. |
| peak demand | A one hour period in a year representing the highest point of customer consumption of electricity. |
| Plenary group | A group consisting of stakeholder representatives and APC to assist in decision making on the Coosa Warrior relicensing. |
| pool | Refers to the reservoir (impounded body of water). |
| powerhouse | The building that typically houses electric generating equipment. |

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| power pool | A regional organization of electric companies interconnected for the sharing of reserve generating capacity. |
| Preliminary Draft Environmental Assessment (PDEA) | A draft NEPA document prepared by the licensee pursuant to 18 CFR 4.31 (I). |
| Project area | APC lands and waters within the project boundary. |
| project boundary | A line established by the FERC to enclose the lands, waters and structures needed to operate a licensed hydroelectric project. |
| Project vicinity | Lands and waters within which studies were conducted for baseline environmental data. These lands and waters include the Project area. |
| relicensing | The administrative proceeding in which FERC, in consultation with other federal and state agencies, decide whether and on what terms to issue a new license for an existing hydroelectric project at the expiration of the original license. |
| reservoir | An artificial lake into which water flows and is stored for future use. |
| resident fish | Fish that spend their entire life cycle in freshwater, such as trout and bass. |
| Resource Advisory Team (RAT) | Groups consisting of stakeholders and APC designed to identify studies and work cooperatively to develop study scopes, review and comment on information and provide recommendations on project operations and protection and enhancement measures to the Plenary Group. |
| resource agency | A federal, state, or interstate agency with responsibilities in the areas of flood control, navigation, irrigation, recreation, fish or wildlife, water resource management, or cultural or other relevant resources of the state in which a project is or will be located. |
| riparian area | A specialized form of wetland with characteristic vegetation restricted to areas along, adjacent to or contiguous with rivers and streams. Also, periodically flooded lake and reservoir shore areas, as well as lakes with stable water. |
| river miles | Miles from the mouth of a river; for upstream tributaries, from the confluence with the main river. |

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|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| run | A general term referring to upriver migration of anadromous fish over a particular time and area – often composed of multiple individual breeding stocks. |
| run-of-river | A term used to describe the operation of a hydroelectric project in which the quantity of water discharged from the project essentially equals the flow in the river. |
| Scoping Document 1 (SD1) | A document prepared by FERC as part of NEPA environmental review that initially identifies issues pertinent to FERC's review of a project. FERC circulates the SD1 and holds a public meeting to obtain the public's comment. |
| Scoping Document 2 (SD2) | A revision to SD1 which takes into account public comment on that document. |
| shoaling | Shoaling is a process that typically occurs when high flows redistribute sand, silt, and gravel within the river system. This redistribution often results in sand, silt, and gravel bars that can impede navigation. Shoals are most notable during low flow periods but are not formed during those periods. |
| spawn | The act of fish releasing and fertilizing eggs. |
| stakeholders | Entities and individuals that have an interest in the Projects. The stakeholders may include, federal and state resource agencies, local and national non-governmental organizations, home and boat owner associations, and individuals. |
| stock | The existing density of a particular species of fish in an aquatic system. |
| streamflow | The rate at which water passes a given point in a stream, usually expressed in cubic feet per second (cfs). |
| tailrace | The channel located between a hydroelectric powerhouse and the river into which the water is discharged after passing through the turbines. |
| tailwater | The waters immediately downstream of a dam. For power dams, also referred to as the water discharged from the draft tubes. |
| warmwater fish | Species tolerant of warm water (e.g., bass, perch, pickerel, |

sucker).

watershed

An entire drainage basin including all living and nonliving components of the system.

wetlands

Lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. Wetlands must have the following three attributes: 1) at least periodically, the land supports predominantly hydrophytes; 2) the substrate is predominantly undrained hydric soil; 3) the substrate is on soil and is saturated with water or covered by shallow water at some time during the growing season of each year.

Appendix B
Meeting Summaries

| Team | Date | Agenda Items | Special Presentations |
|-------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WCRT | April 4, 2001 | Develop organizational structure; Review Issues and issue development process; Review and discuss operating procedures; Discuss relicensing schedule | |
| WCRT | May 3, 2001 | Review of issue statements and sheets; Review and discuss existing information for each issue; Review mission statement, ground rules, and April 4, 2001 meeting summary; Provide relicensing website update | <ul style="list-style-type: none"> • FERC process, NEPA, and FERC website – Ron McKittrick, FERC; • Recreation Inventory – Bill Campbell, EPRO; • Warrior Hydro Operations – Andy Sheppard, APC |
| WCRT | June 20, 2001 | Review revised operating procedures; Review communications procedures; Discuss NEPA scoping strategies; Discuss the structure and function of Issue Action Groups (IAG); Discuss geographic scope; Discuss specific items for issues E6, E7, E12, R1, and R8 | <ul style="list-style-type: none"> • Clean Water Partnership – Jim Moore, ADEM; • APC relicensing website – Shannon Dewberry, APC • APC Aquatic Plant Management and Mosquito control programs – Scott Lanksford, APC • APC Water chemistry monitoring program – Bill Garrett and Jim Lochamy |
| WCRT | September 12, 2001 | Cancelled due to National events Planned to: Update and discuss E6, E12, E7, WR1, R8 and NEPA IAGs; Introduce next IAGs; Review 2002 meeting dates; Review June Meeting Summary | Presentations: Updates on E6, E12, E7, WR1, and R8 |

| Team | Date | Agenda Items | Special Presentations |
|-------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| WCRT | September 28, 2001 | Review June Meeting Summary; Discuss issue sequencing; Discuss formation of new IAGs; Review 2002 meeting dates; Update and discuss E6, E12, E7, WR1, R8 and NEPA IAGs; | Updates on E6, E12, E7, WR1, and R8 |
| WCRT | January 29 and 30, 2002 | Summarize 2001 activities; Discuss IAG status; Discuss recommendations; Discuss NEPA Scoping; Discuss formation of new IAGs | Presentation – Project Operations – Andy Sheppard-APC; NEPA Alternatives – Ron McKittrick - FERC |

IAG MEETINGS

WR1, 3, 4 & 5 IAG – Smith

| | |
|------------------|--------------------------------------------------------------------------------------------------------|
| October 10, 2001 | Revise Workplan |
| October 24, 2001 | Review Workplan and Standard Process; Develop Vision Statement; Review recreation inventory data |
| November 6, 2001 | Review October 24 th Meeting Summary; Review Vision Statement |
| December 4, 2001 | Discuss Step 1 and 2 questions |
| January 30, 2002 | Finalize Vision Statement; Discuss Step 2 questions |

| Team | Date | Agenda Items | Special Presentations |
|-------------|-------------|---------------------|------------------------------|
|-------------|-------------|---------------------|------------------------------|

R8 – Public Education

| | |
|--------------------|--------------------------------------------------------|
| August 22, 2001 | Discuss Workplan |
| September 24, 2001 | Discuss results of Task 1 |
| October 24, 2001 | Discuss list of public education programs and outreach |

E1 – Point and Non-point Source Pollution

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|------------------|------------------------------------------------------------------------------|
| January 30, 2002 | Discuss IAG background; Review draft IAG Workplan; Assign action items |
|------------------|------------------------------------------------------------------------------|

E2 – Erosion and Siltation

| | |
|------------------|------------------------------------------------------------------------------|
| January 30, 2002 | Discuss IAG background; Review draft IAG Workplan; Assign action items |
|------------------|------------------------------------------------------------------------------|

E3 – Water Quality in the Lakes, Rivers and Tributaries

| | |
|------------------|------------------------------------------------------------------------------|
| January 30, 2002 | Discuss IAG background; Review draft IAG Workplan; Assign action items |
|------------------|------------------------------------------------------------------------------|

E6 – Threatened and Endangered Species

| | |
|-------------------|-------------------------------|
| August 7, 2001 | Discuss Workplan |
| September 4, 2001 | Discuss results of Task 1 & 2 |

| Team | Date | Agenda Items | Special Presentations |
|--------------------------------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| | October 24, 2001 | Discuss T&E Species Database; Update on flattened musk turtle | |
| | January 15, 2002 | Discuss final recommendations; Discuss discontinuing E6 IAG activity | |
| <i>E8 – Lake Level Fluctuations</i> | | | |
| | October 11, 2001 | Review Workplan; Discuss agenda and goals for October 24 th meeting | |
| | October 24, 2001 | Finalize Workplan; Discuss management goals and objectives; Discuss information needs | Presentation – Project Operations – Andy Sheppard-APC |
| | December 4, 2001 | Discuss and review operations models for ADCNR recommendations; USFS to develop and present recommendations based on forest plan, agency mandates, and TE&S species | |
| | January 29, 2002 | Review status of discussions; Review action items | |
| <i>E10 – Project Releases</i> | | | |
| | October 11, 2001 | Review Workplan; Discuss agenda and goals for next meeting | |
| | October 23, 2001 | Finalize Workplan’ Discuss management goals and objectives; | Presentation – Project Operations – Andy Sheppard-APC |

| Team | Date | Agenda Items | Special Presentations |
|-------------------------------------------------|----------------------|------------------------------------------------------------------------------|------------------------------|
| | | Discuss information needs | |
| | November 11, 2001 | Revise Workplan; Discuss potential study areas | |
| | January 29, 2002 | Review stakeholder discussions; Review “strawman” | |
| <i>E11 – Entrainment and Impingement</i> | | | |
| | January 30, 2002 | Discuss IAG background; Review draft IAG Workplan; Assign action items | |
| <i>E12 - Wetlands</i> | | | |
| | August 16, 2001 | Discuss Workplan | |
| | October 23, 2001 | Review wetlands database; Discuss public education | |
| <i>NEPA IAG</i> | | | |
| | October 4, 2001 | Discuss Workplan Discuss work scope and products | |
| | October 24, 2001 | Review preliminary draft of Scoping Document 1 | |

Appendix C
Warrior Issue Sheets

WR1 Recreation Management (Access, Facilities, and Use)

Ability of project lands and waters (including existing recreation facilities and access) to accommodate current and future recreation demand while protecting public safety and the environment.

Description of the Issue

Alabama Power has constructed recreational facilities and access points on the shores of Smith Lake. Numerous other public and private recreational developments and marinas have also been developed at the Project. Concern has been expressed that additional public access points and facilities, or facility improvements, may be needed to accommodate current and/or future demands as well as comply with the Americans with Disabilities Act (ADA). Concern has also been expressed regarding changing use patterns and user behaviors that may be resulting in user conflicts and impacts to public safety, as well as the potential for increased use to exceed the physical, social and/or ecological carrying capacity of the lake resulting in adverse impacts to the quality of the recreation experience. Economic concerns have been expressed about the potential expense of new recreation facilities, who should bear that cost, potential impacts of project operations on marinas and other businesses directly affected by the project, and the impact of recreational developments on project generation. Concern has also been expressed about the potential impact of shoreline development (on and adjacent to project lands) on public access to the shoreline and coves (also see WR6).

Specific issues or requests identified include:

- Develop a Master Plan for recreation at Smith.
- Ensure public access to the shoreline. Provide public access to APC lands for recreation.
- Provide services/facilities based on demand and demonstrated need.
- Look first to expanding or improving existing recreational facilities.
- Consider the potential impact on existing private businesses.
- Recreational facilities should appeal to a broad public.
- Conduct a creel census to determine fishing pressure and locations.
- Provide access to the tailrace fishery, including disabled access.
- Provide/enhance canoe opportunities below Smith.
- Provide a canoe take-out area 8 miles below the Project.
- Provide additional hunting lands, including opportunities for disabled hunters.
- Provide additional camping, biking, and wildlife opportunities
- Provide additional access for non-boating anglers, including access for disabled anglers.
- Provide additional boat access.
- Prioritize recreational needs for the river basin.
- Evaluate recreation carrying capacity issues.
- Conflicts between homeowners and recreation users.
- Potential conflicts between different types of users/crafts.
- Visitors to the lake may be adversely impacting adjacent Forest Service lands – dispersed use and downstream water quality impacts.

- Jet Ski conflicts and enforcement.

Specific questions and suggestions identified include:

- Potentially move usage to better spots.
- Need for coordination with state wide plan (SCORP).
- Some concern about more access, heavier use and more impacts.
- Priority should be given to recreational proposals where multiple stakeholders offer significant participation.

Geographic Scope

Existing Information

Level of Analysis Needed to Address Issue

Information Needed

Entities that raised the issue

Potential Solutions

Issue Resolution or Recommendation

WR2 Public Safety

Effect of project facilities, operations, and/or uses on public safety.

Description of the Issue

Concern has been expressed regarding potential boating hazards in Smith Lake, including underwater trees and stumps. In addition, concern has been expressed regarding various recreational activities and behaviors on the lake that may create unsafe conditions for other users, including excessive boat speeds and use of jet skis. Issues regarding potential boating hazards are related to project operations and lake level fluctuations (see Issue WR3) that may increase the exposure of hazards. This issue also involves other agencies responsible for management and enforcement of on-water activities. Some concern has been expressed regarding dam safety and the potential need for safety advisories.

Specific issues or requests identified include:

- Boating hazards – stumps, trees.
- Jet Ski use and operation.
- Siren below Smith is not an adequate warning signal – can't hear it.

Specific questions and suggestions identified include:

- Water rises below the dam quickly, especially during emergencies.
- Potential liability issues associated with canoeing below Smith. Some use this area now.

Geographic Scope

Existing Information

Level of Analysis Needed to Address Issue

Information Needed

Entities that raised the issue

Potential Solutions

Issue Resolution or Recommendation

WR3 Lake Level Fluctuations

Effects of project operations and lake level fluctuations on lake oriented and tailwater recreation access and use.

Description of the Issue

Concern has been expressed about the potential impacts of lake level fluctuations and drawdowns on recreation opportunities and activities. Drawdowns may affect access, both in terms of the usability of boat ramps and access to coves, boat docks/houses, marinas/facilities, and shallow areas of the lake. Drawdowns may also increase the number of potential boating hazards by exposing more stumps and trees (see Issue WR2). Lake level fluctuations and drawdowns may also reduce overall visitation and recreational use. Businesses that operate on the lake may be negatively affected, both directly (in terms of facilities and access considerations) and indirectly in terms of potentially reduced visitation.

Specific issues or requests identified include:

- Minimize water level fluctuations to maximize access and reduce boating hazards and economic impacts to marinas. Maintain above 495'.
- Extreme low water results in lack of access for boat ramps. Boat ramps closed due to low water in 2000.
- Access opportunities decline with declining lake levels over the course of the season.
- Swimming opportunities adversely impacted at Clear Creek facility due to low water.
- Levels above 510' adversely impact developed swimming areas.
- Provide stable lake levels.
- Economic impact associated with low water, including closed marinas and equipment damage (*i.e.*, boats and docks).
- USFS facilities affected by extreme changes in lake level (see Issue WR7).
- Use of fluctuations on trees - looks bad.
- Maintaining the flexibility to fluctuate the Smith Lake is important for flood control and project operations.
- Levels below ??? feet adversely affect both developed swimming and boat launch areas.
- Swimming areas and boat launches impacted by high and low water levels.

Geographic Scope

Existing Information

Level of Analysis Needed to Address Issue

Information Needed

Entities that raised the issue

Potential Solutions

Issue Resolution or Recommendation

WR4 Downstream Flows

Impact of downstream releases on tailwater and lake oriented recreation opportunities.

Description of the Issue

Concern has been expressed regarding the potential impacts of project operations on downstream recreation, including impacts on fish and wildlife that support recreation activity below Smith Dam. Concern has also been expressed that downstream releases for recreation and/or other resource enhancements may have adverse impacts on upstream lake levels and associated lake-based recreation.

Specific issues or requests identified include:

Specific questions and suggestions identified include:

Geographic Scope

Existing Information

Level of Analysis Needed to Address Issue

Information Needed

Entities that raised the issue

Potential Solutions

Issue Resolution or Recommendation

WR5 Flood Control

Impact of potential operational changes for recreation or other resource protection on downstream flood protection and the potential impact of flood control measures on recreation.

Description of the Issue

The Warrior River Project is currently operated to provide for downstream flood protection. Concern has been expressed that changes in the operations of the reservoirs to enhance recreation or other resources could reduce flood storage capacities and negatively impact flood protection downstream. Maintaining the flexibility to fluctuate Smith Lake is important for flood control and project operations. Concern has also been expressed regarding the potential impacts of operating the project for flood control on recreation and other resource values.

Geographic Scope

Existing Information

Level of Analysis Needed to Address Issue

Information Needed

Entities that raised the issue

Potential Solutions

Issue Resolution or Recommendation

WR6 Shoreline Development

Management and enforcement of shoreline development to protect public safety, access, aesthetics, terrestrial and aquatic habitats, and other resource values.

Description of the Issue

Shoreline development such as docks, boathouses, and seawalls is allowed within the project boundary in accordance with APC's shoreline permitting program. However, there is concern about the potential visual and access impacts of some current and potential future permitted uses. In addition, there is private development that occurs directly adjacent to the project boundary that may be adversely affecting water quality due to erosion and non-point source run-off (see issue WE1 and WE2). There is also concern that continued private development may preclude future public access to the shoreline. Concern has also been expressed that some permittees have already restricted public access to project lands and waters through construction of physical barriers (also see WR1). The USFS has also expressed concern about demands for private access easements across Public Lands and the impact on personnel resources (also see WR9). Interest has been expressed in opportunities for increased land conservation to protect sensitive resources in the project study area.

Specific issues or requests identified include:

- Development may foreclose public opportunities.
- Lack of public access on lower lake due to private development.
- Increase shoreline survey and consistency of survey.
- Decline in scenic quality overall due to development
- Impacts of development on visual resources and the quality of recreation opportunities/experiences.
- Visual impact and access impacts due to increased number of structures on the water including docks and boathouses.
- Shoreline development causing excessive erosion.
- Need to maintain the flexibility to manage project lands in a manner that optimizes the value of the land for recreation, fish and wildlife resources, timber production and development (multiple uses).

Specific questions and suggestions identified include:

- Concern for impact of new development on water quality
- Need for more shoreline surveillance to keep up with development - reduce siltation
- Implement BMPs on development ADEM and APC interaction
- What is APC's permitting program regarding new development?
- How are other state/local agencies involved in relicensing process relative to shoreline development?

Geographic Scope

Existing Information

Level of Analysis Needed to Address Issue

Information Needed

Entities that raised the issue

Potential Solutions

Issue Resolution or Recommendation

WR7 Cultural Resources

Potential impact of the project and/or project operations on cultural resources, including historic and prehistoric properties.

Description of the Issue

Concern has been specifically expressed regarding potential impacts to cultural sites that may be exposed during winter drawdowns and extended drought conditions.

Specific issues or requests identified include:

- Consider inventory of sites.

Specific questions and suggestions identified include:

- Inventory - might show there is not a problem.

Geographic Scope

Existing Information

Level of Analysis Needed to Address Issue

Information Needed

Entities that raised the issue

Potential Solutions

Issue Resolution or Recommendation

WR8 Public Education

Identify existing and potential opportunities that promote increased public education regarding the project, recreation opportunities, public safety, and conservation of natural resources, including interpretive opportunities.

Description of the Issue

APC as well as several public agencies and private recreation service providers operate existing programs aimed at public education and resource conservation, such as the Renew the Coosa Program. Increased public education and awareness has been identified by many stakeholders as a tool for resource protection and conservation, including reduced litter and reduced impacts on sensitive resources. Public education has also been identified as a tool for reducing potential social conflicts and increasing public awareness of existing recreation opportunities. Interest has also been expressed in identifying existing and potential future opportunities for interpretive programs focused on the project, project recreation opportunities and/or ecological resources. These programs might include on-site signs, brochures, or scheduled events such as interpretive talks.

Specific issues or requests identified include:

Specific questions and suggestions identified include:

Geographic Scope

Existing Information

Level of Analysis Needed to Address Issue

Information Needed

Entities that raised the issue

Potential Solutions

Issue Resolution or Recommendation

WR9 Federal Lands & Waters

Potential impact of the project on federal lands including, but not limited to designations, such as Wilderness Areas and Wild and Scenic Rivers.

Description of the Issue

The U.S. Forest Service (USFS) operates several facilities within or adjacent to the project that may be supporting project recreation and/or impacted by project operations. In addition, adjacent federal lands may be potentially impacted by recreational activities associated with the project. USFS is concerned about the need to repair and/or upgrade several facilities to accommodate current use (also see WR1). The USFS has also expressed concern regarding increased demands for shoreline development and requests for additional private access across public land to access the shoreline (see WR6). There are no designated areas or wild and scenic rivers within the project boundary.

Specific issues or requests identified include:

- Increased demand on USFS land and facilities as a result of lake cumulative impact.
- Recreational conflicts occurring on USFS lands.
- Illegal OVH use creating gullies and erosion on USFS lands.
- Potential impact on USFS enforcement personnel and manpower due to increased use.
- Concern about more access and more use leading to the potential for more impacts.
- Continued operation of USFS facilities require that they remain economically viable for operating concessionaires.
- USFS facilities are behind on O&M. Consequently, there has been a steady decline in the quality of the services/facilities, including increased closures, which result in less use and less revenue for upkeep.
- Residential development and requests for access and infrastructure across federal lands is impacting USFS staffing (also see Issue WR6).
- Potential impact to rivers listed on the Nationwide Rivers Inventory.
- Potential impact to the West Fork and the Sipsey Fork Wild and Scenic River.
- Potential impacts to water resources and aquatic habitat, due to increased levels of recreation use due to the presence of Smith Lake.
- Potential impact to the scenery resource on federal lands due to transmission lines.

Geographic Scope

Existing Information

Level of Analysis Needed to Address Issue

Information Needed

Entities that raised the issue

Potential Solutions

Issue Resolution or Recommendation

WE1 Point Source and Non-point Source Pollution

Effects of the various sources of pollution (*e.g.*, both point, non-point, trash, *etc.*) that originate within the Warrior Basin on the water quality of the lakes and rivers of the project study area.

Description of the Issue

Stakeholders expressed concern regarding the amount of pollution that is entering Smith and Bankhead Lakes. These sources of pollution include both point and non-point pollution. Stakeholders would like APC to help educate the public and identify ways to address or manage the level of pollution entering the two lakes. The goal is to identify ways to improve the general water quality and health of the aquatic resources of the lakes.

Specific issues or requests identified include:

- Effect of mining activities around lake on water quality
- Impact of residential septic system - failing systems. Can APC control this by "you don't get electricity without adequate septic system"?
- Impacts of waste water treatment plants on fisheries and water quality
- Need more data to determine nutrient problems & sources - Chicken runoff - What data currently exists?
- The effect of point and non-point source discharges on water quality

Specific questions and suggestions identified include:

- Potential for more monitoring in lake/tributaries
- Clear Creek – Point source – APC has no control
- Infrastructure needs (*i.e.*, treatment facilities to accommodate development)
- Are there fecal problem in reservoir - Cause?
- Aquatic related problems on Bankhead. Complaints are more recreation related. Don't know of "clear" link to water quality (COE issue?)

Geographic Scope

Existing Information

Level of Analysis Needed to Address Issue

Information Needed

Entities that raised the issue

Potential Solutions

Issue Resolution or Recommendation

WE2 Erosion and Siltation

Effect of the existing (and estimated future) levels of erosion and siltation within the Warrior Basin on the public uses and water quality of the lakes and rivers in the project study area.

Description of the Issue

Stakeholders are concerned that erosion around the project is causing degradation of the water quality and quality of the aquatic habitat by introduction of silt into the lakes and rivers. Stakeholders want to identify ways to manage these sources of erosion. These management approaches may include (but are not limited to) modification of project operations, education of the public on the benefits of properly managed private shoreline property, enforcement of Best Management Practices (BMPs) for shoreline management, or other approaches. The goal is to identify ways to reduce the current (and future) levels of erosion and improve the overall quality of the project's natural resources.

Specific issues or requests identified include:

- Erosion problems in lake during draw downs
- Ramping (gradual changes) - year-round, streambank erosion, biodiversity (impact to all species)
- Impacts of project operations (erosion and water quality) on tributaries downstream
- Does siltation contribute to heavy metals in reservoir? - Input of pesticides, toxics to reservoir from siltation, non-point runoff, etc.
- The effect of erosion and siltation on water quality
- Focus erosion and siltation prevention on areas within the project boundary that are specifically influenced by project operations.

Specific questions and suggestions identified include:

- Winston County side – road construction – no silt fences
- Area below Smith Dam- erosion is occurring - existing measures not working.
- Loss of habitat because of development - causing erosion (private lands)
- Shoreline erosion occurring at recreation sites and elsewhere due to fluctuations and boat wash
- Erosion/siltation due to illegal use of "closed" roads on Forest Service lands.
- Need enforcement of 522/510 requirements. Remove soil, don't push into project boundaries
- Erosion - What is the role of APC?
- Siltation data - how fast is it filling? - expectations of silt removal
- How fast is Smith silting up? How is APC addressing siltation? - dredging, etc.
- Do the siltation & vegetation issues impact the trout fishery?

Geographic Scope

Existing Information

Level of Analysis Needed to Address Issue

Information Needed

Entities that raised the issue

Potential Solutions

Issue Resolution or Recommendation

WE3 Water Quality in Lakes, Rivers, and Tributaries

Effect of current project operations on the water quality of the project study area.

Description of Issue

Stakeholders are concerned that current project operations have reduced the water quality of the Project related lakes and rivers (project study area). Stakeholders would like APC to examine ways to improve the water quality in specific areas of the project. These concerns primarily focus on low dissolved oxygen (DO) levels in the tailrace areas below the project dams during the late summer period. There is a concern that DO levels are occasionally below State Standards (4.0 ppm) and could potentially reduce the quality of the aquatic resources. APC is concerned about how project operations impact water quality and wants to investigate the feasibility of making improvements to impacted areas. APC is interested in looking at economical alternatives for addressing water quality issues. APC would like to reduce long term monitoring once these improvements are made and proven effective. APC seeks a 401 Certificate that will reflect these specific items. The goal is to determine what project operation modifications can be accomplished to reduce or avoid impacts to water quality.

Specific issues or requests identified include:

- Damage from projects: How is this impacting downstream water quality
- Temperature, pH - Water quality of turbine discharge below the dam
- Low DO on Eastern side of Lake Boone and Simpson Creek
- How would operational changes impact cold water releases below dam and trout fishery?
- Enhance water quality of cool/cold water fisheries below Smith
- Impacts of project operations (water quality) on tributaries downstream
- The effect of project operation and increasing aeration on dissolved oxygen concentrations in the Smith tailrace
- Compliance with state water quality standards
- Receive a 401 Certificate
- Maintain State Standard of 4.0 ppm in the tailrace area below each development
- Reduce or eliminate all compliance monitoring if DO improvements to meet State Standards can be made.
- Maintain cool water discharge for trout fishery.
- Install turbine upgrades that will economically increase peaking power production.
- Include in the project's 401 Certification a requirement for a Quality Control/Quality Assurance Plan and APC Certification of all water quality monitoring data submitted.

Specific questions and suggestions identified include:

- Concerned about the water quality at low lake levels - impact on recreation

Geographic Scope

Existing Information

Level of Analysis Needed to Address Issue

Information Needed

Entities that raised the issue

Potential Solutions

Issue Resolution or Recommendation

WE4 Water Quantity, Water Use, and Water Withdrawals

Effect of current water uses in the Warrior Basin (water withdrawals, drought/flood operations, navigation flow requirements, *etc.*) on the aquatic resources of the project study area.

Description of the Issue

Stakeholders are concerned that the current permitting of water uses within the project study area are unrestricted and can potentially result in impacts to the aquatic resources of the Project. These concerns center on permitting of water withdrawals and project operations during drought periods. Stakeholders would like APC to examine the current water withdrawal permitting regulations, the number and size of currently permitted withdrawals, recreation flows, navigation flows, and current drought operations. The goal is to develop a “management plan” or set of recommendations that identifies water use priorities (current and future) which includes adequate protection for the environmental resources of the project study area.

Specific issues or requests identified include:

- Water withdrawals and drought operations are a problem.

Specific questions and suggestions identified include:

- Is Birmingham Water Board involved in relicensing effort?
- Request for Information on stream species response to droughts (movements - food habitats)

Geographic Scope

Existing Information

Level of Analysis Needed to Address Issue

Information Needed

Entities that raised the issue

Potential Solutions

Issue Resolution or Recommendation

WE5 Toxins

Effect of toxins (*e.g.*, mercury and other heavy metals) in the Warrior Basin on the aquatic resources of the project study area.

Description of the Issue

Stakeholders are concerned about the accumulation of toxins in the lakes related to point and non-point sources of pollution (especially heavy metals from mining operations around the lake). They would like APC to educate them on how these toxins cycle in Smith Lake and the Warrior River downstream to Bankhead Lake and to identify modifications to project operations that would change the impacts of these toxins (improve or worsen). Stakeholders are also interested in reviewing other activities in the basin to determine what level of impact those programs or activities have on the toxin levels in the river. The goal is to educate stakeholders on toxins and to identify modifications to project operations and other non-APC program activities that could reduce the adverse impacts of identified toxins.

Specific issues or requests identified include:

- Does siltation contribute to heavy metals in reservoir? - Input of pesticides, toxins to reservoir from siltation, non-point runoff, etc.

Geographic Scope

Existing Information

Level of Analysis Needed to Address Issue

Information Needed

Entities that raised the issue

Potential Solutions

Issue Resolution or Recommendation

WE6 Threatened & Endangered Species (T&E)

Effect of project operations on threatened, endangered, or sensitive species (aquatic and terrestrial) that inhabit the project study area.

Description of the Issue

Stakeholders want to know if any threatened, endangered or sensitive species (aquatic or terrestrial) inhabit the project study area and where these populations are located. They also want to determine if current project operations are impacting these species. The goal is to determine which threatened, endangered, or sensitive species (aquatic or terrestrial) are impacted by project operations and to determine methods to protect and enhance those species. Some identified methods of protection and enhancement are: modification of project operations, restocking of species to specific project areas, protecting species specific habitats (essential habitats), or other viable methods to protect or enhance T&E species.

Specific issues or requests identified include:

- Forest Service requires monitoring to determine status of T&E on FS lands- Documented monitoring T&E species, state species (state species, sensitive, rare); Consideration given to water dependent species
- Concern given to the flattened musk turtle population
- Project effect on threatened and endangered species

Specific questions and suggestions identified include:

- Explore opportunities for mitigation - project and non-project lands - improve habitat with a focus on tributaries and watershed improvement

Geographic Scope

Existing Information

Level of Analysis Needed to Address Issue

Information Needed

Entities that raised the issue

Potential Solutions

Issue Resolution or Recommendation

WE 7 Exotic Species and Aquatic Plant Management Program

Effectiveness of the existing programs (both APC and non-APC) for controlling exotic species, nuisance aquatic vegetation, and vectors (mosquitoes) in the project study area.

Description of the Issue

Stakeholders expressed a desire to re-evaluate the APC nuisance aquatic vegetation and vector programs and that APC provide better education to the public regarding these programs. Some stakeholders are also concerned about the introduction of exotic (non-native) species into the project study area as well as reintroduction of native species. The goal is to educate the public on existing programs, to determine if these programs are effective, and to determine if these programs have a negative impact on the aquatic and terrestrial resources of the project study area.

Specific issues or requests identified include:

- Invasive species - asiatic clam, zebra mussels, black carp that may move into project
- Aquatic vegetation problems due to drought (water hyc.)
- Corps is responsible for managing aquatic vegetation in Bankhead Lake

Specific questions and suggestions identified include:

- How does vegetation issues impact the trout fishery?

Geographic Scope

Existing Information

Level of Analysis Needed to Address Issue

Information Needed

Entities that raised the issue

Potential Solutions

Issue Resolution or Recommendation

WE8 Lake Level Fluctuations

Effect of project related lake level fluctuations on the riparian and aquatic resources of the project study area.

Description of the Issue

Stakeholders are concerned that the current annual and seasonal lake fluctuations have a negative impact on the aquatic resources, especially fish spawning and juvenile rearing habitat. They would like APC to determine if the current rule curves can be modified to provide more stable water levels to enhance aquatic habitat and fish recruitment. There are also concerns regarding how changing the lake level fluctuations in one reservoir would affect the downstream reservoir(s). APC also wants to maintain some flexibility in the fluctuation levels of the project impoundments. The goal is to identify modifications can be made to project operations that will enhance aquatic habitat and fish recruitment and still provide operational flexibility for flood control, navigation and power generation at Smith Lake.

Specific issues or requests identified include:

- Extend ADCNR Agreement to keep lake levels in spring stable to protect fish spawning (coordinated for past 7 years). What is effect on power generation, project operations?
- Concern with water levels in Smith Lake during spawning (during monitoring periods) - pre & post spawn
- The effect of water level fluctuation on spawning opportunities for crappie and black bass March-May
- The effect of stable lake levels from March-May on fish spawning
- Maintain flexibility in impoundment fluctuation
- Maintain flood control capability
- Maintain capability to produce peaking power.

Specific questions and suggestions identified include:

- Also concerned about the water quality at low levels - impact on recreation
- Change Smith to a run of river operations

Geographic Scope

Existing Information

Level of Analysis Needed to Address Issue

Information Needed

Entities that raised the issue

Potential Solutions

Issue Resolution or Recommendation

WE9 Ecological Habitat Fragmentation

Effect of habitat fragmentation of the rivers and tributaries within the project study area related to the construction of Smith Dam and the operation of Smith and Bankhead reservoirs on the aquatic resources of the project study area.

Description of the Issue:

Stakeholders are concerned that the construction of the Smith Dam and Lake has resulted in localized fragmentation of the aquatic habitat and present an obstacle for aquatic community both up and down the river and between tributaries. Stakeholders would like for APC to determine if this impact can be measured and to identify potential modifications that can be implemented to reduce localized habitat fragmentation in the project study area surrounding Smith Dam and Lake. One portion of habitat fragmentation deals with the current level of migratory fish stocks in combination with long-term resource agency management goals for the Warrior Basin. Long-term fish passage management goals should be clearly identified and defined. Also, the economic impacts of fish passage to the Projects should be analyzed in conjunction with the economic benefit to the public of meeting long-term resource agency management goals. The goals are to identify the impacts of habitat fragmentation, identify potential methods to reduce the negative impacts of habitat fragmentation (*ge.g.*, fish passage, restocking, habitat restoration, off site mitigation, etc.) in an effort to meet long-term resource agency management goals, and to determine the economic impact of each method identified.

Specific issues or requests identified include:

- Fragmentation of watershed and genetic isolation of aquatic species
- Determine the extent of fragmentation
- Health of aquatic community and population trends

Geographic Scope

Existing Information

Level of Analysis Needed to Address Issue

Information Needed

Entities that raised the issue

Potential Solutions

Issue Resolution or Recommendation

WE10 Project Releases

Effect of altered hydrology on the aquatic resources of the project study area (*i.e.*, tailwater areas below each powerhouse).

Description of the Issue

Stakeholders are concerned that the construction of the Smith Dam on the Warrior River has resulted in an altered hydrology for the upper Warrior River. Stakeholders would like APC to determine how project operations can be modified to provide minimum flows and/or more “natural” flows to the river downstream of Smith Dam. Another area of concern is how peaking flows influence the Sipsey and Mulberry Forks downstream of Smith Dam. Stakeholders are also concerned with the effects of peak generation releases on downstream channel stability, bank erosion, and water quality. APC is concerned about the potential economic impacts of making changes from current operations and would like to look at the economics of each recommended alternative. These concerns include loss of peaking power production and ramping requirements that would prevent instantaneous system demands from being met. The goals are to identify potential modifications to project facilities and/or operations (*e.g.*, continuous/minimum flows, seasonally “stable” flows, reduced ramping rates, upgraded reaeration methods, skimmer weirs) that could effectively reduce these environmental impacts and to evaluate the economic impact of each method identified.

Specific issues or requests identified include:

- Ramping of turbines (gradual changes) - year-round, reduce streambank erosion, biodiversity (impact to all species)
- How would operational changes impact cold water fishery?
- Enhance cool/cold water fisheries below Smith
- Changing operations in spring- generate during night and shut off during day, especially in wet year, Low demand?; Operational effects on fishing opportunities below dam
- Continuous flow requirements downstream of Smith - including mimicking “Natural” flow regime
- Continuous minimum flow below the dam - fall - nothing left (water) in river when turbines are off for 1-2 week duration
- Seasonal variations - Continuous minimum flow that mimics more natural flows - so species can respond - how variations can be incorporated
- The effect of a continuous minimum flow on fish habitat
- The effect of the discharge on indigenous species in the Sipsey and Mulberry Forks
- The effect of downstream fish attraction devices on trout and other species
- A continuous minimum flow downstream of Smith Dam
- Minimize the impacts to power production and peaking power.
- Maintain flexibility in operation with little or no ramping requirements for peaking operation.
- Maintain current level of peaking power production.
- Install turbine upgrades that will economically increase peaking power.

- Look at energy conservation programs (based on customer incentives and technological development) to decrease the demand for electricity

Specific questions and suggestions identified include:

- ROR Project under current operations
- Normal ops & "Spin Generation" not a problem with rapidly rising water
- Need info on how the dam is operated on daily basis

Geographic Scope

Existing Information

Level of Analysis Needed to Address Issue

Information Needed

Entities that raised the issue

Potential Solutions

Issue Resolution or Recommendation

WE11 Entrainment & Impingement

Effect of fish impingement, entrainment, and turbine mortality/injury at each of the project powerhouses on the aquatic resources of the project study area.

Description of the Issue

Stakeholders are concerned that the number of fish impinged on the trashracks or entrained into the turbine units and killed is impacting the aquatic resources of the project study area. They would like APC to determine the impacts of impingement, entrainment, and turbine mortality/injury at each of the project dams on the aquatic resources and to identify measures that can be implemented to prevent, reduce or mitigate these impacts. APC is concerned that the measures identified and perhaps ultimately implemented, be cost effective and economical. The goal is to determine the magnitude of the potential impact to the aquatic resources and to investigate ways to prevent or reduce these impacts.

Specific issues or requests identified include:

- This issue was not presented at the Issues Workshop, but subsequent conversations with resource agency personnel have identified this issue.
- Install turbine upgrades that can economically increase peaking power production.

Geographic Scope

Existing Information

Level of Analysis Needed to Address Issue

Information Needed

Entities that raised the issue

Potential Solutions

Issue Resolution or Recommendation

WE12 Wetlands

Effect of project operations on wetlands within the project study area.

Description of the Issue

Stakeholders are concerned about the impact of project operations to wetlands within the project study area. They have requested that all wetlands within the project study area be identified and marked on reference maps. Stakeholders are also concerned that a number of wetland areas around the project are being developed. They would like APC to help educate property owners and the public on the value of wetlands to our environment and explain reasons for protecting these unique areas. The goal is to identify all wetland areas within the project study area, educate the adjacent property owners on the environmental importance of wetlands, and determine ways that these wetland areas can be protected or enhanced.

Specific issues or requests identified include:

- No specific issue was raised at the Issues Workshop, but discussions with resource agency personnel have identified this issue.

Geographic Scope

Existing Information

Level of Analysis Needed to Address Issue

Information Needed

Entities that raised the issue

Potential Solutions

Issue Resolution or Recommendation

WE13 Wildlife Management Plan

Management of the aquatic and terrestrial resources within the project study area.

Description of the Issue

Stakeholders have requested that APC prepare a Wildlife Management Plan that addresses both aquatic and terrestrial resources within the project study area. The purpose of this plan would be to make sure that resource agency management goals are incorporated with project operations and APC development plans for the project study area. The plan should also consider non-consumptive uses, handicapped access, bank access and viewing/education of unique habitats and resources on project lands and waters. Stakeholders also want to include in the management plan, any protection, enhancement, or mitigation measure that might be included as part of the relicensing process. The goal is to identify APC and resource agency management plans that exist or need to be developed to provide adequate management of the aquatic and terrestrial resources within the project study area and consolidate these plans into a comprehensive “Wildlife Management Plan” that provides protection, enhancement, mitigative measures, and future management plans for the resources of the project study area.

Specific issues or requests identified include:

- Additional nesting structures
- Maintain coolwater discharge from Smith for trout fishery.
- Maintain flexibility in management of project lands to optimize value of recreation, fish and wildlife resource, timber production and development.

Specific questions and suggestions identified include:

- Partner w/ADCNR & Tailwater fishery interest to enhance fishery
- Room for additional nest boxes - (FS) doesn't have funding - works well for FS
- Current operations maintain a cold water fishery - What is natural?
- Current temp DO & pH is good organisms needed to feed trout is lacking - *i.e.*, Arkansas brought in gravel, vegetation, etc to enhance fisheries
- Cold water fishery is not “natural” but is a good resource for fishermen
- Not enough food for fish below the dam
- Maintain and improve quality of fishing (good for recreation) infrastructure
- Continuation of Christmas tree program? partner with others on program.

Geographic Scope

Existing Information

Level of Analysis Needed to Address Issue

Information Needed

Entities that raised the issue

Potential Solutions

Issue Resolution or Recommendation

WE14 Energy Conservation Program

Identify customer incentives and technological developments that could decrease the demand for electricity.

Description of the Issue

Specific issues or requests identified include:

Specific questions and suggestions identified include:

Geographic Scope

Existing Information

Level of Analysis Needed to Address Issue

Information Needed

Entities that raised the issue

Potential Solutions

Issue Resolution or Recommendation