Alcoa Power Generating Inc.
Yadkin Division

Yadkin Project Relicensing (FERC No. 2197)

Shoreline Management Plan Comparison Study

Final Report

September 2004

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Summary

As part of the Federal Energy Regulatory Commission (FERC) relicensing process, Yadkin was asked to conduct a study that compares elements of the Yadkin Shoreline Management Plan (SMP) with SMPs for other southeastern U. S. hydropower reservoirs. For the study, a total of 12 SMPs (including Yadkin's) were reviewed and compared. A wide variety of issues addressed in the SMPs were included in the review:

Shoreline Classification	Multi-Use Facilities	Permitting Procedures
Private Pier Requirements	Excavation and Dredging	Fees
Private Pier Dimensions	Shoreline Stabilization	Environmental Considerations
Private Pier Configuration	Shoreline Cleanup	Aesthetic Considerations
Pier Materials	Shoreline Buffers	Cultural Resource Issues
Private Boathouses	Vegetation Management	Facility Classifications
Private Boat Launches	Other Vegetation Guidelines	Miscellaneous
Private Boat Lifts		

Most of the SMPs reviewed for this study and discussed in this report were found to be similar in content. All of the project SMPs were found to provide specific management policies for most major shoreline issues including facility construction procedures and specifications, vegetation management guidelines, and application processes to carry out shoreline activities.

One important note is that all 12 SMPs reviewed were found to share similar objectives in attempting to maintain a balance between shoreline development and preserving environmental, cultural, and aesthetic resources as well as recreational opportunities. Of the issues evaluated in the study plan, most were found to be addressed by each SMP. However, the specific requirements and guidelines for shoreline activities outlined in each SMP were variable.

Differences in the SMP requirements are not surprising considering the differences in the reservoirs that the SMPs are designed to protect. While all of the project SMPs reviewed for this study involved southeastern U.S. reservoirs the size, location, natural, recreational, and cultural resources at each reservoir is, of course, variable. It is clear that many of the policies and requirements set forth in the various SMPs have been designed to address particular issues that occur at that specific project.

Overall, the Yadkin SMP was found to be similar to most of reviewed regional SMPs in terms of the issues addressed and the specifications and requirements for shoreline facilities. The Issue Summary Tables (A-F) below provide an overview of how the Yadkin SMP compares to the other SMPs, on an issue-by-issue basis. These six

summary tables provide an in-depth comparison of SMP issues in the general categories of Private Facilities, Multi-Use Facilities, Land/Shoreline Altering Activities, Shoreline Buffers and Vegetation Management, Permit Procedures and Requirements, and General Environmental, Aesthetic, and Cultural Resource Considerations. Although many issues do not lend themselves to a direct comparison of requirements or policies, these summary tables provide a reasonable overview of how the Yadkin Project SMP compares to the other SMPs.

Specifically, the Issue Summary Tables indicate the Yadkin SMP requirements for each issue and whether the other SMPs also have requirements or policies designed to address the same issue. In the case of issues that have associated numeric standards the Yadkin SMP stands solely at one end of the range of standards on three issues: the minimum lot width requirement (200 feet), the minimum water depth requirement (8 feet), and the designated shoreline buffer (100 feet).

On the remaining SMP issues , the Yadkin SMP is similar to, or falls within the range of, requirements at the other projects. In no case is the Yadkin SMP the only one of the twelve SMPs to address a particular issue or to set criteria or requirements for the permitting of facilities or uses.

Table A: Summary of SMP Requirements for Private Facilities

Owner/Project	Minimum Lot Width Required	Minimum Water Depth Required	Side Setback Requirement	Private Piers of Any Size Allowed	Private Pier Maximum Square Footage Allowed	Maximum Pier Length Allowed
Yadkin	200 feet	8 feet within 75' from shoreline	as near as possible to middle of applicant's lot	No	Section by section basis	75 ft or ¼ of cove width, provided that pier does not create a navigational hazard
Smith Mountain	100 feet	NS	15 feet	No	1500 sq ft	100 ft or 1/3 of cove width
DPNA	not specified (but, DPNA reserves the right to deny an application based on lot size)	4 feet within 75' from shoreline	15 feet	No	NS	50-75 ft or 1/3 of cove width
Catawba-Wateree	75 feet	NS	NS	No	1000 sq ft	120 ft or 1/3 of cove width
Dominion	NS	NS	15 feet	No	1250 sq ft	Length necessary for ingress/egress up to ¼ cove width
Georgia Power	100 feet	NS	15 feet	No	NS	50 ft
Lake Tillery	NS	NS	NS	No	1200 sq ft	100 ft or 1/3 cove width
Santee Cooper	NS	4 feet within 50' from shoreline	10 feet	No	NS	50 ft or to 4 ft water depth
Lake Murray	100 feet	NS	15 feet	No	450 sq ft	75 ft
TVA	50 feet	NS	50 feet from adjacent dock	No	1000 sq ft	150 ft or 33% of cove width
Lake Lanier	82 feet	6 feet "for all intended boat mooring sites"	50 feet from adjacent dock	No	NS	1/3 of cove width
Hartwell Lake	82 feet	6 feet "for all intended boat mooring sites"	50 feet from adjacent dock	No	NS	1/3 of cove width

Table A: Summary of SMP Requirements for Private Facilities (Continued)

Owner/Project	Piers Required To End in a Floating Section	Certain Types of On-pier Structures (Boathouses, Shelters, Gazebos) Allowed	Wood Used to Build Piers Required to Meet Certain Specifications	Pier Flotation Required To Meet Certain Specifications	New Private Boathouses Allowed	New Private Boat Ramps Allowed
Yadkin	Yes	No	Yes	Yes	No	No
Smith Mountain	NS	Yes	No	Yes	NS	NS
DPNA	Yes	No	No	Yes	No	No
Catawba-Wateree	NS	Yes	No	Yes	Yes	Yes
Dominion	NS	Yes	Yes	Yes	Yes	NS
Georgia Power	NS	Yes	No	Yes	Yes	Yes
Lake Tillery	No	Yes	Yes	Yes	Yes	No
Santee Cooper	NS	Yes	No	Yes	No (generally)	Yes
Lake Murray	No	Yes	No	Yes	NS	Yes
TVA	No	Yes	No	Yes	Yes	Yes
Lake Lanier	Yes (inferred)	Yes	Yes	Yes	NS	NS
Hartwell Lake	Yes (inferred)	Yes	No	Yes	NS	No

Table B: Summary of Multi-Use Facilities Specifications

Owner/Project	SMP Differentiates Multi-Use Specifications From Private/ Individual Specifications	SMP Sets Multi-Use Facility Length Maximums	SMP Sets Square Footage Specifications for Multi-Use Facilities	SMP Includes Density Specifications For Multi-Use Facilities	SMP Includes A Multi-Use Facility Setback Policy
Yadkin	Yes	Yes	No	No	No
Smith Mountain	Yes	Yes	Yes	Yes	Yes
DPNA	Yes	Yes	Yes	Yes	Yes
Catawba-Wateree	Yes	Yes	Yes	Yes	Yes
Dominion	Yes	No	Yes	Yes	No
Georgia Power	No	No	No	No	No
Lake Tillery	No	No	No	No	No
Santee Cooper	No	No	No	No	No
Lake Murray	No	No	No	Yes	No
TVA	Yes	No	Yes	Yes	No
Lake Lanier	Yes	Yes	Yes	No	No
Hartwell Lake	Yes	No	Yes	No	Yes

Table C: Summary of Land/Shoreline Altering Activities

Owner/ Project	Policies Pertain to Excavation, Dredging or Both	Excavation/ Dredging Allowed	Excavation Is Required To Be "in the dry"	Excavation/ Dredging Activities During March Through June Allowed	Removal of Original Lake Bottom Allowed	Alteration of Existing Shoreline Allowed	Excavated Material Required to be Placed Landward of the Shoreline
Yadkin	Dredging/ Excavation	Yes (High Rock only)	Yes	No	NS	No	Yes
Smith Mountain	Dredging/ Excavation	Yes	No	No	No	No	Yes
DPNA	Dredging	No	prohibited	No (always prohibited)	NS	NS	NS
Catawba-Wateree	Excavation	Yes	No	No	NS	No	Yes
Dominion	Dredging	Yes	No	No	No	No	Yes
Georgia Power	Dredging	Yes	No	NS	No	NS	Yes
Lake Tillery	Dredging	Yes	No	No	No	NS	Yes
Santee Cooper	Dredging	Yes	No	NS	NS	NS	No
Lake Murray	Excavation	Yes	Yes	No	NS	No	Yes
TVA	Excavation	Yes	Yes	NS	NS	NS	Yes
Lake Lanier	Excavation	Yes	No	NS	No	No	No
Hartwell Lake	Dredging	Yes	No	NS	NS	NS	No

Table C: Summary of Land/Shoreline Altering Activities (Continued)

Owner/ Project	Activities in Vegetated Wetlands Allowed	Requires That Water Must Drain Freely from Excavated Area	Shoreline Stabilization Allowed	Preferred Shoreline Stabilization Method	Specifications for Riprap Installations Provided	Specifications for Bulkheading Provided
Yadkin	No	Yes	Yes	vegetation	Per engineer's report	Per engineer's report
Smith Mountain	No	No	Yes	vegetation	Yes	No
DPNA	NS	NS	Yes	NS	Yes	No
Catawba-Wateree	No	No	Yes	vegetation	Yes	Yes
Dominion	No	Yes	Yes	NS	Yes	Yes
Georgia Power	NS	No	Yes	NS	No	Yes
Lake Tillery	No	No	Yes	vegetation	No	Yes
Santee Cooper	NS	No	Yes	NS	Yes	Yes
Lake Murray	No	No	Yes	vegetation (in areas of light to moderate erosion)	Yes	Yes
TVA	NS	Yes	Yes	vegetation	Yes	Yes
Lake Lanier	No	Yes	Yes	riprap	No	No
Hartwell Lake	NS	No	Yes	riprap	No	No

Table D: Summary of Shoreline Buffer and Vegetation Management Policies

Owner/Project	SMP Designates Shoreline Buffer	SMP Establishes Vegetation Removal Restrictions in Buffer	Limb Pruning in Buffer Allowed	Tree Removal in Buffer Allowed	Planting Without Prior Approval Allowed	Replacement Plantings Required in Certain Circumstances	Non-native Plants Allowed	Herbicide/ Pesticide Spraying Allowed	Litter/ Debris Removal Allowed	Lap Tree Removal Allowed Without Approval
Yadkin	Yes	Yes	Yes, up to 8 ft	Yes, <2 inch diameter	No	Yes	No	No	Yes	No
Smith Mountain	Yes	NS	Yes	NS	Yes	Yes	No	NS	Yes	NS
DPNA	Yes	Yes	Yes	NS	No	No	No	Under Certain Circumstances	NS	No
Catawba-Wateree	Yes	Yes	Yes	NS	No	No	No	NS	NS	NS
Dominion	NS	NS	Yes	NS	No	Yes	NS	No	NS	No
Georgia Power	Yes	Yes	NS	NS	Yes	Yes	No	NS	NS	NS
Lake Tillery	Yes	Yes	Yes	Yes, <3 inch diameter	Yes	Yes	No	No	NS	No
Santee Cooper	NS	NS	NS	NS	Yes	No	NS	NS	NS	NS
Lake Murray	Yes	Yes	Yes, up to 10 ft	Yes, <3 inch diameter	Yes	No	NS	NS	NS	No
TVA	Yes	Yes	Yes	NS	Yes	Yes	No	Under Certain Circumstances	NS	NS
Lake Lanier	Yes	Yes	Yes, up to head height	Yes, <2 inch diameter	No	No	No	Under Certain Circumstances	NS	No
Hartwell Lake	NS	Yes	Yes, up to 1/3 tree height	Yes, <4 inch diameter	No	No	NS	NS	NS	NS

Table E: Summary of Permitting Processes and Procedures

Owner/Project	SMP Explicitly States Permit Applications Must Provide Basic Information	Permit Applications Must Include Sketch or Diagram	Permit Process Requires On-site Meeting	Approval/Permit Must Be Granted Prior to Beginning Proposed Activity	SMP Explicitly Requires Consultations/ Permits From Other Agencies	SMP Specifically Discusses Permitting Process for Public Access Areas
Yadkin	Yes	Yes	Yes	Yes	Yes	No
Smith Mountain	Yes	Yes	No	Yes	No	No
DPNA	No	No	No	No	No	No
Catawba-Wateree	Yes	Yes	No	Yes	Yes	No
Dominion	Yes	Yes	No	Yes	Yes	No
Georgia Power	Yes	Yes	No	Yes	No	No
Lake Tillery	No	Yes	Yes	No	Yes	No
Santee Cooper	Yes	Yes	No	Yes	Yes	No
Lake Murray	Yes	Yes	No	No	Yes	Yes
TVA	No	Yes	No	No	Yes	No
Lake Lanier	No	Yes	No	No	No	Yes
Hartwell Lake	No	Yes	No	No	No	No

Table F: Summary of General Environmental, Aesthetic, and Cultural Considerations

Owner/Project	Special Environmental Classification of Shoreline	Percent of Shoreline with Special Classification	Certain Activities Are Prohibited in Environmental Zones	SMP Provides Educational Materials On Environmental Protection	SMP Discusses Programs In Place For Protection of Certain Species
Yadkin	Yes	40.8	Yes	Yes	Yes
Smith Mountain	Yes	9.4	Yes	Yes	No
DPNA	Yes	NS	Yes	No	No
Catawba-Wateree	Yes	27.4	Yes	Yes	Yes
Dominion	Yes	41.5	Yes	Yes	No
Georgia Power	NS	NS	NS	No	No
Lake Tillery	Yes	36.6	Yes	Yes	No
Santee Cooper	NS	NS	NS	No	No
Lake Murray	Yes	NS	Yes	Yes	No
TVA	NS	NS	NS	No	No
Lake Lanier	Yes	25.0	Yes	No	No
Hartwell Lake	Yes	26.0	Yes	Yes	No

Table F: Summary of General Environmental, Aesthetic, and Cultural Considerations (Continued)

Owner/Project	SMP Provides a Recommended Plants List	SMP Includes Special Aesthetic Considerations	Project Has Made An Assessment of Its Cultural Resources	Project Has Developed A Cultural Resources Predictive Model	SMP Requires Consultation to Protect Cultural Resources	Removal of Artifacts Allowed
Yadkin	Yes	No	Yes	Yes	Yes	NS
Smith Mountain	Yes	No	NS	NS	Yes	NS
DPNA	Yes	Yes	NS	NS	No	No
Catawba-Wateree	Yes	Yes	Yes	Yes	No	NS
Dominion	Yes	No	Yes	NS	No	NS
Georgia Power	No	No	NS	NS	No	NS
Lake Tillery	Yes	Yes	NS	NS	Yes	NS
Santee Cooper	No	No	Yes	Yes	Yes	NS
Lake Murray	No	No	NS	NS	No	NS
TVA	No	No	Yes	NS	Yes	No
Lake Lanier	Yes	No	NS	NS	Yes	NS
Hartwell Lake	Yes	No	NS	NS	No	NS

1.0 Introduction

Alcoa Power Generating Inc. (APGI) is the licensee for the Yadkin Hydroelectric Project. The Yadkin Project is currently licensed by the Federal Energy Regulatory Commission (FERC) as Project No. 2197. This license expires in 2008 and APGI must file a new license application with FERC on or before April 30, 2006 to continue operation of the Project.

As part of the relicensing process, APGI prepared and distributed, in September 2002, an Initial Consultation Document (ICD), which provides a general overview of the Project. Agencies, municipalities, non-governmental organizations and members of the public were given an opportunity to review the ICD and identify information and studies that were needed to address relicensing issues. To assist in the identification of issues and data or study needs, APGI formed several Issue Advisory Groups (IAGs) to advise APGI on resource issues throughout the relicensing process. IAGs have had the opportunity to review and comment on Draft Study Plans. The study plan for this study was finalized after receiving IAG input in October, 2003. The Draft Report was developed in response to comments on the ICD and through discussions with the Recreation, Aesthetics, and Shoreline Management (RASM) IAG, to provide additional necessary information for consideration in the relicensing process. Upon completion, the Draft was distributed to the RASM IAG in March, 2004. Comments were received at a May 5, 2004 RASM IAG Meeting and by written submittals following the meeting. This Final Report was then revised to reflect the comments received (see Appendix B).

1.1 Background

Yadkin began developing its shoreline management plan (SMP) in the late 1990s. The shoreline management planning effort was initiated by Yadkin in response to increasing development along the shorelines of the Project reservoirs, particularly High Rock and Narrows. As shoreline development increased, requests for private piers and other facilities also increased, and there was a need for the development of comprehensive policies and guidelines that would allow Yadkin to review and permit private and multi-use recreational facilities in a consistent manner. At the same time, the increase in shoreline development led to concerns among state and federal resource agencies that important natural and cultural resources should be considered and protected in the face of increasing shoreline development pressures. As a result, the Yadkin SMP was designed as a planning document that attempted to achieve an appropriate balance between shoreline development and resource protection at the Yadkin Project reservoirs.

The Yadkin SMP was developed by APGI with considerable input from the public, local municipalities and state and federal agencies. During the initial phases of the SMP development, Yadkin held several "workshops" with key stakeholders to identify issues that needed to be addressed in the SMP. Later in the process, Yadkin held a series of public meetings to receive comments on the draft SMP.[1]

[1] Many members of the public were opposed to provisions in draft and final versions of the Yadkin Shoreline Management Plan.

The Yadkin SMP was submitted to FERC on July 1, 1999 and was approved November 9, 2000. Subsequent minor revisions were submitted to FERC on June 3, 2002 and became effective on July 1, 2002. The revisions were formally approved by FERC on February 9, 2004.

1.2 Study Purpose

The objectives of this study are to understand the similarities and differences between the Yadkin Project Shoreline Management Plan and other southeastern SMPs, to provide additional necessary information regarding SMP issues for consideration in the relicensing process, and to provide a common base of knowledge about other shoreline management plans.

2.0 Methods

2.1 Data Collection

This report contains information from 12 southeast regional Shoreline Management Plans. The SMPs included in the study are listed in Table 1 and include APGI's Yadkin Project, American Electric Power's (AEP) Smith Mountain Project, Duke Power's Nantahala Area, Duke Power's Catawba-Wateree Project, Dominion's Lake Gaston and Roanoke Rapids Project, Georgia Power's North Georgia Project, Progress Energy's Lake Tillery Project, the Santee Cooper Lakes Project, South Carolina Electric and Gas' (SCE&G) Lake Murray Project, the Tennessee Valley Authority (TVA), and the U.S. Army Corps of Engineers' Lake Sidney Lanier and Hartwell Lake Projects.

Table 1: SMPs Included in the Comparison Study

Project Name	***Owner/Licensee***	***Title of Shoreline Management Plan or other Documents Referenced***	***Effective Date of SMP or When Document was Last Updated***
Yadkin Project	Alcoa Power Generating Inc. (APGI)	Shoreline Management Plan	July 1, 2002
Smith Mountain Project	American Electric Power (AEP)	Shoreline Management Plan	September 2, 2003
Nantahala Area Project	Duke Power (Duke)	Shoreline Management Guidelines	July 1, 2003
Catawba-Wateree Project	Duke Power (Duke)	Shoreline Management Plan Appendix F: Catawba-Wateree Shoreline Management Guidelines	July 31, 2003 June 1996
Roanoke Rapids Project	Dominion Power (Dominion)	Shoreline Management Plan Appendix C: Lake Gaston and Roanoke Rapids Lake Construction and Use Procedures	April 11, 2001 July 1, 2002
North Georgia Project	Georgia Power (GP)	Shoreline Management Guidelines and Partnership in Shoreline Management	undated
Tillery Project	Progress Energy (PE)	Shoreline Management Plan Appendix B: Guidelines for the Use of Leased Properties at Lake Tillery	December 31, 2001 October 1, 2001
Santee Cooper Project	Santee Cooper Power	Permitting Policies and Procedures for Lots Within Santee Cooper Subdivisions	June 2000
Lake Murray	South Carolina Electric and Gas (SCG&E)	Shoreline Management Program Vegetation Protection Agreement Lake Murray Five Year Review[1]	August 1995 March 18, 1998 February 1, 2001
Tennessee Valley Authority System	Tennessee Valley Authority (TVA)	TVA Act of 1933 (Section 26a) Shoreline Management Policy	November 1, 1999
Lake Lanier	US Army Corps of Engineers (ACOE)	Shoreline Management Plan	September 2003
Hartwell Lake	US Army Corps of Engineers (ACOE)	Lakeshore Management Plan	1998

Ten of the SMPs were obtained or are available online through the project owner's website. The only two SMPs not available online are Santee Cooper and Georgia Power, which were obtained at a 2003 National Hydropower Association (NHA) conference and from the Georgia Power Land Management Office, respectively. Additionally, follow-up phone calls for clarification and additional information were made, as needed. Additional geographic data on the reservoirs were obtained from the National Inventory of Dams and the

[1] The Lake Murray Five Year review recommends several changes to the Lake Murray SMP that SCE&G is currently implementing.

National Atlas of the United States. Information on the status of many of the project SMPs was obtained from FERC through the online "e-library".

2.2 Issues

During the study planning phase, the Recreation, Aesthetics, and Shoreline Management IAG identified a number of issues to be considered as part of this SMP comparison, which were listed in the final study plan (October 2003) and are summarized in Table 2. Each of those issues is described briefly below.

Table 2: Shoreline Management Issues Evaluated in the Comparison Study

- Special Environmental Shoreline Classifications
- Private Pier Minimum Requirements
- Private Pier Dimensions
- Private Pier Configuration
- Private Pier Materials
- Private Boathouses
- Private Boat Launch Ramps
- Multi-Use Facilities Specifications
- Excavation and Dredging
- Shoreline Stabilization/Erosion Control
- Riparian Buffers and Shoreline Vegetation Management
- Other Vegetation Guidelines
- Permitting Procedures and Requirements
- Fees
- Environmental Considerations
- Aesthetic Considerations
- Cultural Resource Issues
- Shoreline Facilities Classifications (added issue)
- Miscellaneous Issues (added issues)

- Shoreline Cleanup

2.2.1 ***Shoreline Facilities Classifications***. All 12 project SMPs were examined in order to determine how each SMP categorizes shoreline facility types. Every project SMP has a unique system regarding its categorization of shoreline facilities and this issue serves as a reference and interpretation of how they differ. This issue does not include special categorizations due to environmental concerns or shoreline zoning classes, but focuses simply on the nominal differences as deduced from the shoreline management plans.

2.2.2 ***Special Environmental Shoreline Classifications***. This issue examines whether each SMP delineates special environmental shoreline classifications for the project reservoir(s). If an SMP has specially designated shorelines or portions of shorelines, the classifications are noted as well as the amount of shoreline (by percentage) receiving the special designation. Moreover, if special use restrictions for environmental zones or other uniquely designated shoreline areas are in place, they are also noted.

2.2.3 ***Private Pier Minimum Requirements***. The issue of private pier minimum requirements documents each SMP's specifications concerning required minimum lot width (for installation of private piers), required minimum water depth, and setback requirements.

2.2.4 ***Private Pier Dimensions***. The issue of private pier dimensions notes restrictions on total square footage, length, and width of private piers. Some of the requirements for square

footage, length, and width may be for specific pier sections (e.g. stationary section, ramp, or floater) or they may be for the pier as a whole.

2.2.5 ***Private Pier Configuration***. This section notes any special restrictions on the configuration of piers. More specifically, it is noted if floating and/or fixed sections are allowed or required and whether any boat lifts, shelters, gazebos, or enclosures in connection with piers are allowed and if so, the policies governing them.

2.2.6 ***Private Pier Materials***. This issue takes note of each SMP's requirements concerning construction materials. It is noted whether certain materials are required or any specific materials are disallowed. More specifically, special policies concerning flotation and lumber materials are discussed.

2.2.7 ***Private Boathouses***. This issue examines whether boathouses are allowed within each project's boundary and if so, any special construction restrictions concerning size, location, and configuration.

2.2.8 ***Private Boat Ramps***. This section discusses whether each project allows private boat ramps and for those that do allow private ramps, any restrictions or requirements concerning size, material, and placement are discussed.

2.2.9 ***Multi-Use Facilities Specifications***. The issue of multi-use facilities documents each project SMP's requirements for multi-use or "common-use" facilities. Any specifications with regards to the construction and placement of multi-use facilities are noted. Such specifications include facility configuration, size restrictions (length, width, etc.), setback requirements, location, and density requirements.

2.2.10 ***Excavation and Dredging***. For each project SMP, it is discussed whether the SMP differentiates between excavation and dredging and whether either or both are allowed. For those projects where excavation and/or dredging are allowed, guidelines with regard to location, time of year activity can occur, slope of excavation, and disposal of excavated material are noted.

2.2.11 ***Shoreline Erosion Control***. For each project SMP, it is noted what methods of erosion control or shoreline stabilization are permitted, what methods are preferred or encouraged, and any specifications associated with each form of stabilization.

2.2.12 ***Shoreline Cleanup***. The issue of shoreline cleanup notes each shoreline management plan's guidelines for removal of litter, lap trees, and other woody debris. Focus is placed on whether removal of lap trees and woody debris is allowed.

2.2.13 ***Shoreline Buffers***. This section focuses on whether each project SMP designates or discusses shoreline or riparian buffers, and for those that do, how the SMP defines the buffer and its boundaries.

2.2.14 ***Shoreline Vegetation Management.*** For the SMPs that have vegetation management guidelines (more specifically, vegetation removal guidelines), it is discussed what areas are governed by the guidelines. Special attention is given to whether the guidelines apply in buffer areas only or other areas. The features of the guidelines are then compared and include activities such as pruning, tree removal, and the disturbance of leaf litter.

2.2.15 ***Other Vegetation Guidelines***. This section focuses on each project SMP's policies pertaining to the planting or replanting of vegetation and restrictions on the use of vegetation management chemicals (fertilizers, pesticides, etc.) along the shoreline.

2.2.16 ***Permitting Procedures and Requirements***. This issue details the permitting processes, application requirements, and necessary consultations for any proposed activities on project lands as discussed in each project's SMP. Additional consideration is given to processes for permitting new public access areas.

2.2.17 ***Fees***. This section lists the fees each project charges for various permits within project lands, and where applicable, how those fees are determined.

2.2.18 ***Environmental Considerations***. This issue notes whether each project's SMP (if applicable) references any special environmental considerations not specifically discussed elsewhere in this report. Examples of such special considerations include protection of endangered species or wildlife/fish habitat and informational programs used for education on environmental issues.

2.2.19 ***Aesthetic Considerations.*** This issue notes whether each project's SMP (if applicable) references any special aesthetic considerations not specifically discussed elsewhere in this report (e.g. sign posting and advertising).

2.2.20 ***Cultural Resource Issues***. This section notes the attention or special protection guidelines given to archaeological, historical, and/or cultural resources within each project's boundary as discussed in the SMP.

2.2.21 ***Miscellaneous Issues***. Miscellaneous issues are issues that appear with recurrence in many of the shoreline management plans included in this review. Issues that were found to be addressed in enough of the project SMPs to warrant discussion in this study include:

- Access Pathways
- Electrical Installations
- Types of Watercraft Allowed
- Permit Transfers
- Water Ski Courses

2.3 Project and SMP Descriptions

In accordance with the final study plan, this comparison study examined shoreline management plans from a total 12 hydropower reservoirs or reservoir systems (including the Yadkin Project SMP) located in the southeastern United States. Nine of the twelve SMPs considered in this study cover hydropower projects that are regulated by the Federal Energy Regulatory Commission. Three other SMPs under the regulation of the U.S. Army Corps of Engineers and the Tennessee Valley Authority were also included in the study. While the three federally-owned and operated projects are governed by specific shoreline management plans, it should be noted that management decisions at these reservoirs may be subject to other laws and regulations which may supercede the policies outlined in their respective shoreline management plans. The following section provides a brief description of the 12 reservoir systems and SMPs that were utilized in this evaluation.

2.3.1 ***APGI Yadkin Project***. Alcoa Power Generating Inc. (APGI) Yadkin Division's Hydroelectric Project consists of four dams and powerhouses that create High Rock, Tuckertown, Narrows and Falls Reservoirs. The four reservoirs fall within a 38-mile stretch of the Yadkin River (mile 272 to mile 234) in south-central North Carolina and encompass a drainage area of 4,200 square miles. High Rock Dam is at river mile 253 and the reservoir, the largest of the four reservoirs, covers a water surface area of 15,180 acres with 360 miles of shoreline. Tuckertown Dam is located at river mile 244 and Tuckertown Reservoir consists of 2,560 acres of surface area with 75 shoreline miles. Narrows Reservoir covers an area of 5,353 acres with 115 miles of shoreline and Falls Reservoir, the smallest of the four

reservoirs, covers 204 acres with six shoreline miles. Narrows Dam is located at river mile 236.5 and Falls Dam is at mile 234. The amount of undeveloped shoreline of all four reservoirs combined exceeds 59%. Yadkin's (FERC No. 2197) Shoreline Management Plan is dated July 1, 1999 and was last revised July 1, 2002. The SMP was filed and is effective as of July 1, 1999. Specifically, the policies governing shoreline activities are set forth in Appendices E and G of the SMP titled "Specifications for Private Recreation Facilities at High Rock and Narrows Reservoirs" and "Shoreline Stewardship Policy" respectively.

The four goals of Yadkin's Shoreline Management Plan are listed below:

1. To identify and understand the natural, environmental, recreational, scenic, and cultural resources that are unique to the Project and which may warrant protection, enhancement, or special consideration.
2. To establish reservoir management objectives that will best balance shoreline development and public recreation needs with environmental considerations and hydroelectric generation needs.
3. To establish a process for reviewing approving, and undertaking shoreline development activities that encourages good stewardship of natural and cultural resources by avoiding, offsetting, or mitigating impacts to natural and environmental resources.
4. To encourage local residents, recreational users, local government, and State government to understand how their actions may affect the reservoirs and the quality of the resources that the reservoirs provide.

2.3.2 ***Smith Mountain***. American Electric Power's (AEP) Smith Mountain Pumped Storage Project includes the Smith Mountain and Leesville dams, powerhouses, and reservoirs. The two dams are located at miles 314 (Smith Mountain) and 296 (Leesville) on the Roanoke River in south-central Virginia. Smith Mountain Lake covers an area of approximately 26,000 acres with 500 miles of shoreline and Leesville Lake covers an area of approximately 3,040 acres with 100 miles of shoreline. Leesville Lake drains an area of 1,505 square miles and Smith Mountain Lake drains an area 1,024 square miles. Shoreline activities are

governed by the policies set forth in AEP's Shoreline Management Plan (dated August 29, 2003). The SMP was filed with FERC on September 2, 2003 and has been implemented as of that date.

The Smith Mountain SMP lists its objectives and purposes as follows:

1. Protecting environmental attributes such as wetlands, habitat, and spawning areas.
2. Preserving the natural scenic quality of the shoreline for both boaters and shore viewers and preserving specific scenic attributes.
3. Protecting cultural resources.
4. Enhancing recreational opportunities by considering boating densities and navigation and maximizing available use of the project waters by the public.
5. Cooperating with multiple governmental entities that surround the project to coordinate adjacent land uses and proposed infrastructure with shoreline uses.
6. Working with the same entities to coordinate permitting efforts.
7. Minimizing impacts among contrasting uses.
8. Striving for a balance that supports local economic interests yet protects environmental and recreational resources and that allows the public to enjoy these interests and resources.

2.3.3 ***Duke Power Nantahala Area (DPNA)***. The Duke Power Nantahala Area consists of 10 hydroelectric stations and 12 reservoirs. Of the 12 reservoirs, only five (Nantahala Lake, Glenville (Thorpe) Lake, Bear Creek Lake, Wolf Creek Lake, and Cedar Cliff Lake) are governed by the Shoreline Management Guidelines discussed in this report (FERC Nos. 2686, 2692, 2698). The five reservoirs are located in western North Carolina on the Nantahala River, Tuckasegee River, East Fork Tuckasegee River, and Wolf Creek. The five small reservoirs drain a total area of 227 square miles and covers 2704 acres. DPNA's Shoreline Management Guidelines have been effective as of July 1, 2003.

The purposes of DPNA's SMP are stated below:

1. Meet DPNA's regulatory requirements.
2. Protect DPNA's generation interests.

3. Protect the scenic and environmental value of DPNA's shoreline property.
4. Provide recreational benefits to the general public.
5. Provide a guide to adjacent property owners on permitted uses of DPNA properties.

2.3.4 ***Duke Power Catawba-Wateree***. The Catawba-Wateree Hydroelectric Project (FERC No. 2232) is located on the Catawba River, which begins in western North Carolina and flows south into South Carolina, where it joins Big Wateree Creek to form the Wateree River. The Catawba-Wateree Project is comprised of 13 hydropower plants and 11 developments, including the James, Rhodhiss, Hickory, Lookout Shoals, Norman, Mountain Island, Wylie, Fishing Creek, Great Falls, Rocky Creek, and Wateree reservoirs. The Catawba-Wateree Project spans over 200 river miles and encompasses approximately 1,700 miles of shoreline. Likewise, the Catawba-Wateree project system drains an area of 4,750 mi^2 and contains more than 78,896 acres of reservoir surface area. The Catawba-Wateree Shoreline Management Plan (SMP) was filed with FERC on July 31, 2001 and approved on October 15, 2003. Included in the SMP as Appendix F are the Catawba-Wateree Shoreline Management Guidelines (effective June 1996) from which the majority of the discussed policies come.

The Catawba-Wateree SMP has a twofold purpose:

1. Provide for public and private access without destruction of the project's natural resources or without compromising the Project's primary function, which is the production of electricity.
2. Ensure that the existing and future public recreational needs of the Project are addressed.

2.3.5 ***Dominion Lake Gaston and Roanoke Rapids Project***. Dominion's Lake Gaston and Roanoke Rapids Hydroelectric Project (FERC No. 2009) lies in the central Virginia-North Carolina border on the Roanoke River and comprises two dams and reservoirs (Lake Gaston and Roanoke Rapids Lake). Lake Gaston, the larger of the two reservoirs, has a surface area of 20,300 acres and 329 shoreline miles with Roanoke Rapids covering 4,600 acres and 40 shoreline miles. Combined, the two reservoirs drain an area of 8,400 square miles and 188 miles of undeveloped shoreline (51%). The Roanoke Rapids project's Shoreline Management Plan was filed with FERC on April 11, 2001 and contains the Lake Gaston and Roanoke Rapids Lake Construction and Use Procedures as Appendix C. Last updated on July 1, 2002, these procedures detail the policies governing allowable shoreline activities within the project boundary.

The Dominion SMP asserts that its purpose is to address the issues involved in managing the project such as: shoreline development, wildlife and fisheries habitat, water quality, and public recreational access to the lakes.

2.3.6 ***Georgia Power North Georgia Project***. Georgia Power Company's North Georgia Project (FERC No. 2354) consists of six dams and reservoirs (Burton, Seed, Rabun, Tallulah Falls, Tugalo, and Yonah) in northeastern Georgia on the Tallulah and Tugaloo Rivers. Together, the small reservoirs cover an area of 4,834 acres, 130.6 shoreline miles, and drain an area of 470 square miles. Georgia Power's North Georgia project does not have a comprehensive shoreline management plan but instead has published its current shoreline

management policies and procedures in two undated Georgia Power Lakes pamphlets entitled “Shoreline Management Guidelines” and “Partnership in Shoreline Management.”

2.3.7 ***Progress Energy Lake Tillery Project***. Progress Energy’s Lake Tillery Project (FERC No. 2206) consists of the Tillery Dam and Lake located on the Pee Dee River in central North Carolina. Lake Tillery covers 5,260 acres, has 118 miles of shoreline (37.9% of which are undeveloped), and drains 4,600 square miles. The Shoreline Management Plan for the Tillery Hydroelectric Project was filed with FERC on December 31, 2001 and contains Appendix B: “Guidelines for the Use of Leased Properties at Lake Tillery.” Appendix B was last updated on October 1, 2001 and contains Progress Energy’s policies for the issues discussed in this report.

The Lake Tillery SMP states its purpose as:

1. Comply with the Federal Energy Regulatory Commission (FERC) Order Amending License issued on September 20, 1999 for the Lake Tillery Project 2206.
2. Describe Progress Energy's shoreline management planning.
3. Document the agency consultation process for the SMP.

Moreover, Appendix B, “Guidelines for the Use of Leased Properties at Lake Tillery” states its purpose as:

1. To help lessees and potential lessees understand Progress Energy's policies for permitting activities within areas leased from Progress Energy around Lake Tillery.
2. To ensure the protection of public recreation opportunities, aesthetic beauty, environmental features, regulatory compliance, and power production capability at the project.

2.3.8 ***Santee Cooper Lakes Project***. Santee Cooper Power’s hydroelectric project consists of Lake Marion (Santee Dam) and Lake Moultrie (Pinopolis Dam) and is located on the

Santee and Cooper Rivers respectively. The two reservoirs in south central South Carolina combine for 450 miles of shoreline and drain 15,000 square miles. Lake Marion covers an area of 100,000 acres and Lake Moultrie covers 60,400 acres. Santee Cooper (FERC No. 0199) is currently going through the relicensing process and does not have a formal Shoreline Management Plan. In 1976 Santee Cooper initiated an Inspection and Compliance Program to manage shoreline permitting policies and procedures. The policies discussed in this report come from a Santee Cooper pamphlet entitled "Permitting Policies and Procedures for Lots Within Santee Cooper Subdivisions" and it was last revised in June 2000. The scope of Santee Cooper's policies pamphlet is limited and therefore silent on many of the issues discussed in this report.

2.3.9 ***South Carolina Electric and Gas Lake Murray Project***. SCE&G's Lake Murray Project (FERC No. 516) consists of the Saluda Dam and Lake Murray Reservoir on central South Carolina's Saluda River. The reservoir covers an area of 48,000 acres, drains 2,420 square miles, and contains 650 shoreline miles. Lake Murray's Shoreline Management Program (last revised August 1995) in addition to its Shoreline Management and Vegetation Protection Agreement (dated March 18, 1998) provide SCE&G's policies discussed in this report. On February 1, 2000, SCE&G submitted a filing to FERC recommending significant amendments to its Shoreline Management Plan under its five-year review. On October 31, 2003, FERC noticed the availability of an environmental assessment of the proposed changes to the Lake Murray SMP and recommended that SCE&G implement and/or continue implementing the proposed changes. The Lake Murray SMP specifications discussed in this

report are predominantly from the latest revised edition of SCE&G's SMP (August 1995). However, the proposed changes that FERC has recommended to be implemented are also discussed and footnoted for clarification.

2.3.10 ***Tennessee Valley Authority***. The TVA system includes reservoirs of 34 dams for flood control, 29 hydroelectric plants, and a pumped storage hydropower plant. TVA manages the Tennessee River system within seven states covering 802 miles from Paducah, Kentucky to Knoxville, Tennessee including secondary channels. As a whole, TVA manages 480,000 acres of reservoir, 11,000 miles of shoreline, and 293,000 acres of public land. TVA lands/reservoirs are managed under section 26a of the TVA Act of 1933. Specifically, Subpart C of Section 26a requires TVA approval for any construction, operation, or maintenance of a structure that affects navigation, flood control, or public lands along the shoreline of the Tennessee River or its tributaries. In addition to the construction and vegetation management guidelines set forth in Section 26a, TVA adopted a Shoreline Management Policy (effective November 1, 1999) to "improve the protection of shoreline and aquatic resources while allowing reasonable access to the water." In most instances, the guidelines of Section 26a remain unaltered by the Shoreline Management Policy (SMP), but in some instances, the effective SMP varies from and is preemptive of Section 26a.

2.3.11 ***U.S. Army Corps of Engineers Hartwell Lake***. The U.S. Army Corps of Engineers, with 75 plants, is the largest owner/operator of hydroelectric power plants in the country. Because the Army Corps of Engineers (ACOE) projects are federally owned, Hartwell Lake

and Dam do not fall under the jurisdiction of FERC. Hartwell Dam, managed by the ACOE, Savannah District and built on the Savannah River between northern Georgia and South Carolina, creates a 55,900-acre reservoir that stretches 49 miles up the Tugaloo River and 45 miles up the Seneca River. Hartwell Lake drains an area of 2,088 square miles and has 592 shoreline miles with approximately 50% of it classified as Limited Development Areas. Limited Development Areas are the areas to which most of the construction guidelines discussed herein apply. The guidelines governing shoreline issues within the Hartwell Lake project come from the Hartwell Lakeshore Management Plan that was initially approved and implemented in 1979. Subsequent revisions to the plan in 1989 and 1998 have created the plan's most current version.

The purpose of the Hartwell Lake SMP is:

1. To provide guidance and information to the public specific to the effective management of the Hartwell Project shoreline and
2. To manage and protect the Hartwell Project shoreline in a manner which promotes the safe and healthful use of the shoreline by the public while maintaining environmental safeguards to ensure a quality resource for future generations.

2.3.12 ***U.S. Army Corps of Engineers Lake Sidney Lanier***. Lake Lanier, regulated by the ACOE, Mobile District, is a 38,000-acre lake in North Central Georgia formed by the construction of the Buford Dam. The Buford Dam was constructed on the Chattahoochee River as an instrument for flood control and created the reservoir's 540 shoreline miles that includes the Chattahoochee's confluence with the Chestatee River. Lake Lanier covers a drainage area of 1,040 square miles. The ACOE manages Lake Lanier's project shoreline under the Lake Lanier Lakeshore Management Plan (LMP). The LMP was implemented in

1975-76 with a final version adopted in 1979. The LMP also has provisions requiring five-year reviews and periodic updates as necessary. The most recent major update to the plan became effective on October 29, 1987. Currently, the Lake Lanier project has a final draft of a revised Shoreline Management Plan (dated September 2003) with the most significant change being nominal (from Lakeshore Management Plan to Shoreline Management Plan). Like Hartwell Lake, most of the shoreline management guidelines discussed herein apply to Limited Development Areas (approximately 46% of the shoreline).

The Corps' Lake Lanier Project's SMP states the purpose of its plan is "to furnish guidance for the management, protection, and preservation of the lake's environment while allowing a balanced use of the shoreline."

Table 3: Geographic Characteristics of Each Project

Owner/Project	***No. Reservoirs***	***Drainage Area (mi^2)***	***Surface Area (acres)***	***Shoreline Miles***	***Percentage of Undeveloped Shoreline***
Yadkin	4	4,200	23,297	556	Greater than 59%
Smith Mountain	2	1,505	23,640	600	NA
DPNA	5	227	3,704	NA	NA
Catawba-Wateree	11	4,750	78,896	1,727	NA
Dominion	2	8,400	24,900	369	51%
Georgia Power	6	470	4,834	131	NA
Lake Tillery	1	4,600	5,260	118	37.9%
Santee Cooper	2	15,000	160,400	450	approximately 75%
Lake Murray	1	2,420	48,000	650	NA
TVA	49	N/A	480,000	11,000	NA
Lake Lanier	1	1,040	39,038	693	NA
Hartwell Lake	1	2,088	56,900	962	NA

Note: NA – Information not available in the SMP

3.0 Results

3.1 Issue-by-Issue Comparison

The issues outlined in the study plan as based on comments by the IAG are discussed herein. The discussions focus on the specifications provided by the Yadkin SMP and how the other SMPs compare and contrast on an issue-by-issue basis.

3.1.1 ***Shoreline Facilities Classifications***. Yadkin classifies shoreline facilities in two broad categories based on density: Multi-use Facilities and Private Recreation Facilities. Multi-use Facilities are further subdivided into Multi-use Facilities Available for Public Use and Other Multi-use Facilities. Public use facilities include boat launch ramps, reservoir access areas, trails, marinas and campgrounds; while other multi-use facilities tend to be private and include boat and yacht clubs, facilities for private organizations, and facilities maintained by homeowners associations. Private recreation facilities are low-density facilities and include individual and shared private piers. Note: no private facilities are allowed on Yadkin's Tuckertown and Falls reservoirs. Both the Georgia Power Lakes and Santee-Cooper projects give no indication of differing shoreline facility categories. The remaining nine projects have classifications ranging from 2 to 8 different categories.

Like Yadkin, these categories generally differentiate between two main types of facilities: high-density facilities and low-density facilities. Where Yadkin refers to high-density facilities as "multi-use," other projects often refer to them as "commercial," "community," "common use," or "public" facilities. Likewise, Yadkin refers to low-density facilities as "private" where other projects may label them "individual" or "single family." Table 4 shows each project's categories and subcategories for shoreline facilities classification.

Table 4: Shoreline Facilities Classifications

Owner/Project	***Classifications***
Yadkin	1.) Multi-Use Facilities (a.) Multi-Use Available for Public Use (b.) Other Multi-Use Facilities 2.) Private Recreation Facilities
Smith Mountain	1.) High Density Commercial 2.) High Density Multi-Use (a.) multi-family dwellings (b.) subdivision access lots 3.) Public Use 4.) Low Density Use (a.) Single Family-Type Residential (b.) Low Density Multi-Use (c.) Low Density Commercial (d.) Low Density Public Use
DPNA	1.) Public Recreation Areas 2.) Commercial Marinas 3.) Private Marinas 4.) Single-Family Piers/Docks 5.) Common Use Piers/Docks
Catawba-Wateree	1.) Commercial Facilities (a.) Non-Residential (b.) Residential 2.) Private Facilities (a.) Individual Private Facility (b.) Common Use Facility
Dominion	1.) Residential (a.)Private Facilities (b.) Community Docks 2.) Commercial Docks and Marinas
Georgia Power	does not specify different facility classifications
Lake Tillery	1.) Private Facilities 2.) Commercial Facilities
Santee Cooper	does not specify different facility classifications
Lake Murray	1.) Public Landings 2.) Commercial Facilities 3.) Common Facilities 4.) Individual Facilities
TVA	1.) Individual Residential Facilities 2.) Community Facilities
Lake Lanier	1.) Private Individual Docks 2.) Community Docks
Hartwell Lake	1.) Private Individual Facilities 2.) Community and Courtesy Facilities

3.1.2 ***Special Environmental Shoreline Classifications***. Nine of the 12 SMPs (Yadkin, Smith Mountain, DPNA, Catawba-Wateree, Dominion, Lake Murray, Lake Tillery, Lake Lanier, and Hartwell Lake) have specially designated shorelines for environmental protection reasons. At the Yadkin Project, these shorelines are called "Conservation Zones" and cover a total (all 4 reservoirs combined) 40.8% of the shoreline. Of the seven other projects with special classifications, three of them (DPNA, Lake Lanier, and Hartwell Lake) have one special classification like Yadkin. The Smith Mountain SMP lists two special classifications and the Catawba-Wateree, Dominion, Lake Murray, and Lake Tillery SMPs have three different environmental classifications for shorelines. With all classifications combined, the percentage of specially designated shoreline ranges from 9.4% (Smith Mountain) to 41.5% (Dominion).

Of the nine SMPs that designate specific shoreline under an environmental heading, eight of them (Yadkin, Smith Mountain, Catawba-Wateree, Dominion, Lake Murray[1], Lake Tillery, Lake Lanier, and Hartwell Lake) have special restrictions on development that apply in these areas. The Lake Lanier and Hartwell Lake SMPs generally do not allow construction or development in these areas. Likewise, the Smith Mountain SMP does not generally allow development within its Conservation/Environmental Areas and the Catawba-Wateree and Lake Murray SMPs do not allow construction inside their respective Environmental and Natural Areas and Conservation Areas[2]. The Yadkin SMP does not prohibit development in a "Conservation Zone"; but if development occurs, potential environmental impacts must be offset or mitigated. Although the Dominion and Lake Tillery SMPs do not prohibit construction in these areas, they do place significant restrictions on dredging and erosion control measures. The DPNA SMP notes the existence of "Environmentally-Important Areas", but does not mention any special guidelines or restrictions for these areas.

Only three of the project SMPs, Georgia Power, Santee Cooper, and TVA do not specially designate shoreline areas for resource protection and, therefore, do not have any special restrictions in place for certain shoreline areas. A more detailed description of each SMP's specially designated environmental shoreline areas and associated protections and restrictions are provided in Appendix A, Table 1.

Table 5: Special Environmental Shoreline Classifications

[1] Information obtained from SCE&G's Lake Murray Five Year Review (Conservation Areas are proposed as a new designation)
[2] Information obtained from SCE&G's Lake Murray Five Year Review (Conservation Areas are proposed as a new designation)

Owner/Project	*Special Environmental Classification of Shoreline*	*Percentage of Shoreline with Special Classification*	*Total Number of Shoreline Miles*	*Certain Activities Are Prohibited in Environmental Zones*
Yadkin	Conservation Zones	40.8% (total, 4 reservoirs)	556	Yes
Smith Mountain	Conservation/ Environmental Areas and Impact Minimization Zones	9.4% (total, 2 reservoirs)	600	Yes
DPNA	Environmentally-Important Areas	NS	NS	Yes
Catawba-Wateree	Environmental Areas, Natural Areas, and Impact Minimization Zones	27.4% (total, all reservoirs)	1,727	Yes
Dominion	Limited Use Areas, Sensitive Areas, and Undevelopable Areas	41.5% (total, 2 reservoirs)	369	Yes
Georgia Power	NS	NS	131	NS
Lake Tillery	Environmental/Natural Zones, Impact Minimization Zones, Undeveloped Public Recreation Areas	36.6%	118	Yes
Santee Cooper	NS	NS	450	NS
Lake Murray	Conservation Areas[1], Natural Areas[2], and Environmentally Sensitive Areas[3]	NS	650	Yes
TVA	NS	NS	11,000	NS
Lake Lanier	Protected Shoreline Areas	25.0%	693	Yes
Hartwell Lake	Protected Shoreline Areas	26.0%	962	Yes

Note: NS – Not specified in SMP

3.1.3 ***Private Pier Minimum Requirements.*** Under the Yadkin Project SMP, all new private piers require a minimum shoreline lot width of 200 feet (note: two adjacent lots with 100 feet width each may have a shared pier). In subdivisions developed prior to May 1, 1987, piers may be granted for lots with a minimum shoreline width of 100 feet. Of the other projects reviewed, 7 of them (Smith Mountain, Catawba-Wateree, Georgia Power, Lake Murray, TVA, Lake Lanier, and Hartwell Lake) also have minimum lot width requirements ranging from 50-100 feet, and 4 do not specify a minimum required lot width (DPNA, Dominion,

[1] Information obtained from SCE&G's Lake Murray Five Year Review (Conservation Areas are proposed as a new designation)
[2] ibid.
[3] ibid.

Lake Tillery, and Santee Cooper). Three of the project SMPs (Smith Mountain, Georgia Power, and Lake Murray) require a minimum lot width of 100 feet, and 4 require less than 100 feet of adjoining shoreline. Both Lake Lanier and Lake Hartwell require 82 feet lot widths, Catawba-Wateree requires 75 feet, and TVA states that lots less than 50 feet in width are subject to pier width limitations.

Yadkin's policy for required minimum water depth states that "piers must be constructed such that they have access to a minimum water depth of 8 feet within 75 feet of the shoreline." Four other project SMPs have minimum water depth requirements. DPNA and Santee Cooper require 4 feet of depth so long as it can be reached within 75 and 50 feet respectively, while the two ACOE SMPs require 6 feet depth for "all intended boat mooring sites." The remaining 7 projects do not specify a required minimum water depth for pier construction.

Regarding the position of a pier on a lot, the Yadkin SMP does not identify a specific distance in feet for its side setback requirement but states that a pier "will be located as near as possible to the middle of the applicant's lot(s)." In contrast, most of the other project SMPs do have specific side setback requirements. Five other projects (Smith Mountain, DPNA, Dominion, Georgia Power, and Lake Murray) require a 15-feet setback from the adjoining property owner's extended side lot lines. Santee Cooper requires a 10-feet setback. The three non-FERC licensed projects require a 50-feet setback from any adjacent pier. Neither the Catawba-Wateree nor Lake Tillery SMPs specify any setback requirements.

Table 6: Private Pier Minimum Requirements

Owner/Project	***Minimum Lot Width Required***	***Minimum Water Depth Required***	***Side Setback Requirements***
Yadkin	200 feet	8 feet within 75' from	as near as possible to middle

		shoreline	of applicant's lot
Smith Mountain	100 feet	NS	15 feet
DPNA	not specified (but, DPNA reserves the right to deny an application based on lot size)	4 feet within 75' from shoreline	15 feet
Catawba-Wateree	75 feet	NS	NS
Dominion	NS	NS	15 feet
Georgia Power	100 feet	NS	15 feet
Lake Tillery	NS	NS	NS
Santee Cooper	NS	4 feet within 50' from shoreline	10 feet
Lake Murray	100 feet	NS	15 feet
TVA	50 feet	NS	50 feet from adjacent dock
Lake Lanier	82 feet	6 feet "for all intended boat mooring sites"	50 feet from adjacent dock
Hartwell Lake	82 feet	6 feet "for all intended boat mooring sites"	50 feet from adjacent dock

Note: NS – Not specified in SMP

3.1.4 ***Private Pier Dimensions***. All twelve of the SMPs reviewed provide some guidelines or restrictions on private pier dimensions. The Yadkin SMP does not specify an overall allowable total square footage. It does, however, give the maximum dimension for each section of the pier. The stationary section must not exceed 300 square feet, the maximum dimensions for a floating section are 32 feet by 22 feet (including slip) or 16 feet by 20 feet (without a slip) with a minimum total area of 144 square feet. The maximum dimensions for treated lumber (wooden) ramp sections are 16 feet by 6 feet, but ramps of different lengths and made of material specifically for use on piers may be considered by Yadkin provided that the total maximum pier length does not exceed the length permitted by Yadkin in the construction permit issued for the pier. Like the Yadkin SMP, the Georgia Power and Lake Lanier SMPs discuss dimensions section by section. The Georgia Power guidelines state that any portion of the dock must not exceed 16 feet by 20 feet and boat slips may be a maximum of 24 feet by 36 feet (single) or 36 feet by 36 feet (double). Combination dock-boat slips may not exceed 30 feet by 36 feet (single) or 44 feet by 36 feet (double) including walkways.

Lake Lanier's SMP caps dock dimensions at 32 feet by 32 feet and aggregate slips must not exceed 20 feet by 28 feet. The SMP also states that any attached platform or dock must not exceed 192 square feet and floating ramps are allowed to be up to 6 feet wide and 40 feet long.

Six SMPs (Smith Mountain, Dominion, Lake Tillery, Lake Murray, TVA, and Hartwell Lake) give a specific maximum square footage for private pier structures or "footprints." Dominion has a maximum of 1,250 square feet; the Lake Tillery SMP's maximum square footage is 1,200 square feet (800 square feet in Impact Minimization Zones); 450 square feet at Lake Murray; 1,000 square feet on TVA waters; and 1,120 square feet at Hartwell Lake. The Smith Mountain SMP allows different size piers based upon the linear footage of the adjacent property owner's shoreline. An adjacent property owner with 100 to 300 feet of shoreline may have a 1,500 square foot dock and the total square footage increases by 750 square feet for each 300 feet of shoreline thereafter. The Catawba-Wateree SMP simply states that "decking areas" must not exceed 1,000 square feet. The DPNA SMP states that the pier terminal must not exceed 20 feet by 26 feet, while Santee Cooper's policy states that "T" or "L" shaped terminals must not exceed 16 feet by 24 feet.

The Yadkin SMP's policy on total pier length states that piers may be 75 feet or 25% the width of a cove or the length required to install a functional pier that reaches the minimum 8-foot water depth, whichever is less. In instances where cove width is less than 100 feet, piers are not permitted. Like Yadkin, 4 other SMPs (Smith Mountain, Catawba-Wateree, Santee Cooper, and TVA) have policies that involve "whichever is less" language. For Smith Mountain, Catawba-Wateree and TVA it is one-third the distance across the cove

or reservoir and 100 feet, 120 feet, and 150 feet respectively. Santee Cooper's policy states that a pier may extend 50 feet or the length necessary to achieve 4 feet water depth, "whichever occurs first." Four other SMPs (DPNA, Lake Tillery, Lake Lanier and Hartwell Lake) also have a one-third the distance across the cove or reservoir policies. The DPNA SMP states that piers must not exceed 50 feet or one-third of cove width, but may consider piers up to 75 feet if a water depth of 4 feet cannot be reached within 50 feet. The SMP for Lake Tillery states that piers may not exceed 100 feet or the one-third distance, while the two Corps projects simply state that piers may not exceed the one-third distance. The Georgia Power and Lake Murray SMPs have specific lengths that are not to be exceeded, 50 feet and 75 feet respectively. Dominion's policy states that piers may not extend further into the water than necessary for the ingress/egress of motorized crafts, up to a maximum of ¼ of cove width.

The Yadkin SMP's guidelines regarding maximum pier width are broken down according to pier section. As discussed with regard to total square footage, those maximums are 22 feet for the floating section (16 feet without a slip), 10 feet for the stationary section, and 6 feet for the ramp. Likewise, pier width maximums for specific sections are given in the discussion of total square footage when mentioned in the SMPs. Moreover, seven SMPs (DPNA, Dominion, Georgia Power, Lake Tillery, Santee Cooper, TVA, and Hartwell Lake) all have width maximums for walkways (or gang walks) not mentioned above. Like Yadkin, they all have maximum widths of six feet except Lake Tillery (5 feet). A full listing of each SMP's policies can be found in Appendix A, Table 2.

Table 7: Private Pier Dimensions

Owner/Project	*Private Piers Of Any Size Allowed*	*Private Pier Maximum Square Footage Allowed*	*Maximum Pier Length Allowed*
Yadkin	No	Section by section basis	75 ft or ¼ of cove width, provided that pier does not create a navigational hazard
Smith Mountain	No	1500 sq ft	100 ft or 1/3 of cove width
DPNA	No	NS	50-75 ft or 1/3 of cove width
Catawba-Wateree	No	1000 sq ft	120 ft or 1/3 of cove width
Dominion	No	1250 sq ft	Length necessary for ingress/ egress up to ¼ cove width
Georgia Power	No	NS	50 ft
Lake Tillery	No	1200 sq ft	100 ft or 1/3 cove width
Santee Cooper	No	NS	50 ft or to 4 ft water depth
Lake Murray	No	450 sq ft	75 ft
TVA	No	1000 sq ft	150 ft or 33% of cove width
Lake Lanier	No	NS	1/3 of cove width
Hartwell Lake	No	NS	1/3 of cove width

Note: NS – Not specified in SMP

3.1.5 ***Private Pier Configuration***. The Yadkin Shoreline Management Plan states that "only piers ending in a floating section are permitted." The Yadkin SMP also allows "on-pier" conforming boatlifts, but prohibits other types of "on-pier" structures. Yadkin's specifications for boatlifts require that the lifts be mounted to the floating section and that they must not rest on the reservoir bottom. Boatlifts may have canvas covers but must cover the boat only and may not be more than 10 feet above the deck.

Of the other 11 project SMPs, five (DPNA, Lake Tillery, Lake Murray, TVA, and Lake Lanier) specifically state whether piers may be floating, fixed, or both. Of these five project SMPs, only the DPNA SMP requires that a pier end in a floating section, while the others allow piers to be either fixed, floating or a combination of the two. Five projects (Smith Mountain, Catawba-Wateree, Dominion, Georgia Power, and Santee Cooper) do not specifically mention a required pier configuration in terms of floating or fixed. The Army Corps of Engineers' do not specifically require floating sections at Hartwell Lake and Lake Lanier, but only give specifications for individual facilities referred to as "floating facilities." As such, it is inferred that the Corps requires new facilities to end in a floating

section at these two reservoirs. Like Yadkin, all of the other 11 project SMPs have specifications regarding on-pier structures. Three of the project SMPs (DPNA, Catawba-Wateree, and Santee Cooper) expressly prohibit certain types of on-pier structures. The DPNA SMP does not allow covered or enclosed piers or on-pier structures except small storage boxes but does allow one boatlift per slip. The Catawba-Wateree SMP does not allow covered slips, boathouses, or shelters at Common Use Facilities, but does allow these structures at Individual Facilities provided they are not enclosed. Santee Cooper's policy states that generally "boathouses will not be permitted on or adjacent to piers or docks." However, in cases where lots are located on high bluffs, boathouses "will be considered". Dominion expressly allows boat shelters and boathouses at Lake Gaston and Roanoke Rapids and TVA appears to allow boathouses and covered slips on its system reservoirs. Georgia Power clearly allows boathouses, shelters and gazebos on its reservoirs. The remaining five projects (Smith Mountain, Lake Tillery, Lake Murray, Lake Lanier and Hartwell Lake) do not specifically state what type of structures are and are not allowed, but expressly allow roofing or enclosures and therefore is assumed that they allow some forms of on-pier structures. A full listing of policies regulating private pier configuration for each project can be found in Appendix A, Table 3.

Table 8: Private Pier Configuration

Owner/Project	***Piers Required To End in a Floating Section***	***Certain Types of On-pier Structures (Boathouses, Shelters, Gazebos) Allowed***
Yadkin	Yes	No
Smith Mountain	NS	Yes
DPNA	Yes	No
Catawba-Wateree	NS	Yes
Dominion	NS	Yes
Georgia Power	NS	Yes
Lake Tillery	No	Yes
Santee Cooper	NS	Yes

Lake Murray	No	Yes
TVA	No	Yes
Lake Lanier	Yes (inferred)	Yes
Hartwell Lake	Yes (inferred)	Yes

Note: NS – Not specified in SMP

3.1.6 ***Pier Materials.*** The Yadkin SMP requires that piers be constructed of pressure treated lumber and pilings, grade marked by the American Wood Preservers' Bureau. Likewise, Yadkin requires all flotation to be manufactured and plastic-encased. Yadkin's policy also states that other materials may be allowed with prior written approval. The eleven other project SMPs all have specifications for flotation and three of these (Dominion, Lake Tillery, Lake Lanier) also have specifications for wood. Dominion requires pier lumber to be pressure treated except in areas protected from the weather. The Lake Tillery SMP requires that decks be made of wood or other "environmentally acceptable materials"; while at Lake Lanier the ACOE requires wood to be pressure treated with environmentally friendly chemicals.

The specifications for flotation are uniquely stated for each of the eleven compared projects, and usually require such qualities as puncture-resistance, water logging resistance, and encapsulation. Also, many of the project SMPs expressly prohibit metal drums and foam beads. For each project's specific requirements and policies refer to Appendix A, Table 4.

Table 9: Private Pier Materials

Owner/Project	***Wood Used to Build Piers Required to Meet Certain Specifications***	***Pier Flotation Required To Meet Certain Specifications***
Yadkin	Yes	Yes
Smith Mountain	No	Yes
DPNA	No	Yes
Catawba-Wateree	No	Yes
Dominion	Yes	Yes
Georgia Power	No	Yes

Lake Tillery	Yes	Yes
Santee Cooper	No	Yes
Lake Murray	No	Yes
TVA	No	Yes
Lake Lanier	Yes	Yes
Hartwell Lake	No	Yes

3.1.7 ***Private Boathouses***. The Yadkin SMP expressly prohibits the construction of new private boathouses. In its shoreline management guidelines, Santee Cooper states that boathouses will generally not be permitted on or adjacent to piers and docks, but will be considered in cases of lots located on high bluffs. The DPNA SMP also has restrictions that would seem to exclude the construction of new boathouses. Though the DPNA SMP does not specifically use the term "boathouses," it disallows covered or enclosed piers and covered or enclosed structures on piers. Five projects (Catawba-Wateree, Dominion, Georgia Power, Lake Tillery, and TVA) expressly allow boathouses and provide specifications for such. Similar to the discussion of on-pier structures, Smith Mountain, Lake Murray, Lake Lanier, and Hartwell Lake all allow roofing or some kind of enclosure and therefore do not seem to prohibit boathouses. Because of the uniqueness of each SMP's language on superstructures, a detailed comparison of boathouses and specific on-pier structures is difficult. Each SMP's boathouse and superstructure construction specifications can be found in Appendix A, Tables 3 and 5.

Table 10: Private Boathouses

Owner/Project	***New Private Boathouses Allowed***
Yadkin	No
Smith Mountain	NS
DPNA	No
Catawba-Wateree	Yes
Dominion	Yes
Georgia Power	Yes
Lake Tillery	Yes

Santee Cooper	No (generally)
Lake Murray	NS
TVA	Yes
Lake Lanier	NS
Hartwell Lake	NS

Note: NS – Not specified in SMP

3.1.8 ***Private Boat Ramps***. Yadkin's SMP expressly states that no new private individual boat launch ramps will be permitted. Four other projects, DPNA, Lake Murray[1], Lake Tillery, and Lake Hartwell, also do not allow the construction of new, private boat ramps. Five projects (Catawba-Wateree, Ga. Power, Santee Cooper, Lake Murray and TVA) allow private boat ramps provided they meet required specifications. The sole specification of the Catawba-Wateree SMP is that ramp construction shall not occur during the months of March, April, May, and June "because of potential impacts to fish spawning areas." Georgia Power only permits ramps on a case by case basis and specifies that ramps must be constructed of reinforced concrete with a minimum thickness of 4 inches, ramps may be up to 12 feet wide and long enough to be functional, ramps must maintain a 15 feet setback from side lot lines, and joint-owner ramps are prohibited. Santee Cooper maintains the same guidelines as Georgia Power regarding construction material and thickness, length, and width specifications but also requires ramp construction to avoid vegetated wetlands to the extent possible. The Lake Murray SMP encourages public and semi-public ramps as opposed to private ramps and may grant size variances for such. Lake Murray also requires ramps to be constructed of concrete (asphalt and petroleum based products are prohibited) and ramps may be up to 15 feet wide and of functional length but must not interfere with neighboring

[1] New individual boat ramps will not be permitted under SCE&G's proposed change in the Lake Murray Five Year Review (the discussed specifications pertain to community boat ramps only)

property owners. Like Lake Murray, TVA allows private boat ramps made of concrete but prohibits asphalt, and requires ramps to be constructed during reservoir drawdown with upland disposal of excavated material. The Smith Mountain, Dominion, and Lake Lanier SMPs do not mention boat ramps regarding their allowance or specifications. Each SMP's policies concerning boat ramp construction can be found in Appendix A, Table 6.

Table 11: Private Boat Ramps

Owner/Project	***New Private Boat Ramps Allowed***
Yadkin	No
Smith Mountain	NS
DPNA	No
Catawba-Wateree	Yes
Dominion	NS
Ga. Power	Yes
Lake Tillery	No
Santee Cooper	Yes
Lake Murray	Yes
TVA	Yes
Lake Lanier	NS
Hartwell Lake	No

Note: NS – Not specified in SMP

3.1.9 ***Multi-Use Facilities Specifications***. Like Yadkin, 7 other SMPs (Smith Mountain, DPNA, Catawba-Wateree, Dominion, TVA, Lake Lanier, and Hartwell Lake) give specifications for multi-use facilities. Such specifications include size minimum and maximums similar to private facility specifications. In fact, each SMP's specifications for multi-use facilities vary little from its private facilities specifications. The eight SMPs mentioned above all have size specifications with the Yadkin, Smith Mountain, DPNA, Catawba-Wateree, and Lake Lanier SMPs setting length maximums. Similarly, the Smith Mountain, Catawba-Wateree, Dominion, TVA, Lake Lanier, and Hartwell Lake SMPs have

specifications for dimensions, be it for a specific pier section or for facility structures as a whole.

Also, six SMPs (Smith Mountain, DPNA, Catawba-Wateree, Dominion, Lake Murray, and TVA) have specifications concerning the allowable density of multi-use facilities and four SMPs (Smith Mountain, DPNA, Catawba-Wateree, and Hartwell Lake) have setback policies ranging from 15 feet (DPNA) to 200 feet (Catawba-Wateree). The Lake Murray SMP specifically states that "common docks" must comply with general dock specifications (same as private facilities) and it is assumed that the three SMPs (Georgia Power, Lake Tillery, and Santee Cooper) that do not distinguish between private and multi-use facilities and/or do not provide additional specifications for multi-use facilities require multi-use facilities to comply with the same policies governing private facilities. A full listing of each SMPs multi-use facilities specifications can be found in Appendix A, Table 7.

Table 12: Multi-Use Facilities Specifications

Owner/Project	***SMP Differentiates Multi-Use Specifications From Private/ Individual Specifications***	***SMP Sets Multi-Use Facility Length Maximums***	***SMP Sets Square Footage Specifications for Multi-Use Facilities***	***SMP Includes Density Specifications For Multi-Use Facilities***	***SMP Includes A Multi-Use Facility Setback Policy***
Yadkin	Yes	Yes	No	No	No
Smith Mountain	Yes	Yes	Yes	Yes	Yes
DPNA	Yes	Yes	Yes	Yes	Yes
Catawba-Wateree	Yes	Yes	Yes	Yes	Yes
Dominion	Yes	No	Yes	Yes	No
Georgia Power	No	No	No	No	No
Lake Tillery	No	No	No	No	No
Santee Cooper	No	No	No	No	No
Lake Murray	No	No	No	Yes	No
TVA	Yes	No	Yes	Yes	No
Lake Lanier	Yes	Yes	Yes	No	No
Hartwell Lake	Yes	No	Yes	No	Yes

3.1.10 ***Excavation and Dredging***. In the Yadkin SMP, excavation is distinct from dredging in that excavation occurs "in the dry" whereas dredging occurs "in the wet." The Yadkin Project SMP is the only one of the SMPs that clearly distinguishes between excavation and dredging. The Yadkin SMP generally prohibits dredging and excavation on 3 of 4 reservoirs and allows excavation only on High Rock Reservoir. Two other project SMPs, Lake Murray and TVA, distinguish excavation as "in the dry," while the remaining projects refer to either excavation or dredging or both (without distinction between the two). Six of the compared project SMPs (DPNA, Dominion, Georgia Power, Lake Tillery, Santee Cooper, and Hartwell Lake) have policies covering "dredging" only while the Catawba-Wateree SMP and ACOE's policies for Lake Lanier pertain to "excavation" only. Smith Mountain clearly does not distinguish between excavation and dredging as its policies pertain to "dredging/excavation."

Although most of the project SMPs' provisions pertain to either dredging or excavation, they all share similar characteristics. Like Yadkin, five project SMPs explicitly prohibit dredging/excavation during March through June and prohibit dredging/excavation from altering the existing shoreline. Five project SMPs (Smith Mountain, Dominion, Georgia Power, Lake Tillery, and Lake Lanier) expressly prohibit removal of the original lake bottom. Eight projects (including Yadkin) require excavated material to be placed landward of the existing shoreline and seven projects (including Yadkin) expressly prohibit dredging/excavation in vegetated wetlands. The Yadkin SMP requires any excavation to allow the water to drain freely when reservoir levels drop, as does Dominion, TVA, and the ACOE at Lake Lanier. DPNA is the only SMP that explicitly prohibits filling and dredging

on its reservoirs. A full listing of each project's policies concerning dredging and/or excavation is provided in Table 8 in Appendix A.

Table 13: Excavation and Dredging

Owner/Project	Policies Pertain to Excavation, Dredging or Both	Excavation Is Required To Be "in the dry"	Excavation/ Dredging Activities During March Through June Allowed	Removal of Original Lake Bottom Allowed	Alteration of Existing Shoreline Allowed	Excavated Material Required to be Placed Landward of the Shoreline	Activities in Vegetated Wetlands Allowed	Requires That Water Must Drain Freely from Excavated Area
Yadkin	Dredging/ Excavation*	Yes	No	NS	No	Yes	No	Yes
Smith Mountain	Dredging/ Excavation	No	No	No	No	Yes	No	No
DPNA	Dredging	prohibited	No (always prohibited)	NS	NS	NS	NS	NS
Catawba-Wateree	Excavation	No	No	NS	No	Yes	No	No
Dominion	Dredging	No	No	No	No	Yes	No	Yes
Georgia Power	Dredging	No	NS	No	NS	Yes	NS	No
Lake Tillery	Dredging	No	No	No	NS	Yes	No	No
Santee Cooper	Dredging	No	NS	NS	NS	No	NS	No
Lake Murray	Excavation	Yes	No	NS	No	Yes	No	No
TVA	Excavation	Yes	NS	NS	NS	Yes	NS	Yes
Lake Lanier	Excavation	No	NS	No	No	No	No	Yes
Hartwell Lake	Dredging	No	NS	NS	NS	No	NS	No

Note: NS – Not specified in SMP

* - The Yadkin SMP generally prohibits dredging and excavation on 3 of 4 reservoirs and allows excavation only on High Rock Reservoir.

3.1.11 ***Shoreline Stabilization/Erosion Control***. Each SMP discusses which methods of erosion control and shoreline stabilization are allowed and some specifically prefer certain methods to others. Also, all SMPs give some form of specifications for at least one form of shoreline stabilization. The Yadkin SMP allows, to the extent that particular circumstances demonstrate the need for shoreline stabilization, based on the assessment of a registered Professional Engineer, vegetative plantings, riprap and retaining walls as possible methods of shoreline stabilization. Preference is given to plantings, followed by riprap, and in cases of severe erosion, retaining walls. The Smith Mountain, DPNA, Catawba-Wateree, Dominion, Georgia Power, Lake Tillery, Lake Murray, TVA, Lake Lanier, and Hartwell Lake SMPs also allow plantings as a method of erosion control. Although the Santee Cooper SMP does

not specifically mention biostabilization, it is assumed that it is allowed. All SMPs also allow riprap and either bulkheads, retainer walls, or seawalls. Like Yadkin, the Smith Mountain, Catawba-Wateree, Lake Murray[1], Lake Tillery, and TVA SMPs all prefer vegetation as a method of erosion control. The two USACE SMPs state riprap as the preferred method, while the DPNA, Dominion, Georgia Power, Santee Cooper, and Lake Murray SMPs do not state a preferential method.

The Yadkin SMP does not provide specifications for shoreline stabilization methods while others do. Instead, at Yadkin, appropriate shoreline erosion stabilization measures are considered on a case-by-case basis. The Smith Mountain, DPNA, Catawba-Wateree, Dominion, Santee Cooper, Lake Murray, and TVA SMPs provide some specifications for the installation of riprap. The Catawba-Wateree, Dominion, Georgia Power, Lake Tillery, Santee Cooper, Lake Murray, and TVA SMPs also provide specifications for the construction of bulkheads or retaining walls/seawalls. The Yadkin SMP simply requires that proper consultation and approval is conducted with the proper agencies and that an engineer evaluate the structures. For a complete listing of each SMP's specifications for shoreline stabilization methods refer to Appendix A, Table 9.

Table 14: Shoreline Stabilization/ Erosion Control

Owner/Project	***Shoreline Stabilization Allowed***	***Allowable Methods***	***Preferred Shoreline Stabilization Method***	***Specifications for Riprap Installations Provided***	***Specifications for Bulkheading Provided***
Yadkin	Yes	vegetative plantings, riprap, retaining walls	vegetation	Per engineer's report	Per engineer's report
Smith Mountain	Yes	vegetation, riprap, bulkheads	vegetation	Yes	No
DPNA	Yes	vegetation, dry-stack rock, rip rap, and other environmentally friendly methods	NS	Yes	No

[1] policy proposed in SCE&G's Lake Murray Five Year Review

Catawba-Wateree	Yes	landscape planting (vegetation), riprap, seawalls	vegetation	Yes	Yes
Dominion	Yes	vegetation, riprap, bulkheading	NS	Yes	Yes
Georgia Power	Yes	seawalls are all that are mentioned	NS	No	Yes
Lake Tillery	Yes	vegetation, riprap, bulkheads, seawalls	vegetation	No	Yes
Santee Cooper	Yes	retaining walls, bulkheads, groins, riprap	NS	Yes	Yes
Lake Murray	Yes	riprap, seawalls, retainer walls; bioengineering	vegetation (in areas of light to moderate erosion)	Yes	Yes
TVA	Yes	biostabilization (vegetation), gabion and riprap, retaining walls	vegetation	Yes	Yes
Lake Lanier	Yes	vegetation, riprap, sea walls and gabions	riprap	No	No
Hartwell Lake	Yes	vegetation, riprap, retaining walls	riprap	No	No

Note: NS – Not specified in SMP

3.1.12 ***Shoreline Cleanup***. The Yadkin SMP (Shoreline Stewardship Policy) states that removal of floating debris, litter, or garbage does not require prior Yadkin approval provided the method of removal complies with the requirements of the Shoreline Stewardship Policy. Likewise, the Smith Mountain SMP also clearly states that removal of floating debris and shoreline litter does not require approval "as long as the method of removal complies with other requirements of the plan." The remaining 10 project SMPs do not specifically mention removal of litter and debris, and it is assumed that doing so does not require prior approval.

Concerning lap trees and/or woody debris, Yadkin's SMP states that removal of "lap trees," stumps, or other woody or natural debris within the reservoir requires specific Yadkin approval. However, the SMP also states that any tree that poses an imminent threat to life or property may be removed without prior approval. Ideally, a permit will be written before any tree removal; however, in a case of imminent threat to life or property a tree may be removed and written approval documented after the fact. Four other projects (Smith Mountain,

DPNA, Lake Tillery, and Lake Lanier) have similar specifications concerning the removal of lap trees. The Smith Mountain, DPNA, and Lake Tillery SMPs all discourage removal of lap trees unless they pose a navigational or safety hazard, and Lake Lanier's policy states that "[V]isitors should refrain from clearing non-hazardous shoreline stumps or trees that have fallen onto the lake bed." Dominion does not specifically mention "lap trees" but does require prior approval for stump removal as part of a dredging activity. Similarly, Lake Murray prohibits excavation of wooded areas (presumably stumps and other woody debris) below the normal full-pool elevation of the reservoir. The remaining five project SMPs neither mention nor provide specifications for lap trees or woody debris. A detailed description of the restrictions on woody debris removal at each project is provided in Appendix A, Table 10.

Table 15: Shoreline Cleanup

Owner/Project	***Litter/Debris Removal Allowed***	***Lap Tree Removal Allowed Without Approval***
Yadkin	Yes	No
Smith Mountain	Yes	NS
DPNA	NS	No
Catawba-Wateree	NS	NS
Dominion	NS	No
Georgia Power	NS	NS
Lake Tillery	NS	No
Santee Cooper	NS	NS
Lake Murray	NS	No
TVA	NS	NS
Lake Lanier	NS	No
Hartwell Lake	NS	NS

Note: NS – Not specified in SMP

3.1.13 ***Shoreline Buffers***. With respect to shoreline buffers, generally, the twelve project SMPs reviewed for this study (including Yadkin) can be split into two groups: those that acknowledge shoreline or riparian buffers and those that do not. Of the twelve SMPs

reviewed, nine acknowledge or specify a shoreline or riparian buffer surrounding the reservoir(s) shoreline while three do not. At the Yadkin Project, the Yadkin-managed buffer is defined as property adjoining the FERC project boundary at the normal full pool elevation of the reservoir that is owned by Yadkin (or its parent company Alcoa), to a width of 100 feet. In addition, the Yadkin SMP requires a "100-feet forested setback" for adjoining property owners in new subdivisions in order to qualify for private pier construction. Together, the Yadkin-managed buffer and the 100-feet forested setback combine to create an effective buffer zone of 100 feet along the reservoirs' shorelines totaling 5,868 acres.

Like Yadkin, Smith Mountain, DPNA, Catawba-Wateree, Georgia Power, Lake Tillery, Lake Murray, TVA, and Lake Lanier all recognize a vegetative buffer surrounding the reservoir(s). Of the eight projects besides Yadkin acknowledging a buffer, six specifically define its constitution (Smith Mountain and Catawba-Wateree do not specifically define buffer boundaries). Georgia Power's "vegetative buffer" is 25 feet, Lake Tillery's "vegetative buffer" is a minimum of 30 feet from the shoreline, Lake Murray's "buffer zone" is 75 feet, and TVA's "Shoreline Management Zone" is 50 feet. Although not numerically defined, DPNA's buffer includes all shoreline property on DPNA-owned lands within the FERC project boundary. Likewise, the Smith Mountain SMP does not mention specific boundaries for its buffer, but the SMP's language implies that the buffer includes all lands within the project boundary. Lake Lanier's policy states that "Limited Development Areas" are to serve as a forested buffer (approximately 47% of the shoreline). The SMPs for Santee Cooper, Hartwell Lake and Dominion's reservoirs do not specifically mention riparian buffers.

Table 16: Shoreline or Riparian Buffers

Owner/Project	*SMP Designates Shoreline Buffer*	*Name of Buffer*	*Definition/Boundaries of the Buffer*
Yadkin	Yes	"Yadkin-Managed Buffer" and "100 ft forested setback"	Yadkin Managed Buffer - APGI/Alcoa-owned lands up to 100 feet of shoreline property at normal full-pool elevation. Setback - to be eligible for a private pier, 100' forested setback requirement on private land adjacent to the reservoirs for all lots in new subdivisions platted and recorded on or after July 1, 1999.
Smith Mountain	Yes	referred to as "the buffer"	SMP does reference a buffer, but not specifically defined (it is inferred that this is considered the same as the project boundary)
DPNA	Yes	referred to as "riparian areas" or "riparian wildlife corridors"	includes shoreline property on DPNA-owned lands within the FERC project boundary
Catawba-Wateree	Yes	"Riparian Zone"	acknowledges buffer surrounding shoreline (width varies from county to county)
Dominion	NS	NS	no specifically designated buffer
Georgia Power	Yes	"Vegetative Buffer"	25' landward around the shoreline
Lake Tillery	Yes	"Vegetative Buffer"	minimum of 30' from the shoreline
Santee Cooper	NS	NS	no specifically designated buffer
Lake Murray	Yes	"Buffer Zone"	75' (landward) area surrounding the shoreline (not applicable everywhere)
TVA	Yes	"Shoreline Management Zone" (SMZ)	50 feet barrier extending landward from the shoreline; if TVA-owned land does not extend 50' then the SMZ shall be to the extent of TVA property
Lake Lanier	Yes	"Limited Development Areas" (LDA)	LDAs are to serve as an undisturbed forested buffer (approximately 47% of the shoreline)
Hartwell Lake	NS	NS	no specifically designated buffer

3.1.14 ***Shoreline Vegetation Management.*** Of the 9 project SMPs acknowledging a riparian buffer, seven of them (Yadkin, Catawba-Wateree, Georgia Power, Lake Tillery, Lake Murray, TVA, and Lake Lanier) have vegetation management guidelines that pertain specifically to the buffer. More specifically, these SMPs have guidelines pertaining to the removal or thinning of vegetation within the designated buffer area. Smith Mountain's SMP has vegetation management guidelines that pertain to lands within the project boundary and as it is inferred that the project boundary is synonymous with the buffer boundary, its guidelines are also buffer-specific. The DPNA, Dominion, and Hartwell Lake SMPs also

have vegetation management guidelines, although the guidelines do not apply specifically to a buffer zone. DPNA's guidelines apply to DPNA-owned property and as such would include its riparian buffer. In Dominion's SMP, vegetation guidelines are specific to shoreline development classifications (i.e. General Development Areas, Sensitive Areas, etc.), and the Hartwell Lake SMP's guidelines apply to the applicant's adjacent front lot. Santee Cooper's SMP does not provide vegetation management guidelines.

The Yadkin vegetation guidelines state that limbs may be pruned or removed up to 8 feet above ground. For lots in certain subdivisions subject to the Bald Eagle Management Plan (BEMP), pruning limbs is unrestricted on adjacent landowner property within the 100 feet setback. The Smith Mountain, DPNA, Catawba-Wateree, Dominion, Lake Tillery, Lake Murray[1], TVA, Lake Lanier, and Lake Hartwell SMPs also allow pruning. Like Yadkin, the Lake Murray, Lake Lanier, and Lake Hartwell SMPs allow pruning up to a specific height: 10 feet, head height, and one-third of plant height respectively. DPNA's policy allows pruning except below 4 feet and Dominion's policy allows vegetation (in General Development Areas only) between 2.5 and 20 feet above ground to be partially cleared, while the Smith Mountain, Catawba-Wateree, Lake Tillery, and TVA all expressly allow pruning but do not give specific guidelines.

Five projects have guidelines defining the largest size of trees that can be removed. For Yadkin and Lake Lanier, no trees with diameters greater than 2 inches may be removed; whereas Lake Tillery and Lake Murray have a 3-inch limit and Hartwell Lake has a 4-inch limit. Like Yadkin, Smith Mountain, DPNA, Catawba-Wateree, expressly allow limited

[1] policy proposed in SCE&G's Lake Murray Five Year Review

clearing for view improvement. Six projects (Yadkin, DPNA, Dominion, Lake Tillery, TVA, and Lake Lanier) require leaf litter within the buffer to remain undisturbed. Each SMP's policies regarding vegetation removal are listed in depth in Appendix A, Table 11.

Table 17: Vegetation Management in the Designated Shoreline Buffer

Owner/Project	*SMP Establishes Vegetation Removal Restrictions in Buffer*	*Limb Pruning in Buffer Allowed*	*Tree Removal in Buffer Allowed*
Yadkin	Yes	Yes, up to 8 ft	Yes, <2 inch diameter
Smith Mountain	NS	Yes	NS
DPNA	Yes	Yes	NS
Catawba-Wateree	Yes	Yes	NS
Dominion	NS	Yes	NS
Georgia Power	Yes	NS	NS
Lake Tillery	Yes	Yes	Yes, <3 inch diameter
Santee Cooper	NS	NS	NS
Lake Murray	Yes	Yes, up to 10 ft	Yes, <3 inch diameter
TVA	Yes	Yes	NS
Lake Lanier	Yes	Yes, up to head height	Yes, <2 inch diameter
Hartwell Lake	Yes	Yes, up to 1/3 tree height	Yes, <4 inch diameter

Note: NS – Not specified in SMP

3.1.15 ***Other Vegetation Guidelines***. Planting and replanting policies from the 12 compared project SMPs fall into two general categories: specific requirements for the replacement of removed trees and general planting of any vegetation. The Yadkin SMP requires a permit for any planting done in the Yadkin-managed buffer. By requiring written approval for planting, Yadkin's policy falls into the latter category. Like Yadkin, four other projects (DPNA, Catawba-Wateree, Lake Hartwell, and Lake Lanier) have simple policies that require prior approval before planting. For DPNA, approval is needed for planting on project lands, for Catawba-Wateree it is the riparian zone, and for Lake Hartwell it is public lands. Dominion also requires permission for any planting, but also details specific situations in which it requires replacement plantings. Yadkin, Smith Mountain, Georgia Power, Lake Tillery, and TVA also have policies that may require plants removed during construction or other

activities to be replaced under certain circumstances. Santee Cooper and Lake Murray are the only projects that do not specifically discuss planting. Additionally, eight of the 12 projects (including Yadkin) require plantings to be native and/or prohibit the planting of non-native species.

Spraying of chemicals (pesticides and herbicides) is addressed in six of the twelve project SMPs and falls into two basic categories: policies that expressly prohibit the spraying of chemicals and policies that conditionally allow spraying. Like Yadkin, the Dominion and Lake Tillery Projects prohibit the private usage of chemicals within the project boundary. The DPNA, TVA, and Lake Lanier SMPs require permission prior to application and/or allow spraying only under certain conditions. The remaining six SMPs do not specifically mention any spraying specifications or restrictions for chemical applications. A full listing of each SMP's other vegetation guidelines can be found in Appendix A, Table 12.

Table 18: Other Vegetation Guidelines

Owner/Project	*Planting Without Prior Approval Allowed*	*Replacement Plantings Required in Certain Circumstances*	*Non-native Plants Allowed*	*Herbicide/ Pesticide Spraying Allowed*
Yadkin	No	Yes	No	No
Smith Mountain	Yes	Yes	No	NS
DPNA	No	No	No	Under Certain Circumstances
Catawba-Wateree	No	No	No	NS
Dominion	No	Yes	NS	No
Georgia Power	Yes	Yes	No	NS
Lake Tillery	Yes	Yes	No	No
Santee Cooper	Yes	No	NS	NS
Lake Murray	Yes	No	NS	NS
TVA	Yes	Yes	No	Under Certain Circumstances
Lake Lanier	No	No	No	Under Certain Circumstances
Hartwell Lake	No	No	NS	NS

Note: NS – Not specified in SMP

3.1.16 ***Permit Procedures and Requirements.*** All of the project SMPs reviewed for this study require applicants to complete a permit application prior to construction for nearly all activities (i.e. piers, shoreline stabilization, vegetation management, etc.). The Yadkin SMP requires applicants to initiate the permitting process by providing minimal information such as name, address, phone number, site of proposed activity, and type of activity. The Smith Mountain, Catawba-Wateree, Dominion, Georgia Power, Santee Cooper, and Lake Murray SMPs also explicitly require this information in the application process. Eleven of the SMPs (Yadkin, Smith Mountain, Catawba-Wateree, Dominion, Georgia Power, Lake Tillery, Santee Cooper, Lake Murray, TVA, Lake Lanier, and Hartwell Lake) require added information in the form of a sketch or diagram of the proposed activities. The Yadkin and Lake Tillery SMPs also require an on-site meeting with a company representative to discuss the proposed activities. Including Yadkin, the Smith Mountain, Catawba-Wateree, Dominion, Georgia Power, and Santee Cooper SMPs explicitly state that written authorization or acceptance of the proposal must be granted prior to the commencement of construction.

Additionally, many SMPs require the applicant to obtain all necessary permits and to consult with other agencies prior to beginning work. In certain circumstances, the Yadkin SMP requires consultation with the North Carolina Department of Cultural Resources (NCDCR) and the North Carolina Wildlife Resources Commission (NCWRC) to ensure protection of cultural and environmental resources respectively. Yadkin also requires ACOE approval before erosion control measures and excavations are undertaken, and North Carolina Division of Water Quality (NCDWQ) approval of excavations and shoreline

stabilization measures. The other six SMPs (Catawba-Wateree, Dominion, Lake Tillery, Santee Cooper, Lake Murray, and TVA) that explicitly require consultation with other agencies, state such policies in generic terms stating that applicants must obtain permits from all applicable "local, state, and federal" agencies. The Yadkin and Dominion SMPs also state that county building permits must be obtained. For a detailed compendium of each SMP's policies for permitting, see Appendix A, Table 13.

Only two of the SMPs (Lake Murray and Lake Lanier) specifically discuss the permitting of new public access areas. The Lake Lanier SMP states that no new public areas are currently available for leasing with the exception of possibly establishing marina services in the Upper Chestatee. The Lake Murray SMP is more definitive in stating that public park sites have been set aside and will be developed in cooperation with government agencies or independently when public demand justifies the need. Under the Yadkin SMP, public access areas are considered multi-use facilities and the permitting procedures for both public and private multi-use facilities are the same.

Table 19: Permit Procedures and Requirements

Owner/Project	*SMP Explicitly States Permit Applications Must Provide Basic Information*	*Permit Applications Must Include Sketch or Diagram*	*Permit Process Requires On-site Meeting*	*Approval/ Permit Must Be Granted Prior to Beginning Proposed Activity*	*SMP Explicitly Requires Consultations/ Permits From Other Agencies*	*SMP Specifically Discusses Permitting Process for Public Access Areas*
Yadkin	Yes	Yes	Yes	Yes	Yes	No
Smith Mountain	Yes	Yes	No	Yes	No	No
DPNA	No	No	No	No	No	No
Catawba-Wateree	Yes	Yes	No	Yes	Yes	No
Dominion	Yes	Yes	No	Yes	Yes	No
Georgia Power	Yes	Yes	No	Yes	No	No
Lake Tillery	No	Yes	Yes	No	Yes	No
Santee Cooper	Yes	Yes	No	Yes	Yes	No
Lake Murray	Yes	Yes	No	No	Yes	Yes
TVA	No	Yes	No	No	Yes	No
Lake Lanier	No	Yes	No	No	No	Yes

Hartwell Lake	No	Yes	No	No	No	No

3.1.17 ***Fees***. Currently, fee information is available for 8 of 12 SMPs (Yadkin, Smith Mountain, Catawba-Wateree, Georgia Power, Lake Murray, Lake Tillery, TVA, and Hartwell Lake). The Yadkin SMP fee schedule includes application and annual permit renewal fees for private facilities, construction permit and annual renewal fees for multi-use facilities, and subdivision access application fees. The Yadkin SMP's fees are determined as necessary to defray the cost of administering its programs. As such, the Yadkin is the only SMP that discusses why or how fees are determined. The Yadkin SMP states that the application fee for a private pier costs $200.00. Four other SMPs (Catawba-Wateree, Lake Tillery, and TVA) also provide fee information for private piers: Catawba-Wateree charges $500.00, Lake Tillery charges $100.00 for "facilities approval fee", Lake Murray charges $75.00, and TVA charges $200.00. Likewise, Yadkin's annual private facility renewal permit costs $30.00. Comparably, the Corps' Hartwell Lake Project charges a permitting fee of $30.00 for a boat dock every 5 years. Yadkin charges a $100.00 private pier permit transfer fee, while TVA charges a $200.00 permit transfer fee. The remaining fee information is incomparable in that each project classifies shoreline facilities differently and has different groupings for various permitted facilities. The Georgia Power and Lake Tillery projects operate with lease permits charging $100.00 per year and $100.00 (plus $5.00 for each 100 feet of shoreline over 100 feet) for such a lease. Georgia Power does not charge permitting fees, while Lake Tillery charges a lease application fee of $100.00 and a $1000.00 commercial facilities fee. In addition to charging $500.00 for private piers, the Catawba-Wateree SMP also charges $500.00 per slip for Commercial/Residential facilities and has

created a new "Habitat Enhancement Fund" to be supported by these fees. As part of FERC's approval of the Catawba-Wateree SMP, the Habitat Enhancement Fund will support wildlife protection programs and such things as fish attractors and conservation easements[1]. AEP is currently relicensing the Smith Mountain project; its fee schedule is currently being proposed and is not available. A detailed listing of each project's known fees is provided in Appendix A, Table 14.

3.1.18 ***Special Environmental Considerations***. While most of the SMPs give environmental values great importance when developing construction specifications and vegetation management guidelines (such as those discussed above), several also give additional attention to environmental protection regarding shoreline management. Such special considerations usually take the form of informational and educational materials for adjacent landowners. In its "Shoreline Stewardship Policy" Yadkin promotes voluntary timbering guidelines, natural shoreline creation, protection and creation of fish habitat, and protection of water quality. Likewise, the Smith Mountain, Catawba-Wateree, Dominion, Lake Murray[2], Lake Tillery, and Hartwell Lake SMPs all provide educational materials encouraging different types of environmental protection including establishing "Fish Friendly Piers," controlling the spread of exotic species, improving vegetation and wildlife habitat, and landscaping with native plants. Yadkin also has developed a Bald Eagle Management Plan to protect eagles and their habitat. Similarly, Catawba-Wateree has an Appendix in its SMP for "Species Protection Plans" to protect the habitats of threatened and

[1] Currently, the S.C. Department of Natural Resources has asked Duke for a moratorium on the pier fees.
[2] policy proposed in SCE&G's Lake Murray Five Year Review

endangered species. Also, the Yadkin, Smith Mountain, DPNA, Catawba-Wateree, Dominion, Lake Tillery, Lake Lanier, and Hartwell Lake SMPs all provide a list of plants recommended as beneficial to ecological health. For a complete listing of each SMP's special environmental considerations see Appendix A, Table 15. The Georgia Power, Santee Cooper, and TVA SMPs do not give additional educational information for environmental consideration.

Table 20: Special Environmental Considerations

Owner/Project	*SMP Provides Educational Materials On Environmental Protection*	*SMP Discusses Has Programs In Place For Protection of Certain Species*	*SMP Provides a Recommended Plants List*
Yadkin	Yes	Yes	Yes
Smith Mountain	Yes	No	Yes
DPNA	No	No	Yes
Catawba-Wateree	Yes	Yes	Yes
Dominion	Yes	No	Yes
Georgia Power	No	No	No
Lake Tillery	Yes	No	Yes
Santee Cooper	No	No	No
Lake Murray	Yes	No	No
TVA	No	No	No
Lake Lanier	No	No	Yes
Hartwell Lake	Yes	No	Yes

3.1.19 ***Aesthetic Considerations***. Like the environmental considerations issue, many of the SMPs describe aesthetics considerations when developing construction specifications and vegetation management guidelines, but a few also have additional policies in place for maintaining aesthetic values. Three of the SMPs (DPNA, Catawba-Wateree, and Lake Tillery) have such policies concerning the allowance of signs. The Catawba-Wateree SMP does not allow signs within the project boundary and the Lake Tillery SMP allows signs only at marinas and access areas provided that they are approved by Progress. The DPNA SMP prohibits the following under the heading "scenic protection": advertising and other signs

(except small manufacturers labels, “for sale,” and “no trespassing” signs), burning of brush and refuse, satellite dishes and communications antennas (except at approved public facilities), and the destruction, injury, defacement, or alteration of DPNA property. The other nine SMPs do not have any policies especially for aesthetics.

Table 21: Special Aesthetic Considerations

Owner/Project	***SMP Includes Special Aesthetic Considerations***	***Description***
Yadkin	No	NS
Smith Mountain	No	NS
DPNA	Yes	prohibits certain activities for "scenic protection" such as: advertising and other signs (except for inconspicuous manufacturers labels, small "no trespassing" signs, and "for sale" signs on boats); burning of brush, leaves or other refuse (except as necessary to support public facility construction and maintenance); satellite dishes or other fixed communications antennas (except those necessary to support DPNA-approved public facilities); destruction, injury, defacement, or alteration of DPNA property
Catawba-Wateree	Yes	does not allow advertising signs within project boundary
Dominion	No	NS
Georgia Power	No	NS
Lake Tillery	Yes	signs are only permitted at marinas and access areas upon approval by Progress Energy
Santee Cooper	No	NS
Lake Murray	No	NS
TVA	No	NS
Lake Lanier	No	NS
Hartwell Lake	No	NS

3.1.20 ***Cultural Resource Issues***. Ten out of the 12 SMPs (all except Georgia Power and Lake Murray) specifically discuss cultural resources. However, the extent to which such resources are addressed is highly variable. The Yadkin SMP considers the project’s cultural resources and the NCDCR developed a model to predict the likelihood that certain shoreline areas harbor archaeological sites. The probability designations of this model help assess the impact of development and the NCDCR must be consulted for erosion control measures requiring the removal of shoreline material, for multi-use facilities in High and Medium probability zones, and when a known archaeological site is at the location of a proposed

private facility. Like Yadkin, the Catawba-Wateree SMP has developed a predictive model for cultural resources that is used in the facility permitting process. Four other SMPs (Dominion, Lake Tillery, Santee Cooper, and TVA) have all assessed the cultural resources of their lands. Just as Yadkin often requires consultation with the NCDCR in certain circumstances, the Smith Mountain, Lake Tillery, Santee Cooper, TVA, and Lake Lanier SMPs also require consultation for the protection of cultural resources in certain circumstances. The DPNA and TVA SMPs explicitly ban the removal of artifacts from project lands and the TVA and Lake Lanier SMPs discuss the federal laws governing cultural resource protection. The Hartwell Lake SMP only mentions that permittees must operate and maintain any facility so as to minimize any adverse impact on cultural resources. For a full listing of each SMP's cultural resource issues, refer to Appendix A, Table 16.

Table 22: Cultural Resource Issues

Owner/Project	***Project Has Made An Assessment of Its Cultural Resources***	***Project Has Developed A Cultural Resources Predictive Model***	***SMP Requires Consultation to Protect Cultural Resources***	***Removal of Artifacts is Allowed***
Yadkin	Yes	Yes	Yes	NS
Smith Mountain	NS	NS	Yes	NS
DPNA	NS	NS	No	No
Catawba-Wateree	Yes	Yes	No	NS
Dominion	Yes	NS	No	NS
Georgia Power	NS	NS	No	NS
Lake Tillery	NS	NS	Yes	NS
Santee Cooper	Yes	Yes	Yes	NS
Lake Murray	NS	NS	No	NS
TVA	Yes	NS	Yes	No
Lake Lanier	NS	NS	Yes	NS
Hartwell Lake	NS	NS	No	NS

3.1.21 ***Miscellaneous Issues***. In reviewing the twelve SMPs that were the subject of this study, it became clear that there were some other issues, not originally considered in the study plan, addressed by several of the SMPs. Since there was a degree of commonality

between the SMPs on these issues, they were also included in the comparison and are discussed below.

Access Pathways

Nine out of the 12 SMPs (Yadkin, Smith Mountain, DPNA, Dominion, Lake Tillery, Lake Murray, TVA Lake Lanier, and Hartwell Lake) allow access pathways with similar specifications. All of these SMPs, except Lake Murray, have width restrictions. The range for maximum widths is 5 feet (Lake Tillery) to 20 feet (TVA), with the remaining six SMPs having maximum widths of 6 feet. Seven of the SMPs (Yadkin, Smith Mountain, DPNA, Dominion, Lake Murray, TVA, and Lake Lanier) require vegetation removal to be minimized or avoided altogether. Four SMPs (DPNA, Dominion, Lake Lanier, and Hartwell Lake) require the pathway to meander or wind, and seven SMPs (Yadkin, Smith Mountain, Dominion, Lake Tillery, TVA, Lake Lanier, and Hartwell Lake) include specifications for acceptable cover or construction materials for pathways.

Electrical Installations

Seven of 12 SMPs (Yadkin, DPNA, Dominion, Lake Tillery, TVA, Lake Lanier, and Hartwell Lake) discuss electrical components for facilities. The Yadkin, Dominion, and Lake Lanier SMPs have detailed policies for electricity including such specifications as standards/codes that must be met, service pole widths and heights, receptacle heights, wiring must be in conduit and on a ground fault circuit interrupter (GFCI), and requiring wooden posts and lights to be facing downward. The Lake Tillery and DPNA SMPs have simple

policies that state that electrical hookups must meet National Electric Safety Code requirements and that electrical hookups must meet North Carolina building codes respectively. TVA's policy also states that electricity must be in compliance with applicable state and local codes and must be installed in a way that would not be hazardous to the public or interfere with TVA operations. For a compendium of each SMP's specifications on access pathways and electricity receptacles, see Appendix A, Table 17.

Watercraft Restrictions (Seaplanes, Houseboats)

A few of the SMPs reviewed discuss seaplanes and/or houseboats. The Yadkin SMP has a policy that recreational facilities are not to be used for docking or mooring of seaplanes (or other aircraft) or houseboats. The DPNA, Catawba-Wateree and Lake Tillery SMPs all mention policies pertaining to seaplanes. Neither the Lake Tillery nor the DPNA SMP allows seaplanes on its reservoirs, but DPNA makes exceptions for governmental agencies for fire, polices, and rescue. The SMP for Catawba-Wateree has a policy simply stating that seaplanes are under the control of the Federal Aviation Administration (FAA). The DPNA, Lake Murray and TVA SMPs contain policies for houseboats. DPNA prohibits houseboats to be moored overnight and prohibits the docking of true houseboats. TVA's policy also states that new "nonnavigable" houseboats shall not be moored, anchored, or installed on any TVA reservoir; but allows houseboats approved before February 15, 1978 provided they comply with specific guidelines. The Lake Murray SMP states that houseboats may not be permanently moored at private docks and only allows them at marinas with sewer pump out and treatment facilities.

Permit Transfers

The Yadkin, TVA, and Hartwell Lake SMPs discuss permit transfers, with Yadkin allowing the transfer of permits, and TVA and Hartwell Lake prohibiting their transfer. Yadkin only allows permit transfers so long as the facilities have been maintained in good repair and, similarly, TVA will reissue a permit for existing facilities upon change of ownership if the facilities have been maintained. The Hartwell Lake SMP explicitly states that permits become null and void upon sale or transfer of facilities.

Water Ski Courses

Besides Yadkin, the two Duke Power projects are the only projects with SMPs that discuss ski courses. DPNA does not allow ski courses unless part of an approved "Special Event" and the Catawba-Wateree SMP may authorize ski ramps and similar structures provided the state Wildlife Resource Department and the South Carolina Department of Health and Environmental Control (SCDHEC) approve. The Yadkin project allows ski courses on High Rock and Narrows reservoirs with prior written consent and provided that the applicant 1) construct the courses in accordance with the requirements of the most recent edition of the American Water Ski Association official tournament rules, 2) consider the interests of adjoining property owners, 3) minimize potential recreation use conflicts between water skiers and other reservoir users, 4) provide the natural resources and public safety agencies an opportunity to comment on the presence of the courses, and 5) preserve the Project's

natural, environmental, cultural, and scenic resources. Yadkin's detailed policy pertaining to ski courses also includes application procedures and specifications for course construction.

3.2 FERC's Policies on Shoreline Management

FERC's "Guidance for Shoreline Management Planning at Hydropower Projects" (dated April 2001) outlines its own policies concerning shoreline management. The Federal Power Act of 1935 (FPA) authorized FERC to regulate non-federal hydroelectric projects. The FPA as amended by the Electric Consumers Protection Act of 1986 requires that FERC, when issuing a license, give "equal consideration to the purposes of energy conservation, the protection, mitigation of, damage to, and enhancement of fish and wildlife (including related spawning grounds and habitat), the protection of recreational opportunities, and the preservation of other aspects of environmental quality." In addition to the FPA, almost all major project licenses have two standard license articles that form the regulatory basis for shoreline management: Standard Article 5 and the Standard Land Use Article. In general, Standard Article 5 requires project owners to maintain property rights for those areas pertinent to the operation of the project. The Standard Land Use Article sets guidelines for circumstances under which a licensee must notify FERC or seek FERC approval for development at the Project. The Standard Land Use Article also gives licensees a broad authority to act without FERC approval on relatively routine shoreline activities such as boat docks and piers, erosion control structures, certain types of recreation development, bulkheading, and vegetation removal, trimming and planting.

Currently, FERC does not require that all licensees prepare a SMP, but FERC strongly encourages licensees to develop tools to manage shorelines at projects experiencing shoreline development pressure. For those projects that do implement a SMP, it may be formally filed with FERC and if approved, a project license may be amended to include the SMP. FERC provides guidance for shoreline management at hydropower projects for planning activities, preparing a plan, and implementing the plan. FERC also suggests that SMPs contain the following information:

- goals and objectives of the SMP,
- issues involved in developing and implementing the SMP and the resolution of those issues,
- a description of shoreline use classifications, and
- a description of all types of permitted uses.

FERC asserts that the licensee should establish shoreline management policies, and then permitting systems and development guidelines to control the type, location, design, and material of shoreline development. By describing the types of permitted and prohibited facilities and activities, adjacent property owners and the public will know the kinds of shoreline uses allowed at a particular project before they make a proposal. Furthermore, FERC asserts that a permit and guideline component should be specific enough to be easily understood and implemented, while being flexible enough to allow for a variety of proposals**.** Since FERC's 2000 approval of the Yadkin SMP, it has repeatedly used the Yadkin SMP as a model SMP. In fact, the Yadkin SMP is listed by FERC as an example SMP in the guidance document discussed above.

4.0 Conclusions

Generally, all of the shoreline management plans reviewed for this study and discussed in this report were found to be similar in their structure and content. While TVA and the Corps' projects included in this study are not within FERC's jurisdiction and their SMPs are slightly different in structure, even those SMPs were found to be similar in most respects to the other project SMPs. All of the project SMPs considered in this review were found to provide specific management policies for most major shoreline issues, including facility construction procedures and specifications, vegetation management guidelines, and procedures and application processes to carry out shoreline activities.

Of the issues that were outlined in the study plan, most were found to be addressed by most of the SMPs reviewed. Very few issues were found to only be addressed in one or two of the SMPs. In addition, it was found that all 12 SMPs reviewed in this report share similar objectives in attempting to maintain a balance between environmental, cultural, and aesthetic resources and recreational opportunities.

While the SMPs reviewed were generally found to be similar with regard to structure and the types of issues addressed, the specific requirements and guidelines for different shoreline activities outlined in each SMP are highly variable. Several factors appear to contribute to some degree to these differences, but complete explanations for all the differences are impossible.

One factor that seems to determine the degree of environmental protection afforded overall by the SMP is how recently the SMP was written or updated. The more recent SMPs (written or revised within the last three years) were generally found to be more comprehensive and thorough. Specifically, the FERC-regulated SMPs that have been submitted or revised within the past three years include the Yadkin, Smith Mountain, DPNA, Catawba-Wateree, Dominion, Lake Tillery, and Lake Murray SMPs. Though generalizations are difficult, a review of all of the shoreline issues considered in this report suggests that these seven SMPs are considerably more comprehensive in their assessment and policies concerning shoreline management. As a group, these seven SMPs seem to incorporate more environmentally protective measures, restrictions, and guidelines than some of the older SMPs. Table 23 below shows the date the SMP was last revised and the percentage of specific issues addressed within each SMP.

Table 23: Table Comparing Percentage of Issues Addressed (Comprehensiveness) Versus Age of SMP

Project/Owner	***Total Number of Issues Addressed (Out of 56 Total)***	***Percentage of Issues Addressed***	***Date SMP Was Last Revised***
Smith Mountain	36	64.29%	September 2, 2003
DPNA	39	69.64%	July 1, 2003
Catawba-Wateree	43	76.79%	July 31, 2003
Dominion	36	64.29%	July 1, 2002
Georgia Power	22	39.29%	undated
Lake Tillery	36	64.29%	December 31, 2001
Santee Cooper	21	37.50%	June 2000
Lake Murray	35	62.50%	February 1, 2001
TVA	34	60.71%	November 1, 1999
Lake Lanier	35	62.50%	September 2003
Hartwell Lake	26	46.43%	1998

Differences in the SMP requirements are not surprising considering the differences in the projects that the SMPs are designed to protect. While most of the project SMPs reviewed for this study involved southeastern U.S. reservoirs, the size, location, natural, recreational, and cultural resources and age of the reservoirs is highly variable, resulting in very different histories, uses and resources. It is clear that many of the policies and requirements set forth in the various SMPs have been designed to address particular issues that occur at that project which may be unique. For example, several of the SMPs recognized available water depth (for pier construction or pier location) as an issue. It is likely that projects addressing or acknowledging water depth as an issue generally involve shallow reservoirs, or reservoirs where water levels may routinely fluctuate due to project operations.

Overall, the Yadkin SMP was found to be similar to the other reviewed regional SMPs in terms of the issues addressed and in terms of specifications and requirements for shoreline facilities. Tables A through F in the Summary provide an overview of how the Yadkin SMP compares to the other SMPs, on an issue-by-issue basis. Although many issues do not lend themselves to a direct comparison of requirements or policies, these summary tables provide a reasonable overview of how the Yadkin Project SMP compares to the other reviewed regional SMPs.

Specifically, The Issue Summary Tables (A-F) indicate the Yadkin SMP requirements for each issue and then shows the other twelve SMP's requirements or policies designed to address the same issue. In no case, is the Yadkin SMP the only one to address a particular issue or to set criteria or requirements for the permitting of facilities or uses. In the case of issues that have numeric standards associated with them, the Yadkin SMP is solely at

one end of the range of the standards given for three issues: the minimum lot width requirement (200 feet), the minimum water depth requirement (8 feet), and the designated shoreline buffer (100 feet).

The Yadkin SMP specifies the minimum lot width for a new private pier to be 200 feet. However, Yadkin allows adjoining lots of 100 feet to share a pier. Minimum lot widths specified in the other SMPs include 50 feet (TVA), 75 feet (Catawba-Wateree), 82 feet (Lake Lanier and Hartwell) and 100 feet (Lake Murray, Georgia Power and Smith Mountain). Based on information provided in the Yadkin SMP, at the time the Yadkin SMP was developed, there was concern about overcrowding and the recreational carrying capacity in certain portions of High Rock and Narrows reservoirs (pp 8-9, Appendix K in Yadkin SMP). Setting the minimum lot width at 200 feet for new piers was seen as a way to help reduce boating congestion in heavily developed shoreline areas and to assure that the carrying capacity of the reservoirs was not exceeded. From the information provided in the other SMPs, the extent to which congestion and carrying capacity concerns were considered in establishing minimum lot width requirements is unclear.

The Yadkin SMP specifies that the minimum water depth for a new pier must be 8 feet deep within 75 feet of the shoreline. Minimum water depth requirements for piers are specified in four other SMPs reviewed. The USACE requires a minimum water depth of 6 feet for all intended mooring sites at both Lake Lanier and Lake Hartwell. Among the FERC-licensed projects, DPNA requires a minimum water depth of 4 feet within 75 feet of the shoreline and Santee Cooper requires a minimum water depth of 4 feet within 50 feet of the shoreline. According to Appendix K of the Yadkin SMP, the minimum water depth

requirement at Yadkin has been in place since 1987 and was established to ensure that piers would remain useable under normal reservoir fluctuations during the recreation season. At High Rock, existing project operation during the summer season can result in water level fluctuations of up to 5 feet. Requiring a minimum water depth of 8 feet allows at least 3 feet of water depth for safe boat operation (p 8, Appendix K). From the information provided in the other SMPs, the extent to which reservoir level fluctuations were considered in establishing minimum water depth requirements is unclear.

Regarding the shoreline buffer issue, the Yadkin SMP establishes an effective 100 feet shoreline buffer. Eight of the other SMPs reviewed also specify or establish a shoreline buffer. Of those, five have designated the shoreline buffer as a standard distance from the shoreline ranging from 25 feet (Georgia Power) to 75 feet (Lake Murray) in width. The remaining three SMPs have designated the buffer as a variable width area surrounding the reservoirs. Depending on the area and the designation, it seems likely that these variable width buffers could be less than 25 feet or more than 100 feet in width. Thus, there may be effective buffer areas around some of the other reservoirs that are greater in width than 100 feet.

According to the Yadkin SMP, at the time the Yadkin SMP was developed, one of the biggest concerns was the effect of shoreline development on reservoir water quality and riparian habitats. Establishing an effective 100 feet vegetative buffer around the undeveloped portions of the Yadkin shorelines was seen as an effective way to offset the environmental impacts associated with continued shoreline development (pp 11-16, Appendix K). From the information provided in the other SMPs, The extent to which

reservoir water quality or riparian habitat loss were considered in establishing the shoreline buffer requirements is unclear.

For all of the remaining SMP issues examined in this study, the Yadkin SMP was similar to, or fell within the range of, requirements at the other projects. In no case, was the Yadkin SMP the only SMP reviewed to address a particular issue or to set criteria or requirements for the permitting of shoreline facilities or uses.

Appendix A:
Shoreline Management Policies

Table 1: Special Restrictions Within Special Environmental Shorelines

Owner/Project	***Special Restrictions***
Yadkin	the general presumption is that no further development will be allowed in Conservation Zones; if development is allowed potential impacts to a specified resource must be offset or mitigated
Smith Mountain	development inside the Conservation/Environmental Areas is generally prohibited unless a variance can be obtained; in the Impact Minimization Zone, development may be allowed, but resources must be protected; wetlands and large woody debris must be protected; VA SHPO must approve ground disturbing activities to protect cultural resources;
DPNA	mentions that these areas have additional restrictions but does not say what they are
Catawba-Wateree	shoreline stabilization in areas classified as Impact Minimization Zones (IMZ) may not occur during the months of March-June to limit impacts to fish spawning areas; State wildlife agency review is required for all shoreline stabilization in areas classified as an IMZ; for areas identified in the Shallow Water Fish Habitat Survey (SWFHS) as having stable sand, gravel or cobble substrates on Lake James: no boat ramps except those required for Public Recreation; no excavation and no Commercial/Non-residential or Commercial/Residential Facilities; construction within these areas may have specific mitigation requirements imposed by the federal, state or local resource agencies; for areas identified in the SWFHS as having stable sand, gravel or cobble substrates on all other C-W lakes: no boat ramps except those required for Public Recreation and no excavation; construction within these areas may have specific mitigation requirements imposed by the federal, state or local resource agencies; no construction, excavation or shoreline stabilization inside Environmental Areas; no construction or excavation inside Natural Areas
Dominion	encourages construction of community docks in Limited Use and Sensitive Areas; dredging not allowed in Sensitive Areas; limited dredging and stump removal may be allowed in Limited Use Areas; in Limited Use and Sensitive Areas vegetation removal is not allowed except to create an access path; trimming may be allowed; heavy equipment not allowed in Limited Use and Sensitive Areas;
Georgia Power	does not specifically mention special environmental shoreline classifications
Lake Tillery	pier facilities in Impact Minimization Zones (IMZ) must not exceed 800 square feet; dredging is not allowed in IMZ; boathouses are not desirable in the IMZ; removal of woody debris is not allowed without express written consent; construction and land disturbing activities are not allowed without express written consent; construction of new docks will require the design considerations for a fish-friendly pier; only biostabilization will be allowed for erosion control;
Santee Cooper	does not specifically mention special environmental shoreline classifications
Lake Murray	any type of shoreline activity will not be permitted in Conservation Areas[1]
TVA	does not specifically mention special environmental shoreline classifications
Lake Lanier	private recreational facilities may not be authorized at these locations
Hartwell Lake	floating facilities are prohibited in protected areas unless grandfathered; however, specified land based private uses may be permitted; these uses include a limited amount of underbrushing (providing this activity does not adversely impact the purpose for which the area was originally designated protected), utilities, and an improved walkway; protected Shoreline Areas cannot be used as access when applying for a floating facility

[1] policy proposed in SCE&G's Lake Murray Five Year Review

Table 2: Private Pier Dimensions

Owner/Project	*Total Square Footage*	*Length*	*Width*
Yadkin	300 sq. ft max for stationary section; 32' x 22' (with slip) 16' x 20' (without slip) for floating section; 144 sq. ft. minimum for floating section (w/ or w/out slip); 16' x 6' maximum for ramp section; different ramp lengths may be considered provided total pier length doesn't exceed 75'	75 ft maximum or 25% of cove width (43 ft max. for stationary section, 32' max. for floating section with slip, 16 feet max for floating section without slip, 16 ft max for ramp section if constructed of pressure treated wood); other materials and ramp lengths are considered on a case by case basis	10' max, 5' min for stationary section, 6' max, 4' min for ramp, 22' max for floating section with slip, 16' max for floating section without slip
Smith Mountain	dependant upon number of linear feet of shoreline (100-300'=1500 sq. ft., 301-600'=2250 sq. ft, 601-900'=3000 sq ft, each additional 300'=750 sq ft)	must not exceed 1/3 of cove width or 100 feet in length	not specifically mentioned
DPNA	terminals must not exceed 20' x 26';	must not exceed 1/3 of cove width or 50 feet in length (up to 75' length will be considered if 4' of water depth cannot be reached within 50')	maximum width for pier terminal is 20'; max. width for walkway is 6'
Catawba-Wateree	1000 sq. ft (decking area)	must not extend more that 1/3 distance across cove/reservoir or 120', which ever is more limiting	not specifically mentioned
Dominion	the footprint of structures and boatslip areas (excluding access piers) shall not exceed 1250 sq. feet	must not extend further into the water than necessary for ingress/egress of motorized crafts, up to a max. of 1/4 the width of a cove or creek at maximum normal water level (MNWL)	walkway shall not exceed 6'
Georgia Power	max dimensions of any portion of the dock are 16' x 20'; boatslips may be 24' x 36' (single) or 36' x 36' (double); max dimensions for dock-boatslip combo is 30' x 36' (single) or 44' x 36' (double) - including walkways	must not exceed 50'	max walkway width is 6', min is 4'
Lake Tillery	should not exceed 1200 sq. ft. or 800 sq. ft. in Impact Minimization Zones	must not exceed 100'; or 1/3 of cove width; in coves 45' wide or less, piers might not be allowed	walkways shall not exceed 5' in width
Santee Cooper	"T" or "L" shaped terminals must not exceed 16' x 24'	50' ft or a water depth of 4' whichever comes first, maximum length for "T" or "L" shaped terminals is 16' (included in 50' total	shall not exceed 6' . "T" or "L" shaped terminal not exceed 24' in width
Lake Murray	up to 450 sq. feet (provided that it doesn't interfere with navigation or adjoining property, and doesn't create a hazard)	75 ft. max	not specifically mentioned
TVA	all residential water-use facilities shall not exceed a total footprint of 1000 sq. ft . or square area at the lakeward end of the access walkway that extends from the shore to the structure; access walkways to the water-use structure are not included in calculating the 1000-foot area.	must not extend more than 150 feet from the shoreline, or more than one-third the distance to the opposite shoreline, whichever is less	Access walkways constructed over water and internal walkways inside of boathouses shall not exceed 6 feet in width

Lake Lanier	Maximum dimensions of dock facilities are 32' x 32'; aggregate slip must not exceed 20' x 28'; any attached platform/dock must not exceed 192 sq. feet; minimum dock size is 18' x 24' (with 10' x 20' slip)	must not extend more than 1/3 distance across a cove	32' for dock; 28' for slip
Hartwell Lake	1120 square feet	must not extend more than 1/3 distance across a cove; 40' maximum for dock; 60' maximum for gang walk	6' for gang walk

Table 3: Private Pier Configuration Specifications

Owner/Project	***Guidelines***
Yadkin	only piers ending in a floating section are permitted, the remainder must consist of stationary and ramp sections; the only on-pier structures allowed are boat lifts and boat lift covers which are mounted on the floating section only and do not have supports resting on the reservoir bottom; canvas lift covers only; lift cover cannot be more than 10 feet above deck; must cover boat only
Smith Mountain	maximum size of an enclosure on the dock is 72 sq. ft; screened areas considered enclosure; enclosed area must be within 10 feet of the dock closest to the shoreline; max. height for flat roof is 19'; max height for pitched roof is 26 ft; max height for cupola is 36"; no 2-story structures; lift areas for personal watercraft not included in total no. of slips for the dock; no. of slips determined by amount of shoreline (100-300'=max. of 2 slips, 301-600'=3 slips, 601-900'=4slips, 1 slip per each additional 300')
DPNA	"rigid mooring devices" may not be placed in reservoir waters unless used in conjunction with a floating section or to create a walkway over existing vegetation; all portions of the dock and walkway must float except for a raised walkway section over existing vegetation in "Vegetated Areas/Coves With Stream Confluence"; rigid , permanently affixed piers are not allowed on any DPNA reservoir; no covered or enclosed piers/docks are allowed; no covered or enclosed structures may be placed on piers except small storage boxes; ladders allowed; no sliding or diving boards; one boat lift per slip and one boat lift adjacent to the slip may be allowed with DPNA approval
Catawba-Wateree	gazebos, boat shelters and boathouses are not to be enclosed; no covered slips, boathouses, or boat shelters at "Common-Use Facilities"
Dominion	boat shelters not allowed to parallel shoreline; maximum ht. of 16 ft. for any structures; slips and boathouses are not to be constructed over native vegetation or water willow beds; walkways and stick piers must extend beyond the edge of water willow and vegetated wetlands; enclosed storage areas permitted; must be less than 100 sq. ft. and shall be located no further than 10 feet from the back of the structure as measured from the landward side; docks and boat houses shall not be enclosed except that sides may extend downward 3 feet to protect boats from rain and sun; decking must be able to accommodate loads no less that 50 lbs/sq. ft
Georgia Power	dock, boathouse or boatslip combinations are allowed; does not seem to be any real restrictions on configuration except size restraints for specific sections
Lake Tillery	may be stationary or floating; an elevated walkway to the roof of a flat roofed boathouse is permitted where need for handicap accessibility is certified in writing by a medical doctor; steps down from an elevated walkway or roof of a boathouse will be located over water
Santee Cooper	does not discuss requirements concerning floating and/or stationary docks; covered boat lifts will be allowed in lieu of boathouses where those structures are not permitted;
Lake Murray	docks may be fixed, floating, or a combination; covers on docks are not permissible unless the covered portion is located within 15' of the shoreline; only 1 boatlift per individual dock[1]
TVA	fixed or floating allowed; boathouses and slips allowed; slips may be roofed, except on Kentucky Reservoir; covered boatslips may be enclosed with siding; covered structures shall not exceed 1 story in height; 2nd stories may be constructed as open decks
Lake Lanier	discusses all dock facilities in terms of "floating facilities"; may be roofed; floating boat lifts must be attached to the substructure
Hartwell Lake	discusses all dock facilities in terms of "floating facilities"; may be roofed; subject to approval by ACOE

[1]policy proposed in SCE&G's Lake Murray Five Year Review

Table 4: Specifications for Private Pier Materials

Owner/Project	*Guidelines*
Yadkin	Piers must be constructed of pressure-treated lumber and pilings grade marked by the American Wood Preservers Bureau (AWPB). Other materials made specifically for pier must be approved by Yadkin. Only manufactured plastic-encased floatation will be permitted as flotation
Smith Mountain	all new construction shall utilize puncture resistant material including coated extruded polystyrene foam enclosed by pressure treated wood or some other non-corrosive material; barrels, beaded Styrofoam or any other material is prohibited
DPNA	flotation material must float when punctured; encapsulated Styrofoam is recommended; closed cell Styrofoam and plastic barrels filled with expandable foam are allowed; beaded Styrofoam and metal drums are prohibited
Catawba-Wateree	flotation must be puncture-resistant, and must not sink if punctured; steel drums and uncoated, beaded polystyrene is not permitted
Dominion	piers shall be pressure treated except in areas of boathouses or shelters protected form the weather; metal or pre-cast concrete pilings are acceptable; no creosote timber; floating sections must be constructed of a material and in such a manner that they will not become waterlogged or sink when punctured or continually exposed to water
Georgia Power	flotation must be approved encapsulated or Dow Polystyrene; metal drums, plastic barrels, modified pontoon boats and other such items are prohibited
Lake Tillery	decks should be constructed of wood or other environmentally acceptable materials (as approved by Progress); flotation must be of encapsulated Styrofoam or polystyrene; boathouses must be wood with tin or shingles for roofing and metal siding; vinyl or wood for side of storage rooms
Santee Cooper	flotation must be Styrofoam or fiberglass tanks; steel drums, tanks, cylinders, and other such materials are not permitted
Lake Murray	flotation must be encased or encapsulated; exposed foam bead flotation billets or metal drums are not allowed
TVA	flotation must be of materials commercially manufactured for marine use; Styrofoam flotation must be encased; must not become waterlogged, crack, peel, fragment, or subject to loss of beads; must be resistant to puncture, penetration, damage by animals, and fire; the reuse of plastic, metal, or previously used drums or containers for encasement is prohibited; metal drums are prohibited
Lake Lanier	flotation must be 100% warranted for 8 yrs against sinking, water logging, cracking, peeling, fragmenting or losing beads; should be puncture and penetration resistant, and should not be subject to damage by animals; should be fire resistant; new or recycled plastic or metal drums or non-compartmentalized air containers for encasement are prohibited; all wood should be pressure treated with environmentally-friendly chemicals (no arsenic); metal decking is discouraged; dock ramps and walkways may be constructed of treaded metal, lumber treated with environmentally-friendly chemicals, or marine products with skid resistant surfaces; carpet and other coverings are prohibited;
Hartwell Lake	all structural material must be designed for outdoor use; creosote or penta treated wood is prohibited; flotation shall be of materials which will not become waterlogged (not over 1-1/2 percent by volume ASTM), is resistant to damage by animals, and will not sink or contaminate the water if punctured; no metal covered or injected drum flotation will be allowed; foam bead flotation that is not subject to deterioration through loss of beads, meets the above criteria, and has a minimum density of 1.2 lb/cu ft, is authorized; foam bead flotation with a density of 1.0 lb/cu ft, but does not otherwise meet the above criteria is authorized provided it is encased in an approved protective coating which enables it to meet the specifications above; an approved coating is defined as warranted by the manufacturer for a period of at least eight years against cracking, peeling, sloughing and deterioration from ultra violet rays, while retaining its resiliency against ice and bumps by watercraft; existing flotation will be authorized until it has severely deteriorated and is no longer serviceable or capable of supporting the structure, at which time it should be replaced with approved flotation

Table 5: Specifications for Private Boathouses

Owner/Project	*Specifications*
Yadkin	new boathouses are not permitted; lifts may have canvas covers no more than 10' above the deck and can be used to cover the boat only
Smith Mountain	maximum size of an enclosure on the dock shall be 72 sq. ft; located on lower level; must be located within 10' of the dock closest to the shoreline; height from base elevation must not exceed 19' (flat roof) or 26' (pitched roof); max height for cupolas is 36"; dock may have a roof, but no 2nd stories

DPNA	no covered or enclosed structures may be placed on docks; no enclosed structures beyond minor storage closets; no covered or enclosed piers/docks
Catawba-Wateree	boat shelters and boat houses are not to be enclosed
Dominion	boat shelters not allowed to parallel shoreline; maximum ht. of 16 ft. for any structures; slips and boathouses are not to be constructed over native vegetation or water willow beds; docks and boathouses shall not be enclosed except that the sides may extend 3' downward to protect boat from rain and sun; decking must be able to accommodate loads no less that 50 lbs/sq. ft
Georgia Power	boathouses as part of dock combination may be 30' x 36' for a single stall and 44' x 36' long for a double stall (including dock); wet storage boathouse may be enclosed; maximum dimensions for single stall is 14' x 32' and 28' x 32' for double stall combination; lot width must be at least 100'; 15' side setback; should not be more than 50' from shoreline; sun decks may be covered or uncovered;
Lake Tillery	single-story open-sided boathouses are permitted; must be constructed of approved materials (see Materials)
Santee Cooper	generally, boathouses will not be permitted on or adjacent to piers and docks; boathouses will be considered in cases of lots located on high bluffs; not permitted on the shoreline; when permitted boathouses.....may be floating or fixed; floatation will be Styrofoam billets or equivalent; minimum 10' setback from adjacent property; must be within 75' of shoreline; roofs may be gable, flat or hip; flat roofs must not exceed 10' (height); gable or hip must not exceed 12'; must not exceed 16' x 30' dimensions, may be enclosed if they do not obstruct clear cross vision; covered boatlifts will be allowed instead of boathouses (where not allowed)
Lake Murray	covers on docks are not permissible unless the covered portion is located within 15' of the 360' contour
TVA	boathouses included in 1000 sq. ft. facilities footprint; may be fixed, floating, or a combination; covered boat slips may be open or enclosed; covered boathouses shall not exceed one story in height; 2nd stories may be constructed as open decks with railings;
Lake Lanier	docks may be roofed but must be open sided; single level roofs for boat storage are authorized, however, any type of covering that establishes a second level roof or room, whole or in part is prohibited
Hartwell Lake	does not mention boat houses; new, enclosed structures are not allowed; allows roofs and upper decks

Table 6: Boat Ramp Construction Specifications

Owner/Project	***Specifications For Ramp Construction***
Yadkin	not allowed
Smith Mountain	not mentioned
DPNA	not allowed
Catawba-Wateree	construction shall not occur in the months of March-June because of potential impacts to fish spawning areas
Dominion	not mentioned
Georgia Power	permitted only on a case by case basis; must be reinforced concrete with a minimum thickness of 4"; up to 12' wide and length necessary to be functional; 15' setback from property lines; joint owner ramps prohibited
Lake Tillery	not allowed
Santee Cooper	must be reinforced concrete at least 4" thick; up to 12' wide and length necessary to be functional; 10' setback from any side lots; must avoid vegetated wetlands to the extent possible
Lake Murray	public and semi-public ramps are encouraged as opposed to private ramps; must be concrete (asphalt and petroleum based products are prohibited); up to 15' wide and length necessary to be functional; public and semi-public ramps may be granted a variance; should be located so as not to interfere with neighboring property owners; individual boat ramps within the transition zone will not be allowed[1]
TVA	concrete is allowable; asphalt is not permitted; construction should be carried out during reservoir drawdown; excavated material must be placed at an upland site
Lake Lanier	not mentioned

[1] policy proposed in SCE&G's Lake Murray Five Year Review

Hartwell Lake	not allowed

Table 7: Multi-Use Facilities Specifications

Owner/Project	***Guidelines***
Yadkin	proposed facilities must not extend into project water more than 1/4 distance to the opposite shore or 120' (whichever is less), 8-feet minimum water depth, piers-boat docks-marinas must have floating section, must be consistent with Yadkin's shoreline development policies, must not adversely impact reservoir and shoreline environment (or will mitigate any impacts), will not adversely impact cultural resources (or must mitigate impacts), must address safety concerns, must not restrict public use and access, must be reviewed by proper federal and state agencies, facilities selling petrol products must comply with all applicable regulations and must avoid adverse impacts
Smith Mountain	multi-use facilities may be either community docks or boat ramps with courtesy docks; community docks must meet all local, state, and federal requirements; they shall not exceed 1/3 of cove width or 120' (whichever is less); docks/piers shall not obstruct visibility of navigational aids or encroach closer than 30' to any navigational aid; structures between project boundary and base elevation must be limited to access structures; 1 boat slip per housing unit served; no more than 4 slips per 100' of shoreline; dock should not exceed more than 400 sq. ft. per slip; must include floating section not to exceed 6' x 50'; must maintain a setback of 100' plus 2 times the length of the longest slip adjacent to the side lot; a fairway of 2 times the length of the adjacent slip shall be maintained between groups of docks; must meet VA sanitary regulations and restroom and sewage facilities must be outside the project boundary; enclosures not allowed; maximum height is 19' for flat roof and 26' for pitched roof and no 2nd stories; docks must be constructed in conjunction with respective housing units; must be constructed perpendicular to the shoreline; piers shall not exceed 1/3 cove distance or 100' (whichever is less); maximum size of pier structures is 1200 sq. ft.; no roofs on courtesy piers; maximum width of ramp lane is 16 feet for a single lane and 32' for a double; ramps must be constructed of reinforced concrete with a minimum thickness of 6";
DPNA	for DPNA, multi-use facilities would be classified as "private marinas" or "common use piers/docks"; approved pier/ dock size and design for common use piers/docks and marinas may vary due to location and adjoining lot size; no more than 5 watercraft may be moored at a time; specifications are the same as private facilities: 15' setback; must be placed at right angle to the shoreline; no more than 1/3 distance across cove; no rigid mooring devices except to create a raised walkway over vegetation; no longer than 50' or 75' if 4' water depth can't be reached; must float except raised walkway; no covered or enclosed piers/docks; no covered or enclosed structures except for small storage boxes;
Catawba-Wateree	Multi Use Facilities are classified as "Common-Use Facilities", "Commercial/Non-Residential Facilities" and "Commercial/Residential Facilities"; Facilities should not extend more than 1/3 distance across reservoir or 120' (whichever is less); all fixed pier decking must be at least 1' above full pond elevation; the sides of gazebos, boathouses, and boat shelters are not to be enclosed; facilities that accommodate watercraft which produce wastewater discharge must have sanitation and/or pump-out facilities for deposit of waste; all facilities should have a side setback of at least 200' from the outermost property corners on the waterfront; facilities should be perpendicular to the shoreline; all facilities must comply with local, state and federal requirements; structures must not contain sinks, toilets, showers, or anything that would create a waste discharged into the lake; non-residential facilities may have a maximum of 200 boatslips/docking locations; residential facilities may not have covered slips, boathouses, or boat shelters; Common Use facilities accommodating 8 or less boats may not exceed 1000 sq. ft (decking area); Common Use facilities accommodation 9-10 boats may not exceed 1200 sq. ft (decking area)
Dominion	multi-use facilities may be for waterfront or non-waterfront lots; for waterfront lots (in Special Management Areas), the number of boatslips cannot exceed the number of waterfront lots that would use the docks; for non-waterfront lots, the adjacent property owners (in General Development Areas) can have a boat ramp and a finger pier, or a boat ramp and a boat dock; boat dock must not exceed 1250 sq. ft restriction; docks/piers must also conform to all restrictions for private piers/docks;
Georgia Power	does not differentiate between private facilities and multi-use facilities;
Lake Tillery	does not give guidelines for commercial facility specifications;
Santee Cooper	does not differentiate between private and multi-use facilities SMP only has specifications based on structure types (i.e. docks, boat ramps, etc.); it is assumed all facilities (private or multi-use) must follow these guidelines

Lake Murray	multi-use facilities fall under the classifications of "common docks" or "commercial docks"; common docks are for 2 to 5 residential lots and must comply with standard dock specifications; development of commercial docks are negotiated on a case by case basis; SCE&G is proposing to allow 4 property owners with a minimum of 50' of shoreline each to utilize a common dock[1]
TVA	TVA differentiates multi-use facilities by "Community facilities where individual facilities are not allowed" and "Private and community facilities at jointly-owned community outlots"; for community facilities where individual facilities are not allowed, no more than one slip per qualified applicant will be allowed, TVA determines the location of the facility (taking into consideration the preferences of the applicants), and development may be limited to one landing dock and/or boat ramp where shoreline frontage is limited; for private and community facilities at jointly-owned community outlots, if the facility will serve five or more lots, the application must be submitted by a representative with the authority to manage the common lot; for "private and community facilities" the size and number of slips will be determined by TVA with consideration of several factors (size of outlot, parking accommodations on the outlot, length of shoreline frontage, number of property owners, water depths, uses in the vicinity, recreational carrying capacity, other site-specific conditions); vegetation management must be in accordance with TVA's guidelines; TVA may approve facilities greater than 1000 sq. ft. in some circumstances
Lake Lanier	"Community Docks" are required for all new residential developments where their use would reduce negative environmental impacts; if the multi-slip facilities can be accommodated within 20% of the shoreline frontage, a community dock is required; floating community facilities are for courtesy use only and not for overnight mooring or storage; courtesy docks may not exceed 192 sq. ft.; docks must leave 1/2 the cove open for navigation;
Hartwell Lake	identified as "Community and Courtesy Floating Facilities"; Community and courtesy floating facilities will be located within 150 feet of the access area and must meet the "50 feet" safety requirements; If two courtesy docks are permitted side by side at a location, 150 feet of spacing must be maintained between the two courtesy docks due to increased boat traffic; on community docks, the combined area of the first two slips cannot exceed 1160 square feet with each additional slip authorized up to 464 square feet. Courtesy docks may be constructed not to exceed 600 square feet provided neither the length or width of the structure exceeds 60 feet and all spacing requirements are met

Table 8: Dredging and/or Excavation Specifications

Owner/Project	***Guidelines***
Yadkin	no dredging, excavation, removal or addition of fill (except approved shoreline stabilization measures) are allowed on Narrows, Tuckertown, and Falls reservoirs; excavation on High Rock Reservoir must follow certain standards: must be approved by USACE & NCDWQ; excavation adjacent to high cultural probability zones must be approved by NCDCR; excavation must be "in the dry" when he reservoir is drawn down; the excavation must not alter the existing normal full-pool elevation shoreline; no excavation allowed in vegetated wetlands; must not occur during March-June; shape and depth of excavation must allow water to drain freely when reservoir level drops; excavated material must be place landward of full-pool elevation and in compliance with NCDENR regulations; must submit an application including specific information (see stewardship policy)
Smith Mountain	may fall under jurisdiction of USACE or VDEQ; dredging/excavation of wetlands is prohibited; dredging near wetlands require sufficient buffers; dredging to a depth greater than 789' is prohibited; original lake bottom may not be disturbed; dredging between 795' and 793' elevations is prohibited; no dredging March-June; dredged material must be deposited outside project boundary; dredging requiring USACE and/or VDEQ approval; must also be approved by AEP; excavation and filling between base elevation (795') and project boundary (800') is prohibited except for minimal amounts needed for installation of erosion control or other approved structure
DPNA	filling and dredging is prohibited
Catawba-Wateree	must comply with local, state, and federal regulations; might be subject to approval/requirements of SCDHEC and USACE; prohibited during March-June; excavated material must be placed landward of the project boundary and confined to prevent erosion; must be done directly in front of applicant's waterfront property; double-handling not allowed; excavated material and disturbed shoreline must be stabilized; no channeling to create additional shoreline; no altering of project boundary contour; no dredging that would impact threatened or endangered species, historic properties, or unique environmental areas
Dominion	dredging is discouraged but may be allowed under certain conditions; removal of more than 25 cubic yds. requires USACE review; all dredging requires company approval; no dredging in "Sensitive Areas"; limited dredging may be allowed in "Limited Use Areas"; dredging should only be conducted only to the extent necessary for

[1] policy proposed in SCE&G's Lake Murray Five Year Review

	ingress/egress of boats to piers/boathouses; 15' setback from lot lines; should not affect shoreline contours/slopes; not allowed below 195' (Gaston) or 123' (RR); excavation lines should not have a slope steeper than 1:1; dredged material must be disposed upland of company property with siltation erosion controls in place; not during March-June; must be done below normal pool elevation and in a manner as to allowed the dredged area to drain freely; not allowed in vegetated wetlands; no "double-handling" of material in the reservoir; requires a replanting plan
Georgia Power	dredging of more than 500 cu. yds. requires approval of FERC, USACE, and others; plans must be submitted and approved before work begins; must comply with all governmental regulations; a qualified engineer or surveyor should determine the amount of material to be removed; removal of original lake or river bottom is prohibited (accumulated sediment only); removed material must be disposed of in an upland area
Lake Tillery	must receive permission from FERC, Progress, and NCDWQ; no dredging March-June; only materials that have silted into the lake may be removed; any alteration of the shape of the shoreline must comply with USACE guidelines and be approved by Progress; dredging is not permitted in aquatic emergent/submergent vegetation beds greater than 100' in surface area; dredging is not permitted in Impact Minimization Zones or Environmental/Conservation Areas; all dredged material must be disposed of properly off of Progress property
Santee Cooper	dredging and beach nourishment requires USACE, SCDHEC, and Santee-Cooper permits
Lake Murray	excavation below the 360' contour level is not permitted without SCE&G authorization; must be done directly in front of applicant's lot; must be "in the dry"; all excavated material must be moved above 360' contour level and stabilized to prevent erosion; 4:1 slope maximum for excavations without riprap; excavation of wooded or vegetated areas below the 360' contour is prohibited, 360' contour may not be altered; must occur between Oct. 1 and Jan 15 (3 1/2 mos.)
TVA	excavation of individual boat channels shall be approved only when TVA determines there is no other practicable alternative to achieving sufficient navigable water depth and the action would not substantially impact sensitive resources; no more than 150 cubic yards of material shall be removed for any individual boat channel; the length, width, and depth of approved boat channels shall not exceed the dimensions necessary to achieve 3-feet water depths for navigation of the vessel at the minimum winter water elevation; each side of the channel shall have a slope ratio of at least 3:1; only one boat channel or harbor may be considered for each abutting property owner; the grade of the channel must allow drainage of water during reservoir drawdown periods; channel excavations must be accomplished during the reservoir drawdown when the reservoir bottom is exposed and dry; spoil material from channel excavations must be placed in accordance with any applicable local, state, and federal regulations at an upland site above the TVA Flood Risk Profile elevation; dredge spoil must be placed above the 100yr flood limits and stabilized
Lake Lanier	silt removal will not be authorized to excavate original soils and rock; only alluvial soil may be removed; permits to remove silt will not authorize the altering of the original contour, drainage pattern, or wetlands, nor removal of one (1) foot or less of silt deposit; silt removal will not be authorized if access to the shoreline is not available without destruction of the sites; silt removal authorizations must comply with the Nationwide permit program; excavation may not occur below free flowing stream levels; final grade must allow for free or continuous drainage to the main channel
Hartwell Lake	dredging beyond original lake contour for the benefit of exclusive private use will not be permitted; removal of deposited silt (not to exceed 25 cu. yds.) may be allowed

Table 9: Shoreline Stabilization and Erosion Control

Owner/Project	***Allowable Methods***	***Specifications***
Yadkin	vegetative plantings, riprap, retaining walls	vegetation preferred, followed by riprap, and in extreme circumstances, retaining walls; requires a permit; must be evaluated by a P.E. of Yadkin's choice; must meet zoning and government requirements and approved by USACE; all controls/structures must follow and may not alter the basic contour of the shoreline
Smith Mountain	vegetation, riprap, bulkheads	erosion control only permitted in areas with active erosion, if existing vegetation is a sufficient control it shall remain, vegetation is encouraged, all methods must be in compliance with Virginia Erosion and Sediment Control Handbook, not permitted in Conservation/Environmental Areas, bulkheads prohibited unless a variance is granted, riprap must accompany bulkhead, AEP permits required (a COE permit may also be required), sand beaches prohibited except for public use areas and high-density areas, existing beaches may not be expanded, no placement of sand below 700' contour (SML) or 613' (LL), riprap must be clean solid rock and a minimum of class I size, riprap should be installed on top of filter cloth, riprap should be a max of 3:1 slope, must comply with state and fed regulations, toe of riprap should be buried a minimum of 1' below 793' contour (SML) or 600' contour (LL), jetties prohibited,
DPNA	vegetation, dry-stack rock, rip rap, and other environmentally friendly methods	rip rap rock must be 5 to 15" in diameter or greater, all require a DPNA, USACE, and DWQ permit, riprap must meet USACE guidelines, cannot change basic contour of existing shoreline, must meet local, state and federal requirements, filter

	(i.e. bioengineering)	fabric is required for riprap and dry stack, use of concrete or grout prohibited, riprap slope no greater than 1:2, riprap must extend a minimum of 3 feet in length
Catawba-Wateree	landscape planting (vegetation), riprap, seawalls	encourages applicants to consider plantings first, then riprap before deciding on seawalls; no structures may cross property lines; must comply with local, state, and federal regulations; must be authorized by lake management; USACE approval required for stabilization greater than 500'; must not alter project boundary; riprap must accompany bulkhead with a minimum depth of 1' and a slope of 2:1; tires, scrap metal, crushed block, and other aesthetically unacceptable materials not allowed;
Dominion	vegetation, riprap, bulkheading	vegetation preferential, then riprap, bulkheading is discouraged and only allowed in moderately to severely eroding areas (scarp greater than 2') and only allowed when other 2 methods are not practical, bulkheads and riprap should not extend farther than an average distance of 2' water ward and a max. distance of 5' from the MNW L contour, riprap is to be placed at the base of all bulkheads for aquatic habitat and shall extend a maximum of 3' water ward at a slope no steeper than 2:1, removal of vegetation requires approval and a revegetation plan, bulkheads must be constructed of pressure treated wood, formed or fabricated sheeting or slabs, or other materials designed for this application, bulkheads should be structurally tight and driven to a sufficient depth, filter cloth must be placed at the base of the bulkhead and under the riprap and between riprap and backfill, any metal parts should be galvanized, no more than 1 cu. yd. of fill (must be pollutant free) per running foot of shoreline may be placed in \the lake or as backfill, bulkhead must be complete prior to riprap placement, riprap must be clean rock designed for this purpose, riprap must be 5 to 15" diameter at a slope of no more than 2:1 at a minimum thickness of 2 times the average stone diameter and shall extend into the reservoir at least 1 vertical foot and 2 feet along the slope, see dredging and excavation guideline where applicable
Georgia Power	vegetation, riprap, seawalls	distance between seawall and shoreline shall not exceed 2'; it is recommended that riprap is placed along the base of seawall with a slope ratio of 1:1; disturbed area must be revegetated; silt fence must be installed just behind the seawall until vegetative buffer is restored
Lake Tillery	vegetation, riprap, bulkheads, seawalls	native vegetation is preferred method; riprap is preferred over bulkheads and seawalls; all activities require a permit; Riprap material on the water ward side of seawalls (3 feet at base extending back to seawall on a 2:1 slope) is required for the enhancement of fish habitat, except where the slope of the lake bed is greater than 2:1; must comply with USACE and NCDWQ; The use of riprap for shoreline erosion control without a seawall may be permitted with prior written approval from Progress Energy. Riprap without a seawall will be permitted only with a filter cloth barrier; Seawalls must be constructed of pressure-treated lumber, interlocking stone, or other approved materials. Railroad ties, metal, rubber, or other non-approved materials will not be permitted. The use of creosote-treated wood is expressly prohibited; The height of seawalls shall conform to the natural contour of land, but in no case shall seawalls be higher than five feet above the high water level; Fill material behind seawalls shall be gravel, quarry stone, or soil (brick or block is not allowed); Seawalls cannot be used to extend the shoreline into the lake; no walkways are allowed on the landward side of the seawall
Santee Cooper	retaining walls, bulkheads, groins, riprap	groins and retaining walls must be treated wood or concrete, groin walls must rise 2' above max high water mark, retaining walls must follow the normal high water mark, only clean earthen fill is to be used as retaining wall backfill, riprapping is permitted at or below the NHWM and must be granite and aesthetically acceptable, no riprapping over emergent vegetation, groins and retaining walls should be no closer than 6" from adjacent property lines, repairs to existing structures must be preapproved
Lake Murray	riprap, seawalls, retainer walls, biostabilization	no riprap, seawalls, or retainer walls without a SCE&G permit; riprap at the 360' contour must be aesthetically acceptable and be constructed of approved materials; no concrete blocks, bricks, or construction materials may be used as riprap below the 360' contour; seawalls/retainer walls must be constructed on the 360' contour; earthfill prohibited below 360' contour; shoreline stabilization will be evaluated on the severity of erosion[1]; areas with light or moderate erosion could be maintained by vegetation, while heavy erosion can be controlled by traditional riprap[2]

[1] policy proposed in SCE&G's Lake Murray Five Year Review
[2] ibid.

TVA	biostabilization (vegetation), gabion and riprap, retaining walls	moderate contouring of the bank may be allowed to provide conditions suitable for planting; tightly bound natural materials may be placed at the base of the eroded site to deflect waves; willow stakes and live cuttings of suitable native plants may be planted along the surface of the eroded area; native vegetation may be planted along the within the shoreline management zone to minimize further erosion; riprap may be allowed at the base of the eroded area; riprap must be quarry-run stone, natural stone or other material approved by TVA; rubber tires, concrete rubble or other salvaged debris shall not be used for riprap of retaining walls; commercially manufactured gabion may be used; riprap must follow existing contour of the bank; site preparation must be limited to that necessary to obtain riprap slope and stability; retaining walls shall only be used where erosion is severe and TVA determines it is appropriate and must connect to an existing retaining wall; retaining walls must be of TVA-approved materials; reclamation of land lost to erosion is not allowed; base of the retaining wall shall not be more than an average of 2' lakeward of the full summer pool water; riprap must be placed at least 2' deep along the foot of the retaining wall
Lake Lanier	vegetation, riprap, sea walls and gabions	permits are issued for shoreline stabilization that are characterized as minor in nature; riprap and other construction are subject to federal guidelines and permits; riprap is the preferred method; sea walls and gabions will only be considered when rip rap is not a functional alternative
Hartwell Lake	vegetation, riprap, retaining walls	riprap is the preferred method; minor shoreline protection activities may be authorized by Hartwell Project Manager; major activities may be authorized under conditions set forth by federal laws

Table 10: Shoreline Cleanup

Owner/Project	***Litter/Debris***	***Lap Trees/Woody Debris***
Yadkin	removal of floating debris and shoreline litter such as floating logs, paper, plastic and other unnatural forms of floating debris that poses an imminent threat to life or property do not require Yadkin approval	removal of dead trees, stumps, or other woody or natural debris in the reservoir or Yadkin-managed buffer is prohibited without Yadkin approval
Smith Mountain	removal of floating debris and shoreline litter does not require AEP approval	removal of submerged woody debris with a trunk diameter of 10" or greater is discouraged unless it poses a navigational or safety hazard, woody debris removal during dock construction should be minimal and mitigation may be required
DPNA	does not specifically mention litter/debris removal	trees that have fallen into the water should be left in place, fallen trees that pose a navigational or safety hazard may be removed with written concurrence from DPNA, trees that are removed should be anchored securely elsewhere along the shoreline
Catawba-Wateree	does not specifically mention litter/debris removal	does not specifically mention lap trees/woody debris
Dominion	does not specifically mention litter/debris removal	stump removal requires approval from the company, does not specifically mention lap trees/trees in reservoir
Ga. Power	does not specifically mention litter/debris removal	does not specifically mention lap trees/woody debris
Lake Tillery	does not specifically mention litter/debris removal	prohibits the removal of existing submerged woody debris with a diameter of 10 inches or greater at the base of the trunk from the lake, unless such debris constitutes a navigational or public safety hazard; Lessees may be required by Progress Energy to mitigate at a 2:1 ratio for removal of woody debris from the lake in nearby areas, depending upon the type and age of submerged woody debris
Santee Cooper	does not specifically mention litter/debris removal	does not specifically mention lap trees/woody debris
Lake Murray	does not specifically mention litter/debris removal	permits limited removal of shoreline vegetation for the installation of docks, no unauthorized removal below 360' contour (SCE&G must be contacted first)

TVA	does not specifically mention litter/debris removal	does not specifically mention lap trees/woody debris
Lake Lanier	does not specifically mention litter/debris removal	visitors should refrain from clearing non-hazardous stumps or trees that have fallen into the lake bed
Hartwell Lake	does not specifically mention litter/debris removal	does not specifically mention lap trees/woody debris

Table 11: Shoreline Vegetation Management Guidelines

Owner/Project	***Vegetation Management Guidelines***
Yadkin	any unauthorized use of or change to vegetation in the Yadkin-managed buffer (YMB) is prohibited; modifications to the YMB may be permitted in certain circumstances; 100 feet forested setback from shoreline is to be maintained as a forested area; all structures must be setback 100 feet; septic field or well may be allowed; 20 feet construction zone allowed to intrude 100' setback but must be revegetated; variances granted if lot is unbuildable due to setback requirements (variances will in no case be less than 50'); 100' setback must be maintained as existed prior to development; to improve water views: 50% of vegetation less than 5' may be removed (no tree greater than 2" in diameter 1' up may be removed, nothing may be removed within 30' of tributaries, ditches, swales, or reservoir drainages may be removed); dead limbs may be removed; living limbs up to 8' above ground may be removed; fallen limbs and trees may be removed but leaf litter must remain; no trees overhanging or within the reservoir may be removed without permission; any tree that poses a threat to life or property may be removed; any vegetation removal requires a written permit from Yadkin
Smith Mountain	vegetation w/in project boundary must be maintained if present; ground disturbing activities must be minimum to maintain the overall function of the buffer; trees and shrubs may be pruned or removed (removed plants must be replaced with native plants as outlined in replacement guidelines) to provide water view, shoreline access, or construct erosion control measures; vegetation on steep slopes should be maintained; dead, diseased or dying trees and shrubs and non-native weeds may be removed (should be replaced with natives);
DPNA	DPNA property should be maintained in a vegetated forested condition (canopy, sub-canopy, shrubs, herbaceous plants, leaf litter/humus); all removal/thinning must be approved; clearing thinning and pruning shall be done with hand-held tools (no mechanical clearing unless authorized for shoreline stabilization, etc.); all soils/leaf litter/humus shall remain undisturbed except for approved paths, SS, etc.; dead or diseased tree removal must be approved; dead trees are encouraged to remain unless they pose a threat to life or property; live trees that are removed must be proportionately replaced with natives; vines shrubs and trees may be pruned (but not below 4') to provide a view shed; minimal topping and removal of selected evergreen may be allowed; white and yellow pines less than 6" in diameter may be removed without replacements; view sheds may not be created in areas designated as "vegetated areas/coves with stream confluence"
Catawba-Wateree	pruning or thinning of understory to improve water views, and for construction and access to approved facilities allowed without Duke approval;
Dominion	in Special Management Areas (SMA) lots with pathways may not clear vegetation, lots without pathways may be permitted to clear one, no vegetation may be trimmed or removed for aesthetic purposes in Sensitive Areas (SA), no trimming allowed within 6' of MNWL, no clearing of underbrush in SMA; no tree or shrub removal for aesthetic purposes in Limited Use areas (LUA), in General Development Areas (GDA) an area between 2.5' and 20' above ground may be partially cleared (must maintain groundcover/shrubs and canopy), in GDA-removed underbrush must be replanted with approved plants, no disturbance of leaf bed, "mast-producing" vegetation over 1" thick measured 2' above base may be removed only with companies approval, all tree removal requires company's consent (tree removal is generally only approved in cases where trees are dead, damaged or diseases, or present safety of property hazard)
Georgia Power	no mechanical clearing in the vegetative buffer; any ground disturbing activities require the installation of a silt screen at least 25' from the shoreline; structures other than recognized shoreline structures are prohibited within 25' buffer
Lake Tillery	no ground disturbing activities within buffer except placement of a walkway; do not remove leaf litter or disturb root mats; hand tools only; 50% of the area must remain undisturbed (i.e. no cutting or removal on 50%); in other 50%, limited clearing is permitted, but large trees and shrubs must remain; no tree larger than 3" (measured 4.5' above ground) may be removed unless it is dead, dying or poses a safety hazard; written approval is required before removal of any trees;
Santee Cooper	does not provide any guidelines for vegetation management
Lake Murray	any clearing of trees or underbrush must be authorized; limited removal of shoreline vegetation for the construction and installation of docks may be permitted; no clearing of significant trees (generally those over 3" in diameter) or shrubs within 75' setback without written consent; limbing or trimming of trees higher than 10' above

	ground level will not be allowed[1]
TVA	Vegetation may be cleared to create and maintain an access corridor up to but not exceeding 20 feet wide; access corridor will be located to minimize removal of trees or other vegetation on the TVA land; Grass may be planted and mowed within the access corridor; Pruning of side limbs that extend into the access corridor from trees located outside the access corridor is allowed; Within the SMZ, no trees may be cut or vegetation removed, except that which is preapproved by TVA within the access corridor; Within the 50-feet SMZ and elsewhere on TVA land, clearing of specified understory plants (poison ivy, Japanese honeysuckle, kudzu, and other exotic plants on a list provided by TVA) is allowed; On TVA land situated above the SMZ, selective thinning of trees or other vegetation under 3 inches in diameter at the ground level is allowed; Removal of trees outside of the access corridor but within the SMZ may be approved to make the site suitable for approved shoreline erosion control projects; the forest floor must be left undisturbed;
Lake Lanier	within LDAs, minor underbrushing can be authorized (limited to the removal of vegetation with diameter 2" or less and pruning of limbs not to exceed head height); underbrushing may not exceed a 20' corridor on both sides of a pathway; heavy equipment is prohibited; all vegetation management must be authorized; adequate understory must be maintained; cutting of dead or diseased trees which pose a threat may be authorized; clearing for scenic views and establishment of lawns is not permitted; removal of humus or forest mulch is prohibited;
Hartwell Lake	private underbrushing is limited to the applicant's adjacent front lot (up to 50 ft in Protected Shoreline Areas and 100' in Limited Development Areas); underbrushing limited to vegetation less than 4" diameter at ground level; trees greater than 4" and native ornamentals must be approved before any removal; if clearing of underbrush creates open areas (maximum 18' spacing of trees) then existing seedlings must be left undisturbed; limbs may be pruned up to 1/3 of plant height (not to exceed 18'); grass lawns, flower beds, or other landscaping activities are not allowed; remaining lands (not designated as underbrushing areas) will be designated as "natural areas" and left undisturbed; must use hand tools; dead or diseased tree removal requires pre-inspection;

Table 12: Other Vegetation Management Guidelines

Owner/Project	***Replanting***	***Spraying***
Yadkin	planting of anything within the Project Boundary or the Yadkin Managed Buffer is prohibited without written approval from Yadkin, encourages adjacent property owners to maintain a natural vegetated buffer, etc.	prohibits application of pesticides and herbicides on Yadkin lands
Smith Mountain	if a tree of .5" to 2.5" caliper is removed it must be replaced with a tree of equal or greater caliper or 2 large shrubs @ 3'-4' or 10 small shrubs or woody groundcover @ 15"-18"; if a tree of >2.5" caliper is removed, it must be replaced with 1 tree @1.75"-2" caliper for every 2" caliper of removed tree or75% trees and 25% shrubs or 10 small shrubs or groundcover; for every large shrub removed it must be replaced with 1 large shrub of 5 small shrubs or woody ground cover; all replacement plants should be native	does not specifically mention spraying
DPNA	vegetation native to the Appalachian region is required; vegetation beneficial to wildlife is encouraged; turf grasses not allowed; native ground cover may be planted; all planting requires written concurrence from DPNA	no spraying shall be undertaken without written concurrence from DPNA; no chemical should be used to kill native-non invasive species (except poisonous plants)
Catawba-Wateree	following activities allowed without prior Duke approval: dead tree removal consistent with local buffer ordinances and habitat protection requirements, pruning or thinning understory to improve lake views, and to construct and maintain access to approved facilities; any introduction of	does not specifically mention spraying

[1] policy proposed in SCE&G's Lake Murray Five Year Review

	vegetation within the riparian zone requires Duke approval	
Dominion	replanting is required when, 1. shoreline areas were cleared/damaged in providing access to shoreline construction, 2. undesirable plants were removed and encouraged for 1. improvement aesthetic appearance of shoreline and lakes, 2. enhancement of environmental conditions, applicant that are required to replant are responsible for their survival...a replanting plan must be submitted and approved	spraying of herbicide not allowed on company property
Georgia Power	GP promotes a 1 for 1 tree replacement policy (native trees and hardwoods are recommended)	does not specifically mention spraying
Lake Tillery	use of non-native, invasive species for planting is prohibited	The use of pesticides, herbicides, and fertilizers by anyone other than Progress Energy personnel or Progress Energy authorized applicators is prohibited on Progress Energy property
Santee Cooper	does not specifically mention replanting	does not specifically mention spraying
Lake Murray	does not specifically mention replanting	does not specifically mention spraying
TVA	Vegetation removed for erosion control projects must be replaced with native species of vegetation; Planting of trees, shrubs, wildflowers, native grasses, and ground covers within the SMZ is allowed to create, improve, or enhance the vegetative cover, provided native plants are used;	Fertilizers and herbicides shall not be applied on TVA land, except as specifically approved in the Vegetative Management Plan; Restricted-use herbicides and pesticides must be applied by a state licensed applicator
Lake Lanier	permits may be obtained for planting of native species	pesticides are not authorized; nor are chemical products such as pre-emergence, weed killers, fertilizers, growth retardants, etc.; some topical application may be allowed to control noxious or non-natives under rigid control
Hartwell Lake	plantings on public land must be in accordance with approved plan; plantings must be of species from approved plant list	does not specifically mention spraying

Table 13: Permitting Procedures and Requirements

Owner/Project	Guidelines
Yadkin	Any non-project uses of project lands requires a permit and may not begin until a permit is issued; Activities that always require a permit include construction, shoreline stabilization, shoreline alteration (excavation and fill), vegetation removal, shoreline clean-up, private irrigation systems, and vegetative plantings; an on-site meeting between adjoining property owner and a Yadkin representative is required before a permit will be issued; applicant must initiate permit procedures by contacting Yadkin and providing information such as name, address, phone number, development, section, lot number, tax map, parcel number, and reason for calling; permit must be displayed somewhere clearly visible; all structures must meet criteria set forth in SMP; consultation with NCDCR and NCWRC might be required to ensure protection of cultural resources and unique environmental features; all applicable County building permits are required; erosion control must be approved by ACOE, and in some instances NCDCR and NCWRC; ACOE and NCDWQ must approve excavations; does not discuss permitting for public access areas
Smith Mountain	a permit must be applied for and approved prior to beginning any proposed activity; all applications must include applicant and owners name, address and phone numbers, the lake name, a map showing location of the property, a county tax map and parcel number, and a drawing containing the location of the project boundary, location of the base elevations, length of the shoreline, all property and dock easement lines; for docks and similar structures applicant must show distance from dock easement lines, location of and distance to adjacent structures, size of enclosure, number of slips, distance (within 500') to any navigational aids, and intended users; for shoreline stabilization, applicant must show proof of active erosion, type and size of stabilization material, depth of buried toe, slope, length and types of planting; for dredging, applicant must show location of existing structures, area to be dredged, location of spoil area, location of any wetlands, and amount to be removed; for vegetative cover, applicant must show size and location of vegetation to be removed and revegetation plan (if applicable); AEP must be notified when construction is initiated and completed; permitted activities are contingent upon receipt of appropriate County, State, and Federal permits; does not discuss permitting for public access

	areas
DPNA	must be completed within 12 months of application approval; does not discuss permitting for public access areas
Catawba-Wateree	all proposed construction within the project boundary must obtain written authorization prior to beginning construction; applicant must provide (as a minimum) lake name, basic description of proposed facility, intended users, and basic location on the lake; in the event of an on-site review, a detailed drawing of the proposed facility must be furnished; once the proposed activity is reviewed, proposal must be submitted including Duke application form, location map, description of proposed facility, conceptual drawing (1"=400' minimum scale), and other detailed info to all required agencies for necessary permits; then the application must be submitted to Lake Management for final approval; Lake Management must be notified when construction is initiated and completed; does not discuss permitting for public access areas
Dominion	before construction of new or modification to existing facilities and for removal or trimming of any vegetation applicant must apply for and receive an approved Construction and Use License Agreement; other permits may also be required from the USACE and other agencies; County building permit required; first, the applicant must obtain the application package, then the applicant must set up a pre-application meeting (if necessary), and then the application must be submitted; the application must include three copies of the construction plan and drawings of the proposed facilities (drawing must not exceed 8.5" x 14" , at a scale of 1" = 10' or larger, with size and dimensions, location in relation to property lines, extended side lot lines, MNWL contour line, a north arrow, the 6' access path, and distance across cove); plan must also include name, telephone number, lot number, subdivision street name, county, state, directions to property, and adjacent property owners names; application must also include three copies of a replanting plan (with drawings) for replanting destroyed or damaged vegetation; the company must be notified within 10 days after completion of activities; does not discuss permitting for public access areas
Georgia Power	a valid lease agreement, license, or multi-use license agreement is required to receive permits; a permit must be applied for and approved before any construction, renovation, clearing, tree removal, grading etc; permit must be posted where visible from lake or road; any changes must be reviewed and approved before executed; name, lake lot address, phone number, drawing of the proposed project, dimensions, distance from side lot lines, materials to be used, contractor's name and number, and start/finish date information must be furnished for a permit; tree removal requests must detail the trees to be removed and process of disposal; applications for dredging must include volume of material to be removed; applications for seawalls must include length to be fronted by seawall, type of foundation, depth below ground line, type of materials, and a revegetation plan; does not discuss permitting for public access areas
Lake Tillery	on-site meeting with Progress representative; must show drawings of proposed construction and site plan sufficient to show construction parameters and distances from property projection lines, Existing and proposed square footage of water-dependent structures, Specifications of all construction materials, Plan for erosion and sedimentation control during construction, applicable local, state, and federal permits, and non-refundable processing fee of $100.00; does not discuss permitting for public access areas
Santee Cooper	prior to any construction or placement of structures on SC property, complete plans must be submitted and approved; all permit requests should contain name, address, phone number, lot no., subdivision and county of the applicant; additionally, each permit request should list the intended improvements and have a sketch of the proposed improvements with distances to the street and max high water mark; applicants must provide written proof that adjoining property owners have no objections to the planned work; applications for dredging must include copies of all local, state and federal permits, a drawing and description with dimensions, plans, and specification for the proposed work; for general permits (i.e. lot clearing, site preparation, septic tank, well, etc.) applicant must have written request for activity, type and location of activity, and a copy of any applicable permits; applicant must apply in writing and information concerning necessary instructions and fees will be furnished to the applicant; does not discuss permitting for public access areas
Lake Murray	although not expressly stated is assumed that all activities on SCE&G property require a permit; applicants for construction (docks, etc.) must submit a sketch showing location, design and dimensions of structure, applicable fees, directions by land to applicants property, and plat of applicants property (including county tax map info); application for boat ramps, marine railways, and boat lifts must include a sketch showing location and dimension of proposed structure, applicable fees, and directions to applicants property; applications for erosion control measures must include a copy of applicant's deed and plat; area on plat where proposed structure will be, applicable fees, directions to applicant's property; applications for excavation must include a copy of applicant's deed and plat, directions to applicant's property, scale drawing of area to be excavated, required local, state and federal permits, and applicable fees; 10 public park sites have been set aside by SCE&G and when public demand justifies the need for additional parks, these sites will be developed in cooperation with state and county agencies or independently
TVA	applications for minor facilities (docks, piers, boat houses, gazebos, etc.) must include a completed application form with project description and sequence of work, a drawing (on 8.5" x 11" paper with structures dimensions size and location in relation to shoreline, elevation of structure above full pool elevation, river or reservoir name, river mile, locator landmarks, and direction of water flow if known), a site photograph (at least 3 x 5" and showing location of proposed construction), location map clearly showing location of facility, environmental consultations and permits; applications for major facilities (marinas, community docks, barge terminals, utility crossings, bridges, culverts, roads, wastewater discharges, water intakes, dredging, and placement of fill) must include a completed application form, a project drawing (on no larger than 11" x 17" with date applicant name, body of water name, river mile, locator landmarks, direction of water flow, kind of structure, intended purpose, plan and profile view of structure, dimensions, size, location in relation to shoreline, elevation above full-pool, and a north arrow), a location map with exact location of

	proposed activities (topo recommended), other applicable info (included disturbed vegetation, construction footprints, spoil areas, etc.), site plans (details existing and proposed changes to topography, erosion control plans, and location of all facilities), and environmental consultations and permits; upon issuance of permit, construction must begin within 18 months; does not discuss permitting for public access areas
Lake Lanier	required information for permits not specified; Specified Act permits may be granted to perform certain one-time only acts of a minor nature such as removal of hazardous trees or noxious plants like kudzu, poison oak, ivy, or sumac; plant native species; establish footpaths; place or erect limited shoreline protection, etc. The permit will detail the authorized work including the methods to be employed time frames, location, equipment to be used, if any, and restoration of public land, if necessary. A simple drawing or plan including photographs may be required. The Specified Acts Permit is issued for short term only. Specified Act Permits are not issued for activities that will damage, destroy or significantly alter public lands or properties. Each request for a Specified Acts Permit will be reviewed based on environmental law and regulation. Any authorization will be based upon its own merit; certain activities such as dredging, extensive riprapping, construction of outfall lines, intake structures, other fixed structures, sea walls, fill and the discharge of dredged or fill material, etc., into either navigable waters or waters of the U.S. may be permitted by Section 404 and/or Section 10 permits; for other shoreline structures/construction (i.e. dock, piers, etc.) a Shoreline Use Permit/Licenses needed; with the exception of possibly establishing marina services in the upper Chestatee, no new areas are currently available for leasing. Presently 34 areas are leased to other federal, state and local governments and quasi-public organizations for either public recreation or commercial purposes. Leased areas are generally granted use to a specific contour or elevation
Hartwell Lake	Shoreline Use Permit/Licenses are required for the installation of private floating facilities (i.e. docks) and will not be issued until an approved dock plan is submitted; Dock Plan must include dimensions of the structure, flotation type and anchor system; Permits are also required for vegetation modification activities, utility rights of way, improved walkways, erosion control, and other specified land based activities; for erosion control measures, plans must include tools and materials to be used and a completed application form with a plan drawing must be submitted; for silt removal, a completed application with a completed plan drawing must be submitted; does not discuss permitting for public access areas

Table 14: Fee Information

Owner/Project	***Fees***
Yadkin	$200.00 for one-time private pier construction permit; $100.00 excavation application permit; $500.00 for phase I assessment (erosion control); $1000.00 phase II permit (erosion control); $100.00 for private irrigation application fee; $30.00 for annual private facility renewal fee; $50.00 for on-site vegetation removal consultation on Yadkin-managed buffer (required); $150.00 for on-site vegetation removal consultation on adjoining property (voluntary); $100.00 for private pier permit transfer application; $7000.00 for marina of more than 10 watercraft ($250.00 annual fee); $2000.00 for marina of 1-10 watercraft ($250.00 annual fee); $2000.00 for boat dock of 1-10 watercraft ($250.00 annual fee); $1000.00 for launch ramp ($250.00 annual fee); $1000.00 for multi-use pier ($250.00 annual fee); $1000.00 for subdivision access (5 or fewer lots); $3500.00 for subdivision access (10 or fewer lots); $5000.00 for subdivision access (10 or more lots)
Smith Mountain	currently devising new fee schedule
DPNA	no fee schedule available
Catawba-Wateree	$500.00 per private pier application; $500.00 per slip for Commercial/Residential facilities; fees support "Habitat Enhancement Fund"
Dominion	no fee schedule available
Georgia Power	$100.00 per year for access lease; no permitting fees
Lake Tillery	$100.00 per year for lease ($5.00 extra for each 100 feet over 100 feet of property); $100.00 lease application fee; $100.00 facilities approval fee; $1000.00 commercial facilities fee
Santee Cooper	no fee schedule available
Lake Murray	$75.00 for dock, boat ramp, marine railway, or boatlift; $50.00 for water removal; dock modification, limited brushing, or rip-rap; $100.00 for retainer wall
TVA	$200.00 for permit transfer; $200.00 for applications for docks, bank stabilization, or other minor shoreline alterations; $500.00 for applications from government agencies for major public facilities permits; $1000.00 for applications to construct or operate marinas, barge terminals, bridges or other major shoreline alterations; $100.00 for all activities off TVA reservoirs that will affect TVA lands or waters;
Lake Lanier	no fee schedule available

Hartwell Lake	the following fees are for 5 year permits: $30.00 for boat dock; $35.00 per utility right of way; $50.00 for improved walkway; $67.00 for road, ramp, and turnaround; $56.00 for road and turnaround; $28.00 for handrails

Table 15: Special Environmental Considerations

Owner/Project	Guidelines
Yadkin	has specific timbering guidelines on Yadkin Managed Lands, encourages adjacent property owners to voluntarily preserve and create natural shoreline, protect and create fish habitat, protect water quality, has developed a Bald Eagle Management Plan (BEMP) to protect their habitat surrounding the shoreline; provides a list of beneficial trees and plants
Smith Mountain	No.1 goal of the SMP is "protecting environmental attributes such as wetlands, habitat, and spawning areas"; Appendix E of the SMP provides an informational pamphlet discussing landscaping for wildlife and includes a beneficial plants list
DPNA	lists 26 policies under the heading "Environmental Protection"; provides a native plant list
Catawba-Wateree	provides informational brochure on hydrilla and the actions G-W is taking to manage it; provides information on its website for citizens to help control the spread of exotic aquatic plants (hydrilla), Asiatic clam, and zebra mussel; Appendix E of the SMP is entitled "Riparian Zone Management Informational Pamphlet and Fish Friendly Pier Pamphlet"; draws special attention to its riparian zone policies, provides information on biostabilization, and provides information on aquatic weeds and beneficial native plants; fish friendly pier program encourages homeowners to add structures under their piers to create additional fish habitat; includes recommended plants list; Appendix H of the SMP entitled "Species Protection Plans" details Catawba-Wateree's guidelines for protecting the habitats of threatened and endangered species around the reservoirs
Dominion	Provides approved plant list; Isimplementing an education program that will distribute pamphlets to adjacent homeowners promoting improved vegetation/wildlife habitat, water quality, and fisheries habitat through its SMP (in particular its construction and use procedures)
Georgia Power	does not appear to give any special environmental considerations
Lake Tillery	Appendix D of the SMP is entitled "Landscaping With Native Plants In A Riparian Buffer Area" and provides information on benefits of natives plants, riparian buffers, and maintaining wildlife habitat; also provides a native plant list and information on where to buy them;
Santee Cooper	does not appear to give any special environmental considerations
Lake Murray	will promote through public education the importance of the Buffer Zone and Environmentally Sensitive Areas[1]
TVA	does not appear to give any special environmental considerations
Lake Lanier	provides a list of recommended trees and shrubs
Hartwell Lake	provides an addendum to SMP discussing the value of shoreline vegetation; has approved plants list

Table 16: Cultural Resource Issues

Owner/Project	
Yadkin	North Carolina Department of Cultural Resources (NCDCR) maintains a list of all known archaeological sites, including more than 100 in the project vicinity ; NCDCR developed a model to predict the likelihood that certain shoreline areas harbor archaeological sites classifying each as either High, Medium, Low or Developed probabilities; Yadkin, in consultation with NCDCR uses the probability designations when assessing the impact of development; if a known archaeological site is at the location of a proposed private facility NCDCR will be contacted; erosion control measures requiring the removal of shoreline material requires NCDCR consultation; for multi-use facilities in High or Medium probability zones a cultural resource evaluation will be required
Smith Mountain	areas within 100 feet of a known cultural resource site have been classified as Impact Minimization Zones; any ground disturbing activities in these areas must be

[1] policy proposed in SCE&G's Lake Murray Five Year Review

	approved by VA SHPO
DPNA	collecting of artifacts is prohibited; interfering with burial remains and associated graves goods is illegal in North Carolina; asks that persons report any digging on archaeological sites to police;
Catawba-Wateree	have completed a cultural resources assessment study; have developed a predictive model to assign areas a No, Low, Medium, or High probability of containing archaeological or historical sites, and will use such information in the lake use permitting process
Dominion	have documented all known historical and archaeological sites
Georgia Power	SMP does not mention cultural resources
Lake Tillery	have documented all known historical and archaeological sites; if a lease application is submitted that may affect any of the known archaeological sites, Progress will direct the applicant to the SHPO; the applicant must seek concurrence on the measures needed to protect the site and provide a copy of the concurrence to Progress
Santee Cooper	has recently conducted a cultural resources survey as part of the relicensing process; survey recommends implementing a Historic Resources Management Plan and consulting with the SHPO for ground disturbing activities, new construction, rehabilitation, or demolition of project facilities, and erosion control measures
Lake Murray	SMP does not mention cultural resources
TVA	employs "cultural resources staff" to protect historic resources; staff members are responsible for the identification, evaluation, and protection of significant cultural resources on TVA lands or land affected by TVA actions; TVA currently manages over 9,000 archaeological sites and numerous historic structures, which includes many TVA dams and powerhouses; governed by federal laws: under the Archaeological Resources Protection Act of 1979 (ARPA) it is illegal to excavate archaeological sites on federal property, which includes TVA land, without a research permit; National Historic Preservation Act (1966) requires review and approval from appropriate authorities for any project, activity, or program that could have an effect on the character or use of archaeological or other historic properties. These include projects, activities, or programs that are on TVA lands, receive financial assistance from TVA, or require TVA permitting, licensing, or approval; Archaeological Resources Protection Act (1979) makes it a crime to dig for or remove archaeological resources from all federal land, including TVA-managed land, without a research permit; Native American Graves Protection and Repatriation Act (1990) requires federal agencies and museums to inventory Native American human remains, funerary objects, sacred objects and objects of cultural patrimony in their possession and repatriate those items to a lineal descendant or affiliated Native American group and establishes regulations and procedures for the intentional excavation or inadvertent discovery of Native American remains and associated objects on federal or tribal lands
Lake Lanier	the National Historic Preservation Act of 1966 and the Preservation of Historical and Archaeological Data Act of 1974 were initiated to protect historic sites; if it is determined that a previously issued permit infringes upon or impacts a historic site, the permit will be rescinded; permits will not be issued that involve general or specific use or alteration of historic sites unless culturally cleared by appropriate agencies; the use of metal detectors or other land-based electronic or nonelectronic detection devices are prohibited except by written permission from the Resource Manager
Hartwell Lake	permittees must agree to operate and maintain any permitted facility and/or activity in a manner so as to provide safety, minimize any adverse impact on fish and wildlife habitat, natural, environmental, or cultural resources values and in a manner so as to minimize the degradation of water quality.

Table 17: Access Pathway and Electricity Specifications (Miscellaneous Issues)

Owner/Project	***Access Pathways***	***Electricity Receptacles***

Yadkin	should be constructed to minimize the number of trees and vegetation removed; must be no wider than 6'; must be constructed of pressure-treated wood, gravel or uncemented brick, rock, stone or paving blocks	must meet or exceed minimum NED Standards for Wet Location, Marinas and Boatyards; must meet all applicable County and State codes; must be inspected and approved by County; wiring must be underground and follow access pathway; service poles must be at least 6" wide, 12' high, anchored 3' in the ground, and must be pressure treated wood; breaker box must be at least 5' above full-pool elevation; receptacles must be at least 3' (floating section) or 5' (stationary section) above deck; receptacles on service poles must be at least 5' above full-pool elevation; light poles must be pressure treated wood, 12' above ground, with fixtures 8' above the deck; all lighting must be aimed downward; all lights and fixtures cannot extend beyond the outer perimeter of the structure
Smith Mountain	vegetation modification for shoreline access must not impair the overall function of the buffer; tree and shrubs may be removed or pruned, but must be replaced; vegetation or mulch should be used to cover the exposed dirt of the path;	does not mention electricity receptacles
DPNA	no more than 6' wide; should be designed in a winding manner; should avoid large trees and/or be stepped to prevent runoff/erosion	electrical hookups must meet NC Building Codes and must be inspected by a county electrical inspector
Catawba-Wateree	does not mention access pathways	does not mention electricity receptacles
Dominion	footpaths up to 6' wide are allowed; must avoid, when possible, removing trees greater than 6"; may be composed of porous materials; in Limited Use and Sensitive Areas, path should include a meander if possible	all electrical devices must meet or exceed minimum National Electric Code Standards for Wet Locations, Marinas, and Boatyards; wiring must be underground and follow footpath; service poles must be at least 6" wide, 12' high, anchored 3' in the ground, and must be pressure treated wood; receptacle height must be 3' above the deck; receptacles should be ground fault protected; lighting must be on wooden poles12' above ground; all lighting must be aimed downward
Georgia Power	does not mention access pathways	does not mention electricity receptacles
Lake Tillery	Walkways must either have natural ground cover or be constructed of open slatted, pressure-treated wooden materials, follow the contour of the land and must lead to a pier or boathouse. Access to the shoreline shall be by pathway no wider than five feet	must meet National Electric Safety Code requirements
Santee Cooper	does not mention access pathways	does not mention electricity receptacles
Lake Murray	property owners with land adjacent to project boundary has the right of foot access to the reservoir, but improvements and vegetation removal is not allowed	does not mention electricity receptacles
TVA	vegetation may be cleared to create and maintain an access corridor up to but not exceeding 20 feet wide; the corridor will extend from the common boundary between TVA and the adjacent landowner to the water-use facility; the access corridor will be located to minimize removal of trees or other vegetation on the TVA land; grass may be planted and mowed within the access corridor, and stone, brick, concrete, mulch, or wooden paths, walkways and/or steps are allowed; pruning of side limbs that extend into the access corridor from trees located outside the access corridor is allowed	power lines, poles, electrical panel, and wiring must be installed as follows: In a way that would not be hazardous to the public or interfere with TVA operations; solely to serve water-use facilities; and in compliance with all State and local electrical codes;
Lake Lanier	pathways must be meandering and follow topography; may be up to 6' wide; must avoid the need for removal of vegetation and prevent the construction of bridges; if surface treatment is	installation from property line to shoreline service pole must be underground and follow access path (no overhead wiring); minimum burial depth is 24" depth; service pole cannot be set below elevation 1073 m.s.l and a maximum 6" wide; wooden posts only; shoreline service panel box must be at eye

	required, wood chips or on-site forest litter are recommended; intermittent water breaks may be necessary; if safe access cannot be achieved due to steep topography, steps may be authorized	level but no less than five feet above the ground; cable leading from the ground into panel must be enclosed in conduit and hard wired; receptacles must have ground-fault protection at service pole, must be in weatherproof receptacle boxes with self-closing caps, and maximum number of receptacles on dock is two single or one duplex; receptacle height must be minimum 4'above the ground (service post) and minimum 30" above the deck. Lighting must be the minimum required for safe access; fixtures and lights must be approved for wet locations and can not be mounted to extend beyond the outer perimeter of the boat dock; all lights must be aimed downward
Hartwell Lake	meandering pathways and improved walkways may be authorized to a maximum width of 6 feet; may be constructed of crushed stone, wood chips, steppin g stones, treated wood, or similar materials; poured concrete or asphalt, mortared rock, brick or concrete block may be allowed providing individual sections of the walkway do not exceed 12 square feet (not continuous); poured concrete or asphalt must not exceed 4 inches in thickness; all walkways must conform to the existing topography; walkways that do not access the dock or shoreline directly, or are T-shaped, Y-shaped, or consist of more than one walkway will not be permitted	all wiring to the floating structure will be plugged into a ground fault protected receptacle at the power source on shore (light pole); wiring must also be in approved electrical conduit and attached to the gang walk; lighting is optional and will be limited to the minimum required for safe access; all lights and fixtures mounted to a floating structure cannot extend beyond the outer perimeter of the structure

Appendix B:
Comment Summary

Comment Summary

Copies of the Draft Shoreline Management Plan Comparison Study Report were distributed to all RASM members on March 30, 2004. Results of the Draft were then presented at a RASM IAG meeting in Badin, North Carolina on May 5, 2004. Comments on the Draft were received at this meeting. Additionally, participants were given until May 28, 2004 to prepare additional comments. Table 1 below is a summary of the comments received and responses to the comments.

Table 1: Summary of Comments and Responses

Source of Comment	Comment	Response
High Rock Lake Association (HRLA): letter dated 5/27/04 & 5/5/04 Recreation, Aesthetics, and Shoreline Management IAG Meeting (5/5 RASM) SaveHighRockLake.org: 5/5 RASM	The tone of the Draft is defensive of the Yadkin SMP and was completed by the same company as the SMP and it is biased in its presentation of the data.	The report has been reviewed and every effort has been made to remove any language that may be construed as defensive or biased.
HRLA: letter dated 5/27/04	The Draft report fails to meet the purpose of providing "a common base of knowledge between the Yadkin SMP and other area SMPs."	The report provides all the data available within each respective SMP on all the issues outlined in the Study Plan in order to provide a common base of knowledge. IAG members may interpret the presented data differently and conclusions made within the report are of a general nature concerning the similarities and differences between the twelve SMPs. The Draft report was distributed to all members of the Recreation, Aesthetics, and Shoreline

		Management IAG for comments.
HRLA: letter dated 5/27/04	The draft is inconsistent in its language. Specifically, the summary table uses both "prohibits" and "allows" making it difficult to discern whether a "yes" or "no" answer is positive or negative concerning the restrictiveness of a given issue.	New "summary tables" have been added to the summary section of the report and tables within the body of the report have been reformatted to be more consistent with the recommendations of IAG members.
NCWRC: 5/5 RASM	The summary table does not use the "not specified" classification and as such loses some important information.	The new summary tables include all "yes," "no," and "not specified (NS)" answers.
HRLA: letter dated 5/27/04 SaveHighRockLake.org: 5/5 RASM	The Draft fails to address "the application of the SMP beyond the [project's physical] boundary."	Information on extent of each SMP's application beyond the project boundary is subject to the availability of such information. Information on the extent of each project's physical boundary was not always included within an SMP and therefore no inferences were made as to the extent of application of the SMP's policies. Specifically, in issues involving land management (vegetative buffers, for example) every effort was made to include a full definition of the boundaries of such zones.
HRLA: letter dated 5/27/04, 5/5 RASM	The Summary of the report should not provide a rationale for three specific requirements of the Yadkin SMP as these are editorial comments and appear to be an endorsement of the Yadkin SMP. Additionally, HRLA asked that all rationales be left out of the report.	This information has been provided in the report simply as a reference to the reader regarding what, if any, rationale was provided in the Yadkin SMP in support of certain requirements or provisions. The page numbers from the Yadkin SMP where this information was found have been cited. Also, other IAG members supported the inclusion of this information.

NCWRC: 5/5 RASM USFS: 5/5 RASM	The rationale for the three issues of the Yadkin SMP is important information and additionally, rationales from the other SMPs on the same issues should be included if such information is available.	Efforts were made to include the rationales for other projects on the three issues in question. Ultimately, because such information was not contained within the SMPs themselves, this information could not be added for all projects. General rationale information for each SMP can be found in Section 2.3.
USFWS: 5/5 RASM	The rationale discussion in the conclusion section should remain since one of the agreed purposes was to "understand the similarities and differences between the Yadkin SMP and other southeastern SMPs."	The rationales remain in the report.
HRLA: letter dated 5/27/04, 5/5 RASM High Rock Lake Business Owners Group: 5/5 RASM	The summary table in the Final Report should contain an easily read comparison chart like the two provided by HRLA at 5/5/04 RASM IAG Meeting.	The summary table from the Draft has been eliminated and replaced with new summary tables in a format similar to that suggested by HRLA.
HRLA: 5/5 RASM	The report should take into account the different lakes of each project and their sizes and number of users	Information on the size and number of reservoirs to the extent such information is available has been provided for each project so that the reader can better understand the scale of each project. Additionally, the SMP for each respective project applies to all reservoirs within that system and as such, the individual reservoirs of each project were generally viewed as a whole. Also, other IAG members agreed that the SMP should be viewed as a comprehensive document (see next comment).
NCWRC: 5/5 RASM	The report should not look at each lake individually as the SMP is a	See response above.

	comprehensive document that addresses all reservoirs of a project as a whole.	
USFWS: 5/5 RASM	Types of users at the different reservoirs should be given some consideration.	Generally, information on the types of users was not readily available or contained within the SMPs (the predominant information source) themselves and as such, could not be included in the report.
HRLA: letter dated 5/27/04	There is no mention of "background study" in the Study Plan; however, such information is provided in Section 1.1 for Yadkin but no other SMPs. Also, this section should note that there was "virtually universal public opposition to the Alcoa SMP"	Because this study was conducted as part of the Yadkin relicensing, it was felt that background information on Yadkin SMP would provide report readers with information important to the study, and relevant to the SMP issues raised as part of the relicensing process.
HRLA: letter dated 5/27/04	"The report is inconsistent in presenting data on the subject lakes. The same physical characteristics should be shown for all lakes, including percentage of developed shoreline." (in reference to Section 2.3)	To the extent that it was readily available, every effort was made to provide consistent information on the reservoirs and lakes covered by the other SMPs. This information was provided as brief background description of each project's physical characteristics as well as its SMP. Unfortunately, the exact information for each reservoir was not always available and as such the physical characteristics generally pertain to the project as a whole (see Table 3) as that information was more readily available. The percentage of developed shoreline was least available of such information and as such could not be provided for all lakes.
HRLA: letter dated 5/27/04	"Alcoa's SMP is very specific on maximum size for new piers. The author apparently had some difficulty with	The report has been amended to address this concern.

	interpretation of the SMP limitations, as do many people. Depending upon the configuration of the floater section, and the limitation of 75 ft overall length, we calculate Diagram A max sq. footage as 776 SF, and Diagram B as 722 SF. This is drastically different than the 1,100 SF listed in the Draft."	
HRLA: letter dated 5/27/04	In Table 7, the column labeled "Pier Dimension or Length Requirement or Restriction" is very misleading, perhaps deceiving.	The table has been amended to clarify the information it presents.
HRLA: letter dated 5/27/04	HRLA disagrees with the assertion in the Conclusions Section that states: "all of the shoreline management plans reviewed for this study and discussed in this report were found to be highly similar in their structure and content "	The report has been modified to address this concern.
HRLA: letter dated 5/27/04	"The author's opinion as to the age of the SMP relating to the environmental protection afforded is very subjective, and not supported by factual study data, therefore, such statements should be edited out of the final document"	The report has been modified to address this concern.
HRLA: letter dated 5/27/04	"The author's conclusion that Yadkin is never alone in prohibiting or restricting an issue is debatable, especially if one considers lakes comparable to the two developed Alcoa lakes."	The summary tables were reviewed again to ensure that the statement of concern to the HRLA is accurate. It should be noted that the statement "in no case, was the Yadkin SMP the only SMP reviewed to address a particular issue or to set criteria or requirements for the

		permitting of shoreline facilities or uses" is a comparison of the policies of the Yadkin SMP versus eleven other SMPs and is not intended to be an individual comparison of High Rock and Narrows Reservoir versus other selected developed lakes.
HRLA: letter dated 5/27/04	"It is wrong for the author to attempt to justify Alcoa requiring 200' lot width for a pier on the allegation of overdevelopment. In related studies and reports over the past decade, Alcoa shows a lower percentage of development and usage on Badin and High Rock than on Lake Tillery, yet on Tillery Progress Energy only requires 100' of lot width for a pier. Similar comparisons can be made for almost every other lake covered by the study"	The rationale provided for Yadkin's 200' lot width requirement was obtained from Appendix K of the Yadkin SMP and is provided in the report as a reference. Page numbers in the Yadkin SMP where this information is contained have been cited.
HRLA: letter dated 5/27/04	"In addressing Alcoa's minimum water depth restriction for piers, the author makes errors in assuming (1) that a certain depth is required for boating and (2) that future lake operations may cause fluctuations that he believes could render a pier useless, and (3) even that the pier is being built for the express use for boat mooring."	This information was obtained directly from the Yadkin SMP and is intended as a reference. Citations to the text of the SMP have been added.
SaveHighRockLake.org:5/5 RASM	The rationale for 8-ft water depth for piers stated in the conclusions is questionable. Not all piers are used for boat mooring, but can be used solely for	See response above.

	fishing, sunbathing, etc.	
HRLA: letter dated 5/27/04, 5/5 RASM	"During May, June, July, and August, 5' fluctuations at High Rock are not permitted by current license terms; and the Draft is wrong to so state."	The report does not state that fluctuations are permitted at High Rock during the summer months. The report does reference Appendix K of Yadkin SMP which states that at High Rock, existing project operation during the summer season can result in water level fluctuations of up to 5 feet. Yadkin believes this statement is still an accurate description of normal operating conditions at High Rock.
USFS: 5/5 RASM	Language should be added to the report which recognizes that there are other laws and regulations that may preclude the SMP at federally-owned and operated projects.	The introduction to Section 2.3 "Project and SMP Descriptions" has been amended to include the following: "While the three federally-owned and operated projects are governed by specific shoreline management plans, it should be noted that management decisions at these reservoirs may be subject to other laws and regulations which may supercede the policies outlined in their respective shoreline management plans."
SaveHighRockLake.org: 5/5 RASM	"On-pier structures" should not be lumped together, but addressed individually.	Generally, the SMPs reviewed for this study refer to such superstructures in generic terms such as "on-pier structures," "roofed structures," or "enclosures" and as such could not be easily compared in terms of specific structure types. Each SMP's policies concerning "on-pier structures" can be found in Appendix A, Tables 3 and 5.

HRLA: 5/5 RASM	The Draft does not address the issue of duplicate regulations (e.g. the Yadkin SMP does not need to address electrical codes because this is addressed in county building codes).	The revised Yadkin SMP (dated July 1, 2002) does not subject applicants to duplicate regulations and has a requirement that "all electrical installations on piers must meet all applicable County and State codes governing electrical installations."