Shoreline Management Plan for the Roanoke Rapids and Gaston Hydropower Project FERC Project Number 2009

Roanoke Rapids
North Carolina

Dominion Virginia Power
Dominion North Carolina Power

March 2005

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ACRONYMS AND ABBREVIATIONS

BOD	biological oxygen demand
CFR	Code of Federal Regulations
cfs	cubic feet per second
Corps	U.S. Army Corps of Engineers
EA	Environmental Assessment
EIS	Environmental Impact Statement
FERC	Federal Energy Regulatory Commission
GIS	Geographic Information System
mgd	million gallons per day
MW	megawatts
MWh	megawatt hours
Dominion	Dominion Virginia Power / North Carolina Power
NCSHPO	North Carolina State Historic Preservation Office
NCWRC	North Carolina Wildlife Resources Commission
NEPA	National Environmental Policy Act
NRHP	National Register of Historic Places
PCB	polychlorinated biphenyl
SMP	Shoreline Management Plan
UNC	University of North Carolina
VASHSO	Commonwealth of Virginia Department of Historic Resources
VDGIF	Virginia Department of Game and Inland Fisheries
VEPCO	Virginia Electric Power Company

EXECUTIVE SUMMARY

Introduction

The Shoreline Management Plan (SMP) for the Roanoke Rapids and Gaston Project was developed to address several concerns that have resulted from the development of lands adjacent to Dominion Virginia Power / North Carolina Power (Dominion) shoreline project lands, uses of Dominion's shoreline lands by adjacent property owners and increased recreational use of the lakes. The intent of the SMP is to protect and enhance the two lakes' natural resources while encouraging economic development activities that complement or have neutral effects on those natural resources.

The previous shoreline guideline and permit system had been used to manage development of Dominion's shoreline property by adjacent owners. The system was useful as a method to keep records of shoreline facilities constructed on Dominion's property, and insure that the construction of facilities used approved materials and followed established guidelines. Resource agencies, local governments, non-governmental organizations, the local public and Dominion determined that a Shoreline Management Plan (SMP) should be developed to protect the natural resources of the lakes and the qualities of the lakes that were appealing to the public. The SMP addresses issues such as residential shoreline growth, protection of wildlife and fishery habitat, recreational access to the lakes and water quality.

The Project Setting

The Roanoke Rapids and Gaston Project straddles the Virginia/North Carolina border in Brunswick and Mecklenburg counties, Virginia, and in Halifax, Northampton and Warren counties, North Carolina. The project comprises two man-made developments (the Lake Gaston Dam and Roanoke Rapids Dam and facilities) located in the middle portion of the Roanoke River Basin. Both dams are located immediately downstream of the U.S. Army Corps of Engineers (Corps) John H. Kerr Dam and Reservoir. Lake Gaston, Roanoke Rapids Lake and the lower Roanoke River are important regional sources of recreation, and support, among other activities, boating and fishing.

Most of the area surrounding the Roanoke Rapids and Gaston Project is rural and contains agricultural areas, mixed hardwood forests, wetlands and residential areas. The region surrounding the project is sparsely populated, although there are numerous subdivisions and commercial facilities at Lake Gaston. Roanoke Rapids Lake is less developed than Lake Gaston, having few subdivisions and no significant commercial buildup. Downstream of

the project, the Roanoke River floodplain provides valuable habitat for numerous flora and fauna.

Project Facilities and Operations

The Gaston development consists of a combination concrete and earth dam and a lake approximately 34 miles long. The Roanoke Rapids development includes a concrete gravity dam and a lake approximately 8 miles long.

Dominion operates the Roanoke Rapids and Gaston Project in close coordination with the Corps' Kerr Project. Power from the project is used to meet the peak load requirements of Dominion's system, while taking into account limitations imposed by flood control, fisheries, water quality, recreation and other demands such as requests for specific water levels or downstream flows for bridge construction, weed control, etc. During normal operations, DOMINION operates Gaston Power Station in a peaking or load-following manner. Through close coordination with Kerr operation, Gaston typically operates with less than one foot fluctuation in the power pool (between elevations 199 to 200 feet) and Roanoke Rapids Lake fluctuates typically about 3 feet and up to 5 feet (between elevations 127 to 132).

FERC Shoreline Management Policies

As a Federal Energy Regulatory Commission (FERC) Licensee, Dominion manages the Roanoke Rapids and Gaston Project reservoirs in accordance with the rules and policies of the FERC. Dominion is responsible for achieving an appropriate balance among various interests in the project reservoirs and their use. As recreational use of the project reservoirs has increased over time and as demand for waterfront development including homes, commercial establishments and recreation facilities has increased, achieving an appropriate balance between development and the preservation of important natural, environmental or cultural features of the project reservoirs has become increasingly difficult. Preparing and implementing a SMP for the Roanoke Rapids and Gaston Project is intended to provide guidance on how best to allow prudent and sustainable development around the project shorelines while at the same time protecting important natural, environmental, recreation, and cultural project values.

Establishment of the Shoreline Management Plan

In June 1997, the SMP Technical Work Group (composed of resource agencies, local counties, non-governmental organizations, the local public and DOMINION), started the process of developing a SMP to more effectively manage Lake Gaston and Roanoke Rapids Lake. To address the shoreline management issues facing Lake Gaston and Roanoke Rapids Lake, the SMP Technical Work Group formed four subcommittees: Recreation and Public Access, Safety and Trash Removal, Land Use Classification and Policies, Permits and Enforcement. The subcommittees met over a three-year period at varying frequencies. The recommendations and findings of the subcommittees were consolidated into the SMP.

Existing Shoreline Conditions and Objectives of the Shoreline Management Plan

The overall objectives of the SMP include maintaining a balance between conservation of natural resources and economic development; improving the quality of lake and shoreline natural resources; creating an attractive and accessible lake and shoreline setting for the public and adjacent landowners; and being consistent with other jurisdictional policies and plans. The following is a summary of the existing condition of each shoreline component (lands, recreation, terrestrial resources and fisheries, water quality and cultural resources) and a summary of the SMP management objectives for each component.

Lands

Dominion owns a continuous strip of land that completely encircles both Lake Gaston and Roanoke Rapids Lake. The strip of project lands between the reservoir shoreline and the project boundary varies in width from approximately 10 feet to 200 feet or more.

Three broad land use categories (developed, agricultural and undeveloped) occur adjacent to the shores of Lake Gaston and Roanoke Rapids Lake. The developed land use type is composed of residential, commercial, recreational, transportation, utility and industrial land uses and is adjacent to approximately 50 percent of Dominion's shoreline area at Lake Gaston and 20 percent at Roanoke Rapids Lake. The undeveloped land use type consists of forests, wetlands, non-pasture grasslands and wildlife management areas and comprises approximately 47 percent of the shoreline at Lake Gaston and 62 percent at Roanoke Rapids Lake. Agricultural lands are adjacent to approximately 3 percent of the shoreline at Lake Gaston and 18 percent at Roanoke Rapids Lake.

Most of the lands that are adjacent to the lakes have been zoned by their respective local jurisdictions for uses that allow future residential development. A strong residential tax base is very important to the local jurisdictions and as a result, the zoning for most of the lands adjacent to the lakes allows for significant future residential development. It is estimated that there are between 6,000 and 8,000 homes around Lake Gaston and approximately 12,000 property owners. The number of homes being built adjacent to the shores of the lakes will likely continue into the near future and beyond.

Recreation

Lake Gaston and Roanoke Rapids Lake are popular local and regional recreational resources. Most of the existing recreational activities are water oriented and include activities such as fishing, water skiing, general boating, swimming and hunting. Many of the adjacent property owners have direct access (across Dominion shoreline lands) to the lakes from docks and boathouses. Public access to the lakes focuses on providing boat-launching facilities.

Terrestrial Resources and Fisheries

A major objective of the SMP is to protect and enhance wildlife and fisheries habitat in order to maintain existing species, while allowing prudent use of Dominion shoreline property by nearby property owners. State and Federal wildlife agencies have voiced concern regarding the loss of wildlife and fisheries habitat around the shorelines of the lakes as a result of real estate development. Increases in residential development on lands adjacent to the lakes' shorelines has resulted in decreases in upland and shoreline wildlife habitat, travel corridors and fisheries habitat.

Although there are still segments of natural vegetation left in the shoreline zone of some residential areas, in many cases, native vegetation has been removed and replaced with non-native species and lawns. The replacement vegetation has little value to most wildlife and fish species.

One of the main purposes of the SMP is to protect and/or rehabilitate habitat for wildlife and fisheries where practicable. To accomplish this, shoreline habitat was surveyed and sensitive and valuable habitat areas identified. These areas were assigned a shoreline classification of Special Management Area, with a subarea designation of sensitive area (i.e., High Value Ecological Lands) or limited use area. The sensitive areas and limited use areas include fish spawning areas, areas with overhanging vegetation and structures that

provide fish habitat, beach areas used by stripped bass, wetlands, shallow areas, water willow beds and upland areas that provide a large buffer between adjacent property owners and the lakes. Depending upon site-specific conditions and shoreline classification, varying levels of development are allowed on Dominion's property.

The SMP has a landscaping, vegetative trimming/removal and revegetation permit requirement to help maintain and restore wildlife and fisheries habitat on Dominion's shoreline land. In addition to the permit system, the SMP has an education program to inform adjacent landowners about how they can help to improve the wildlife and habitat value of DOMINION property.

Water Quality

Lake Gaston and Roanoke Rapids Lake have generally good water quality. Because water quality at the two lakes is most influenced by water entering upstream from Kerr Reservoir, there is a limited amount that Dominion can do to influence water quality. There is however, an interest by Dominion, agencies and many others to maintain or even improve existing water quality.

The SMP can influence water quality by regulating land uses and activities that occur on Dominion property and educating and encouraging neighbors on lands adjacent to Dominion lands to also do so.

Cultural Resources

Important cultural resources are known to exist near and within Dominion shoreline property. The impoundment of Lake Gaston and Roanoke Rapids Lake has resulted in the inundation (or semi-inundation) of all or portions of numerous archaeological sites. To protect cultural resources, areas that have high cultural value have been grouped with areas that have high ecological value. In this way, the sites will be protected without calling attention to them.

1. INTRODUCTION

1.1 PROJECT DESCRIPTION

The Roanoke Rapids and Gaston Project straddles the Virginia/North Carolina border in Brunswick and Mecklenburg counties, Virginia, and in Halifax, Northampton, and Warren counties, North Carolina. The project comprises two man-made developments (the Lake Gaston Dam and Roanoke Rapids dam and facilities) located in the middle portion of the Roanoke River Basin. Both dams are located immediately downstream of the U.S. Army Corps of Engineers (Corps) John H. Kerr Dam and Reservoir. Kerr Reservoir is the largest impoundment on the Roanoke River (there are six smaller impoundments upstream of Kerr Reservoir) (Table 1-1). The Kerr Project is the primary reservoir responsible for regulating the Roanoke River and providing flood control. It has a power pool and flood control capacity of about 1.6 million acre-feet between elevations 293 and 320 feet.

Table 1-1. Physical Characteristics of Kerr Reservoir, Lake Gaston and Roanoke Rapids Lake

Lake	Elevation at Full Pool (above mean sea level)	Total Volume (acre-feet)	Surface Area (acres)	Retention Time[1/] (days)	Typical Fluctuation (feet)
Kerr[2/]	300	1,472,000	48,900	93	6-9
Gaston	200	450,000	20,300	29	1
Roanoke Rapids	132	77,100	4,600	5	3-5

[1/] Calculation based on using the annual mean flow of 7,951 cfs as measured at Roanoke Rapids, North Carolina for water years 1964 to 1993.

[2/] Flood storage volume of 1,278,000 acre-feet excluded.

The area surrounding the Roanoke Rapids and Gaston Project is rural. It consists of rolling hills, mixed hardwood forests, wetlands and agricultural areas. Downstream of the project, the Roanoke River floodplain provides valuable habitat for numerous flora and fauna. Lake Gaston, Roanoke Rapids Lake and the lower Roanoke River are important regional sources of recreation, which support, among other activities, boating and fishing.

The region surrounding the project is sparsely populated. Roanoke Rapids, Warrenton, and Littleton (North Carolina) and Lawrenceville and South Hill (Virginia) are population centers near the project. There are numerous subdivisions and commercial facilities at Lake Gaston, mostly concentrated around the eastern portion of the lake. Roanoke Rapids Lake is less developed than Lake Gaston, having few subdivisions and no significant commercial buildup. Development around the lakes contributes significantly to the economy of the five

surrounding counties. Major manufacturing in the area includes pulp and paper, textiles, plastics and automotive parts.

1.1.1 Project Facilities

The Gaston development consists of a combination concrete and earth dam and a lake approximately 34 miles long. The maximum dam height is approximately 105 feet and the total length of all earth and concrete sections is 3,600 feet. The powerhouse has four generating units with a total rated capacity of about 225 megawatts (MW) (1 Kaplan/3 fixed-blade). The full capacity flow from the units is 44,000 cubic feet per second (cfs). Lake Gaston has a total volume of 450,000 acre-feet and a surface area of 20,300 acres at elevation 200 feet (Table 1-1).

The Roanoke Rapids development includes a concrete gravity dam and a lake approximately 8 miles long. The maximum dam height above the riverbed is about 72 feet. The total length of all dam and powerhouse structures is approximately 3,050 feet. The powerhouse has four Kaplan generating units with a total rated capacity of about 99 MW. The full capacity flow from the units is approximately 20,000 cfs. Roanoke Rapids Lake has a total storage volume of 77,140 acre-feet and a total surface area of 4,600 acres at elevation 132 feet.

1.1.2 Project Operations

Virginia Electric and Power Company (VEPCO) owns and operates both developments under Federal Energy Regulatory Commission (FERC) license No. 2009. VEPCO operates as Dominion North Carolina Power (Dominion) in North Carolina, and Dominion Virginia Power in Virginia. Dominion operates the Roanoke Rapids and Gaston Project in close coordination with the Corps' Kerr Project. Based on river inflow and Kerr Reservoir operating guidelines, the Corps schedules flows on a weekly basis.

Power from the project is used to meet the peak load requirements of the Dominion system, while taking into account limitations imposed by flood control, fisheries, water quality, recreation and other demands such as requests for specific water levels, downstream flows for bridge construction, weed control, etc. During normal operations, Dominion operates Gaston Power Station in a peaking or load-following manner. Through close coordination with Kerr operation, Gaston typically operates with less than one-foot fluctuation in the power pool (i.e., between elevations 199 to 200 feet). No minimum continuous release of water is required from Gaston Dam because it discharges directly into Roanoke Rapids Lake.

The Roanoke Rapids development is different from Gaston in that the Roanoke Rapids units are smaller in size and capacity than the Gaston units, and Roanoke Rapids Lake is smaller in size than Lake Gaston. A minimum continuous flow release is required from the Roanoke Rapids Dam for maintenance of downstream water quality, as well as fish and wildlife habitat. Based on an agreement among the North Carolina Wildlife Resources Commission (NCWRC), the Corps and Dominion, during the striped bass spawning period (April 1 to June 15) Kerr, Gaston and Roanoke Rapids reservoirs are operated to provide spawning flows recommended by the Roanoke River Water Flow Committee. During this period, the load-following capability at the Roanoke Rapids Power Station is foregone to maintain continuous spawning flow rates. At other times of the year, Dominion operates Roanoke Rapids Power Station in a load-following mode with discharges of between 1,000 and 20,000 cfs on a daily basis. To accomplish the daily load following at Roanoke Rapids Power Station, Roanoke Rapids Lake fluctuates typically about 3 feet and up to 5 feet between elevation 127 feet and elevation 132 feet. On weekends, Roanoke Rapids often releases only the minimum required flow.

The Gaston Power Station generates an average of 336,362-megawatt hours (MWh) annually and the Roanoke Rapids Power Station generates an average of 336,408 MWh.

1.2 FERC SHORELINE MANAGEMENT POLICIES

The project reservoirs are significant resources to south central Virginia and north central North Carolina. Numerous recreational activities occur on and near the reservoirs including boating, fishing and swimming. The reservoirs and adjacent lands also harbor a wide variety of fish and wildlife and in some instances provide unique habitats, which are important to the protection of important fish and wildlife species. The beauty of Roanoke Rapids Lake and Lake Gaston has resulted in the development of year-round and seasonal homes, commercial recreational facilities and other commercial and industrial facilities adjacent to and near the lakes.

As a FERC Licensee, Dominion must manage the Roanoke Rapids and Gaston Project reservoirs in accordance with the rules and policies of FERC. Dominion is responsible for achieving an appropriate balance among various interests in the project reservoirs and their use. As recreational use of the project reservoirs has increased over time and as demand for waterfront development including homes, commercial establishments and recreation facilities has increased, achieving an appropriate balance between development and the preservation of important natural, environmental or cultural features of the project reservoirs has become increasingly difficult. Preparing and implementing a Shoreline

Management Plan (SMP) for the Roanoke Rapids and Gaston Project is intended to provide guidance to DOMINION and others on how best to allow prudent and sustainable development around the project shorelines while at the same time protecting important natural, environmental, recreation, cultural and aesthetic project values.

Since the early 1980s, FERC has made it a practice to incorporate a standard license article regarding the use of project lands and waters in most FERC licenses. This so called "land use article" delegates to DOMINION the authority to grant permission, without prior FERC approval, for certain types of use and occupancy of project lands and waters.

1.2.1 Uses Dominion Can Authorize without Prior FERC Approval

FERC has authorized Dominion to grant permission, without prior FERC approval, for certain types of use and occupancy of project lands and waters if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational and other environmental values of the project. Uses for which Dominion may grant permission include: (1) landscape plantings; (2) small, noncommercial piers, landings and boat docks; and (3) embankments, bulkheads, retaining walls or similar erosion control structures to protect the existing shoreline.

FERC also allows Dominion to establish a program for issuing licenses for specified uses of project lands and waters, which can include the payment of a reasonable fee to cover the cost of administering the licensing system. Under this designated authority, Dominion has developed a private facility-licensing program for Lake Gaston and Roanoke Rapids Lake. Under this program, Dominion sets forth criteria for the design and installation of private facilities which can be undertaken under license from DOMINION but without approval from FERC. FERC has reviewed Dominion's private facility licensing program and has determined that it meets expectations. FERC may review the Dominion's private facility licensing program at any time. The current private facility-licensing program is discussed in more detail in Section 5. Dominion has also established a process for reviewing and licensing commercial facilities. This process also is discussed in detail in Section 5.

To further protect and enhance the project's scenic, recreational and environmental values, FERC encourages multiple use and occupancy of facilities for access to project lands and waters. Dominion is also required to ensure that the uses and occupancies for which it grants permission are safe, are maintained in good repair and comply with applicable state and local safety and health requirements. Finally, FERC requires that Dominion take responsibility for supervising and controlling the use and occupancy of project lands and waters which it may convey through its licensing program. If a licensed use violates any

conditions imposed by FERC or any condition imposed by Dominion under its licensing program, or any measures required for the protection and enhancement of the project's scenic, recreational or environmental values, then Dominion may take any lawful action necessary to correct the violation. For a licensed use, such action may include canceling permission to use and occupy project lands or waters, and requiring removal of any non-complying structures and facilities.

1.2.2 Uses Dominion Can Authorize without Prior FERC Approval but Reported Annually

FERC authorizes Dominion to convey easements or rights-of-way across, or leases of project lands and waters for: (1) maintenance and modification of bridges and roads for which all state and Federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major utility lines; and (8) water intake or pumping facilities of less than 1 million gallons per day (mgd). All such conveyances made within a calendar year must be reported by Dominion to FERC by January 31 of the following year.

1.2.3 Uses Dominion Can Authorize with a 45-day Prior Notice to FERC

FERC authorizes Dominion to convey fee title to easements or rights-of-way across, or leases of project lands for: (1) construction of new bridges or roads for which all Federal and state approvals have been obtained; (2) sewer or effluent lines which discharge to project waters for which all Federal and state approvals have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) non-project overhead transmission lines that require support structures within the project boundary for which all Federal and state approvals have been obtained; (5) private or public marinas that accommodate no more than 10 watercraft at a time and are located at least one-half mile from any other marina; (6) recreation development consistent with a FERC-approved Recreation Plan or Exhibit R; and (7) other uses if (i) the amount of land conveyed is less than 5 acres, (ii) all of the land conveyed is located at least 75 feet (horizontally) from the reservoir, and (iii) no more than 50 total acres of the project land conveyed in any calendar year. At least 45 days prior to granting approval for such uses, Dominion must file a letter with FERC stating its intention to convey the interest and briefly describing the location and use of the lands to be conveyed. Unless FERC, within 45 days from the date the letter is filed, requires Dominion to file an application for prior approval, Dominion may convey the intended interest at the end of that period.

1.2.4 Uses Dominion Can Authorize Requiring Prior FERC Approval

FERC requires that Dominion obtain prior FERC approval before granting permission or conveying interests in project lands and waters for the construction of any commercial facility which is designed to accommodate more than 10 watercraft.

In reviewing proposals for such facilities, FERC requires that Dominion provide evidence of consultation with all state and Federal resource agencies concerning the proposed development and conducts an environmental review as required under the National Environmental Policy Act (NEPA). The environmental review generally takes the form of an environmental assessment (EA); however, a large development project, which would result in a "significant impact" to the environment, might require an environmental impact statement (EIS). If FERC approves the development, it will issue an Order Approving Non-project Use of Project Lands. In some instances FERC may approve the proposed development with conditions. In such instances, Dominion is responsible for assuring that all the conditions of the approval are met. In turn, Dominion requires that the developer comply with all conditions imposed by FERC as part of the approval. Should a developer fail to meet its obligations as set forth in the conditions of the FERC Order, Dominion as the responsible entity has the authority to require that use of the project lands and waters cease, and that project lands and waters be returned to their original state.

1.3 FERC'S POLICIES REGARDING SHORELINE MANAGEMENT

Recognizing the difficulty facing some licensees in identifying and achieving an appropriate balance among project uses, FERC encourages, and in some cases has required, licensees to develop SMPs for their projects. The intent of a SMP is to provide guidance to the licensee and others in the consideration of future uses of the project and to provide guidance in evaluating the appropriateness of shoreline development. A SMP may be formally filed with FERC. If approved by FERC, a project license may be amended to incorporate the SMP. Alternatively, a SMP can be developed and initiated by a licensee without formal approval from FERC. Even SMPs, which are not formally filed with FERC, are used by licensees and FERC to guide decisions regarding the future of the project reservoirs.

1.4 FERC'S POLICIES REGARDING PUBLIC RECREATION AND PUBLIC SAFETY

Under FERC regulations, project licensees have a responsibility to provide public recreation opportunities at every hydropower project. The requirement to provide public recreation opportunities was established in FERC Order No. 313, issued in December 1965. This Order established FERC regulations which require licensees to: (1) acquire lands to assure optimum development of the recreational resources afforded by the project; (2) develop suitable public recreational facilities with adequate public access, considering the needs of physically handicapped persons in the design of facilities and access; (3) coordinate efforts with other agencies in the development of public recreation areas and facilities; (4) provide for planning, operation and maintenance of these facilities; and (5) inform the public of recreational opportunities at the project.

FERC project licensees are responsible for public safety at federally licensed hydropower projects. Because each project is unique and requires site-specific judgments and solutions to resolve safety issues, FERC requires all licensees to prepare a Public Safety Plan detailing the type and location of all project safety features. Projects that have heavily utilized recreation facilities require significant attention to public safety measures and the licensee needs to consider public safety when providing public access to its project.

2. NEED FOR A SHORELINE MANAGEMENT PLAN

Through discussions with FERC, resource agencies, local governments, non-governmental organizations and the local public (Shoreline Management Plan Technical Work Group), it was determined that an updated and expanded shoreline management system was needed in order to address the complexities involved in managing the project. The previous guideline and permit system had been used to control and keep track of the development of Dominion's shoreline property by adjacent owners. The previous system was useful as a method to keep records of shoreline facilities constructed on Dominion property, and insure that the construction of facilities followed established guidelines.

The Shoreline Management Plan Technical Work Group determined that an additional system needed to be devised to protect the qualities of the lakes that were appealing to the public. The new system would address several significant issues such as residential shoreline development; protection of wildlife, fishery habitat and water quality; and recreational use of and access to the lakes.

The following sections briefly describe the major issues that the SMP addresses.

2.1 SHORELINE DEVELOPMENT

Because Lake Gaston and Roanoke Rapids Lake are such appealing places to live or have vacation homes, the number of residences that have been built around the lakes has significantly increased over the years. As the number of residences and other development has increased in recent years, so has the number of shoreline permits issued.

Growth in real estate development has also resulted in increases in tax revenue for local jurisdictions, many of which depend heavily on the taxes derived from residences near the project. In addition to increases in the tax base, real estate development around the lakes has provided employment as a result of construction, and services and goods purchased by people living in the residences.

This increase in the development of real estate adjacent to the lakes' shorelines has resulted in decreases in upland and shoreline wildlife habitat and travel corridors. About half of the shoreline of the two lakes has been developed. This development has also had an effect on fisheries habitat.

The Shoreline Management Technical Work Group determined that prudent real estate growth should continue around the lakes. To accomplish this, the SMP allows varying degrees of water access while protecting wildlife and fisheries habitat along with water quality.

2.2 WILDLIFE AND FISHERIES HABITAT

State and Federal resource agencies are concerned about the loss of wildlife and fisheries habitat around the shorelines of the lakes as a result of real estate development. Shoreline vegetation serves as important habitat and transportation corridors for many species of wildlife. It is especially important in areas where residential development has resulted in the clearing and/or replacement of upland and shoreline native vegetation. The presence of native shoreline and aquatic vegetation is also important for many species of fish. Loss of shoreline and aquatic vegetation has negative consequences for fisheries.

Residential development has occurred along the shoreline of approximately 47 percent of Lake Gaston and 20 percent of Roanoke Rapids Lake (Table 2-1) as of 1998. Although there are still segments of natural vegetation left in developed shoreline areas, in many cases, native vegetation has been removed and replaced with bulkheads, riprap, lawns and non-native species. These types of shoreline treatments are less supportive of a variety of wildlife and fish than is undisturbed shoreline that contains native vegetation.

2.3 WATER QUALITY

Lake Gaston and Roanoke Rapids Lake generally have good water quality. Water quality at the lakes is most affected by water released from Kerr Reservoir. Although Dominion is significantly limited in what it can do to influence water quality, it can influence water quality to a certain extent. By regulating land uses and activities that occur on ominion property and educating and encouraging neighbors to also do so, existing water quality can be maintained or even improved.

2.4 PUBLIC RECREATIONAL ACCESS TO THE LAKES

Lake Gaston and Roanoke Rapids Lake are popular regional recreation resources that are used by adjacent property owners, local residents and people in other parts of Virginia and North Carolina. Public access to the lakes is available via nine public facilities with boat ramps and four commercial facilities. Most private access (and access in general) to the lakes occurs from licensed private facilities adjacent to the lakes such as docks and piers. There are currently about 8,000 licensed docks, piers, boat shelters and boathouses on Lake Gaston and Roanoke Rapids Lake. Private access to the lakes is also available at private campgrounds and lodges.

Table 2-1. Land Uses Adjacent to Project Shorelines—Miles of Shoreline and Percentage of Total Shoreline[1/]

Lake	Undeveloped[2/]	Developed[2/]	Agricultural[2/]	Total
Lake Gaston	164 (264 km) (50%)	155 (249 km) (47%)	10 (16 km) (3%)	329 (529 km) (100%)
Roanoke Rapids Lake	25 (40 km) (62%)	8 (12 km) 20%)	7 (11 km) (18%)	40 (63 km) (100%)
Total	189 (304 km) (51%)	163 (262 km) (44%)	17 (27 km) (5%)	369 (593 km) (100%)

[1/] This data was gathered from aerial photographs.
[2/] These three general land use types are each composed of several other land use types as noted below.
Undeveloped = forest, wetlands, wildlife management areas, non-pasture grasslands
Developed = residential, recreational, commercial, industrial, transportation, institutional
Agricultural = crops and orchards, pine plantations, pasture grasslands

During public meetings with the Recreation and SMP Technical Work Groups, the issue of public access was discussed. Most members of the Work Groups agree that it is reasonable to provide a broader range of public access in the future through additional access in areas that may currently be under-served, and by adding more shoreline and adjacent recreational opportunities. The recreation improvements that are planned in the future are included in Section 3.3.

3. EXISTING SHORELINE CONDITIONS

3.1 THE INFLUENCE OF OPERATIONS ON SHORELINE CONDITIONS

The primary effect of Dominion operations on shorelines at Lake Gaston and Roanoke Rapids Lake occurs as a result of daily fluctuations in pool elevations. These daily fluctuations have little effect on the natural resources found within the shoreline area or features built over water, such as docks (Dominion 1999). Pool fluctuations are typically one foot at Lake Gaston and 3 to 5 feet at Roanoke Rapids Lake. There is little difference in the natural resources found in the shoreline areas of the two lakes that can be attributed to pool fluctuation. The differences that do occur can be attributed to factors such as level of shoreline and upland development, shoreline type and exposure to great expanses of water (which can promote erosion), rather than to pool fluctuations.

At Roanoke Rapids Lake, the structures built over water, such as piers, must be designed to accommodate the larger water level fluctuations. Because of the greater pool fluctuation at Roanoke Rapids Lake, there is more shoreline exposed at low pool elevations than at Lake Gaston and boat ramps are longer to accommodate the different water levels.

3.2 LANDS

The Roanoke Rapids and Gaston Project is located in a rural region of south central Virginia and north central North Carolina. Land ownership and use on lands adjacent to and near the project has changed over time since the two lakes were built. Residential and commercial areas have been developed adjacent to the lakes to take advantage of the their beauty and recreational opportunities. As residential development has occurred, there has been a decrease in natural and agricultural areas adjacent to the lakes. The following sections describe land ownership, use and regulatory patterns on lands around the lakes.

3.2.1 Land Ownership

Most of the land in the five-county area around Roanoke Rapids Lake and Lake Gaston is privately owned. Dominion owns a continuous strip of land that completely encircles both Roanoke Rapids Lake and Lake Gaston. The strip of project land between the reservoir shoreline and the project boundary varies in width from approximately 10 feet to 200 feet or more. Most of the land adjacent to Dominion's shoreline strip is owned by private individuals and corporations. There are, however, scattered lands that are owned and/or managed by the Federal government and the states of Virginia and North Carolina.

The one tract of Federal land adjacent to the project is located in the uppermost part of Lake Gaston. It is contiguous with the Kerr Reservoir Project and includes the Kerr Dam tailrace and Tailrace Landing Park. The U.S. Army Corps of Engineers manages this tract of land.

There are 11 locations of state-owned or managed lands in or adjacent to the project. Six tracts are owned or managed by the State of North Carolina, and five by the State of Virginia. The six tracts in North Carolina are recreation-oriented facilities that are managed by North Carolina Wildlife Resources Commission (NCWRC). The facilities are the Stonehouse Creek Landing, Henrico Landing and Summit Landing at Lake Gaston and Thelma Landing, Vultare Landing and 5th Street Landing at Roanoke Rapids Lake. The five tracts in Virginia are located at Lake Gaston and are managed by the Virginia Department of Game and Inland Fisheries (VDGIF) for either recreation or wildlife resources. The facilities in Virginia are: the Dick Cross Wildlife Management Area, Steel Bridge Landing, the Waterfowl Hunting Area, Poplar Creek Landing and Pea Hill Creek Landing.

3.2.2 Land Uses

A variety of land uses occur adjacent to the Lake Gaston and Roanoke Rapids Project. Figure 3-1 identifies land uses adjacent to the project that have been grouped into three broad categories or use types. The three land use types are Developed, Undeveloped, and Agricultural. Each of these broad types of land use is composed of additional subcategories, many of which are so small in size that they are not displayed in Figure 3-1.

The developed land use type is adjacent to approximately 47 percent of Lake Gaston's shoreline. It includes residential, commercial, recreational, transportation, utility and industrial land uses. Most of the developed land is residential. It is estimated that there are between 6,000 and 8,000 homes around Lake Gaston and approximately 12,000 property owners, many of whom have not developed their property (personal communication, C. Lassiter, President, Lake Gaston Association, November 12, 1997). Not all of these homes are adjacent to the lake, but a significant number are. The Lake Gaston Association estimates that approximately half of the homes around the lake are year-round residences with the remaining half being vacation or second homes. Lake Gaston is almost fully developed with residential structures on both sides of the shoreline (north and south) from the Lake Gaston Dam to the Eaton's Ferry Bridge. Residential development also occurs along Peahill Creek, Lizard Creek, Stonehouse Creek, and other tributaries. West of Eaton's Ferry Bridge there are many areas of concentrated development, including portions

Figure 3-1. General Land Use Map

11 x 17

(Figure 5-26 in the Draft APEA)

of Lake Gaston and its tributaries (e.g., Songbird Creek, Lyons Creek, Hubquarter Creek, Poplar Creek, and Holly Creek).

The undeveloped land use type is adjacent to approximately 50 percent of the shoreline of Lake Gaston. It consists of the following land uses: forests, wetlands, non-pasture grasslands and wildlife management areas. Undeveloped lands are scattered along the shores of Lake Gaston, but tend to be concentrated in the middle to upper portions of the lake.

Agricultural lands are adjacent to approximately 3 percent of the shoreline at Lake Gaston. These lands tend to be concentrated in the upper portion of the lake.

Roanoke Rapids Lake is less developed than Lake Gaston (Table 2-1). Approximately 62 percent of the shoreline of the lake is adjacent to undeveloped land and 20 percent is adjacent to developed land. Most of the developed lands are residential. There are several areas of concentrated residential development at Roanoke Rapids Lake. They include the portion of the south shore of Roanoke Rapids Lake that is within the City of Roanoke Rapids, the entrance to Deep Creek and along the north shore of the lake near Roanoke Rapids Dam.

Less than 1 percent of the lands adjacent to the shoreline have been developed for non-residential uses such as commercial, industrial, recreational and transportation. Dominionhas the greatest amount of land in these categories.

3.2.3 Land Use Regulations (Zoning)

Local jurisdictions adjacent to Lake Gaston and Roanoke Rapids Lake have developed comprehensive land use plans and/or zoning ordinances to guide growth.

All of the jurisdictions adjacent to the two lakes have established zones next to the lakes that permit residential development. Even agricultural zones allow residential development on lands near the lakes, although at a density less that that of areas zoned for residential uses. Residentially zoned areas allow varying degrees of development intensity around the lakes and all of the densely developed areas of the lakes are zoned residential.

However, not all of the areas zoned residential are developed yet. These areas have the potential to be developed in the future, which could result in upland habitat loss and would make the shoreline habitat on Dominion properties more important for wildlife in future years.

The following briefly discusses local zoning and other plans relevant to the SMP. Table 3-1 lists the types of zoning designations assigned by local jurisdictions to lands adjacent to the project shorelines.

Table 3-1. Zoning Designation of Lands Adjacent to Project Shoreline

	Lake Gaston			Roanoke Rapids Lake		
	Miles of Shoreline Adjacent To		% of Shoreline	Miles of Shoreline Adjacent To		% of Shoreline
Brunswick County						
A1	8.6	(13.8 km)	21	-	-	-
R1	31.3	(40.4 km)	76	-	-	-
B1	1.3	(2.1 km)	3	-	-	-
Total	41.2	(66.3 km)	100			
Mecklenburg County						
A	66.9	(107.6 km)	66	-	-	-
R1	14.3	(23.0 km)	14	-	-	-
R2	20.1	(32.3 km)	20	-	-	-
B1	0.3	(0.5 km)	>1	-	-	-
Total	101.6	(163.4 km)	100			
Warren County						
AR	2.3	(3.7 km)	2	-	-	-
R	96.6	(155.4 km)	94	-	-	-
LB	1.5	(2.4 km)	1	-	-	-
GC	1.0	(1.6 km)	1	-	-	-
TC	1.7	(2.7 km)	2			
Total	103.1	(165.8 km)	100			
Halifax County (Includes City of Roanoke Rapids)						
LR	28.0	(45.0 km)	80	0.3	(0.5 km)	2
RA	7.0	(11.3 km)	20	15.8	(25.4 km)	98
Total	35.0	(56.3 km)	100	16.1	(25.9 km)	100
Northampton County						
AR	43.2	(69.5 km)	100	18	(29 km)	100
City of Roanoke Rapids						
R12	-	-	-	0.5	(0.8 km)	19
R15	-	-	-	1.9	(3.1 km)	73
R20	-	-	-	0.1	(0.2 km)	4
H1	-	-	-	0.1	(0.2 km)	4
Total				2.6	(4.3 km)	100

3.2.3.1 Brunswick County, Virginia

Brunswick County has zoned lands near Lake Gaston as Agricultural (A-1), Residential (R-1 and R-2) and Business (B-1). Residentially zoned areas (R-1 and R-2) account for 76 percent of the shoreline in the county and are the most prevalent zone. The A-1 zone accounts for 21 percent of the shoreline and the B-1 zone accounts for 3 percent.

Brunswick County adopted a new comprehensive plan as of December 1998 (personal communication, L. Weddington, Planner, Brunswick County, Lawrenceville, VA, May 3, 1999). The County has no watershed plan.

3.2.3.2 Mecklenburg County, Virginia

Lands in the portion of Lake Gaston located in Mecklenburg County (essentially the western third of the lake) that are adjacent to the lake have been assigned one of four zoning designations, or as they are called in Mecklenburg County, districts. These four districts are Agricultural (A), Residential (R-1 and R-2) and Business (B-1). The majority (66 percent) of the shoreline in Mecklenburg County is adjacent to lands that have been designated A. Between the areas that have been designated A are scattered areas of R-1 (14 percent), R-2 (20 percent) and B-1 (less than 1 percent).

Mecklenburg County, Virginia, completed a new comprehensive plan in 1999. The County has no watershed plan.

3.2.3.3 Warren County, North Carolina

Warren County has assigned six zoning designations to lands adjacent to Lake Gaston. They are Agricultural-Residential (AR), Residential (R), Lakeside Group Camps (GC), Lakeside Tent or Trailer Camping (TC), Lakeside Business (LB) and Neighborhood Business (NB). Most of the land (94 percent) along the shoreline of Lake Gaston in Warren County is zoned R.

There is currently no watershed plan in Warren County.

3.2.3.4 Halifax County, North Carolina

Four zoning designations have been assigned to lands in Halifax County that are adjacent to Lake Gaston and Roanoke Rapids Lake. They are Lakeside Residential (LR), Residential Agriculture (RA) and Heavy Industrial (HI). Most (80 percent) of the land adjacent to the shoreline of Lake Gaston in Halifax County is zoned Lakeside Residential (LR). The remaining 20 percent has been zoned RA. The majority (98 percent) of the southern shore of Roanoke Rapids Lake in the county has also been zoned RA.

Halifax County has a Watershed Protection Ordinance. The North Carolina Environmental Management Commission has designated most of the portion of Lake Gaston that is Halifax County (from approximately Lees Creek west to the county line) as a Watershed Protected Area. It has also designated lands adjacent to the southern shoreline of Lake Gaston and Roanoke Rapids Lake from Lees Creek east to the western boundary of the City of Roanoke Rapids as a Critical Area. These designations require a minimum 30-foot setback for buildings when measured from the high water mark. The 30-foot setback is to remain as an essentially undisturbed buffer. (Personal communication, K. Dobbins, Planner, Halifax County, Halifax, N, March 25, 1998).

3.2.3.5 Northampton County, North Carolina

Northampton County has assigned one zone to lands adjacent to the shores of Lake Gaston and Roanoke Rapids Lake. The zone is Agricultural Residential (AR). All 43 miles of shoreline in Lake Gaston and 18 miles in Roanoke Rapids Lake are adjacent to lands that have been zoned AR.

The Northampton County Watershed Plan has identified all of the shoreline of the portions of Lake Gaston and Roanoke Rapids lakes that are contained within the county as within the Watershed Protection Area. The County does not have a watershed plan. The combination of the AR zone and the Watershed Protection Area encourage a mixture of agriculture and low density development. The Watershed Protection Area designation was given to protect water quality and has no buffer requirements. (Personal communication, W. Fielding, Planner, Northampton County, Jackson, NC, March 17, 1999).

3.2.3.6 City of Roanoke Rapids

All of the lands adjacent to Roanoke Rapids Lake that are within the planning area of the City of Roanoke Rapids are included in a primary growth boundary. Growth within the primary growth boundary is encouraged because of the presence of public services and/or the ability to provide those services in a cost-effective manner. The City of Roanoke Rapids has zoned lands adjacent to Roanoke Rapids Lake that are contained within the growth boundary into one of four zones. Three of the zones are Residential (R-15, R-12 and R-20) and the fourth is Heavy Industrial (HI). The residential zones are located west and east of Roanoke Rapids Dam. The dam area itself is zoned HI.

All lands adjacent to the shorelines that are within the city's jurisdiction are included in the Watershed Protection overlay district. The areas of shoreline west of the dam facilities that are zoned R-15, R-12 and R-20 are included in the Critical Watershed Protection (CWP) overlay district. Both overlay districts require a 30-foot vegetated buffer (personal

communication, C. Roundtree, Planner, City of Roanoke Rapids, NC, February 1, 2000). The HI zone near the dam and the R-20 zone immediately east of it are included in the Watershed Protection (WP) overlay.

3.3 RECREATION

Kerr Reservoir, Lake Gaston, Roanoke Rapids Lake and the downstream reaches of the Roanoke River offer a wide variety of freshwater-based recreation activities. Viewed together as a complex, these lakes and river reaches offer an impressive array of outdoor recreation opportunities. Individually, each area has unique characteristics and multiple opportunities for outdoor recreation. This freshwater complex straddles the North Carolina and Virginia borders and is easily accessible (2-hour drive) from major population centers like Richmond, Virginia to the north and Raleigh, North Carolina to the south. The region has been identified by some as the premier inland water playground in Virginia (VDCR, 1989).

3.3.1 Existing Recreation Resources at Lake Gaston

Lake Gaston is a popular regional destination due in part to its easy access to a large population base and excellent recreation resources. However, compared to Kerr Reservoir, public recreational access to Lake Gaston is limited (VDCR, 1996). Despite less public access than Kerr Reservoir, Lake Gaston is popular for freshwater fishing and boating. It also has scattered day use facilities for picnicking, hiking and swimming (Figure 3-2). Most of the recreation facilities at the lake are public and were developed to provide boating access to the lake. Commercial facilities around the lake also provide lake access in addition to offering other recreational resources such as camping, swimming and picnicking.

3.3.1.1 Boat Access Areas

Public boat access sites at Lake Gaston are generally small (single and double ramps). Facilities typically consist of a boat ramp (some with docks for launching) and associated parking (Table 3-2). Generally, these sites are developed and managed by the respective states' fish and wildlife agencies. Other recreation activities at the boat launching areas are not encouraged, but do occur, particularly bank fishing and picnicking.

3.3.1.2 Hunting, Fishing and Wildlife Protection Areas

There are three large areas on Lake Gaston managed with specific recreation objectives: the special fishing area, the Dick Cross Wildlife Management Area and the Waterfowl Hunting

Area. All are located on the upstream reaches of Lake Gaston, just downstream from Kerr Dam.

Table 3-2. Public Boat Access Areas at Lake Gaston

Facility	Size	Managed by
Tailrace Park	Single Lane	Corps
Steel Bridge Landing	Single Lane	VDGIF
Poplar Creek Landing	Double Lane	VDGIF
Stonehouse Creek Landing	Double Lane	NCMRC
Pea Hill Creek Landing	Double Lane	VDGIF
Summit Landing	Double Lane	NCWRC
Lake Gaston Public Access Area	Single Lane	DOMINION

Source: DOMINION, 1997e

The special fishing area is a 1,165-acre area managed by VDGIF. It is a shallow, flat area adjacent to the main river channel where a number of small stumps and trees have been left in place to provide prime fish habitat. Signs in the area limit boating speed to less than 5 mph.

The Dick Cross Wildlife Management Area is approximately 992 acres and is managed by VDGIF. It is a waterfowl refuge and, accordingly, waterfowl hunting is prohibited in this area. However, dove hunting is allowed during certain periods. Activities in this area include hunting, wildlife viewing, fishing, trapping, primitive camping, hiking and dog training. Facilities include an observation blind overlooking a wetland area, parking areas and a dog kennel used by sporting dog groups.

The 420-acre Waterfowl Hunting Area is located east of U.S. Route 1 on the north side of Lake Gaston. It is situated on a peninsula and wetland area, and the primary activities here are waterfowl hunting and fishing.

Dominion has identified shoreline areas that are appropriate for waterfowl hunting. These areas have been identified as hunting "overlay districts" and are located away from residential areas, commercial developments or Dominion facilities. These areas are identified in Appendix D (they are areas 5, 6 and 9).

These areas are in addition to the Dick Cross Wildlife Management Area and the Waterfowl Hunting Area.

3.3.1.3 Commercial Recreation Facilities

There are a variety of commercial facilities on Lake Gaston, some of which allow the general public to use their facilities (primarily boat ramps) for a user fee. Most commercial facilities, however, do not allow the general public access to their facilities. Recreation opportunities available at the commercial facilities include camping, cabins, golf, swimming (in Lake Gaston and in swimming pools), boat launching, tennis and other activities. Table 3-3 lists the commercial recreation facilities at Lake Gaston available to the public without restriction.

In addition to these facilities, other commercial developments in the immediate vicinity offer a variety of ancillary services. Supply stores providing fuel, groceries, bait and other goods and services are found in many coves along the Lake Gaston shoreline and in nearby residential subdivisions. There are also several commercial campgrounds near Lake Gaston (Table 3-4).

Figure 3-2. Existing Recreation Sites as of August 1999

11 x 17

3.3.1.4 Private Recreational Facilities

Most of the lake-oriented recreational facilities at Lake Gaston are privately owned. These facilities such as docks, boat ramps and beaches are located adjacent to many private parcels of land. Some of the facilities are used only by the adjacent landowners, while others may be shared by a group of landowners in a cooperative arrangement. In some subdivisions, developers have created facilities that are used by residents of the development. There are currently approximately 7,000 licensed docks, piers, boat shelters and boathouses on Lake Gaston (personal communication, Joseph Peterson, Reservoir Manager, Lake Gaston and Roanoke Rapids Lake, March 26, 1998).

3.3.2 Existing Recreational Resources at Roanoke Rapids Lake

Like Lake Gaston, Roanoke Rapids Lake is also easily accessible from Federal and state highways in North Carolina. However, because daily water level fluctuations at Roanoke Rapids Lake are greater than at Lake Gaston, there has been less development of boat docks, boat ramps and ancillary facilities at Roanoke Rapids Lake. There are approximately 150 private permitted structures on Roanoke Rapids Lake. The public recreation development consists of boat ramps and a dam viewpoint. The following information is based on Dominion's Recreational Resources Year-End Report, 1997 (Dominion, 1997e).

3.3.2.1 Roanoke Rapids Dam Viewpoint

Dominion has developed a small public viewing area adjacent to Roanoke Rapids Dam. The facility consists primarily of a paved parking area surrounded by a split-rail fence, and has trash barrels and overhead lighting. The site provides a view to the west over part of Roanoke Rapids Lake. The viewpoint also provides trailhead parking for the western end of the Roanoke Canal Trail.

Table 3-3. Selected Commercial Recreation Facilities at Lake Gaston and Roanoke Rapids Lake Available to the General Public without Restriction

Facility/Managed By	Type	Activities	Facilities	Notes
		LAKE GASTON		
Public Facilities				
Tailrace Park/ACOE	day use park, boat launch	picnicking, bank fishing	1-lane boat ramp, restrooms, circular drive, picnic tables (4), gazebo, observation platform, parking	Facilities are in good shape. 25 acres
Liberty Hill Trail/ACOE	historic cemetery, trail	hiking, bank fishing	hiking trail, parking	Trail leads from parking area to riverbank. 1 mile.
Dick Cross Wildlife Area/VDGIF	wildlife mgmt. area	hunting, wildlife viewing, fishing, trapping, primitive camping, hiking, dog training	observation, blind, parking, road, kennel	No boating, swimming, wading or target shooting. Building a resource center. 992 acres
Steel Bridge Landing/ VDGIF	boat launch	boat launching, bank fishing	1-lane ramp, parking (handicap accessible)	Only activities related to boat launching allowed. 1.9 acres
Waterfowl Hunting Area/ VDGIF (leased from /DOMINION)	waterfowl hunting, mgmt.	Hunting, fishing	1 unsigned rough road	420 acres
Interstate 85 Rest Area/VA DOT	rest area	traffic breaks, tourist info.	restrooms, parking, VA tourist info.	Above Smith Creek in Lake Gaston.
Poplar Creek Landing/ VDGIF	boat launch	boat launching, bank fishing	2-lane ramp, launching dock, parking, trash barrels (4)	Uneven gravel approach, non-boating uses not permitted. 1.1 acres owned by state, 1.9 acres leased from DOMINION.
Stonehouse Ck. Landing/ NCWRC	boat launch	boat launching, bank fishing	2-lane ramp, launching dock, parking	Near 3 homes.
Pea Hill Creek Landing/ VDGIF	boat launch	boat launching, bank fishing	2-lane ramp, launching dock, trash barrels (4)	Residence next door, lighted area.
Summit Landing/ NCWRC	boat launch	boat launching, bank fishing	2-launch lanes, launching dock	No camping, swimming, picnicking posted.

Table 3-3. Selected Commercial Recreation Facilities at Lake Gaston and Roanoke Rapids Lake Available to the General Public without Restriction

Facility/Managed By	Type	Activities	Facilities	Notes
Lake Gaston Public Access Area/DOMINION	day use area	boat launching, picnicking, bank fishing	1-lane ramp, fishing pier, picnic tables (4), trash barrels (4), portable toilet	Rock/gravel ramp in poor condition
Commercial Facilities				
Nocarva Marina	marina, boat launching	marina services, boat launching	marina, 15-slip moorage, 1-lane ramp	Closed to public.
Eaton's Ferry Marina Campground	marina, boat launch, boat rentals	marina services, boat launching, storage, store, restaurant, camping	marina, slip moorage, slip covered dry 2-lane ramp, campground w/hookups	Open for public use.
Stonehouse Timber Lodge Cabins	lodging, camping, boat launching, boat moorage	lodging, boat launching, fishing, camping	1-lane ramp, cabins, campground	Only guests can use boat ramp.
Lakeside Inn	store, day use	store, picnicking, swimming, fishing, children's play area	2 covered picnic pavilions, over 45 picnic tables, swimming area, docks, play equipment	Public can use area for no fee.
Washburn's Marina	marina, store, gas station	boat moorage, boat launching	store, 23-slip marina	Open to public use for fee.
Private Facilities				
River Ridge Golf and Camping Club	resort	golfing, camping, boat launching, fishing	boat ramp, moorage, slips, other resort facilities	No public use, members only.
Lake Gaston Americamps	camping club	numerous activities found at full-service camping resort	marina, beach	No public use, members only.
Lake Gaston Fishing Lodge	lodge, boat moorage	fishing, boat launching	boat moorage, cabins	No public use, for lodge guests
Lake Gaston Resort	lodging	fishing, picnicking	boat moorage	No public use, for guest only
Eaton's Ferry Campground	camping club, trailer park	boat launching, camping, bank fishing	1 lane ramp	No public use, members only.
Ben's Store/Wildwood Point Ramp	convenience store, boat launching	boat launching	ramp	Only for use by Wildwood Point residents.

Table 3-3. Selected Commercial Recreation Facilities at Lake Gaston and Roanoke Rapids Lake Available to the General Public without Restriction

Facility/Managed By	Type	Activities	Facilities	Notes
Outdoor World	campground resort	camping, boating, swimming	marina, ramp, swimming area, kids beach, campsites (205), cabins/trailers	For use by resort guests.
		ROANOKE RAPIDS LAKE		
Public Facilities				
Thelma Landing/NCWRC	boat launch, bank fishing	boat launching, bank fishing	1-lane ramp, parking	No camping, picnicking, swimming, posted.
Vultare Landing/NCWRC	boat launch, bank fishing	boat launching, bank fishing	1-lane ramp, launching dock (25' long), parking	
5th Street Landing/ NCWRC	boat launch	boat launching, bank fishing	2-lane ramp, 3 launching docks (60'-65' long) parking, overflow parking on dirt/grass	No camping, picnicking, swimming, posted.
Roanoke Rapids Dam/DOMINION	observation area, trailhead	viewing dam, hiking trail, parking	observation area, trailhead for Roanoke Canal Trail	
		LOWER ROANOKE RIVER		
Public Facilities				
State Route 48 Bridge Landing/NCWRC	boat launch	boat launching, bank fishing, informal day use	2-lane ramp, parking	No picnicking, swimming, camping posted for launch area.
Roanoke Canal Trail/ Roanoke Canal Commission	trail	hiking, biking	trail	Limited parking, most on street, dawn to dusk operation.
Weldon Landing/NCWRC	boat launch	boat launching, bank fishing	2-lane ramp (24' wide), portable toilets shared w/soccer field, observation deck, parking	Lights near ramp.
State Route 258 Bridge/ NCWRC	boat launch	boat launching, bank fishing	1-lane ramp, parking area, overflow parking area	

Table 3-4. Commercial Campgrounds near Lake Gaston

Facility	Camping Units
Lake Gaston Americamp	245
Eaton's Ferry Campground	80
Lake Gaston Resort	147
Outdoor World	225
Sherwood Forest	100

Sources: DOMINION, 1997e; DOMINION, 1995

3.3.2.2 Boat Access Areas

The three boat ramp sites at Roanoke Rapids Lake usable by the public are all publicly owned. They are either single or double ramps and the facilities typically consist of the boat launch itself and associated parking (Table 3-5). The NCWRC developed and manages these sites.

Table 3-5. Public Boat Access Areas at Roanoke Rapids Lake

Facility	Size	Managed by
Thelma Landing	Single Lane	NCWRC
Vultare Landing	Single Lane	NCWRC
5th Street Landing	Double Lane	NCWRC

Source: DOMINION, 1997e

3.3.3 Future Recreational Facilities

Dominion plans a number of recreational enhancements at Lake Gaston, Roanoke Rapids Lake, in the Roanoke Rapids bypass reach and in the lower Roanoke River downstream to Weldon. The goal of these enhancements will be to increase public access at select areas around the lakes. The recreational enhancements are described in the Recreation Plan that was developed as part of the FERC license application. These recreational enhancements will include day use facilities, bankfishing facilities, water-to-land facilities and an additional boat ramp at Hawtree Creek. At the south end of Lake Gaston, an existing day use area will be enhanced by adding a beach area, playground, pavilion (with handicapped restrooms), changing area for swimmers, covered picnic area, various other picnic facilities, dock (to allow watercraft to pick up and drop off people) and parking area.

A second water-to-land facility will be built on a small island on the west side of Lake Gaston near the Nocarva Marina. This facility will be geared towards water-based recreationists accessing it via boats. It will include a dock along with picnic facilities. Lake

Gaston will also receive several bank fishing access facilities near the Lake Gaston Dam tailrace, the north end of the Lake Gaston Dam, near Stonehouse Creek and near Miles Creek.

Planned recreational improvements at Roanoke Rapids Lake include a new day-use land-to water area between the Roanoke Rapids Power Station and the NCWRC boat ramp. The facility will include some playground equipment, a pavilion, restrooms, a changing area, a handicapped accessible pier, parking, picnic facilities and a tie-in to the Roanoke Canal Trail and the 5th Street Landing boat access area. Bank fishing access will be located at the north end of the Roanoke Rapids Dam and the Roanoke Rapids bypass reach.

On the section of the Roanoke River below the Roanoke Rapids Dam (and near the Interstate 95 bridge) flows conducive to canoe/kayak recreation will be scheduled and posted on Dominion's internet site.

3.4 TERRESTRIAL RESOURCES

This section describes terrestrial vegetation and wildlife found along the shorelines of Lake Gaston and Roanoke Rapids Lake. The shorelines found within the project boundary and the waters of the two lakes contain a variety of vegetation types, which serve as habitat for terrestrial wildlife species. The lakes' shorelines and the lakes themselves provide the only regional expanses of shoreline and open water downstream of Kerr Reservoir. Project shorelines also serve as wildlife corridors by connecting remaining tracts of upland forest (including lands beyond but adjacent to the project boundary) and streamside bottomland forests.

3.4.1 Shoreline Vegetation

There is a wide variety of vegetation along the shores of Lake Gaston and Roanoke Rapids Lake. An inventory of shoreline vegetation was conducted in 1996 and 1997. This was followed up by a NCWRC survey in 1999 to identify important shoreline habitat (both terrestrial and aquatic). Based on the survey, 70 shoreline areas were identified as Special Management Areas (see Section 5).

It became clear during the classification and inventory process that land uses on lands adjacent to the lakes have profoundly affected and influenced vegetative patterns on the shorelines of the lakes. Some of those land uses resulted in the removal and/or alteration of shoreline vegetation. The resulting loss of shoreline habitat is one of the primary reasons the SMP was developed.

There are five broad categories of shoreline vegetation found along the shorelines of the lakes (Table 3-6). They are: Forested (natural), wetlands, agriculture, forest production and developed (residential and other developed). The following subsections describe the various categories.

3.4.1.1 Forested

The forests that at one time covered the hillsides adjacent to the two lakes generally have been converted to other vegetation types due to clearing for agriculture, forestry and residential development. Although there are fragments of original forest left along the shores of the lakes, most of the shoreline vegetation has changed over the years to second-growth forests, residential developments forest production lands and other non-forest cover types.

The mixed oak-pine forest type is the most abundant along the shores of the lake. The mixed oak-pine forest is an upland forest type that is most commonly found in drier soils and slopes. Shrub layers below the forest canopy are typically sparse, although in lower-lying areas that receive more moisture, the shrub layer can be rather dense.

Bottomland hardwood forests are also considered wetlands and occur along stream drainages. Dominant bottomland hardwood trees include red maple, river birch, sycamore and black willow and often occur in association with sweetgum, elm, green ash and loblolly pine.

At Lake Gaston, the undisturbed forest lands adjacent to project shorelines occur in an area of northeast facing bluffs on the south side of Lake Gaston along Interstate 85. This area, although relatively small, supports a mix of bottomland hardwood and mixed moist and dry oak-pine forest types.

Most of the bottomland hardwood forest found along the shoreline of Lake Gaston is found in the upper, narrow reaches of the lake. These bottomland hardwood forests are generally strips of forest between the lake and adjacent lands. Bottomland hardwood forests are also considered wetlands and are discussed in the wetlands section.

At Roanoke Rapids Lake, bottomland hardwood stands are located along streams feeding into the north shore of the lake. However, there are fewer areas that contain bottomland hardwood forest than at Lake Gaston.

Table 3-6. Lineal Miles and Percent Vegetation Cover Type by Lake

	Lake Gaston		Roanoke Rapids	
Cover Type	Miles	Percent	Miles[1/]	Percent
Forested				
Natural pine	0	0	0	0
Planted Pine	34.5	10	1.9	5
Oak-pine	98.7	30	18	46
Oak-hickory	0.0	0	0.9	2
Bottomland hardwoods	9.6	3	0.7	1
Non-forested				
Emergent Wetlands	6.0	2	1.5	4
Scrub-Shrub Wetlands	7.8	2	7.3	18
Developed				
Agricultural-croplands	4.5	1	0	0
Agricultural-other	0.2	0	0	0
Grassland/pasture	9.0	3	2.0	6
Pine plantation	1.9	1	0.8	1
Developed-residential	150.3	47	5.4	13
Developed-other	1.5	1	1.5	4
TOTAL	324	100	40	100

[1/] Acreage determined from aerial photography, and will differ slightly from measurements based on land surveys or topographic maps.

3.4.1.2 Wetlands

Wetlands are a prominent feature along the shorelines of the two lakes. They are extremely valuable habitat for both terrestrial and aquatic wildlife (and fish) because they supply food, foraging habitat and breeding cover. Depending on type and position in the landscape, they also stabilize sediment, physically dissipate waves and currents, improve water quality and export organic matter.

There are three types of wetlands found along the shores of the two lakes. They are bottom hardwood forest, scrub-shrub and emergent. Scrub-shrub wetlands occur near the mouths of stream drainages (typically located at the backs of coves), along the natural banks of the lakes and in shallow embayments. Most scrub-shrub wetlands occur as narrow fringes and frequently extend only a few feet inland from the water's edge. These fringe wetlands are generally wider on Roanoke Rapids Lake due to the greater drawdown and availability of exposed sediments for plant colonization.

Emergent wetlands occur as fringe marshes, extensive marshes (mostly managed for waterfowl) and, most commonly, as a mosaic of marsh interspersed with scrub-shrub wetlands.

Suitable substrate and shallow water for wetlands tend to be restricted to coves and mouths of tributary streams, where most wetlands (other than fringe types) occur. While wetlands represent a relatively small percentage of shoreline vegetation, they are a prominent feature of the lake.

Bottomland hardwood forest is the most abundant wetland type at Lake Gaston and typically occupies low lying areas bordering streams that drain into the lake. Several mature and expansive stands occur near the western end of Lake Gaston, in the vicinity of the Dick Cross Wildlife Management Area. Two relatively mature bottomland hardwoods stands are located along Jordan and Lizard creeks (although the upland forest east of Lizard Creek has recently been harvested which will potentially diminish the wildlife habitat value of the remaining bottomland hardwoods near Lizard Creek).

The 3-foot fluctuations in Roanoke Rapids Lake create a larger band of exposed sediments along the shoreline of Roanoke Rapids Lake than Lake Gaston. Wetland plants colonize the exposed substrate and, consequently, wetlands associated with the shoreline of Roanoke Rapids Lake tend to be wider compared to those on Lake Gaston.

Bottomland hardwood forests are only found in a small number of locations at Roanoke Rapids Lake. Scrub-shrub wetlands are the most prominent wetland type found along the shoreline. As with Lake Gaston, scrub-shrub wetlands occur as narrow fringes along the shore or at the back of coves. An extensive scrub-shrub and emergent wetland complex is located at the western end of the lake in a shallow embayment northeast of Gaston Dam. Scrub-shrub wetlands also surround Clements Island located just east of the dam.

3.4.1.3 Agriculture and Forest Production

Agricultural lands are composed of croplands, orchards and grassland/pasture. Forest production lands are composed of pine plantations. Areas classified as forest production include recently logged or planted areas, along with more mature stands of trees waiting for harvest. Some of the project shoreline areas adjacent to agricultural and forestry lands contain narrow, remnant bands of native vegetation, particularly oak-pine forest.

The majority of agricultural land adjacent to the shorelines at Lake Gaston is in the western third of the lake, including the largest block, which is located on the north side of the lake. A strip of bottomland hardwood separates the agricultural area and the lake. Bands of

native vegetation of varying widths remain adjacent to the shoreline at most forested areas that have been harvested.

There are no agricultural lands immediately adjacent to Roanoke Rapids Lake. There are forest production lands near the shoreline, but most are buffered from the lake with bands of native vegetation.

3.4.1.4 Residential and Other Developed Areas (Commercial, Industrial and Transportation)

The residential category includes any area that contains adjacent residential dwellings. Vegetation types in residential areas vary widely and can range from highly altered areas containing large expanses of maintained lawns to wooded areas where the clearing of native vegetation has been minimal.

Recreation, commercial, industrial and transportation land uses are adjacent to less than one percent of the two lake shorelines. Although there are some isolated pockets of native vegetation in these areas, it can be assumed that, in general, these shoreline areas contain little native vegetation of value to wildlife.

Developed areas adjacent to the shoreline of Lake Gaston are primarily located in the eastern two thirds of the lake and are primarily residential. Areas of concentrated residential development include the main body of the lake east of Eaton's Ferry Bridge. The major creeks (e.g., Pea Hill, Lizard, Songbird, Poplar, Sixpound, Holly, Lyons, Hubquarter, Stonehouse, Pretty, Hamlin, etc.) are heavily developed, as well.

The lands adjacent to the shorelines of Roanoke Rapids Lake are less developed than those of Lake Gaston (Table 2-1). Most of the residential areas are along the south shore and are within the City of Roanoke Rapids. The two other areas that have received concentrated development are located in and on either side of the entrance to Deep Creek, and along the north shoreline near Roanoke Rapids Dam. As at Lake Gaston, the treatment of shoreline vegetation in these residential areas varies.

3.4.2 Wildlife

A diversity of wildlife species are found along and near the shorelines of Lake Gaston and Roanoke Rapids Lake (Appendix A). The wide range of wildlife is a result of the variety of habitat found along the project shoreline including forest, wetland, open (grassland/pasture, old field, and agriculture), edge and open water habitats. Species that require large unfragmented blocks of habitat, or which are sensitive to human activities, are generally less abundant than species that use the more plentiful open water or wetland habitats.

3.4.2.1 Reptiles and Amphibians

The two lakes provide habitat for relatively common species of frogs, turtles and water snakes, and possibly some life stages of salamanders and newts. Forty-three species were encountered during the 1996/1997 field investigations that were part of the relicensing efforts. Shoreline wetlands, and the bottomland hardwood forests adjacent to the streams that feed into the project lakes, harbor a greater diversity of reptiles and amphibians compared to lake habitats. Bottomland hardwoods near the shoreline and the dryer slopes above the shoreline which often are a transition between wetlands and upland habitats, also provide good herpetofauna habitat.

At Lake Gaston, the West Bluff Hardwood-Wetland area complex is especially rich in species diversity. Additional productive areas for reptiles and amphibians include: Smith Creek and associated wetlands, Lyons Creek shoreline and headwaters, upper reaches of Hubquarter Creek, and Big Stone House Creek and the associated hardwood forest.

At Roanoke Rapids Lake, a mature stand of bottomland hardwoods associated with Deep Creek is a productive area for reptiles and amphibians.

3.4.2.2 Birds

Ninety-four species of birds were recorded in the vicinity of the project between 1996 and 1997 (Appendix A). Breeding was confirmed for 26 species; 37 additional species are considered probable breeders. Many species use open areas and forest edges common to lands near the shoreline. Forest habitats and wetlands are also important bird habitat. Large blocks of forested land potentially serve as breeding habitat and migration corridors for neotropical migrant songbirds. Forest habitats are of interest because of the recent attention given to declines in migratory songbirds that breed in these forests and winter in tropical and subtropical areas to the south. Although the amount of original forest adjacent to the shoreline of the two lakes is not significant, any forest that can serve as breeding habitat for these birds becomes an increasingly valuable resource because similar forests are fragmented and cleared. The relatively extensive mosaic of oak-pine and oak-hickory forests supports more forest-dependent species. Forest-interior species that are sensitive to forest fragmentation are present in some areas near the project shoreline. In many parts of the east coast these species, especially the neotropical migrant species, are declining in numbers.

Fish and aquatic invertebrates found in project waters also support eagles, kingfishers and various waterfowl. Stumps and snags in swamps that occur where streams enter the project lakes also support bird species that occur relatively uncommonly in the project region.

Bald eagles are found near the lakes and there is one known bald eagle nest (and a known nest of osprey). Based on a 1997 aerial survey, it was determined that there is a general lack of suitable bald eagle nesting habitat along or near Lake Gaston and Roanoke Rapids Lake. Wintering eagles have been spotted in the vicinity below Kerr Dam, attracted by fish that are killed or stunned as they pass through the turbines.

Significant wetland habitats for birds along Lake Gaston include the waterfowl hunting area (part of the Dick Cross Wildlife Management Area) east of U.S. Route 1 and south of Route 615, near the mouth of Miles Creek in Mecklenburg County, Virginia, and the area south of Route 712 and east of Interstate 85 along Smith Creek, also in Mecklenburg County. Other wetland habitats of significance include forested wetlands along Lizard Creek and a small area along Jordan Creek.

Because of the relatively smaller size of the area associated with Roanoke Rapids Lake, exceptional resources for birds are less common than at Lake Gaston. Of note is a mature stand of bottomland hardwoods associated with Deep Creek that provide good habitat for a diverse assemblage of birds.

3.4.2.3 Mammals

There are a number of mammal species found in and near the shoreline areas of Lake Gaston and Roanoke Rapids Lake. Species that are characteristic of the oak-pine forest types that dominate the uplands surrounding the lakes and are along much of the shorelines of the lakes are the most common at Lake Gaston and Roanoke Rapids Lake. Almost all of these species use the mix of woodland and open land found near project shorelines. Other species use lakeshore habitat as well as the bottomland hardwoods and streams that drain into Lake Gaston and Roanoke Rapids Lake. Bottomland forests, scrub-shrub and emergent wetlands provide important habitat.

VDGIF's Dick Cross (formerly Elm Hill) Wildlife Management Area, located along the north bank of the Roanoke River just downstream from Kerr Dam, is managed primarily for doves and other small game species, and serves as a no-hunting refuge for waterfowl.

3.5 FISHERIES

The aquatic habitat and fisheries resources of the entire Roanoke River Basin are diverse, including those found in Lake Gaston and Roanoke Rapids Lake. About 126 species are present in the Roanoke River Basin; about 73 of those are present in the project area waters downstream of Kerr Dam (Appendix B).

3.5.1.1 Lake Gaston

Lake Gaston supports a regionally important warm water fishery. NCWRC manages Lake Gaston, with emphasis on game species such as largemouth bass, striped bass, crappie, catfish and walleye. Increased recreational use puts pressure on the NCWRC to maintain adequate populations of these desired sport species. Several fish species have been introduced and some are stocked primarily to help maintain adequate recreational resources. Annual stocking typically includes both striped bass and walleye.

The habitat of Lake Gaston is varied, as the lake has many arms, bays and shoreline variation. Significant shoreline home and dock development has also contributed to a variety of habitat types. Tributary arms and bays appear to be important nursery areas for many species, and the regions where the shoreline has been augmented with rip rap often has concentrations of sunfish. The dock areas appear to be utilized by largemouth bass as cover in spring.

The resource agencies (primarily NCWRC) manage the lakes to support the recreational fishery with emphasis on maintaining healthy largemouth bass populations and stocking of striped bass and walleye. Recent study efforts have been directed at evaluating prey resources (resident smaller fish and other organisms eaten by sport fish), water quality influences on stocked striped bass, and potential walleye spawning.

Most of the fishing effort in Lake Gaston is for largemouth bass, striped bass and catfish. This region typically attracts fisherman in the spring months as striped bass congregate at the base of the dam.

3.5.1.2 Roanoke Rapids Lake

Roanoke Rapids Lake is similar to Lake Gaston in habitat and species composition. However, it is much smaller in size, and shallower on average. Fishing at Roanoke Rapids Lake focuses primarily on largemouth bass, followed by, striped bass, catfish and crappie.

The Roanoke Rapids Lake habitat differs from Lake Gaston in that there are fewer tributary arms and bays, and less shorefront housing development. Though the number of tributaries is limited compared to Lake Gaston, the tributaries are generally are more heavily used by anglers than the main body of the lake.

3.6 ECOLOGICALLY SENSITIVE AREAS

Dominion and NCWRC biologists surveyed the shorelines of Lake Gaston and Roanoke Rapids Lake to locate areas that had significant ecological value. These areas include fish

spawning areas, fish nursery areas, areas with overhanging vegetation and structures that provide fish habitat, sandy bottom areas for striped bass, wetlands, shallow areas, water willow areas near shore and land areas with large vegetated buffers between the lakes and adjacent property owners. These ecologically sensitive areas were the basis for the shoreline management classifications that were developed for the Shoreline Management Plan as described in Section 5.1. Appendix D, lists and briefly describes the Ecologically Sensitive Areas and Figure 5-1 depicts the location of these areas.

3.7 WATER QUALITY

Lake Gaston and Roanoke Rapids Lake have generally good water quality. Water quality of the lakes is affected by the input of chemical constituents from drainages entering the Roanoke River upstream of the lakes, from streams directly entering the lakes, and from runoff from adjacent lands. The water quality of the lakes is most affected by Kerr Reservoir, because it is the primary source of water for the lakes.

Water entering Lake Gaston has a retention time of 29 days (based on a volume of 450,000 acre-feet at full pool), which is similar to many North Carolina reservoirs with hydropower as their primary use. Roanoke Rapids lake has a much shorter retention time (5 days) than Lake Gaston due to its smaller volume (77,100 acre-feet) and operations.

One of the major ways the State of North Carolina assesses surface water quality is by determining if it meets its current designated uses such as swimming, fishing or water supply.

The State of North Carolina has designated Lake Gaston and Roanoke Rapids Lake as protected for water supply and suitable for primary recreation, aquatic life protection and survival, fishing, wildlife and agriculture. The five designations that are used to rate the quality of water are: Fully supporting, support threatened, partially supporting, not supporting and not evaluated. Lake Gaston and Roanoke Rapids Lake are considered partially supporting of their designated uses. This is primarily due to extensive presence of hydrilla, which can impede boat navigation (NCDWQ, 1996). Both chemical treatment and grass carp are used to reduce the amount of hydrilla at the lakes.

Another source of water quality impairment for the entire portion of the Roanoke Rapids system in North Carolina was from non-point sources (77 percent). Of all sources of non-point solution, agriculture accounted for the most (39 percent), followed by forestry (18 percent), as causes of impairment (NCDWQ, 1996). Non-point runoff is not believed to be causing impairment directly to the lakes, and nutrient runoff into the lakes in general does

not appear to be excessive (NCDWQ, 1996). However, Smith and Six Pound creeks, have been rated fair to good for fish and macroinvertebrate life quality, likely due to non-point source runoff. Smith Creek is potentially affected by non-point source runoff and additional input from the Warren County Welcome Center discharge (0.01 mgd) (NCDWQ, 1996). Also, recent extensive sedimentation at the Smith Creek mouth and elevated suspended sediment, biological oxygen demand (BOD), and nutrients were noted in several regions in the basin as a result of logging, cattle and hog farming practices (Alling, 1998).

Sediment samples collected for analysis during 1996 from Lake Gaston and Roanoke Rapids Lake did not indicate adverse levels of metals, pesticides or polychlorinated biphenyls (PCBs) (Dominion, 1997a). No pesticides or PCBs exceeded detection levels, and the metals levels were generally low. No standards for these chemicals in sediment currently exist in North Carolina. Based on methods developed by Long et. al., (1995) for assessing likely adverse levels of chemicals in sediment, values that were detected in the samples were not in the adverse range, and lack of detection of some other elements also indicated no chemical concentrations of concern (Dominion, 1997a).

Although less water quality work has been conducted on Roanoke Rapids Lake than for Lake Gaston, it is likely that conditions are similar to those monitored in Lake Gaston. Based on 1996 sampling at Roanoke Rapids Lake, most other water quality parameters were within state standards. Chemical composition of sediment in Roanoke Rapids Lake does not indicate that there are levels of concern.

3.8 CULTURAL RESOURCES

Important cultural resources are known to exist near and within the Dominion shoreline area. Human occupations have been documented archaeologically from as early as 9500 BC, the Paleo-Indian period, through the Archaic, Woodland and protohistoric periods, up to the early 18th century.

The impoundment of Lake Gaston and Roanoke Rapids Lake resulted in the inundation (or semi-inundation) of all or portions of at least 279 archaeological sites that contain components dating to various prehistoric periods (227 sites in Lake Gaston and 52 sites in Roanoke Rapids Lake). Based on reviews of archaeological site files maintained by the North Carolina Archaeology and Historic Preservation Section of the Division of Archives and History (the North Carolina State Historic Preservation Office [NCSHPO]), the University of North Carolina Department of Anthropology at Chapel Hill (UNC), and the Commonwealth of Virginia's Department of Historic Resources (VASHPO), a total of 365 archaeological sites had been previously recorded within the Lake Gaston area and its

immediate vicinity. Of these, 237 were located within North Carolina and 128 were located within Virginia. The majority of sites represent prehistoric period sites. In a couple of instances, the prehistoric sites also contain historic period components. A number of these sites are believed to meet the criteria for eligibility to the National Register of Historic Places (NRHP) as defined in 36 Code of Federal Regulations (CFR) 60.

4. ESTABLISHMENT OF THE SHORELINE MANAGEMENT PLAN

In June 1997, the SMP Technical Work Group (composed of resource agency representatives, local counties, local business representatives, concerned citizens, homeowners groups, and Dominion) started the process of developing a SMP to more effectively manage Lake Gaston and Roanoke Rapids Lake. To address the shoreline management issues facing Lake Gaston and Roanoke Rapids Lake, the SMP Technical Work Group formed four subcommittees: Recreation and Public Access, Safety and Trash Removal, Land Use Classification and Policies, Permits and Enforcement.

Although the Shoreline Management Plan is complete, it is a "living document" that will stay flexible enough to change as conditions warrant. The SMP attempts to maintain a balance between the conservation of natural resources and economic development. Among its goals are: Improving the quality of lake and shoreline natural resources, creating an attractive and accessible lake and shoreline setting for the public and adjacent landowners, economic development, and consistency with other jurisdictional policies and plans.

The SMP replaces the previous North Carolina Power Guideline and Permit system, which was in place prior to 1998. The primary focus of the Guideline and Permit system was to control and inventory shoreline development on Dominion property by adjacent landowners. The guidelines and permits were necessary to ensure that shoreline development on Dominion property was not detrimental to the operation of the project, the general public and/or other adjacent property owners. They also helped foster a fair division of shoreline use by adjacent property owners while allowing Dominionto manage the use of its property.

The guidelines and permits included minimum construction specifications (and in some cases construction techniques) and gave Dominion a mechanism for reviewing and approving the design and construction of facilities on Dominion property. Maintaining records of permits also allowed Dominion to maintain a record of shoreline facilities that had been constructed on Dominion shoreline property. The following were the guidelines and permits that were part of the Guideline and Permit system: Tree Removal and Landscaping; Piers, Docks, Decks, Boathouses and Boatslips; Bulkheads and Riprapping; Dredging; Withdrawal of Water for Fire Protection; Withdrawal of Water; and Satellite Dishes and Antennas.

4.1 DEVELOPMENT OF THE SHORELINE MANAGEMENT PLAN

The previous shoreline permitting process was adequate for several purposes, including monitoring shoreline development. The process was not as effective for protecting natural

resources and providing public recreational opportunities for public access to the lakes and shoreline. The SMP attempts to provide these safeguards while at the same time allowing appropriate development on Dominion's shorelines by adjacent property owners.

Dominion and resource agencies determined that a SMP was required to address changing conditions at Lake Gaston and Roanoke Rapids Lake. Increased development of lands adjacent to the two lakes has had effects on shoreline vegetation, wildlife and fisheries. In addition, it was decided that public recreational access to the lakes was somewhat limited. The SMP was developed to better protect shoreline and aquatic habitat, provide additional public access to the lake and to give adjacent property owners predictability in knowing the level and type of facility development that would be permitted in different shoreline classifications.

4.1.1 Goals of the Shoreline Management Plan

The SMP was developed by Dominion, Federal, state and local agencies, local groups, and individuals. Involvement from a range of interests helped create balance while maintaining and improving upon the qualities that make Lake Gaston and Roanoke Rapids Lake special places of regional significance from both an environmental and economic perspective.

The primary goals of the SMP are to: manage the shorelines to make them safe for the public; protect and enhance the natural resources of the lakes and shorelines; provide public recreational access; and maintain water quality while allowing controlled use of Dominion shoreline by nearby property owners. The following discusses the primary goals of the SMP.

4.1.1.1 Management of Shorelines to Make Them Safe for the Public

One of the primary goals of the SMP is to manage project shorelines in such a way as to ensure public safety. Dominion has, and will continue to, prohibit public access to areas where Dominion operations could be dangerous to the public safety. Shoreline areas near the two project dams that have been off limits to the public in the past will continue to be. Although there will be limited access to areas below the dams near the tailraces for bank fishing, fencing will be used to keep the public away from the most potentially hazardous areas. Dominion will have the option to restrict the public from accessing the areas below the dams near the tailraces during conditions or operations that could increase risk to the public.

The Public Safety and Trash Removal Technical Work Group has adopted measures to make water recreation on Lake Gaston and Roanoke Rapids Lake safer. Dominion has

implemented the safety recommendations it has jurisdiction over as part of the licensing process. One of the recommendations requires adjacent property owners receiving a new license to construct a pier, dock, or boat slip to install reflectors on their docks to reduce the likelihood of nighttime collisions. It has been included in the Lake Gaston and Roanoke Rapids Lake Construction and Use Procedures (Appendix C).

Other safety features are provided by agencies other than Dominion (e.g., The Lake Gaston Water Safety Council through grants from Boat U.S.). These safety features include signage at public boat ramps, lights on bridges, and markers denoting the state line.

4.1.1.2 Protection and Enhancement of Natural Resources

The shorelines and waters of the lakes are regionally important for wildlife and fisheries. For wildlife, shoreline vegetation can be used for shelter, foraging, and breeding. The shoreline is also used as travel corridors for wildlife species that use shoreline and creek bottoms to travel from area to area of suitable habitat. Development around the lakes and loss of shoreline and aquatic vegetation has resulted in a loss of breeding, shelter and foraging habitat for wildlife and fish.

As discussed in Section 3.6, Dominion and NCWRC biologists identified Ecologically Sensitive Areas located along the shores of Lake Gaston and Roanoke Rapids Lake. These areas help provide breeding, shelter and foraging habitat for wildlife and fish.

The SMP helps preserve existing shoreline habitat in four ways. The first way is through the establishment of a shoreline classification system, the second with Construction and Use Procedures that take into account the ecologically sensitive areas, the third with a public education program and the fourth through an inventorying and tracking system that has been developed.

The shoreline classification system preserves valuable habitat by reducing the amount of disturbance and access permitted in sensitive areas. In the past, Dominion has allowed adjacent property owners obtaining permits to cross Dominion shoreline or build structures, such as docks and piers, to access the water of Lake Gaston and Roanoke Rapids Lake. Dominion will continue to allow adjacent landowners access to the waters of the lakes, but additional measures are being taken to protect shoreline vegetation, wildlife and fisheries resources. By protecting the natural resource attributes that make the lakes desirable from a real estate perspective, the SMP helps to ensure that those attributes are protected and will be enjoyed by future and present adjacent property owners and others.

The SMP has classified shoreline areas (see Section 5) and places some restrictions on shoreline access and development. Through the shoreline classification system, adjacent landowners will be able to anticipate the types and density of shoreline access that will be allowed in the future on Dominions shoreline. This system allows additional shoreline access development in areas that are currently heavily developed and have less wildlife and fisheries habitat value. In shoreline areas that have high wildlife and fisheries value (especially areas that have not been platted), less intensive shoreline access development will be allowed.

The second way the SMP protects habitat is through Construction and Use Procedures. All development activities that occur on Dominion's shoreline property or lake bottom will have to comply with the procedures. As part of the process, an inventory of existing vegetation is required as well as a revegetation plan. The revegetation plan mandates the use of plant materials beneficial to wildlife and fisheries and encourages maintaining existing native vegetation.

The procedures also have provisions such as seasonal construction restrictions to protect wildlife and fisheries. In addition, erosion control, minimization of areas of disturbance and other measures are necessary to protect water quality.

A public education program is the third way the SMP benefits wildlife and fisheries. Dominion has an educational program for adjacent property owners and the public to address revegetation. Adjacent property owners are encouraged to replant Dominion's shoreline property they may have cleared or impacted with plantings beneficial to wildlife. Dominion has revegetated a shoreline area that the public can view to get ideas on appropriate design and plant materials.

The fourth way that the SMP benefits wildlife and fisheries is through the inventory and tracking process that has been developed for the lakes. Dominion has cataloged existing shoreline conditions. Shoreline data adjacent to waterfront properties are being recorded in a Geographic Information System (GIS) database. Data includes photographs of existing vegetation and shoreline facilities such as piers and bulkheads. By tracking this type of information, Dominion can evaluate changes over the years and modify the SMP as needed.

4.1.1.3 Provision of Public Recreational Access

Public use and access is focused on designated public facilities such as the public access areas that have been established and managed by VDGIF, NCWRC and Dominion. Although there are currently public access locations scattered around the lakes, the

Recreation Technical Work Group determined during the development of the SMP that additional facilities should be provided to offer more public access locations and different types of recreational opportunities at the lakes. As discussed in the Recreation Plan, Dominion will develop new public recreation facilities that will allow additional access to the waters of the lakes and will provide land-based recreation. Some of the future recreational sites will be developed (or redeveloped) in the near future, others will be developed later.

In addition to specific recreation sites, a waterfowl hunting overlay zone has been created along Dominion shorelines at both lakes where hunting will be encouraged (Figure 5-1). These hunting areas are removed from residential or commercial areas and are areas where hunting can occur without conflict with other users.

4.1.1.4 Maintenance of Water Quality

Lake Gaston and Roanoke Rapids Lake currently have good water quality. Although the greatest influence on the lake's water quality is from Kerr Reservoir, the SMP helps to maintain or improve water quality. Construction activities and the application of pesticides and fertilizers on Dominion land adjacent to the lake or on land adjacent to creeks that feed into the lakes are regulated through the SMP.

Measures have been implemented through the Construction and Use Procedures to reduce the amount of sediment that can enter the lakes either through construction disturbance, erosion or disturbance of the lake bottoms. Runoff of pesticides and fertilizers from adjacent lands, particularly lawns, should be reduced through the educational program. In addition, new lawns will be discouraged on Dominion's shoreline, except for public recreation facilities, and native landscaping encouraged.

Because the SMP applies only to activities on Dominion's shoreline property, it does not control impacts to water quality that occur on property beyond the project boundary. However, Dominion will facilitate contact with appropriate local, state or Federal agencies when citizens report events outside the project boundary that affect the water quality of the lakes.

4.2 SHORELINE EDUCATION PROGRAM

Dominion is producing educational programs to inform the public on issues regarding shoreline management. One of the programs that Dominion has developed is an informational booklet that discusses the Shoreline Management Plan and the Construction

and Use Procedures. It will be distributed to lakeside property owners, area real estate agents, contractors, and local building and zoning departments..

4.2.1 Construction and Use Procedures

Dominion will conduct annually classes for contractors that are interested in doing work for adjacent landowners on Dominion's shoreline lands. These classes will educate contractors regarding the Construction and Use Procedures and will result in a list of contractors that have agreed to abide by the Procedures. Upon request, Dominion will provide this list of contractors to property owners filing applications to do construction on Dominion's shoreline property. Dominion will also conduct classes annually for real estate brokers to ensure requirements of the Construction and Use Procedures are communicated to new property owners adjacent to the project.

4.2.2 Vegetation/Wildlife Habitat

A major focus of the Construction and Use Procedures is to help maintain and improve the condition of native vegetation along project shorelines. One of the primary reasons for this objective is to preserve and enhance wildlife habitat. Dominion will educate the adjacent property owners and the general public on how to minimally impact, maintain and/or reintroduce vegetation that is beneficial to wildlife. Dominion has established vegetation clearing and revegetation requirements in the Construction and Use Procedures. Dominion has also established a demonstration area on a lakeside parcel near the Roanoke Rapids Power Station. The parcel will serve as an educational tool for demonstrating how the vegetative clearing and revegetation requirements are implemented.

Dominion will also provide informational booklets for adjacent homeowners and the general public regarding vegetation management to improve wildlife habitat on Dominion's shoreline lands and adjacent private lands. In addition, financial incentive programs such as possibly subsidizing plant purchases are being considered.

4.2.3 Fisheries Enhancement

To maintain and improve fisheries resources at the project, Dominion works with state agencies and private organizations regarding improving fisheries habitat. Implementation of the Construction and Use Procedures will be beneficial to fisheries. Working with adjacent homeowners to provide better fish habitat and water quality by retaining aquatic vegetation, using rip rap rather than bulkheads, placing brush piles in water and not fertilizing or spraying pesticides near shoreline are encouraged.

4.2.4 Recreational Use of the Lakes and Shoreline Parks

Dominion will produce an informational booklet called The Recreation Guide to Lake Gaston and Roanoke Rapids Lake. It will include maps of recreational facilities open to the public, descriptions of the facilities, and contact telephone numbers to call for information, etc. In addition, the booklet will discuss safety issues, trash disposal, fishing information from NCWRC and VDGIF (and regulations) and advise the public regarding the use of the Dominion shoreline.

5. IMPLEMENTATION OF THE SHORELINE MANAGEMENT PLAN

5.1 SHORELINE MANAGEMENT CLASSIFICATIONS

The SMP Technical Work Group developed two shoreline classifications for Dominion's shoreline lands that are adjacent to residential (or potentially residential) shorelines: General Development Areas and Special Management Areas. Special Management Area classification was assigned to areas that had been identified as Ecologically Sensitive Areas. These Ecologically Sensitive Areas (and these Special Management Areas) are identified in Figure 5-1. Both General Development Areas and Special Management Areas allow varying degrees of development on Dominion shoreline property. The classifications were developed to protect natural resources while providing for controlled lake access by adjacent landowners. Both classifications allow development and protect environmental resources. The primary differences between the two classifications are the level of development allowed and the degree of environmental protection provided. Dominion maintains maps that identify all General Development Areas and Special Management Areas subclassifications (see Section 5.1.1.2). Appendix D lists the Ecologically Sensitive Areas and the reason for their inclusion.

In addition to guiding the management of Dominion's shoreline property adjacent to residential areas, the SMP guides the management of Dominion's shoreline property adjacent to commercial areas. The Construction and Use Procedures that apply to Dominion's shorelines that are adjacent to residential and commercial areas are discussed below.

5.1.1 Residential Shorelines

Most of the shoreline of the two lakes is adjacent to lands that have the potential to be developed for residential uses or have already been developed for residential use. The following describes the two classifications for shorelines adjacent to residential areas.

5.1.1.1 General Development Areas

General Development Areas comprise 60 percent of the project boundary at Lake Gaston and 47 percent at Roanoke Rapids Lake (Table 5-1). Although shoreline development might be more intense in General Development Areas than in Special Management Areas, the protection of natural resources in all areas is an important part of the permit application review process. Most of the shoreline areas that are already developed and did not have high ecological or cultural value when lake shoreline habitat surveys were conducted from 1996 through 1998 are located in the General Development Areas.

Table 5-1. Shoreline Management Classifications of Lands Adjacent to Project Boundary

	Lake Gaston		Roanoke Rapids	
	Miles	Percent	Miles	Percent
General Development	276.7	60	20.7	47
Special Management Areas				
Limited Use Areas	22.2	5	5.8	13
Sensitive Areas	62.7	14	17.7	40
Undevelopable Areas	102.6	21	0	0
TOTAL	464.2	100	44.2	100

5.1.1.2 Special Management Areas

Special Management Areas are shorelines that have high ecological or cultural resource values. They comprise 40 percent of the project boundary at Lake Gaston and 69 percent at Roanoke Rapids Lake (Table 5-1). The locations of these Special Management Areas were based upon the Ecologically Sensitive Areas that were identified in the field by Dominion and NCWRC biologists. The Ecologically Sensitive Areas are described in Appendix D and in Section 3.6. The resource values that occur in the Special Management Areas are attributed to the Ecologically Sensitive Areas. The Special Management Areas include fish spawning areas, shoreline with overhanging vegetation, shoreline and underwater (stumps, etc) structures that provide fish habitat, beach areas that are used by striped bass, wetlands, shallow areas, water willow beds, and upland areas that provide large buffers and wildlife habitat between adjacent property owners and the lakes. Shorelines that have high cultural resource values occur on both lakes. They are less common than areas with high ecological values and have not been identified specifically as cultural resource areas in order to protect the resources.

Special Management Areas have been further divided into three sub-classifications, Limited Use Areas, Sensitive Areas and Undevelopable Areas. Limited Use Areas are Special Management Areas that are adjacent to lands that were platted by the surrounding five counties as of May 31, 1998. These shorelines are platted but were identified in the field during 1996 and 1997 as still having high ecological or cultural resource values. Sensitive Areas are located adjacent to upland areas (beyond Dominion shoreline property) that could potentially be developed in the future, but are not currently developed.

Figure 5-1. Ecologically Sensitive Areas

11 x 17

Figure 5-1, page 2

Undevelopable Areas are Sensitive Areas that are located adjacent to upland areas where it is very unlikely development would occur due to factors such as steep topography, shallow water (at the ends of creeks) or conservation-oriented adjacent land uses. It is assumed that in the future there will be little or no demand for shoreline development from upland property owners adjacent to Undevelopable Areas.

Of the 187 miles of project boundary at Lake Gaston that have been classified as Special Management Area, 22 miles (12 percent) have been designated as Limited Use Area, 63 miles (33 percent) as Sensitive Area, and 103 miles (55 percent) as Undevelopable. At Roanoke Rapids Lake, 6 miles (25 percent) of the Special Management Area shoreline (23 miles total) has been identified as Limited Use Area and 18 miles (75 percent) as Sensitive Shoreline Area. No Undevelopable Areas were identified.

Different levels of shoreline development will be allowed in the General Development and Special Management Areas. These differences are discussed in Appendix C.

5.1.2 Commercial Development

The amount of project shoreline that is devoted to commercial (i.e., for profit) recreational developments is small, less than 1 percent of project shoreline. Boat ramps, docks, moorages, and other shoreline facilities proposed as part of multi-lot residential developments are not considered commercial developments. Because commercial developments have the potential to provide lake and shoreline access to large numbers of people, they can have a greater impact on shoreline and lake resources that other adjacent shoreline uses. Therefore, the licensing process for commercial shoreline stabilization and recreation development is more involved than that for residential developments.

5.1.3 Shoreline Stabilization Measures

Adjacent landowners are encouraged to work with Dominion in restoring shorelines that are actively eroding. The permitting process described below applies to proposed shoreline stabilization measures, as well as to proposed recreational developments. Where shoreline erosion is slight (less than one vertical foot), Dominion recommends that non-structural measures be employed. Non-structural measures include, but are not limited to, regrading and seeding/planting, turf reinforcement mats, fascines, fiber rolls, and live staking. In cases of moderate (one to two vertical feet) to extreme (greater than two vertical feet) erosion, non-structural measures are still encouraged with structural measures. Structural measures include but are not limited to sheet piling, walls, stone (if placed below the normal water line), vegetated gabions and mattresses, and upslope drainage structures.

5.2 SHORELINE DEVELOPMENT PERMITTING PROCESS

This section applies to all shoreline stabilization, facility construction, or repair activities for Lake Gaston and Roanoke Rapids Lake. All new proposed construction by adjacent landowners or associations on Dominion shoreline property will be required to follow the Construction and Use Procedures (the Procedures) established as part of the SMP. The Procedures will apply to all residential and commercial development or repair work occurring on Dominion property. Appendix C includes the Procedures for all construction activities that will occur on the Dominion shorelines at Lake Gaston and Roanoke Rapids Lake. The Procedures generally involves the following five-step sequence.

5.2.1 Residential Shoreline Stabilization and Development Licensing Process

Step 1: Obtaining the Application Package

Applicants contact Dominion by telephone, mail, fax or in person to request a Construction and Use License Agreement package to construct new or modify existing recreational facilities, for removal of any vegetation, or for transfer of an existing permit. After receiving and reviewing the package, the applicant schedules a pre-application meeting (this step can be skipped if the applicant has been through the licensing process and is knowledgeable about what is required).

Step 2: The Pre-Application Meeting

At this meeting, Dominion staff reviews the Construction and Use License Agreement package to ensure consistency with Dominion policies and to help the applicant understand what is required for a permit. Dominion gives the applicant a list of contractors that do work around the two lakes and have agreed to abide by Dominion regulations. The applicant will also be advised as to approvals from other agencies that will likely be required. It is up to each applicant to ensure that they meet all agency requirements and/or subdivision covenants. The applicant will be required to affirm that he/she understands the permit requirements as set forth herein, even if the applicant declined the pre-application meeting.

Step 3: Submitting the Application

The applicant submits the Construction and Use License Agreement to Dominionby mail or in person. The application must include:

A) The original completed and signed Construction and Use License Agreement and two (2) copies.

B) Three (3) copies of the construction plan and drawings for the proposed facilities.

C) Three (3) copies of a replanting plan (including drawings) for replanting shoreline vegetation destroyed or damaged during construction, replanting vegetation due to clearing for lake access, and replanting vegetation due to clearing of underbrush.

D) The application fee and either personal check, certified check or money order, made payable to Dominion North Carolina Power. The application fee is non-refundable once the permit has been approved. If a structure is built, dredging takes place, or any vegetation is removed before getting the proper approval from Dominion, the permit fee will be three (3) times the initial permit fee, if the activity is in compliance with Dominion's Construction and Use Procedures; otherwise the structure will have to be removed from Dominion's property and the area revegetated.

Step 4: Processing the Application for a Construction and Use License Agreement

After receiving the application, Dominion begins the review process. Dominion reviews and approves the design and location of all proposed activities before sending out permit applications to the U.S. Army Corps of Engineers and environmental resources agencies, if required. The applicant is responsible for obtaining all necessary approvals and filing all fees.

Dominion will notify the applicant within 45 days of receipt of the application as to the disposition of the request. If Dominion does not approve the design and location of the proposed activities and the application is denied, Dominion will contact the applicant by mail stating the reason for denial. The applicant may then schedule a meeting with Dominion to show how he/she proposes to remedy the reason for denial. If the applicant makes the corrections, resubmits the application, and the application is approved, the same procedure for the application described in the previous paragraph will apply.

Dominion will also notify the local jurisdiction in whose area the permitted activities will occur. The applicant is responsible for obtaining all local construction permits prior to beginning any construction or modification activities.

The applicant is also required to post within 20 feet of the construction, in plain and clear view, any and all permits required for the proposed activities until all activities are completed and inspected, including a copy of the approved permit for existing structures when doing repairs.

Step 5: Inspection and Approval

After completion of the project, the applicant shall notify Dominion by telephone or letter for final inspection. Dominion then schedules a site visit and visits to insure compliance with the terms and conditions of the permit. If during the site visit it is determined that the applicant has not complied, Dominion will request that the applicant remedy the situation. A second visit will be made to ensure that the corrections have been made. Dominion will bill the property owner to cover the cost of the second visit. If the situation has not been remedied after the second visit, Dominion may revoke the applicant's permit and require the applicant to reimburse Dominion for any and all costs associated with restoring project lands and waters to a natural pre-permit state. If Dominion has not received total reimbursement for all restoration activities within 60 days of completion of such activities, Dominion may seek legal remedies. After final inspection by the Supervisor-Reservoir,

Dominion will permanently post a Dominion identification tag on the completed permitted structure. The tag will aid Dominion in inventorying and inspecting permitted structures as part of the shoreline management process.

5.2.2 Grandfathered Improvements

Existing improvements or those permitted prior to adoption of these procedures may remain on Dominion property or over the water for their useful lives, as long as they are in compliance with federal, state, and local regulations and the size requirements and other specifications set forth in the construction procedures in effect at the time the structure was built.

When major repairs are made involving more than 50 percent of the structure, as determined by Dominion, the structure must be repaired so as to be in compliance with the current procedures. If a previously permitted structure is destroyed or damaged by fire, natural disasters or other means, the replacement structure must be in compliance with these procedures. All modifications to existing structures are subject to these procedures so that any preexisting noncompliance is not increased. A revegetation plan will be required for replanting shoreline vegetation destroyed or damaged by construction activity.

5.2.3 Commercial Shoreline Structures

Proposed repairs or alterations to existing commercial shoreline structures will be evaluated on a case-by-case basis. At a minimum, all must meet the requirements that have been developed for residential shoreline structures that are covered under the Lake Gaston and Roanoke Rapids Construction and Use Procedures. The procedure involves the same five steps as for residential permits. Step 1. Applicants contact Dominion to request a Construction and Use License Agreement package. Step 2. Applicants meet with Dominion staff to help the applicant understand what is required for a license. Step 3. The applicant submits the Construction and Use Agreement to Dominion including an original and two copies. Step 4. Dominion processes the application. Depending upon the complexity of the proposal, the applicant may be required to prepare an environmental assessment. Step 5. Dominion will inspect and approve the project after completion.

No commercial structures will be permitted in sensitive shoreline areas. Commercial shoreline structures that are grandfathered in will be under the same replacement guidelines for residential structures. As with residential requirements, when repairs are made to more than 50 percent of a structure, commercial structures will have to be repaired so that the facility meets the new guidelines.

5.3 ENFORCEMENT

The responsibility for enforcing the Construction and Use Procedures of the SMP will fall on more than one party. Insuring that shoreline development and maintenance meets Dominion standards will be the responsibility of Dominion. As part of the Construction and Use Procedures, Dominion personnel will inspect licensed projects as many as several times during the construction process to make sure contractors and owners are following requirements. Dominion will maintain a list of qualified contractors. Contractors that are discovered not following Dominion Construction and Use Procedures, will be subject to being taken off the approved list and not being allowed to work on projects on Dominion shorelines. Dominion personnel may also inspect shoreline structures at various times of the year and compare them with detailed information in the Dominion Geographic Information System (GIS) database to make sure the structures are in compliance.

Local county building departments will be responsible for insuring that the construction of structures by adjacent landowners on Dominion property meet county building codes. The counties and Dominion will coordinate information regarding construction activities on Dominion shoreline.

Law enforcement on the lakes will be the responsibility of local police and sheriff department. The NCWRC and VDGIF will have the responsibility of enforcing hunting and fishing regulations.

6. REFERENCES

Alling, M.S. 1998. Smith Creek Watershed Limited Special Study, Executive Summary. Department of Environmental Quality, Piedmont Regional Office, Glen Allen, Virginia. March 4, 1998.

FIMS (Fishery Information Management System). 1997. Angler Creel and General Recreational User Survey Draft Final Report - 1997. Prepared by Dr. Earl K. Meredith, Dr. Stephen P. Malvestuto, and Dr. Thomas M. Steeger. August.

Long, E.R., D.D. MacDonald, S.L. Smith, and F.D. Calder. 1995. Incidence of Adverse Biological Effects within Ranges of Chemical Concentrations in Marine and Estuarine Sediments. Environmental Management. 19(1):81:97.

National Parks Service. 1987.

NCDWQ (North Carolina Division of Water Quality). 1996. Roanoke River Basinwide Water Quality Management Plan. NCDEM Water Quality Section. Raleigh, North Carolina. September 1996.

DOMINION. 1999. Draft Applicant Prepared Environmental Assessment. Roanoke Rapids and Gaston Hydropower Project, FERC No. 2009, January 1999.

DOMINION. 1997a. Water Quality Year-End Report. Prepared by J. Knutzen and R. Rogers, Foster Wheeler Environmental Corporation. Roanoke Rapids and Gaston Hydropower Project. FERC No. 2009. January 1997.

DOMINION. 1997b. Roanoke Rapids and Gaston Hydropower Project, FERC No. 2009. Recreational Resources Year-End Report. Prepared for DOMINION by Chris Lawson and Mark Greenig, Foster Wheeler Environmental Corporation.

DOMINION. 1995. Roanoke Rapids and Gaston Hydropower Project, FERC No.2009, Relicensing First Stage Consultation Package. Prepared by /Dominion and Foster Wheeler Environmental Corporation. Richmond, Virginia. March 1995.

VDCR (Virginia Department of Conservation and Recreation). 1996. Virginia Outdoors Plan - 1996. Virginia Department of Conservation and Recreation, Division of Planning and Recreation Resources. Richmond, Virginia..

VDCR. 1989. The 1989 Virginia Outdoors Plan. Virginia Department of Conservation and Recreation, Division of Planning and Recreation Resources. Richmond, Virginia.

APPENDIX A

TERRESTRIAL SPECIES FOUND OR POTENTIALLY FOUND IN THE SHORELINE AREA OF LAKE GASTON AND ROANOKE RAPIDS LAKE

APPENDIX B

AQUATIC SPECIES

APPENDIX C

CONSTRUCTION AND USE PROCEDURES

APPENDIX D

ECOLOGICALLY SENSITIVE AREAS