

# **Catawba River Eligibility Study**

for the

## **South Carolina Scenic Rivers Program**

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Final Report – April 2008

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## Study Summary and Recommendations

A 30-mile segment of the Catawba River is proposed for designation as a State Scenic River under the South Carolina Scenic Rivers Act. This report presents the findings and recommendations of a scenic river eligibility study conducted in the fall and winter of 2007-08 by the South Carolina Department of Natural Resources (SCDNR), Habitat Protection Section and the Scenic Rivers Program.

The study area and the proposed State Scenic River include the 30-mile river corridor within Chester, Lancaster, and York counties that begins at the base of the Lake Wylie Dam on the Catawba River and extends down river to the S.C. Highway #9 Bridge between Lancaster and Chester counties. (See Figure 1, page 8, for map of project area.)

### Findings from the Eligibility Study

To qualify as eligible for State Scenic River status, Section 29-49-70 of the South Carolina Scenic Rivers Act states, “the river or river segment must possess unique or outstanding scenic, recreational, geological, botanical, fish, wildlife, historic or cultural values” and “the level of pollution of a river's waters must be considered.” These criteria and other factors are used to determine a river’s eligibility for State Scenic River status.

Findings from this eligibility study demonstrate that the Catawba River study area does possess outstanding river-related values and is eligible for State Scenic River status. Those values judged to be of outstanding significance include the river’s scenic, recreational, flora and fauna values.

The basis for the river’s eligibility and a description of its significant values are summarized below. More detailed explanations are provided in later sections of this report.

#### *The South Carolina Rivers Assessment*

The *South Carolina Rivers Assessment* of 1988 provides comparative information about the state’s river resources. The 16 river-resource categories evaluated in the *Rivers Assessment* are relevant to scenic river eligibility. Taken as a whole, the 30-mile study area of the Catawba River was rated as having superior resources of statewide or greater significance in five categories: timber management, undeveloped, utilities, industrial and natural features. The study area was also rated as having outstanding resources of regional significance in two categories: water supply and inland fisheries. The river was also rated as having local significance in five categories: historic and cultural, flatwater boating, backcountry boating, recreational fishing, and wildlife habitat.

#### *Scenic Characteristics*

The Catawba provides outstanding scenery of a South Carolina Piedmont brown-water river: rolling hills landscape with clear to brown clay-colored water with a boulder, cobble, gravel, and sand/clay river bottom. The banks are lined by a ribbon of canopy trees including the American sycamore (*Platanus occidentalis*), river birch (*Betula nigra*), and green ash (*Fraxinus pennsylvanica*).

Human development activities visually affect the river experience at the beginning of the river and at areas near the road and railroad crossings, which totals to approximately 2 miles of the total 30-mile (7 percent) Catawba River segment being assessed in this study. The remaining 28 river miles are visually free of human development and provide a setting where natural conditions surround the river user along most of the river's length. The river channel is wide and open, ranging from 350 to 600 feet in width. The river channel widens to approximately 1,500 feet or more through the rocky shoals near Landsford Canal State Park. Views commonly extend a quarter-mile or more downriver.

### *Recreational Uses*

The Catawba River is a recreational resource for fishing, boating, and wildlife viewing; and the area is within easy driving distance of several large population centers, making the river's recreational opportunities accessible to many thousands of people. River access is available along the entire 30-mile study area at three public landings and other drop-in sites that are dispersed along the river's length. Virtually all sections of the river are navigable by small powerboats at certain water levels, and by canoes or kayaks at most all water flows. The fishing reputation of the Catawba centers on bass and catfish fishing. The area is well suited to view or hunt deer, turkey, ducks, geese and other small game.

### *Geological Resources*

The Catawba River features many rocky shoals, with pool and riffle features that have been created by the flow of water through the valley. These features are common to Piedmont rivers. The gently rolling upland interfluves, narrow valley, and clayey soils produce brown water conditions following rain events, which are caused by erosion of clay and silt-sized particles flowing into the river.

### *Botanical Values*

The vegetative communities of the Catawba River and adjacent land are typical of the Piedmont landscape of South Carolina. The natural communities with high resource value include the rocky shoals spider lily community, riverine and levee forest habitats, and Piedmont forest communities. Botanical species of state and federal concern (rare, threatened, or endangered) that are found along the Catawba include Schweinitz's sunflower (*Helianthus schweinitzii*, federal endangered), Georgia aster (*Aster georgianus*, federal candidate species), rocky shoals spider lily (*Hymenocallis coronaria*), butternut (*Juglans cinerea*), American ginseng (*Panax quinquefolius*), Canada moonseed (*Menispermum canadense*), hairy sweet-cicely (*Osmorhiza claytonia*), Southern nodding trillium (*Trillium rugelii*), and yellow violet (*Viola pubescens* var. *leiocarpon*).

### *Fish and Wildlife Values*

The Catawba River is an outstanding resource for inland fisheries with its shoals and flowing water providing diverse habitat for indigenous fish species. Duke Energy will continue to be tasked with supplying a minimum flow for good water quality, which contributes to a favorable environment for fish. Thirty-nine species of fish have been collected from the Catawba River. The state threatened Carolina darter (*Etheostoma collis*) has been reported from the tributaries of

the Catawba River. The Catawba River and its tributaries are also home to rare mussels, including the Carolina heelsplitter (*Lasmigona decorata*, federal and state endangered), and the Eastern creekshell (*Villosa delumbis*).

The Catawba River valley and adjacent uplands contain a few large acreages of wild and undeveloped forestland, which provide excellent habitat for a great variety of wildlife species. The surrounding uplands support wildlife habitat in a landscape of agricultural fields and urban development. The state endangered bald eagle (*Haliaeetus leucocephalus*) is known to inhabit the area. Priority species from the South Carolina Comprehensive Wildlife Conservation Strategy that likely inhabit the area include the great blue heron (*Ardea herodias*), Eastern wood pewee (*Contopus virens*), wood thrush (*Hylocichla mustelina*), mink (*Mustela vison*), scarlet tanager (*Piranga olivacea*), Southern fox squirrel (*Sciurus niger niger*), and American woodcock (*Scolopax minor*).

### *Historic and Cultural Values*

The Catawba is a natural resource that has supported human settlements for thousands of years and continues to be valued by the surrounding communities. There are approximately 114 archeological sites within the Catawba River study area, which indicate that prehistoric inhabitants utilized the valley for hunting, foraging, or cultivating, and that permanent living sites were on the adjacent bluffs and rolling hillsides. The river derives its name, Catawba, from the Native American people who inhabited the area when Europeans first began to settle in South Carolina. The river served both as a source for food and as a transportation route from the very beginning of settlement (middle 1700's), bringing settlers and supplies up from the coast and taking agricultural products, lumber, and other goods down to market. Commercial navigation on the upper Catawba with the help of canals (ca. 1820's) that bypassed difficult shoals may have persisted for a few years but by 1856 the railroads had taken their place for transporting goods to the coastal markets.

### *Streamflow and Water Quality*

This Catawba River segment is regulated by the flow of water through Lake Wylie Hydroelectric facility and over the Lake Wylie dam. Streamflow monitoring of the Catawba River by the U.S. Geological Survey (USGS) at Station #02146000 near the town of Rock Hill, S.C., provides 66 years of continuous record since 1942, plus an additional seven year record from 1895 to 1902. The annual mean flow of the Catawba at the Rock Hill station is 4,226 cubic feet per second (cfs). Ninety percent of the time streamflows at Rock Hill exceed 894 cfs. The lowest flow of record was 132 cfs measured in 2002. The highest flow was 151,000 cfs in 1901. In November 2007, when this study was conducted during drought conditions, the flow of the Catawba had daily pulses between 300 to 1,000 cfs. The Wylie dam has four turbines and each turbine is capable of producing a little over 3,000 cfs for a total flow of 12,000+ cfs that may be rapidly released downstream to the Catawba River. A warning system near the dam, warns boaters and wading anglers of rising water conditions.

Analyses of water quality monitoring data by the S.C. Department of Health and Environmental Control (SCDHEC) indicate that, overall, the study area of the Catawba has acceptable water quality conditions; however, there are problem areas. Three water-quality monitoring stations are located on the Catawba. Aquatic life and recreational uses in the river

are fully supported at two of the three monitoring stations. One site is currently listed on the state's 303(d) list of impaired waters for excess occurrences of copper.

### *Land Use Conditions and River Classifications*

The riparian zone of the Catawba River forms a thin corridor along the entire length of the river. The dominant land-cover types in this corridor are forested land, urban land and agricultural land. Human development along the river is generally concentrated in areas where the river channel nears a road for access. Roads, utility corridors, industrial sites, single family dwellings with piers or landings and public landings impact the character of the river. This river segment has four highway crossings, four railroad crossings, 10 powerline crossings, and three publicly-owned boat landings. Recreational access sites, industrial sites and house sites are the typical human-development use seen along the river; and approximately 50 such sites along the river.

Rivers within the State Scenic Rivers Program are classified according to the land use conditions, degree of naturalness, and extent of development on the river and adjacent lands. Eligible rivers must be classified according to the type(s) that best fits the river or segments of the river. The entire 30-mile section of the Catawba River study area is suited to the "scenic river" class.

### **Public Notification and Public Input**

Public interests in scenic river designation of the Catawba was initially expressed in *The Catawba River Corridor Plan*, which was developed by a local-citizen task force and published in 1994. The plan contains two recommendations that support the scenic river designation:

- On page 34, recommendation #20, the Economic Development Committee wrote "the potential for designating portions of the river under the South Carolina Scenic Rivers system should be explored."
- On page 59, recommendation #24, the Resource Protection Committee proposes to "appoint a committee to consider designating portions of the Catawba River for inclusion in the S.C. Scenic Rivers program."

Responding to public requests in 2007, the SCDNR conducted the scenic river eligibility study which was followed by public notification of the proposed designation, as published in the December 2007 *State Register* and in newspapers with local and statewide circulation. A press release announcing the scenic river proposal and the public meetings was distributed. Property owners adjacent to the Catawba and other interested citizens were notified by press releases, the SCDNR web page, and by letters of notification describing the proposed designation. Several local and regional newspapers and news broadcasters produced stories about the proposed designation. A draft report of the Catawba Eligibility Study was posted on the SCDNR web site for more than 30 days. Summaries of the draft report were distributed to all river landowners by mail with a letter of notification.

Approximately 125 people called, mailed, emailed, or attended three public meetings (January 28-30, 2008) concerning the Catawba River. Public meetings were held in Lancaster, Chester, and York counties. At all public meetings SCDNR staff presented an overview of the Scenic Rivers Program and findings of the Catawba Eligibility Study. The majority of the public

meeting time was used to address the comments and questions of those in attendance. Common questions asked by the citizens and addressed by SCDNR staff related to: (1) concerns about increased regulation on property owners; (2) how advisory councils are formed and how they function; and (3) what the scenic rivers program can accomplish for the river. A few participants expressed their skepticism and mistrust of government programs; however, many citizens expressed strong support for the designation, appreciation and concern for the river, and a desire for assistance from the SCDNR Scenic Rivers Program. Notice of the SCDNR Board approval was published in the March 2008 *State Register* and related news articles were published in local and regional newspapers.

## **Recommendations**

Based on the findings presented in this report, the Catawba River is considered eligible for designation as a State Scenic River. The SCDNR staff recommends that the 30-mile section of the Catawba River in Chester, Lancaster, and York counties be designated as a State Scenic River from the Lake Wyle dam downstream to the S.C. Highway #9 bridge.

## **Approvals**

The SCDNR's Land, Water, and Conservation Division Advisory Committee approved the above recommendation in January 2008.

At its regular meeting held on February 15, 2008, the Board of the SCDNR considered the findings of this study and voted, unanimously, to accept the staff recommendation as presented above.

## *Contact Information*

For additional information about this study report and the S.C. Scenic Rivers Program, please contact SCDNR staff at 1000 Assembly Street, Columbia, S.C. 29201. Telephone: (803) 734-9100, SCDNR Columbia staff include Mary Crockett [CrockettM@dnr.sc.gov](mailto:CrockettM@dnr.sc.gov) and Bill Marshall [Marshallb@dnr.sc.gov](mailto:Marshallb@dnr.sc.gov). Regional staff, Jackie Heuermann, in Lancaster County may also be contacted at (803) 288-0030.

## **Introduction**

In the summer of 2007, the Nation Ford Land Trust and the Katawba Valley Land Trust each mailed letters to South Carolina Department of Natural Resources (SCDNR) requesting SCDNR staff to consider the Catawba River for designation as a State Scenic River. In response, the SCDNR Scenic Rivers Program initiated a study in October of 2007 to assess the eligibility of the Catawba for State Scenic River designation. This report presents the findings and recommendations of Catawba River Eligibility Study and provides a description of the river and surrounding lands.

The study area of the proposed State Scenic River includes the 30-mile river corridor that begins below the Lake Wylie dam in York County downstream to the S.C. Highway #9 Bridge between Chester and Lancaster counties (See Figure 1, page 8, for map of project area.)

### **The South Carolina Scenic Rivers Program**

The purpose of the Scenic Rivers Program is to protect the State's unique and outstanding river resources. To accomplish this purpose, a cooperative, voluntary management program has been created to involve landowners, community interests, and the SCDNR in a partnership, working together toward common river-conservation goals.

Designating a State Scenic River requires legislative action by the South Carolina General Assembly. However, the designation process begins at the local level and requires the support of local citizens, landowners, and elected officials. The steps in the designation process determined by the South Carolina Scenic Rivers Act are as follows:

- First, a local request for scenic river designation is made and then the SCDNR conducts a scenic river eligibility study. In this case, Nation Ford Land Trust and the Katawba Valley Land Trust each made requests and this eligibility study was initiated in October 2007.
- Second, all river landowners and the general public are notified of the proposal and invited to public meetings to ask questions or express concerns. Three public meetings on this proposal were held in January 2008.
- Third, each county council and affected governmental bodies along the corridor is asked to give their approval of the Scenic River proposal. York County Council issued a resolution of support on November 5, 2007. Lancaster County Council issued a resolution of support on October 22, 2007. Chester County Council issued a resolution of support on November 5, 2007. The Catawba Regional Council of Governments passed a resolution of support on October 18, 2007. The Rock Hill City Council passed a resolution of support on November 12, 2007.
- Finally, the SCDNR Board reviews the proposal and a bill is introduced in the General Assembly. When the bill is passed, a new State Scenic River is officially designated. The SCDNR Board approved this proposal in February 2008.

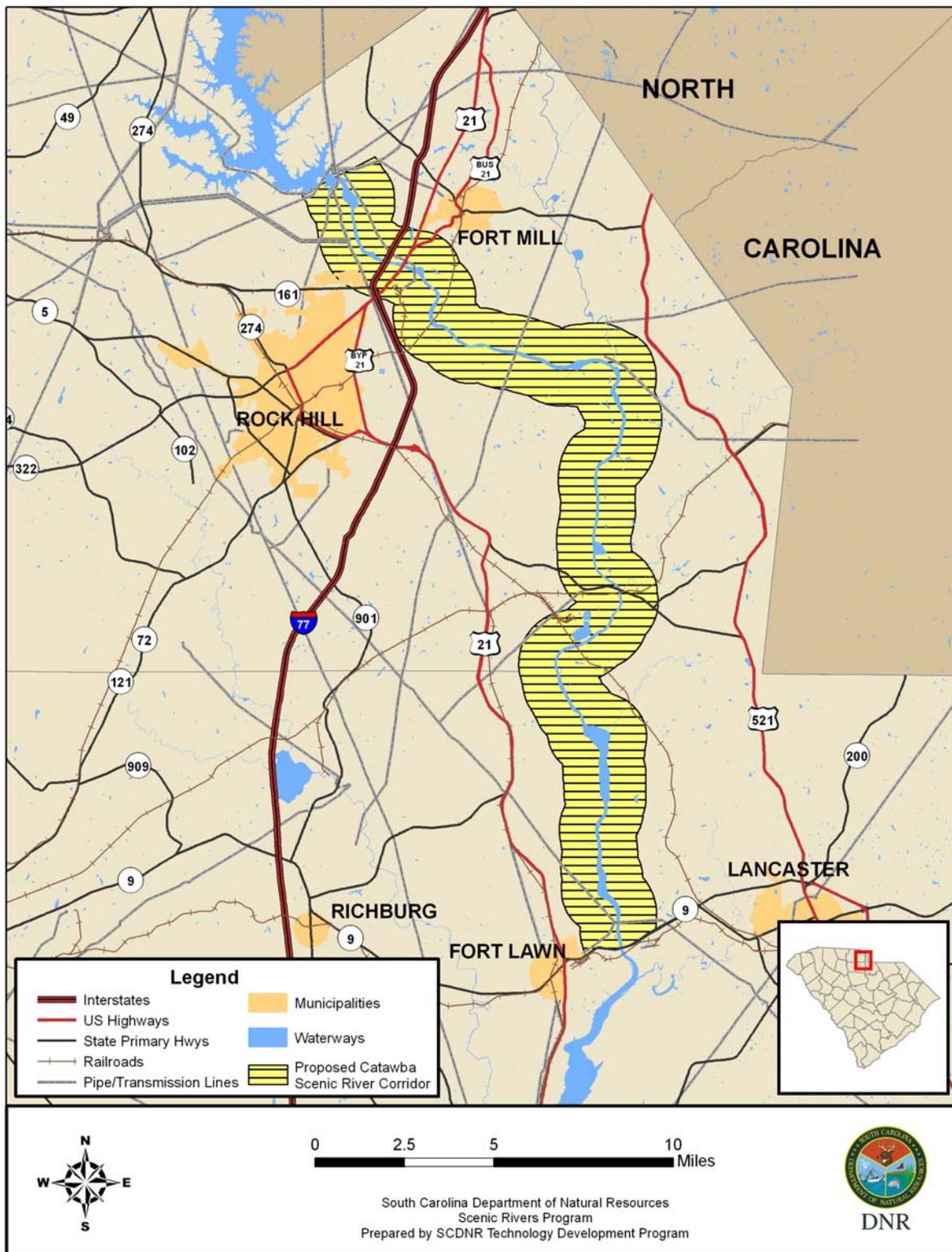
After the designation process is completed, the SCDNR will establish a local Scenic River Advisory Council to develop and implement a river management plan. The advisory council will be made up of landowners, river users, and representatives of groups with an interest in the river. Advisory councils may have six to ten voting members, the majority of whom must represent

river-bordering landowners. Additional people are typically included on advisory councils as ex-officio members to bring broader expertise and representation to the group.

### **Study Boundaries**

The boundaries for this eligibility study are defined by the 30-mile river corridor in York, Chester and Lancaster counties extending from below the Lake Wylie dam in York County downstream to the S.C. Highway #9 Bridge between Chester and Lancaster counties. Along the length of the river, the boundaries are generally defined by the nearest paved highways that parallel the river or one mile width on either side of the river.

**Figure 1: Map of study area.**



## The Catawba River Watershed

The Catawba-Wateree-Santee River begins its trek to the Atlantic Ocean near the base of Mount Mitchell flowing past the town of Old Fort near the Blue Ridge Mountains of North Carolina. It flows some 150 plus miles through six dams in the Piedmont region of North Carolina, crosses into the Piedmont of South Carolina, where it flows through the Lake Wylie Dam. Water then flows some 30-miles through the Piedmont of South Carolina (this river segment is the focus of this study). The river then flows through three more dams as it crosses the Fall Line to join with Wateree Creek where the river then takes its name from the creek and becomes known as the Wateree River. The Wateree River flows through the Lake Wateree dam and into a natural river segment until it joins with the Congaree River to form the Santee River. The water flows through Lake Marion and can then take one of two courses. The natural course of the water is to continue flowing in the Santee River into the Atlantic Ocean. The altered course of the water, altered to provide hydropower and navigation to Charleston Harbor, is to flow through Lake Moultrie to the Cooper River and on to the Atlantic Ocean.

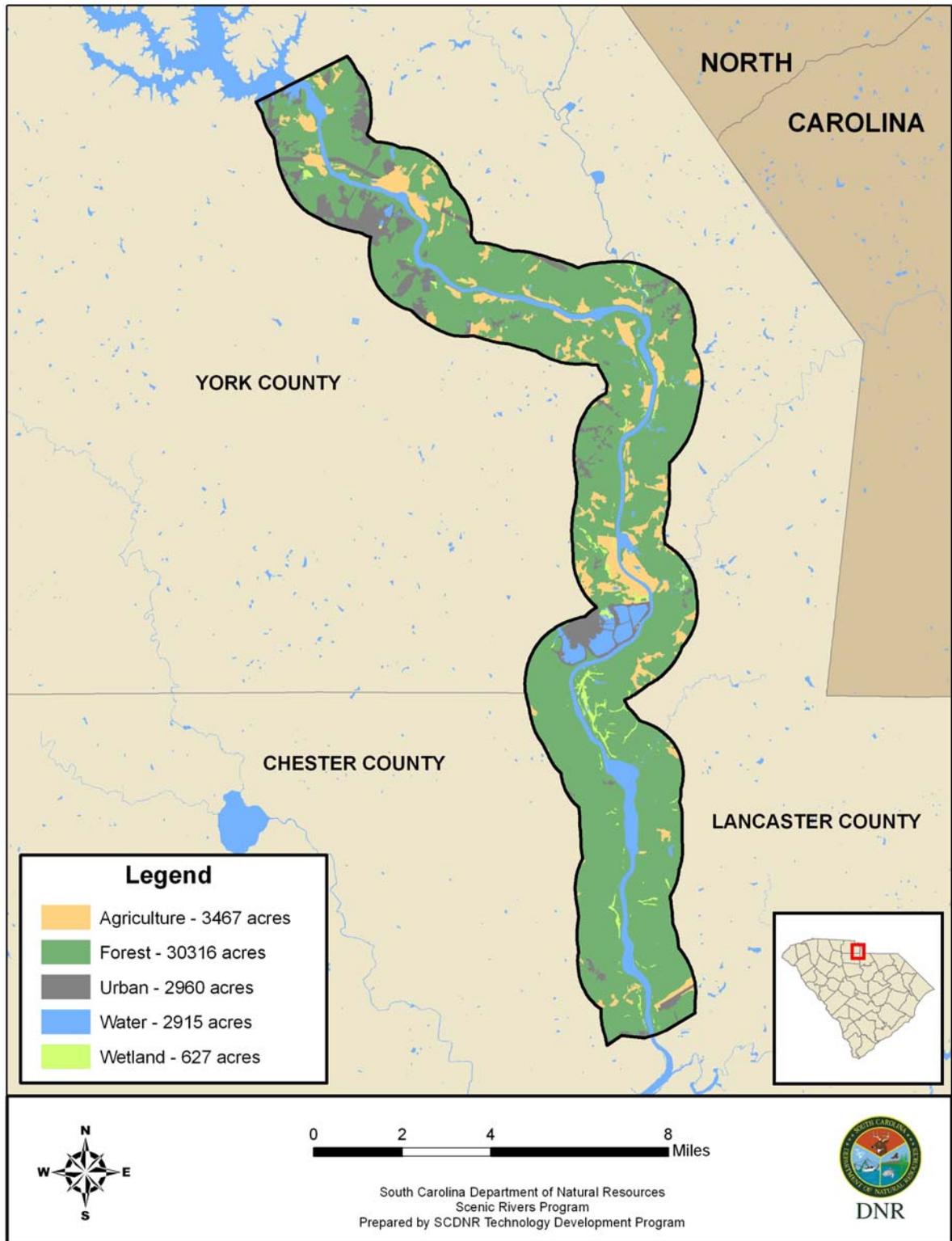
The proposed scenic river section of the Catawba River is a Piedmont brown-water river. Because the Catawba River flows through the rolling hills of the Piedmont region, known for its heavy, clay soils, the river water may contain heavy sediment loads after rain events causing the color of the river to be a brown to orange color.

The watershed of the Catawba River, that portion which is downstream from the Lake Wylie dam (USGS hydrologic unit #03050103-010), is approximately 165 square miles (105,390 acres) in size. This section of the Catawba River has three major tributaries: Sugar Creek, Twelvemile Creek, and Waxhaw Creek. The watershed of the proposed scenic section of the Catawba River is rural in nature with forestry as the predominant land use activity. According to the South Carolina Department of Health and Environmental Control (SCDHEC, 2005), the mix of land use and land cover types within this portion of the watershed is as follows:

- Forested land            74.3 %
- Urban land                11.3 %
- Water                      6.5 %
- Agricultural land        5.6 %
- Scrub/shrub land        1.8 %
- Barren land                0.5%

The 2000 average population densities of Chester, Lancaster, and York counties (the counties that surround the Catawba River study area) are 44, 90, and 147 people per square mile, respectively. The population density for the state of South Carolina is 133 people per square mile. Charlotte, N.C, Rock Hill, Fort Mill and Lancaster, S.C., are the largest population centers within the watershed of the Catawba study area. The city of Charlotte is located just to the north of the Catawba River study area and supports a rapidly growing metropolitan area with a 2000 census population of 540,828 people. Rock Hill and Fort Mill, within the study area, are also rapidly growing urban areas. Rock Hill supports a 2000 census population of 49,765 people. Just to the north, Fort Mill supports 7,587 people. Other smaller towns located in the Catawba watershed include Fort Lawn, Catawba, and Van Wyck.

**Figure 2: Map of Land Use within the study area.**



## Assessment of the River's Resource Values and Conditions

As described in the Introduction, the subject of this study is a 30-mile segment of the Catawba River in Chester, Lancaster and York counties. To determine whether this or any other river qualifies as eligible for State Scenic River status, Section 29-49-70 of the South Carolina Scenic Rivers Act states that the “river or river segment must possess unique or outstanding scenic, recreational, geological, botanical, fish, wildlife, historic or cultural values” and “the level of pollution of a river's waters must be considered.” These factors are addressed in this section following a presentation of relevant findings from the *South Carolina Rivers Assessment*.

### *South Carolina Rivers Assessment Findings*

An important source of information for understanding South Carolina rivers is the *South Carolina Rivers Assessment* (SCWRC, 1988) as it provides comparative information about the state's river resources which is useful to considerations of State Scenic River designations. The *Rivers Assessment* of 1988 involved over 70 individuals with an array of river resource expertise in an evaluation of the state's rivers. Using primarily personal knowledge and opinion, the experts assembled into 16 committees and evaluated over 1,400 rivers and river segments and classified the rivers according to their significance for 16 different resource categories.

Eleven of the 16 resource categories evaluated in the *Rivers Assessment* are relevant to scenic river eligibility. These categories include: undeveloped rivers, natural features, flatwater boating, backcountry boating, whitewater boating, recreational fishing, timber management, inland fisheries, wildlife habitat, historic and cultural values, and water quality.

Taken as a whole, the 30-mile study area of the Catawba River was rated as having superior resources of statewide or greater significance in five categories. The study area was also rated as having outstanding resources of regional significance in two categories, and was rated as having a statewide or local significance in five categories.

Results for all 16 resource categories of the *Rivers Assessment* as they relate to the Catawba River are presented in Table 1 and discussed below.

### *Superior River Resources*

The *Rivers Assessment* rated the Catawba River as a superior resource of statewide or greater significance for five categories: industrial, natural features, timber management, undeveloped, and utilities.

Three of these resource categories take into account the perceived scenic and natural quality of the river in addition to other factors. The natural features category accounts for the known scarcity and perceived quality, condition, and scientific value of the species and natural communities of the river corridor. The timber management category rates the potential timber productivity within the river corridor. The undeveloped rivers category accounts for man-made structures and reflects the natural character in the river corridor. The utility rivers category reflects the use of a river for the purpose of generating electrical power, and the industrial rivers category reflects the ability of a river to support a large industry.

### *Outstanding River Resources*

The *Rivers Assessment* rated the Catawba River an outstanding resource of regional significance in two categories: inland fisheries and water supply.

The inland fisheries category accounts for species composition, and the perceived aquatic habitat quality, fishery quality, and quality of recreational use, while the water supply category rates rivers according to the water's quality, quantity, treatability, and accessibility.

### *Significant River Resources*

The *Rivers Assessment* rated the Catawba River as a significant resource of local significance in five categories: wildlife habitat, recreational fishing, recreational boating (both flatwater and backcountry), and historic and cultural.

The wildlife habitat category reflects perceived habitat quality, suitability of the habitat, and quality of the hunting opportunities. Recreational fishing accounts for the perceived fishing quality, aquatic habitat, scenic quality, and access. The flatwater boating category reflects good water quality and good river access while the backcountry boating category reflects good opportunity for extended river trips that involve overnight camping.

### *River Resources not Evaluated*

The *Rivers Assessment*, did not evaluate the Catawba for four categories: whitewater boating, water quality, agriculture, and urban.

**Table 1. South Carolina Rivers Assessment findings: Catawba River**

<b>Resource Category</b>	<b>Value Class</b>
Agriculture	Not rated
Historic and Cultural	Value Class 3: Significant resource of local significance
Industrial	Value Class 1: Superior resource of statewide or greater significance
Timber Management	Value Class 1: Superior resource of statewide or greater significance
Undeveloped Rivers	Value Class 1: Superior resource of statewide or greater significance
Natural Features	Value Class 1: Superior resource of statewide or greater significance
Whitewater Boating	Not rated
Flatwater Boating	Value Class 3: Significant resource of local significance
Backcountry Boating	Value Class 3: Significant resource of local significance
Recreational Fishing	Value Class 3: Significant resource of local significance
Inland Fisheries	Value Class 2: Outstanding resource of regional significance
Wildlife Habitat	Value Class 3: Significant resource of local significance

Urban Rivers	Not rated
Utility Rivers	Value Class 1: Superior resource of statewide or greater significance
Water Quality	Not rated
Water Supply	Value Class 2: Outstanding resource of regional significance

## Land Use and Ownership Patterns

Land use and ownership patterns affect the character of rivers and present different management alternatives for the Scenic Rivers Program. Land use and ownership patterns can be important factors affecting scenic quality, wildlife habitat, and water quality. Land use conditions are also the determining factor for how a river is classified within the State Scenic Rivers Program. After the river is determined eligible, it must be classified according to the category (natural, scenic, or recreational) that best fits each eligible river segment. Classification is based on the degree of naturalness and extent of development on the river and adjacent lands at the time of the study.

To better understand land use and ownership patterns, an inventory was conducted for the river segment under study. Land use and land cover characteristics were assessed, human development features in the river corridor were inventoried, and the river mileage that is visually affected by human development was estimated. Finally, all parcels of land that connect with the river and their acreages (when available) were inventoried. The land use inventories were conducted using 2005 aerial photography, topographic and county highway maps, and field trips to the river. The parcel-ownership records were collected from the Chester, Lancaster, and York County Tax Assessor’s Offices.

### *Land Use*

The river valley of the Catawba forms a thin corridor along the entire length of the river where the dominant use of land is for vegetative cover. Within the river valley the vegetation pattern reflects the gradient of elevation and moisture. Adjacent to the river channel the moist soil conditions create a habitat for Piedmont species with water tolerance. The forest canopy that is associated with areas along slightly higher ground from the river are the hardwood/pine forests. Moving further away from the river channel, the landscape transitions to planted pine stands or pine-mixed hardwood forests, or agricultural pastureland and/or fields. There are two golf courses located near the river’s edge in two separate locations along the river.

The forests of the Catawba River valley appear to be managed for timber, wildlife, and recreational uses. Recent logging of timber has occurred in many locations along the river and the logging practices typically involve clear-cutting large areas and follow South Carolina’s Best Management Practices for Forestry, leaving in place a “streamside-management zone,” which is a forested buffer strip left along the banks of the river and all tributary streams based on slope. Chester County has a riparian protection ordinance, § 4-128 RIV - River Preservation District Regulation, which requires a 100 foot vegetative buffer along the river. York County also has a riparian protection ordinance, § 155.321 Lake Wylie and Catawba River Buffer, as seen in Appendix C of this report.

Human development along the river is generally concentrated in areas of higher ground and where there is a nearby road for access. Industrial sites, recreational access sites or house sites with associated docks are the typical human development scenes on this river. Approximately five places dispersed along the river occur where vegetation has been cleared to allow for access to the river or house construction. Excluding these sites, another four areas contain clustered commercial development on the river; these include: the area around I-77 and U.S. Highway #21, the Bowater Industries and Boral Brick area near S.C. Highway #5, Landsford Canal State Park area, and the airport near S.C. Highway #9. The two sections of the river with the least amount of visible development are the section of river between the Rock Hill River Park launch site and Highway #5, and the stretch beginning just below the railroad bridge near the end of the Bowater property and ending at the Highway #9 Bridge.

Other types of development that affect the character of the river are public utilities and infrastructure which include the corridors of one interstate (I-77), one U.S. Highway (U.S. #21), two South Carolina Highways (S.C. #5, and S.C. #9), three railroad crossings, and 10 power line crossings. One publicly-owned paddle craft landing and two traditional public boat landings are located in the study area.

Overall, the land use inventory indicates that approximately two miles or seven percent of the river within the study area are visually affected by human development. For the remaining 28 miles, one experiences a natural river corridor.

Details of the river-corridor land use inventory are presented below. The study area is divided into three sections beginning with the upper end of the Catawba River in York County and moving down river. The listings of land use features within each section are presented sequentially, moving from upstream to downstream.

**Section I:** The Catawba River from the base of Lake Wylie dam to the Rock Hill River Park paddle-craft launch. On this seven-mile section, two highway crossings, one railroad crossing, five power line crossings, and five house sites affect the natural character and condition of the river corridor. This section took three hours to paddle in a tandem canoe with a stream flow of approximately 700 cubic feet per second(cfs).

The features listed below visually affect the river in this section:

- The imposing structure of the Lake Wylie dam at the start of the proposed scenic section.
- Power lines overhead just downstream of the dam.
- Public landing called Fort Mill Access Area off of S.C. Highway #49 on river left (north side) just below the dam.
- House built on an island, a bridge connects the mainland to the island visible from the public landing (will be on your right as you travel downstream).
- Set of power lines cross the river.
- Set of shoals are underneath the power lines.
- Old concrete pieces with metal eyebolts attached in the river.
- Trailer residence and clearing on river right or south side of the river.
- Trailer residence on river right (south side) with stairs to the river.
- A private landing on river right (south side) with a grave marker that shines brightly in the sun.
- Clearing on river right (south side) with private picnic shelter and pier over the water
- House on river right (south side) with pier and cow access to the water area under large

set of power lines.

- Large set of power lines.
- Large pipe infrastructure construction on river right (south side) about 100 feet from river on hillside.
- Island on river left (north side) shoals in front of the island all across the river before I-77.
- Interstate 77 crossing.
- Old and new pump station and gauge structures at bridge on river right (south side) with concrete piers in the river
- Private pier on river right (south side), one can not see the house from the water
- House/river shack on river right (south side) just above the bridge
- U.S. Highway #21 Bridge crossing.
- Two pipes crossing the river on top of old bridge pilings on the downstream side of U.S. Highway #21.
- Pipe on river right (south side) next to bridge piling structure – road drainage pipe.
- Water pumping structure on river right (south side) just below the U.S. Highway #21 bridge.
- Large power lines running along the left or north side of the river are visible over the tree tops.
- Private water pump setup on river right (south side) a short distance below the bridges.
- Four strand power line crossing.
- Private landing on river right (south side), can not see the house from the water.
- Set of shoals with old mill raceway and stone foundation on river right (south side).
- River left (north side) cow pasture (a cow was observed in the river at this location).
- Pump and clearing on river right (south side) at shoals/rock garden above the railroad crossing.
- Railroad crossing.
- Four strand power line crossing below railroad crossing.
- Large ledge rapids in four steps for a total drop of about ten feet.
- Smell and hear the treatment plant on river right (south side) just below rapids.
- The paddle craft landing at River Park is on river right (south side).
- At low water two large outfall pipes are visible in the river and bubbles showing the underwater outfall in a line at the landing.

**Section II:** The Catawba River from the Rock Hill River Park paddle-craft launch to Landsford Canal State Park in Chester County. On this 16-mile section, two railroad crossings, one highway crossing, four power line crossings, nine houses/buildings (not counting the ones at Sun City), two golf courses, three industrial structures and three field areas affect the natural character and condition of the river corridor. This section took six hours to paddle in a tandem canoe with a streamflow of approximately 600 cfs.

The features listed below visually affect this river section:

- Golf course on river right (south side) below the landing.
- Native American fish weir on river right visible at low water.
- Private landing and road on river left with stair steps.
- Private dock, dirt landing with clearing and a trailer residence on river left just above a set of shoals.
- Clearing on river right with dirt cow path, landing through the bank.

- Private dirt landing on river left (north side).
- House on hill with a field and tree buffer along river on river right above Goat Island.
- Trailer on river left with dock and private stair landing area.
- Small shack/shelter with blue tent on river left.
- Three large houses on river left (north side) on the hill side above Sugar Creek, large power lines visible behind the houses.
- Concrete drainage pipe structure on river left (east side) just below Sugar Creek.
- Power line crossing just above shoals in bend of river below Sugar Creek.
- Old concrete bridge pilings visible at low water and become a part of the rapids during high water events. The river drops about 10-15 feet at this set of rapids, which support a small colony of rocky shoals spider lilies.
- Just below these shoals on river left (east side) is the golf course and housing development known as Sun City. Many large, white buildings are visible from the water.
- Temporary suction pump on a private dirt landing on river left.
- Power line crossing.
- Private dirt landing and barn building on river right/west, Catawba Nation Land.
- Private floating dock, stairs, and field opening on river right.
- Trailer with dock on river right.
- Underwater gas line crossing.
- Clearing on river left just above S.C. Highway #5
- S.C. Highway #5 Bridge crossing.
- Railroad bridge crossing.
- Power line crossing.
- Grassed banks of Bowater holding ponds on river right 9 (west side).
- Three water intake pipes and associated buildings on river left.
- Bowater water intake and output structures on river right.
- Old water intake and output structure on river right just above railroad crossing.
- Power line crossing.
- Railroad bridge crossing.

**Section III:** The Catawba River from Landsford Canal State Park to S.C. Highway #9. On this seven-mile section six houses/buildings, one power/gas line crossing, an airport clearing, and a public landing affect the natural character and condition of the river corridor. This section took two hours to paddle the mile and a half of shoals at Landsford Canal State Park. On a separate day, a jon boat with a 20 horsepower motor was used to go upstream to the rocks at Landsford and back down river to the Highway #9 boat landing, taking approximately two hours.

The features listed below visually affect this river section:

- Landsford Canal State Park public throw-in and associated buildings, along river right or the west bank.
- Private concrete boat landing with two posts with small house on river left.
- Private wooden dock with blue river hut on hillside on river left.
- Private concrete boat landing, floating dock, riprap along bank for ~50 yards on river left with a cleared area for a house.
- Private concrete boat landing, floating dock, riprap along bank for ~50 yards on river left with a cleared area for a house.
- Private concrete boat landing, floating dock, riprap along bank for ~50 yards on river left with a cleared area for a house.

- House on river right.
- Power and gas line crossing.
- Airport clearing on river left.
- Two houses on river left, one with floating dock and 200 yards of riprap.
- House, picnic shed, landing, and dock on river right at the bridge.
- River access site at S.C. Highway #9 on river left or the east side of the river.
- S.C. Highway #9 crossing.

### *Land Ownership Patterns*

Land bordering the Catawba River is divided among 164 parcels, which altogether total 34,205.97 acres of land. Most parcels (38 percent) are 10 to 99 acres in size. Smaller parcels (less than 10 acres) make up 24 percent of the total, while the larger parcels (greater than 100 acres) amount to 36 percent of the total parcels. Table 2 provides information on the distribution of river bordering land parcels by size categories.

**Table 2. Size Distribution of Land Parcels Contiguous to the Catawba River.**

<b>Parcel Size</b>	<b>Chester County</b>	<b>Lancaster County</b>	<b>York County</b>	<b>Entire River</b>
<b>&lt;1 acre</b>			3 parcels	3 parcels
<b>1 to 9 acres</b>	2 parcels	28 parcels	10 parcels	40 parcels
<b>10 to 99 acres</b>	3 parcels	25 parcels	34 parcels	62 parcels
<b>100 to 499 acres</b>	6 parcels	13 parcels	22 parcels	41 parcels
<b>500 to 999 acre</b>	3 parcels	5 parcels	4 parcels	12 parcels
<b>1000 to 24999 acres</b>	1 parcel	4 parcels		5 parcels
<b>2500 to 4999 acres</b>				0 parcels
<b>&gt;5000 acres</b>		1 parcel		1 parcel
Total number of parcels	15 parcels	76 parcels	73 parcels	164 parcels
Total number of Acres	5,309 acres	19,318 acres	9,578.97 acres	34,205.97 acres

### *Scenic Rivers Classification*

Land use conditions are the determining factor for how a river is classified within the State Scenic River Program. After a river is determined eligible, it must be classified according to the type that best fits each eligible river segment and may be classified as more than one river type along its length. Classification is based on the degree of naturalness and extent of development on the river and adjacent lands at the time of the study. The general descriptions for the three river classifications are as follows:

- *Natural rivers* are free flowing (without impoundment, diversion, or other modification to the waterway), generally inaccessible except by trail or river, with essentially undeveloped shorelines and unpolluted waters.

- *Scenic rivers* are essentially free flowing with largely undeveloped shorelines and limited road access; adjacent lands are used for dispersed human activities, such as agriculture, silviculture, and others which do not disturb the natural character of the river.
- *Recreational rivers* may have more access and development along the shoreline as compared with the above two categories and should possess outstanding river-related recreational opportunities.

The entire 30-mile section of the Catawba study area is suited to the “scenic river” class because the river is accessible from three public access sites and has other private access areas or drop in spots at bridge crossings. Yet, the shorelines of the river are largely undeveloped, the river corridor retains its natural character for nearly 93 percent of its length.

### **Scenic Characteristics**

Methods for evaluating the scenic resources of rivers have been developed and applied in some areas of the country; and these methods will typically consider the overall impression created by visual characteristics such as landforms, vegetative diversity, natural colors in the landscape, diversity of views, special features, and human effects. However, no such method has ever been applied to South Carolina’s rivers.

The *South Carolina Rivers Assessment* provides comparative information on river scenery in assessment categories where scenic and aesthetic qualities were considered as part of other resource values. Expert committees rated the Catawba River as either superior, outstanding, or significant for four resource categories that take into account scenic qualities of the river. The values were for flatwater boating, backcountry boating, inland fisheries, and recreational fishing.

The ways in which scenic values and visual aesthetic qualities of rivers were addressed in the *Rivers Assessment* are as follows. For recreational fishing, backcountry boating, and flatwater boating, a criterion called “scenic quality” was used to rank the rivers. The scenic quality was defined in the *Rivers Assessment* by the type and diversity of landforms, vegetation, degree of naturalness, and presence of man-made features. Scenery and other aesthetic factors were part of the criterion “Quality of Recreational Use” that was used by the inland fisheries group. Other factors that could be related to the visual aesthetic character of rivers are the degree of naturalness, the quality and condition of habitats, and the scarcity of species and communities.

As mentioned in the previous section on land use, human development activities have visually affected approximately two miles (roughly seven percent) of the river within the study area. Approximately 28 river miles are visually free of human development and provide a setting where natural conditions surround the river users along most of this river’s length.

Along most of its route, the river is open, the channel typically ranging from 350 to 600 feet in width. Around the bends the views commonly extend a quarter-mile or more. The river scenes are of clear to clay-colored turbid waters after a rain event, cobble, gravel to sandy silt river bottoms, with tree-lined rolling hill vistas. These visual elements make lasting impressions of the Catawba River.

### **Recreational Values**

The recreational values of the river are assessed by considering the importance of existing and potential recreational uses such as boating, swimming, fishing, hunting, and camping. Other factors considered are river access facilities and proximity to population centers.

Comparative information about the recreational resources of the state's rivers can be derived from the *South Carolina Rivers Assessment*. As explained previously, expert committees rated the Catawba River as an outstanding resource for inland fisheries. Associated with these recreational uses are primitive camping opportunities. Also within the *Rivers Assessment*, the wildlife habitat, and the recreational boating (both flatwater and backcountry) committees assessed these opportunities and they determined the Catawba River to be a resource of local significance. The area is well-suited to hunting for deer, turkey, ducks, and other small game. The area is also suited for wildlife and flora viewing.

The fishing reputation of the Catawba River centers on bass and catfish fishing. Creel surveys have encountered 39 fish species among anglers on the river. Redbreast and redear sunfish, Largemouth Bass, and several species of catfish were consistently the most abundant fish caught in terms of numbers and total weight.

River access is available along the entire 30-mile study area at three public landings; and the public uses other drop-in sites along the river. Virtually all sections of the river accessed from these sites are navigable by small powerboats in higher water flows while canoes or kayaks are the most common way to experience this river. The access sites are:

- Fort Mill Access area off of S.C. Highway #49, on the northeast side of the river. This is a standard boat launch site with parking area and boat ramp.
- Rock Hill recreation complex called River Park off of Red River Road. This is a paddle craft launch and not a ramp for motorized craft. Parking and hiking trails are available at this site. Park hours are 9AM to 6PM.
- Landsford Canal State Park has two drop-in or egress river access points. They also have an entrance fee, hiking trails and public parking. Park hours are 9AM to 6PM Tuesday through Sunday.
- S.C. Highway #9 Landing is a public boat ramp with parking.

The Catawba is a popular river for canoeists and kayakers with single-day float trips being the most common use. Opportunities for a multiday canoe-camping trip are also available; however, there are no designated camping sites along the river. Camping on river-bordering lands will require permission from the landowners.

Wherever access is available to the river, the river is used for recreation: fishing, boating, and even swimming. Many swimming holes are evident along the river, and people enjoy playing among the rocks in the shoal areas of the Catawba. Activities such as boating, wade fishing, and swimming can become dangerous at certain water levels and in certain areas. The closer one is to the dam, the more significant and dangerous the water rises can be. River levels are affected by dam releases for hydropower production, which may fluctuate flows from a minimum required flow up to 12,000+ cfs; and flood levels caused by heavy rains may result be even higher river levels. Higher water levels can cause some of the shoals/rapids to become a class II/III rapid (particularly Sugar Creek and Landsford shoals), which requires more skill to navigate. There is a warning system in place to alert boaters and wading anglers of dam releases and rising water conditions, however, the release sirens can only be heard near the dam.

The study area is within easy driving distance of several large population centers making the river's recreational resources accessible to many thousands of people. Charlotte, Rock Hill, Lancaster, and Chester are each within a one-hour drive of the river. Columbia is within a two-hour drive.

## **Geological Resources**

The geologic resources of interest on scenic rivers are features, processes, or phenomena that are considered unique or outstanding. These could include features of rare or unusual geologic composition or appearance, such as waterfalls, bluffs, unusual rock formations, or geomorphic features.

The Piedmont physiographic province of South Carolina lies between the Coastal Plain and the Blue Ridge Mountains. It is bounded on the east by the Fall Line and on the west by the Blue Ridge escarpment. Elevations in the eastern portion of the Piedmont range from 220 to 600 feet above sea level and gradually rise to the west to around 1,500 feet at the foot of the Blue Ridge escarpment. Piedmont rocks are the erosive remnants of ancient mountains, and the Piedmont landscape is characterized by gently rolling, well-rounded hills and long, low ridges underlain by saprolite on crystalline rocks. The floodplain soil types are Congaree fine sandy loam, the Chewada silt loam, the Altavista fine sandy loam, Buncombe loamy sand, and the mixed alluvial land.

The proposed scenic portion of the Catawba River has an average river surface elevation of 495 feet above mean sea level (MSL) at the base of the Lake Wylie dam and drops to a river surface elevation of 420 MSL at S.C. Highway #9 Bridge. This is a drop of 75 feet over a 30-mile distance (river gradient = 2.5 ft/mile). For the most part, the river gradient drops gradually, except along three shoals where the river drops from five to 32 feet in a very short reach. The shoals/rapids located at Landsford State Park drop 32 feet in two miles.

These type features are common to Piedmont rivers and many of these features can be directly accessed from the main river channel.

## **Botanical Values**

The botanical values of a river are assessed by considering the natural communities and species that exist within the river corridor. The presence of high quality natural communities, communities of special significance, and threatened or endangered species habitat are considered.

The Catawba study area was rated by expert committees of the *South Carolina Rivers Assessment* as a superior resource for natural features. The natural features category accounts for the scarcity and perceived quality, condition, and scientific value of the species and natural communities found along the river.

The vegetative communities of the Catawba River and adjacent land are typical of Piedmont brown-water rivers of South Carolina. These communities are as follows:

- The Wet Natural Shoals: This is a relatively high quality, natural "shoals" community

occurring in Piedmont rivers. The study area contains seven natural shoal areas, two of which support natural plant communities. This is the most unique habitat type. It only occurs where a reliable supply of fast-flowing water is present most of the year. The indicator species for this vegetation type are water willow and rocky shoals spider lily, the latter of which is endemic to such areas and restricted to Alabama, Georgia, and South Carolina.

- Floodplain Forest: The floodplain forests are generally typical of Piedmont floodplain and levee forest. This high quality, natural community contains sweet gum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), water oak (*Quercus nigra*), green ash (*Fraxinus caroliniana*), sycamore (*Platanus occidentalis*), river birch (*Betula nigra*), and American elm (*Ulmus americana*) as the dominant canopy trees. Giant cane (*Arundinaria gigantea*) and river oats (*Chasmanthium latifolium*) were the most dominant species in the shrub and herb layers, except where Chinese privet (*Ligustrum sinense*) had invaded the forest. Extensive giant cane stands were once thought to be common throughout the Southeast and are now considered to be one of the most significant natural communities in the Piedmont. Mistletoe (*Phoradendron serotinum*), a parasitic plant, can be seen along the river with its small white berries maturing in December.
- Uplands Forest: A variety of upland community types occurs along river bluffs. This type of forest can be any of the following: mixed hardwood, pine-mixed hardwood, and xeric pine with Virginia pine and shortleaf pine stands.
- Pasture Land/Cultivated Fields: Land used for agriculture purposes can be planted with a row crop or covered with natural grasses.

Botanical species of state and federal concern (rare, threatened, or endangered) that are found along the Catawba include the Schweinitz's sunflower (*Helianthus schweinitzii*, federal endangered), Georgia aster (*Aster georgianus*, federal candidate species), rocky shoals spider lily (*Hymenocallis coronaria*), butternut (*Juglans cinerea*), American ginseng (*Panax quinquefolius*), Canada moonseed (*Menispermum canadense*), hairy sweet-cicely (*Osmorhiza claytonia*), Southern nodding trillium (*Trillium rugelii*), and yellow violet (*Viola pubescens* var. *leiocarpon*). Other botanical species of concern that are known to occur in the region and may occur primarily in the upland portions of the Catawba River study area include the Oglethorpe's oak (*Quercus oglethorpensis*), swamp white oak (*Q. bicolor*), earleaf foxglove (*Agalinis auriculata*), smooth blue aster (*Aster laevis*), wild hyacinth (*Camassia scilloides*), mullein foxglove (*Dasistoma macrophylla*), smooth sunflower (*Helianthus laevigatus*), dwarf bulrush (*Lipocarpa micrantha*), gray-head prairie coneflower (*Ratibida pinnata*), small skullcap (*Scutellaria parvula*), prairie rosinwood (*Silphium terebinthinaceum*), prairie goldenrods (*Solidago ptarmicoides* and *S. rigida*), heart-leaved foam flower (*Tiarella cordifolia* var. *cordifolia*), narrow-leaved verbain (*Verbena simplex*), and Culver's-root (*Veronicastrum virginicum*).

## Fish and Wildlife Values

Fish and wildlife values are assessed by considering the occurrence of habitats and populations within the river corridor. Habitats of special significance for both game and nongame species, habitats for threatened or endangered species, and the abundance and diversity of habitats and species are considered. The expert committees of the *South Carolina Rivers*

*Assessment* rated the Catawba study area an outstanding resource for undeveloped rivers and an outstanding resource for natural features; both of these categories are positive assessments for wildlife.

### *Fisheries*

The Catawba River study area represents a significant aquatic habitat for both game and non game fish species. Its proximity to the major population centers of Rock Hill and Charlotte makes it an important recreational resource for fishing. Available research suggests this river to be a high quality inland fishery. Although this section of the Catawba has experienced two past fish kills, in 1973 and 1987 (SCDNR, Nash 1973, 1987), both were atypical, isolated events and the river has fully recovered, supporting a diverse and abundant assemblage of fish species.

A 1998 study identified 39 species of fish representing 10 families (Dewitt 1998). Fourteen of these 39 species are considered to be game species. Predominant game species include redbreast (*Lepomis aurilis*) and redear (*Lepomis microlophus*) sunfish, largemouth bass (*Micropterus salmoides*), white (*Morone chrysops*) and striped bass (*Morone Saxatilis*), and several species of catfish. Of the 5,343 fish collected during the 1998 study the most abundant were gizzard shad (*Dorosoma cepedianum*) (17.9%), bluegill (*Lepomis macrochirus*) (14.8%), snail bullhead (*Ameiurus brunneus*) (14.26%), redbreast sunfish (*L. aurilis*) (10.54%), and largemouth bass (*M. salmoides*) (4.59%).

Although access to this section of the Catawba is limited, its proximity to Charlotte, Rock Hill, and associated suburban areas makes it a popular fishery, and it receives moderate fishing pressure. The resident fishery is supplemented by the stocking of 10,000 striped bass annually by SCDNR. Recent conversations with regional fishery biologists revealed that the flathead catfish (*Pylodictis olivaris*) was recently discovered in the study area. Although biologists are unsure of the extent of this fish's populations and recruitment, the Catawba may be at risk to the spread of this invasive species, which could significantly alter the overall fishery in years to come.

The Catawba supports a number of rare and priority aquatic species. The state threatened Carolina darter (*Etheostoma collis*) has been reported from the tributaries of the Catawba River. The Catawba River and its tributaries are also home to rare mussels, including the Carolina heelsplitter (*Lasmigona decorata*, federal and state endangered), and the Eastern creekshell (*Villosa delumbis*).

Priority species from the *South Carolina Comprehensive Wildlife Conservation Strategy 2005-2010* (CWCS) that may inhabit the river and its tributaries include:

- Fishes: snail bullhead (*Ameiurus brunneus*), white catfish (*A. catus*), flat bullhead (*A. platycephalus*), quillback (*Carpiodes cyprinus*), Carolina darter (*Etheostoma collis*), seagreen darter (*E. thalassinum*), notchlip redhorse (*Moxostoma collapsum*), and greenhead shiner (*Notropis chlorocephalus*);
- Turtles: spiny softshell turtle (*Apalone spinifera*), common snapping turtle (*Chelydra serpentina*), and river cooter (*Pseudemys concinna*); and
- Mussels: eastern elliptio (*Elliptio complanata* complex), pod lance (*E. folliculate*), and creeper (*Strophitus undulates*).

## Wildlife

Although the river corridor itself is primarily forested, the watershed draining into the study area contains both urbanized areas and agricultural plots. More specifically, the lower half of the study area is generally surrounded by mixed hardwood-pine forest in large parcel ownership, while the upper section of the study area flows in close proximity to low and moderate density suburban and rural housing developments extending from the Rock Hill area. However the upper corridor's proximity to more developed land does not appear to degrade the value of the study area for wildlife and associated habitat. Large protected land holdings along the river include Landsford Canal State Park and several connected areas owned by the SCDNR in the southern portion of the corridor.

While the immediate corridor has only four road crossings, three railroad crossings and three public access points, habitat in the middle and upper section of the Catawba River corridor is somewhat fragmented by multiple residential roads. However, this fragmentation does not appear to impede the significant wildlife populations of the study area. Both game and non-game species abound in this section of river. Bald eagles (*Haliaeetus leucocephalus*), a listed species, are known to nest near the Wylie Dam, at the vicinity of Highway #5, just south of the Highway #9 boundary. There is also a 13-year old nest on Landsford Canal State Park. Additionally bald eagles of all age classes have been observed in the study area and extensively utilize the upper river corridor (Jeff Witt, personal communication, 2007). This indicates a high probability that additional, undiscovered nests may be located in the corridor. Waterfowl, including important game species such as mallard and wood ducks, frequent this section of river, and the valley hosts several terrestrial game species including deer, turkey, quail, and rabbit.

Twelve species of amphibians, 42 species of reptiles, and seemingly countless birds and mammals inhabit the corridor. The spotted (*Ambystoma maculatum*) and marbled (*Ambystoma opacum*) salamanders are common species. Additionally, there is a likelihood of populations of the southern myotis (*Myotis macropus*) and swamp rabbit (*Sylvilagus aquaticus*), are both listed species, being present. Populations of river otter are present, but low. Common mammal species such as bobcat, opossum, raccoon, red fox, and gray fox are thought to have strong populations in the corridor. Additionally, rare plant assemblages, such as the rocky shoals spider lily and longleaf pine forest are present and may provide additional habitat for associated species.

The most common big game animal in the study area is the whitetail deer. Wild turkeys are also scattered in occurrence within the area. A number of small game mammals occur in the area such as raccoon, gray fox, red fox, and mink. Eastern cottontail populations are sparse but gray squirrels are common along the river and in adjacent hardwood forests. Beavers are fairly common along the river. River otter and bobcat occur in the area but are not common. The wood duck is common and nests in the area. Migratory waterfowl that may inhabit the area seasonally include black duck, mallard, green-winged teal, widgeon, gadwall, and pintail.

Songbirds, wading birds, and birds of prey are common and are probably the most visible wildlife species to recreational river users. This river serves as a migratory corridor for many neo-tropical warblers such as the prothonotary (*Protonotaria citrea*) and hooded warblers (*Wilsonia citrine*). Several species of turtles and water snakes are common and are also easily observed along the river. Animals seen along the river while conducting this eligibility study

included: grey squirrel, red-tailed hawk, wood duck, belted kingfisher, blue jay, great blue heron, white-tailed deer, woodpeckers, and turtles.

## **Historic and Cultural Values**

The historic and cultural values of a river are assessed by considering the importance of historic and prehistoric events, uses, structures, and artifacts related to the river corridor. The expert committees of the *South Carolina Rivers Assessment* of 1988 rated the Catawba River as significant for historic and cultural values and the river is noted for the Catawba Nation and the historic canal structures associated with the Landsford Canal State Park. Like most rivers of South Carolina, the Catawba is a natural resource that has supported human settlements for thousands of years and to this day continues to be valued by the surrounding communities.

The following paragraphs offer some information describing the progression of settlement in the area and the transportation developments on and over the Catawba River through time.

There are 364 recorded archeological sites in Chester County, 568 recorded sites in Lancaster County, and 527 recorded sites in York County and approximately 114 archeological sites within the Catawba River study area. These sites range in age from the Paleoindian period (~10,000 B.C.) to the Historic period (1950's). Archaeological evidence derived from stone tools indicates that prehistoric inhabitants utilized the riparian areas for hunting, foraging, or cultivating, and that semi-permanent living sites are often located on the adjacent bluffs (SCIAA, 2007). These hunter/gatherer sites offer us an opportunity to investigate and understand the myriad of Native American adaptations to the natural environment. Pieces of pottery have been found along the river corridor that date to the Woodland Period (2,000 BC to A.D 800) and mark the introduction of changes in subsistence strategies likely brought on by social and environmental upheavals that took place around 3,000 years ago. Mounds built by people during the Mississippian period (A.D. 800 to 1540) are known to exist within in the study area. These features mark the presence of local native societies that were developing increasing social, political, religious, and subsistence complexity and an increasingly settled lifestyle. These lifestyle changes among indigenous groups that had operated in semi-mobile subsistence strategies likely stemmed from an expansion of chiefdom-level societies out of north Georgia that took place several centuries before the arrival of colonists from the Old World.

The word "Catawba" was not generally used until the early eighteenth-century (Moore, 2002). Today the Catawba refer to themselves as "ye iswa" or "people of the river." Catawba Native American Villages, a Siouan speaking people, surrounded the Catawba River prior to 1521. Most of the villages were on the east side of the river as the area to the west from the Catawba River to the Broad River was a designated hunting ground for both the Catawba and Cherokee Nations. The Catawba Nation has been making a special type of pottery that has a mottled pattern of black, orange, tan, and brown and is smooth but unglazed for generations.

The Spanish, led by Hernando De Soto (1539-1542) and Juan Pardo (1565-1568), traveled through this area but left little physical evidence of their time along the river. The first European to write about the area was John Lawson in 1701 when he described the Catawba area as "a very large Nation containing many thousand people." Following the explorers were the traders with their metal tools and glass beads. Trading paths intersected with the Catawba villages. These paths crossed the river at shallow places called fords. Two famous fords named Nation(s) Ford

and Land(s) Ford are located in the study area. Other Native Americans joined with the Catawbias as their populations and lands decreased. English Settlers began moving into the area and farming during the early 1700's. People immigrated to the Catawba area from the South Carolina townships and coastal areas, as well as from North Carolina and Virginia. In the 1760's the Catawba Nation agreed to a reservation of 15 square miles, which included land in both present day Lancaster and York counties. The Lease Act of 1808 allowed non-Indians to lease land on the reservation for 99 years. The Catawba Nation was able to repurchase some of that land through the Catawba Land Claims Settlement Act of 1993.

The river served as a transportation route from the very beginning of settlement, bringing settlers and supplies up from the Columbia area and taking agricultural products and other goods down to market. People and livestock crossed this river at low water periods along the natural shallow rocky fords, which cross a river. The Nation Ford and Lands Ford have witnessed countless generations of travelers and their goods as they crossed this river. Native Americans, European settlers, fur traders, Revolution, and Confederate troops all crossed this river using the fords.

By 1786, a law was enacted for a public ferry to be vested in Thomas Sprot and Daniel Sturges for 14 years at the location of Nation Ford with the rates established as follows:

3 pence for every foot passenger

4 pence for man and horse

1 shilling and 6 pence for every rolling hogshead, horse, and driver

1 shilling and 2 pence for every 2-wheeled carriage and horse

3 shillings and 6 pence for every 4-wheeled wagon with horses

1 penny for every head of livestock such as cattle, sheep, goats, and hogs (McCord, 1841)

Ferries by law had to be at least four miles apart from each other and other ferries crossing this river were:

1795: Finney McClenahan at his plantation over the Catawba for 14 years

1795: George Wade Ferry at his plantation for 14 years

1811: The York District Ferry run by Bigger's then Dr. John Allison then James Mason  
(In 1811 a law was passed to exempt soldiers from all tolls and ferry charges during times of war)

1813: Thorn's and Drennan's Ferry to be run by Hezekiah Thorn for 14 years

1830: Orsamus Lanier of Lancaster District and Allen Jones Green of Chester District were permitted a ferry for seven years near what today is the S.C. Highway #9 Bridge.

By 1835, bridges began replacing ferries thus the Ferries Acts were all repealed. Even though all the Ferries Acts were repealed by the South Carolina General Assembly, ferries were frequently operated as a business by generations of family members along the Catawba River, such as Ashe's Ferry above the mouth of Twelve Mile Creek at Van Wyck, S.C., which did not cease operations until 1959.

The Landsford community in Chester County was the site of the first canal constructed on the Catawba River in South Carolina. Rev. Gen. William Davie donated the land where construction of Landsford Canal began in 1820 and was completed in 1823. It is the uppermost canal on the system with Fishing Creek and Rocky Creek (Great Falls) being the next two canals downstream. The canals were built to allow cargo barges easier passage around the shoals or rapids in the Fall Line area of this Piedmont river. Both Landsford and Fishing Creek were

completed in the mid 1820's but were basically useless until the Rocky Creek canal opened in 1831. Rocky Creek was delayed due to the significant elevation drop (108 feet in eight miles) associated with the "Great Falls of the Catawba" where the present town of Great Falls got its name. With the first railway coming to South Carolina in 1831, use of the canals fell off and landowners during the 1840's reclaimed the land. Railroads crossed the river and intersected with the large towns, spurring growth in the area.

The Wylie Dam development originally began operations in 1904 and was then known as the Catawba Station. In 1924 and 1925, the dam was raised 49.5 feet and new structures were added. The old powerhouse was dismantled with the new powerhouse structures being incorporated into the new dam. The new development began operations in 1925 and is located at the start of the study area. With available electricity and the railroads for transportation of goods the years following World War I and II saw an increase in the manufacturing of goods. Mills were built in the towns of Lancaster, Fort Lawn, Rock Hill, and Fort Mill.

In June of 1970, the South Carolina Park Service acquired 198 acres of property on the southwest side of the river. Today Landsford Canal State Park has 448 acres. Landsford Canal State Park is a "Special Resource" park protecting and interpreting the only South Carolina canal where all its features are still visible to the public. (All the others are mostly, if not all, buried under present day reservoirs). With this significant cultural resource is the associated natural resource of the Catawba River, which provides for many natural experiences such as bird watching, nature hikes, fishing, and canoeing/kayaking. The South Carolina Department of Parks, Recreation, and Tourism manages this property as a day use facility (no overnight accommodations) due to the fragility of both the cultural and natural environments. (James, 1997 and SCPRT, 2007).

Declines in the traditional land uses of agriculture typically resulted in an increase of forestland and with the increased production of electricity the region experienced an increase in industrialization and urban growth. The urban focus of growth around the towns and cities has kept the natural landscape around this river mostly undeveloped through time.

## **Streamflow and Water Quality**

To assess streamflow, the issues of minimum flow, navigation, and natural stream conditions are considered. Streamflow conditions should include a sufficient volume of water during normal years to permit traditional instream uses. The volume of water should be sufficient for safe navigation where navigational use is important. To assess water quality, the river's water classification, water quality trends, and related water quality problems are considered. The water quality in scenic rivers should meet or exceed the relevant state water quality standards.

### *Streamflow*

The headwaters of this river are located along the slopes of the Blue Ridge Mountains, and flow through cobble and clay soils of the Piedmont region. The flow of water in this section of the river is regulated by 11 dams in North Carolina and the Lake Wylie dam in South Carolina. The nonporous nature of these soils does not allow for a great amount of water storage during periods of low rainfall thus the baseflow to streams can be severely diminished during times of drought. Drainage to streams is further reduced during the summer and early fall when high

temperatures result in substantial losses of water from evaporation and transpiration by plants.

Streamflow monitoring by the U.S. Geological Survey (USGS) on the Catawba River at Station #02146000 near the town of Rock Hill, S.C., provides 66 years of continuous record since 1942, plus an additional seven year record from 1895 to 1902. The annual mean flow of the Catawba River at the Rock Hill station is 4,226 cubic feet per second (cfs). Ninety percent of the time streamflows on the Catawba at Rock Hill exceed 894 cfs. The lowest flow of record was 132 cfs measured on January 18, 2002. The highest flow was 151,000 cfs on May 23, 1901 (USGS website, 2008). The daily streamflow measured on the Catawba River pulses due to energy demand. During this study the flow pulsed between 300 and 1000 cfs (USGS website, 2007). The flood of 1916 indicated that the river was 30 feet above flood stage and washed out the Wylie dam along with several other dams. Other time periods with significant flooding were in 2003 and 2004 and when Hugo came through in 1989.

Streamflows are typically highest during the winter and early spring and lowest during the summer and early fall. In the drier years, without a pulse of water from the dam, navigation on the river may become difficult.

Approximately 44 to 56 inches of precipitation enter the Catawba River Basin annually. Of this amount, about one-third leaves the basin as streamflow. The other two-thirds is lost largely to evapotranspiration with a small amount seeping into the surrounding soils to groundwater.

### *Water Quality*

The Catawba is a brown-water Piedmont river. The clay colored water is the result of water flowing over the earth's surface in the Piedmont region picking up clay soil particles as it moves, entering the river and those clay/soil particles remaining suspended in the water column. At times this river can have a very heavy sediment load.

The South Carolina Department of Health and Environmental Control (SCDHEC) conducts routine water quality monitoring at stream locations (stations) throughout South Carolina, including the Catawba River system. For each station, SCDHEC analyzes the monitoring data to assess water quality conditions and changes.

Analyses of water quality monitoring data by SCDHEC indicate that, overall, the study area of the Catawba has healthy acceptable quality conditions; however, there are problem areas. There are three water-quality monitoring stations located in the study area of the Catawba River. SCDHEC (2005) reports that aquatic life uses are fully supported at two stations and one station is not supported due to excess copper. Recreational uses are supported at all three stations and there are no fish consumption advisories for this river section. (Details of the SCDHEC water quality information are presented in Appendix A).

SCDHEC analyses of trends in the data show both favorable and unfavorable changes in water quality over time. At several sites, changes in biochemical oxygen demand and nutrient concentrations suggest improving conditions for these pollutants. However, at all sites trends in turbidity, pH, and dissolved oxygen suggest unfavorable changes in conditions for these pollutants.

Eight facilities are permitted by SCDHEC (with NPDES permits) for discharging domestic or industrial wastewater into the Catawba River; these facilities include the Cities of Rock Hill and Fort Mill, Bowater Incorporated, Greens of Rock Hill LLC, Springs Industries, Lancaster County, and Nation Ford Chemical Company (SCDHEC, 2005). Twelve facilities have permits to discharge wastewater into these tributaries; Big Dutchman Creek, Manchester Creek, Burgis Creek, Barber Creek and Abernathy Creek of the Catawba. Other permitted discharges may exist on tributaries of the Catawba that extend into North Carolina.

## **Conclusions about the River's Eligibility**

Findings from this eligibility study demonstrate that the 30-mile Catawba River study area does possess outstanding river-related values and the river merits designation as a State Scenic River. Those values judged to be of outstanding significance include the river's scenic, historic, recreational, fish, and wildlife values.

The Catawba is a large dam-regulated brown-water Piedmont river and provides outstanding scenery with clear to clay-colored waters, beautiful rocky shoals, the occasional gravel or sand bars, and lined by Piedmont river trees such as sycamore and river birch. Approximately 93 percent of the river is visually free of human development.

The natural resources of the Catawba River provide outstanding recreational fishing and boating opportunities and many other nature-based recreations. The area is within easy driving distance of several large population centers making the river's recreational opportunities accessible to thousands of people.

The Catawba River riparian areas and adjacent uplands contain large acreages of wild and undeveloped forestland, which contain additional wildlife habitat in a landscape of agricultural fields, pasture and upland forests. The natural ecological communities with high resource value include the wet shoals areas and the floodplain and riparian forest habitats. This natural river channel (of a dam-regulated river system) is an outstanding resource for inland fisheries with its rocky shoals and pool areas providing diverse habitat for the indigenous fish communities of both resident and migratory species.

SCDNR staff recommends that the 30-mile section of the Catawba River in York, Lancaster and Chester counties be designated as a State Scenic River from the base of Lake Wylie dam downstream to the South Carolina Highway #9 Bridge between Lancaster and Chester counties. For purposes of river classification, the entire 30-mile section of the Catawba River study area is suited to the "scenic river" class. The river is accessible from three public access sites, and two road crossings; however, the shorelines of the river are largely undeveloped and the river corridor retains its natural character over 93 percent of its length.

## Appendix A

### Water Quality Information: Catawba River

#### Assessment of Water Quality Conditions at Monitoring Stations on the Catawba River

The following information is taken from several sources provided by the S.C. Department of Health and Environmental Control (SCDHEC). Except where noted otherwise, most of the information presented here comes from the 2005 Water Quality Assessment for the Catawba Basin (SCDHEC, 2005). <http://www.scdhec.gov/environment/water/docs/catawba.pdf>

The SCDHEC conducts routine water quality monitoring at stream locations (stations) throughout South Carolina, including the Catawba River system. For each station, SCDHEC analyzes the monitoring data to assess water quality conditions and changes. Important goals of the Federal Clean Water Act and South Carolina state water-quality standards are to maintain the quality of surface waters to provide for the survival and propagation of a balanced, indigenous aquatic community of fauna and flora (aquatic life support) and to provide for swimmable waters (recreational use support). SCDHEC also collects fish from the river to analyze fish tissues for certain known contaminants that can be harmful to people who eat the fish (fish consumption support).

- Aquatic life use support is determined based on the percentage of excursions of certain criteria and, where data are available, the composition and functional integrity of the biological community. Among the parameters assessed are: dissolved oxygen, pH, toxicants (priority pollutants, heavy metals, chlorine, ammonia), nutrients, and turbidity.
- Recreational use support, the degree to which the swimmable goal of the Clean Water Act is attained, is based on the frequency of fecal coliform bacteria excursions. Standards for primary contact recreation were derived from public health data that estimate the potential risks to humans of contracting waterborne illnesses after swimming due to exposure to sewage-related pathogens.
- Fish consumption use support is determined by the occurrence of advisories on human consumption for a given waterbody. For the support of consumption uses, an advisory that prohibits or restricts fish consumption indicates nonsupport of uses. Methyl-mercury contamination in certain types of fish is the most prevalent problem.

The three water quality monitoring stations located along the Catawba River are listed below:

#### *Station CW-014 located at United States Highway #21 Bridge*

- Aquatic life uses are fully supported.
- Recreational uses are partially supported at this site due to high fecal coliform bacteria levels as recorded in 2005. This site is not on the 303d list of impaired waters in 2006.
- Decreasing trends in the amount of turbidity.
- This station has shown improving conditions for total phosphorus and nitrogen concentrations.

*Station CW-041 at South Carolina Highway # 5 Bridge*

- In 2005, due to excess occurrences of copper, which exceed the aquatic life acute criterion, aquatic life uses are not supported. This site is on the 303d list of impaired waters for copper in 2006.
- There is an increasing trend in the amount of turbidity at this monitoring station.
- Recreational uses are fully supported.

*Station CW-016 at South Carolina Road #9 Bridge*

- Aquatic life uses are fully supported at this site.
- There is a significant increasing trend in phosphorus concentration
- A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter.
- In 2005, recreational uses were fully supported at this site.

SCDHEC has sampled fish tissue from this river and has determined that no fish consumption advisories are needed at this time for the proposed scenic section of the Catawba River (2007 SCDHEC Fish Advisory).

[http://www.scdhec.gov/environment/water/fish/Advisories/no\\_advisories.htm](http://www.scdhec.gov/environment/water/fish/Advisories/no_advisories.htm)

For background information and the most current advisories concerning other waterways, please visit the SCDHEC Bureau of Water homepage at - <http://www.scdhec.net/water> - and click on "Advisories" or call SCDHEC's Division of Health Hazard Evaluation toll-free at (888) 849-7241.

## Appendix B

### Answers to Common Questions about State Scenic Rivers

*How will scenic river designation affect property owners? Are there regulations or restrictions associated with the designation? Will there be restricted use of the river?*

The Scenic Rivers Program is conducted in a manner that respects private property rights. There are no state regulations imposed on property owners and no one is obligated to participate in the program. The program works through a voluntary, cooperative management approach where river-management objectives are determined by a Scenic River Advisory Council, a group representing local landowners and local river users. To further protect private property owners, the South Carolina Scenic Rivers Act prohibits the use of eminent domain or condemnation of private property through this program.

The Scenic River Advisory Council will create a management plan to define the long-term management needs of the river and to set goals and objectives for addressing those needs. The management plan is created and implemented by involving any interested citizen who wishes to participate. After studying a particular problem, it is possible the Advisory Council may conclude that a form of regulation is needed to better manage the river in some way, and they may try to establish a regulation. However, the Advisory Councils have no power to create regulations themselves. Like any other interest group, they have to go through county councils or the General Assembly or some other governing authority to get a regulation passed.

Because most members are local landowners, the Scenic River Advisory Councils usually advocate nonregulatory solutions to river problems. The groups usually accomplish their objectives through voluntary management agreements with landowners, cooperative river-improvement projects, and education activities.

*How are members of the Advisory Councils appointed? Who determines their direction and what they will do?*

Scenic River Advisory Councils are appointed by the Executive Director of the SCDNR and they are chaired by a staff member from the SCDNR Scenic Rivers Program. Nominations for members are solicited from the local landowners and citizens. Additional people, beyond the official members, are encouraged to be involved in the work of the Advisory Council and they can be appointed as *ex-officio* (non-voting) members.

A Scenic River Advisory Council is a committee composed of six to ten voting members who represent landowners and community groups with an interest in the river. By law, the majority of voting members must be river-bordering landowners. The Advisory Council determines the overall direction of activity for a scenic river project. Decisions and courses of action are usually based on a consensus, or full agreement, among the whole group.

All meetings of the Advisory Councils are open to visitors who are welcome to provide input to Advisory Council decisions. Participation of *ex-officio* (non-voting) members is encouraged on the Advisory Councils.

*What is the advantage of the scenic river designation?*

The primary advantage of scenic river designation is the creation of a partnership between local citizens and the SCDNR to conserve and enhance the scenic river. The SCDNR forms a committee (advisory council) to work cooperatively with local people and local governments to take a long-term, comprehensive view of the resource and try managing changes in a way that conserves the natural and scenic qualities of the river for the enjoyment of present and future generations.

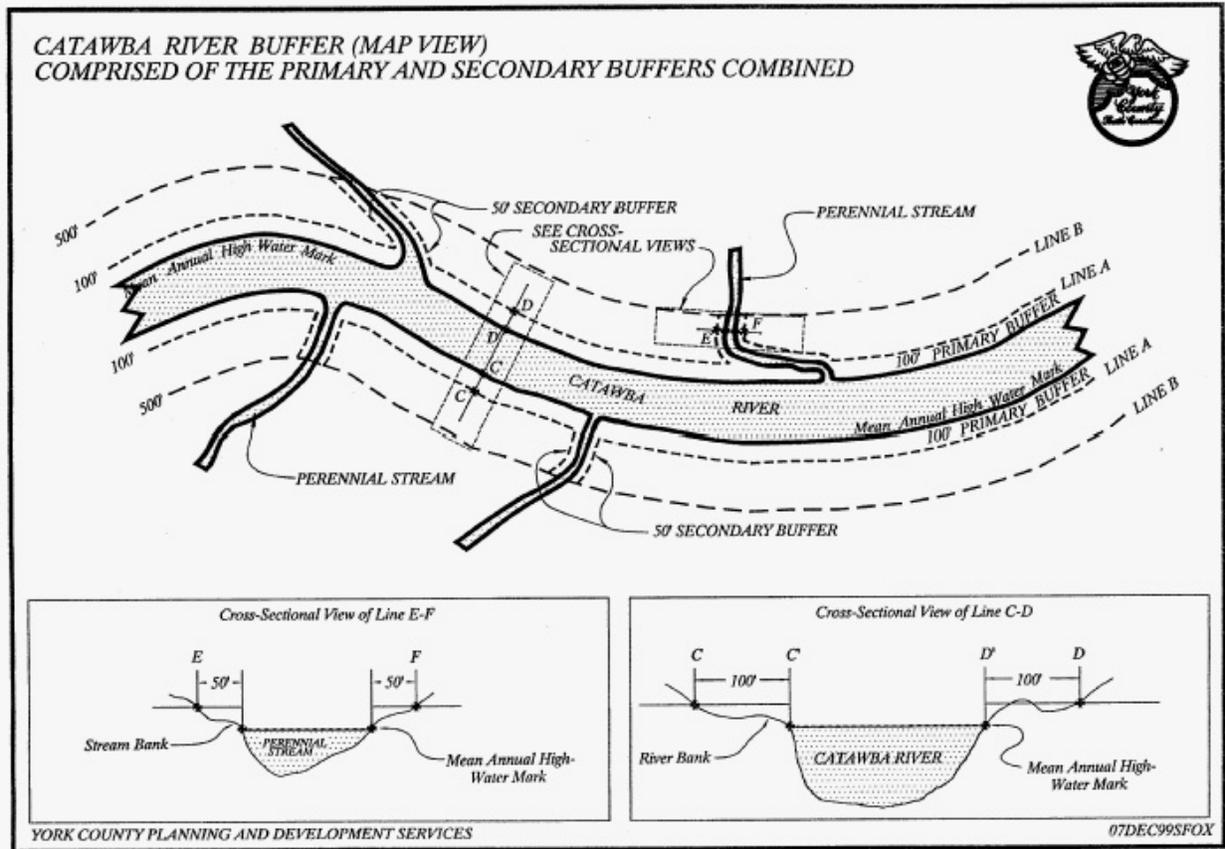
The scenic river designation brings recognition to the river through the action of the South Carolina General Assembly and through ongoing actions of the local advisory council as they bring attention to the river and the projects they undertake to better protect and manage the river.

The local advisory council and SCDNR staff works together to develop a community vision for the river. Through a citizen-based planning process they produce a management plan with goals and strategies for protecting and enhancing the river.

The scenic rivers program can provide protection for natural and cultural features through conservation easements that also provide tax advantages for property owners.

# Appendix C

## York County Buffer Ordinance



<http://www.yorkcountygov.com/content.aspx?deptID=32&contentID=947>

[http://www.yorkcountygov.com/planning/ALWCRB\\_9\\_18\\_06.pdf](http://www.yorkcountygov.com/planning/ALWCRB_9_18_06.pdf)

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