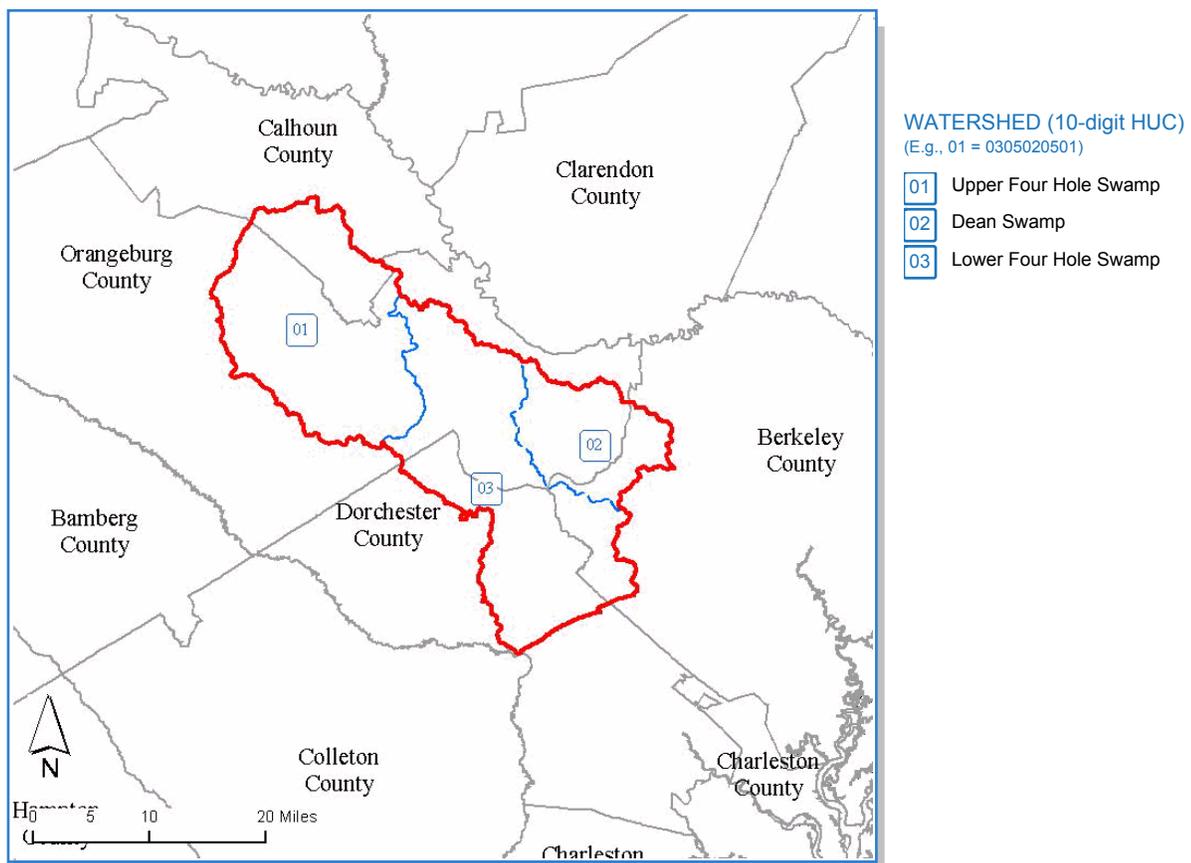


FOUR HOLE SWAMP Subbasin

August 31, 2007

An Assessment of the Four Hole Swamp Subbasin

Hydrologic Unit Code (8 Digit): 03050205

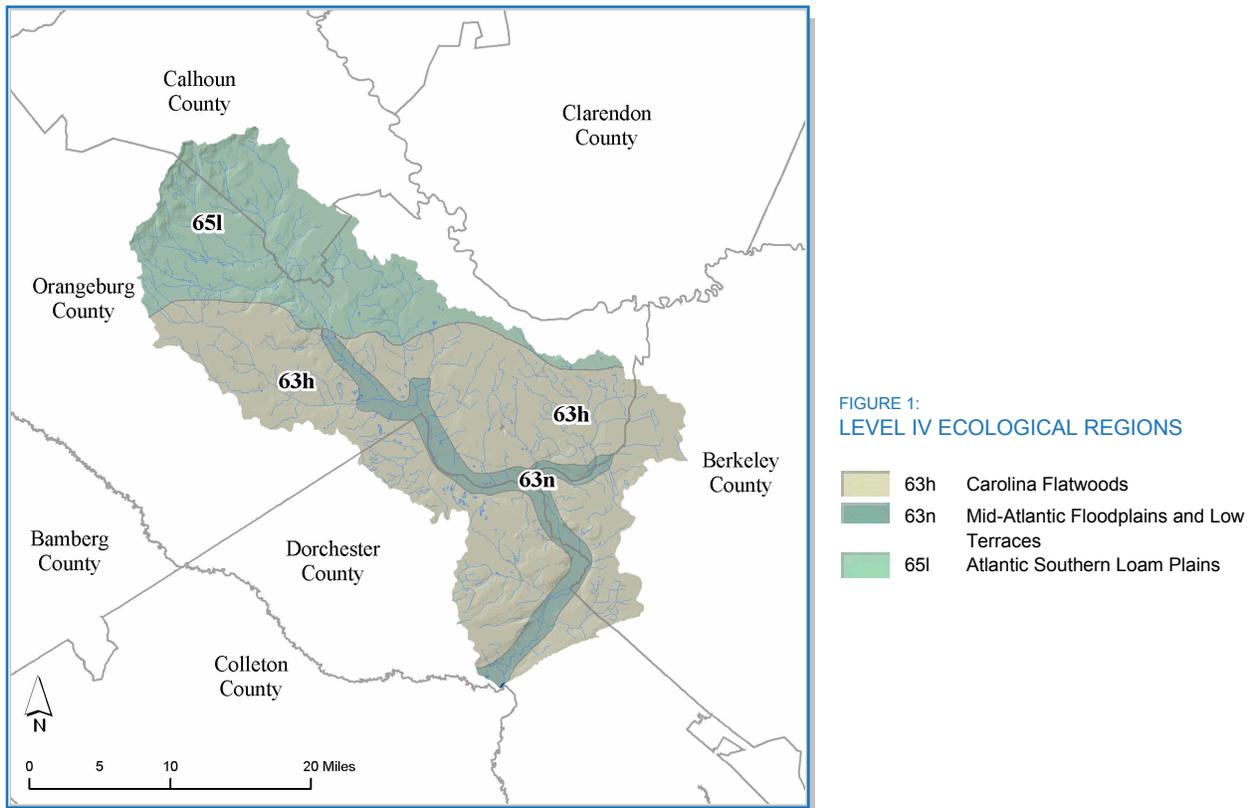


EXECUTIVE SUMMARY

Watershed Description

Four Hole Swamp originates in the Atlantic Southern Loam Plains of South Carolina and drains approximately 653 square miles (418,000 acres); this is a swamp-stream system that is separated by a low divide from the Congaree River Valley before joining the Edisto River. This swamp is a swamp-stream system that is fed largely by springs and runoff from surrounding higher areas. No major unbroken channel occupies the floodplain. Significant tributaries to Four Hole Swamp include Cowcastle Creek and Dean Swamp.

The Four Hole Swamp subbasin lies in the Southeastern Plains (65) and Middle Atlantic Coastal Plain (63) ecoregions (Figure 1). A brief description of the Level III ecoregions in this watershed is available in this document's appendix. A more detailed description of the Level III and Level IV Common Resource Areas (Ecological Regions) is available online (See Griffith *et al.* 2002 in References section.).



EXECUTIVE SUMMARY

Land Use/Land Cover

The subbasin is largely rural and the only urban area is Orangeburg which lies to the northwest of the basin (Figure 2).

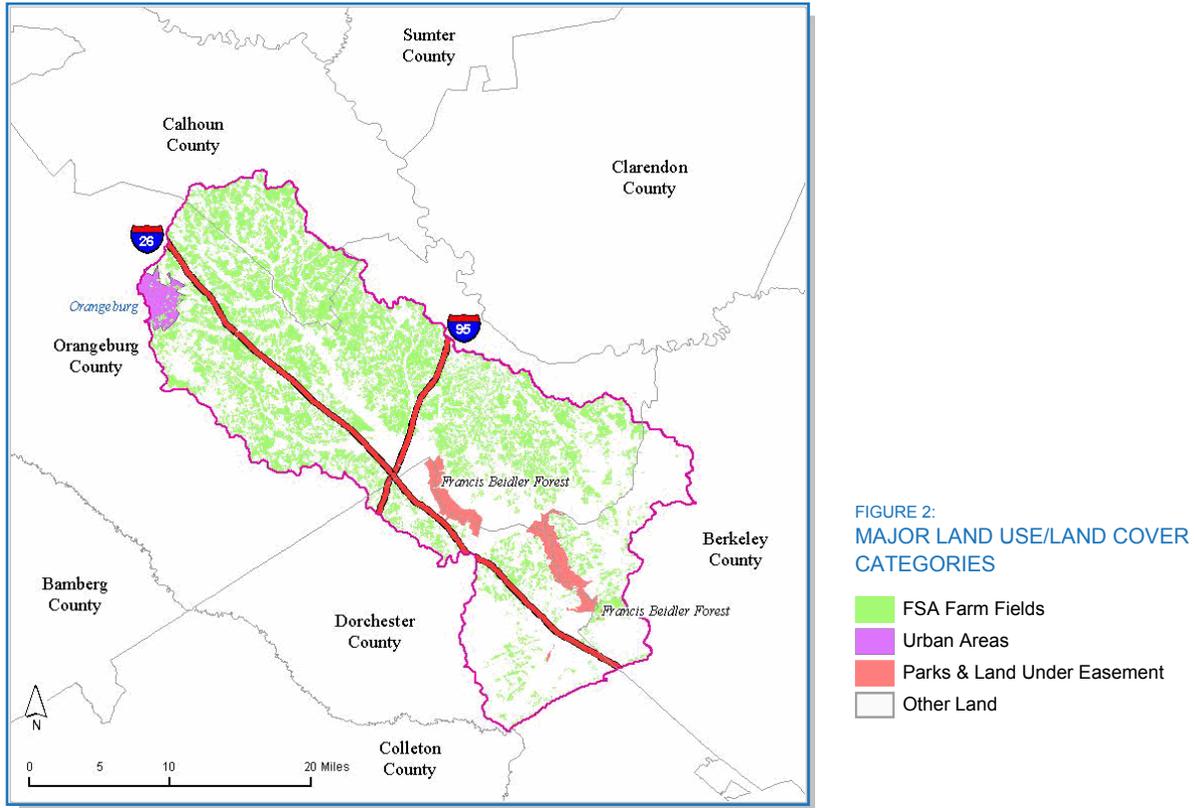


FIGURE 2:
MAJOR LAND USE/LAND COVER CATEGORIES

- FSA Farm Fields
- Urban Areas
- Parks & Land Under Easement
- Other Land

Table 1:
MAJOR LAND USE/LAND COVER CATEGORIES

	Acres	% of Watershed
Watershed (Total)	418,237	-
Urban Area	5,547	1%
Parks/Land Under Easement (not NRCS)	12,220	3%
Farm Service Agency Designated Farm Fields	136,505	33%

Table 2:
AGRICULTURAL LAND USE: FSA ACREAGE AND ESTIMATED FARM FIELD USE FROM THE 2002 AG CENSUS
(NASS Whole County Data Used. Cropland includes: Field Crops, Orchards, and Specialty Crops.)

County	FSA Fields (Acres)	% Pasture (Estimated)	% Cropland (Estimated)	% Hayland (Estimated)
Berkeley	5,591	16%	76%	9%
Calhoun	21,131	3%	92%	4%
Dorchester	11,054	14%	78%	8%
Orangeburg	98,729	7%	86%	7%

EXECUTIVE SUMMARY

Summary of Resource Concerns

The following is a summary of resource concerns for the watershed. Each resource concern has a more detailed analysis provided in its corresponding section.

Soils

Land capability limitations are dominated by wetness in this subbasin and are typical of an area within the Coastal Plain. Hydric soils and partially hydric soils comprise 73% of the subbasin and are the key resource concerns. Highly erodible soils are confined to the upper part of the subbasin.

Water Quantity

Awaiting SCDNR's 2007 state water assessment.

Water Quality

Fecal coliform and biological (benthic invertebrate) impairments.

Plant Condition

The upper segment is better known for field and forage crops while in the lower segment forestry tends to dominate agriculture.

Fish, Wildlife and Native Plants

According to SC DNR's "Comprehensive Wildlife Conservation Strategy: 2005 - 2010" (see SCDNR 2005 in References section), the following applies to this subbasin: Biologists have identified habitat protection as one of the most important actions to ensure the protection of South Carolina priority species. Loss and fragmentation of habitat have been identified as a major threat to many of the species listed as threatened and endangered in South Carolina.

Domestic Animals

Sizeable grazing livestock populations and confined livestock (poultry, dairy, swine) in the upper two-thirds of the subbasin.

Economic and Social Factors

-

EXECUTIVE SUMMARY

Progress on Conservation

Table 3:
A SUMMARY OF NRCS APPLIED CONSERVATION TREATMENTS (ACRES)
 (See Appendix for NRCS Conservation Practices used for Conservation Treatment Categories.)
 (Applied practice data is reported on a fiscal year basis commencing on October 1st)

Conservation Treatments	2004	2005	2006	Total
Buffers and Filter Strips	30	7	-	37
Conservation Tillage	1,912	1	1,025	2,938
Erosion Control	1,265	1,881	591	3,737
Irrigation Water Management	-	152	-	152
Nutrient Management	1,113	781	286	2,180
Pest Management	950	957	286	2,193
Prescribed Grazing	-	-	-	-
Trees and Shrubs	377	6	-	383
Wetlands	190	1,556	805	2,551
Wildlife Habitat	1,145	871	187	2,202

Table 4:
LANDS REMOVED FROM PRODUCTION BY FARM BILL PROGRAMS (WHOLE COUNTY DATA SHOWN)

County	Conservation Reserve Program (ac) 2005	Conservation Reserve Program (ac) 1986 - 2005	Grassland Reserve Program (ac) 2005	Farmland & Ranch Protection Program (ac) 2005	Wetland Reserve Program (ac) 2005
Berkeley	825	14,139	-	-	-
Calhoun	7,022	252,431	-	-	2,908
Dorchester	1,698	29,720	-	-	6,200
Orangeburg	21,142	488,064	-	-	3,819

Table 5:
APPROVED TOTAL MAXIMUM DAILY LOAD (TMDL)
 (See SCDHEC 2007 (a) in Reference Section.) - SCDHEC Contact: Matt Carswell - (803) 898-3609

TMDL Document	Number of Stations	Parameter of Concern	Status	WQMS ID Standard Attained
Four Hole Swamp	6	Fecal Coliform	Completed & Approved	-

Table 6:
OTHER PLANS, ASSESSMENTS, AND PROJECTS IN THE WATERSHED

Organization	Description	Contact	Telephone
USGS	Santee National Water Quality Assessment (NAWQA) project	Celeste A. Journey	803-750-6141
SCDHEC	Watershed Water Quality Assessment: Edisto River Basin (2004)	Carol Copeland	803-898-4203

EXECUTIVE SUMMARY

Other Watershed Considerations

The subbasin is home to the Francis Biedler Forest (12,500 acres); this forest is a registered National Natural Landmark and is the world's largest virgin cypress-tupelo swamp forest.

RESOURCE CONCERNS

Soils

A majority (70%) of land in this Coastal Plain subbasin has limitations due to wetness (Table 7). Most of the wetness is associated with hydric soils along streams in riparian areas and partially hydric soils in the lower part of the subbasin in Dorchester and Berkeley Counties (Figure 5). Droughtiness is a concern in about 9% of the area (Table 7) and occurs mostly in the sandy soils of the Sand Hills area in Calhoun and Orangeburg counties (Figure 1). Low soil organic matter in these sandy soils is a soil health concern. Erosion is a resource concern only on sloping soils in upper reaches of the subbasin (Figure 4). Only 5% of the land is classified as highly or potentially highly erodible (Table 9). Almost 80% of the land in the Four Hole Swamp subbasin is either prime farmland (43%) or statewide important farmland (36%) and occurs on upland areas in the subbasin (Figure 3, Table 8).

Table 7:
LAND CAPABILITY CLASSES (See NRCS 2007 [a] and [b] in References section.)

Percentages are based on the whole watershed (418,237 ac).

Land Capability Class 1	Acres		Percent			
1 - Slight limitations	56,815		14%			
% Land by Subclass Limitation						
Land Capability Classes 2-8	Erosion (e)		Wetness(w)		Droughtiness (s)	
	Acres	Percent	Acres	Percent	Acres	Percent
2 - Moderate limitations	14,522	3%	110,273	26%	22,432	5%
3 - Severe limitations	1,234	0%	111,507	27%	12,720	3%
4 - Very severe limitations	2,407	1%	11,480	3%	2,575	1%
5 - No erosion hazard, but other limitations	-	-	5,277	1%	-	-
6 - Severe limitations; unsuitable for cultivation; limited to pasture, range, forest	-	-	50,082	12%	816	0%
7 - Very severe limitations; unsuitable for cultivation; limited to grazing; forest, wildlife habitat	-	-	4,379	1%	-	-

RESOURCE CONCERNS

Prime Farmland

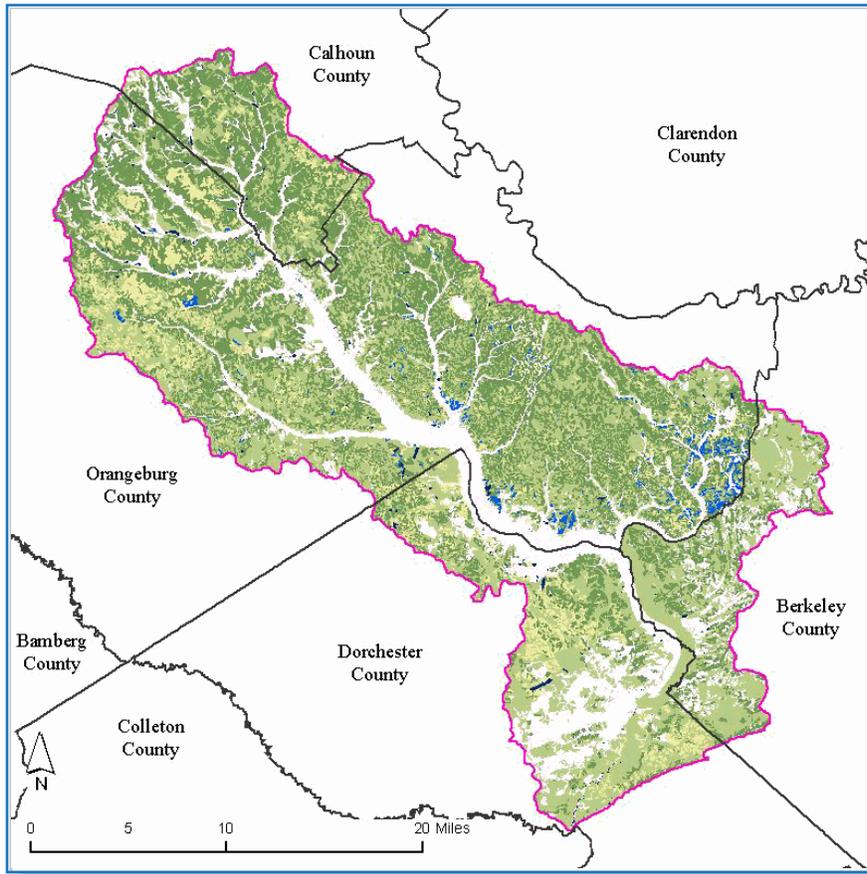


FIGURE 3:
PRIME FARMLAND
(See NRCS 2007 [a] and [b] in
References section.)

Table 8:
PRIME FARMLAND

Prime Farmland Categories	Acres	Percent of Land
All areas are prime farmland	143,925	34%
Farmland of statewide importance	150,662	36%
Not prime farmland	87,507	21%
Prime farmland if drained	31,926	8%
Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	0	0%
Prime farmland if irrigated	0	0%
Prime farmland if irrigated and drained	0	0%
Prime farmland if protected from flooding or not frequently flooded during the growing season	4,217	1%

RESOURCE CONCERNS

Highly Erodible Land

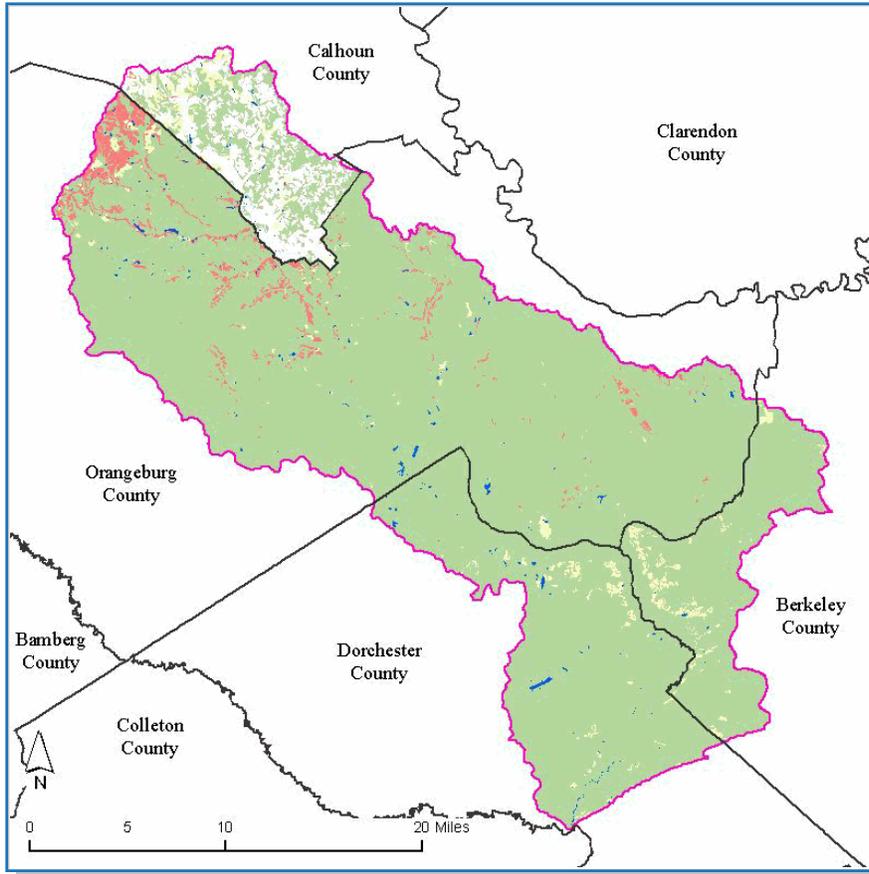


FIGURE 4:
HIGHLY ERODIBLE LAND
(See NRCS 2007 [a] and [b] in
References section.)

Table 9:
HIGHLY ERODIBLE LAND

Highly Erodible Land Categories	Acres	Percent of Watershed
Highly erodible land	10,755	3%
Not highly erodible land	377,092	90%
Potentially highly erodible land	8,990	2%

RESOURCE CONCERNS

Hydric Soils

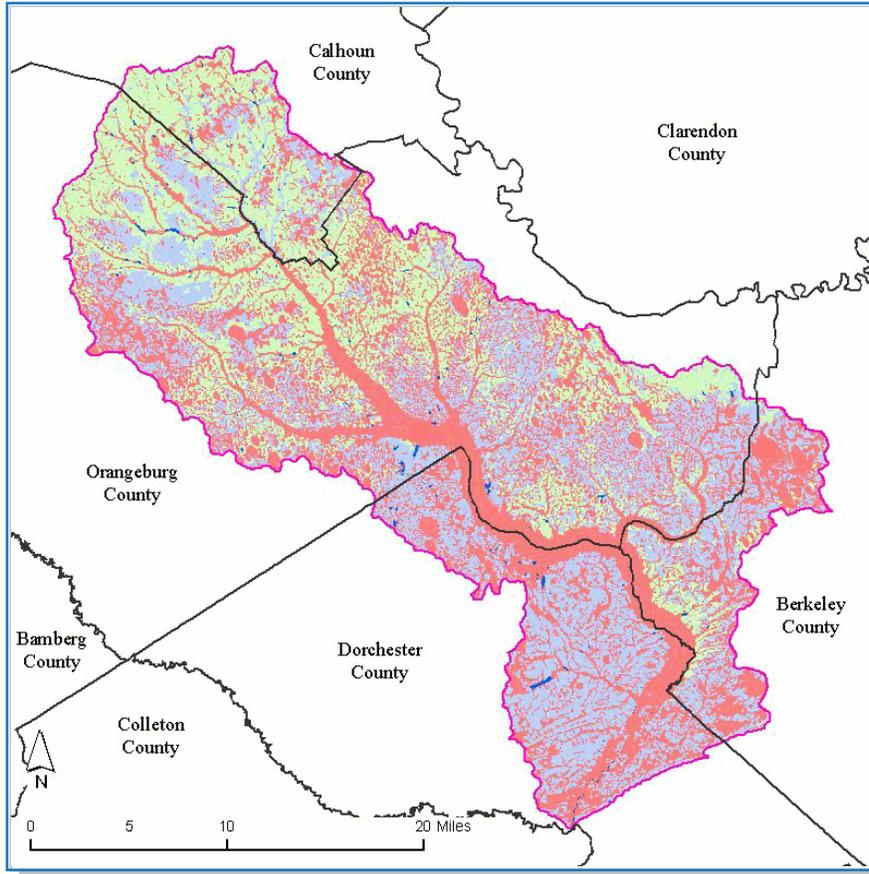


FIGURE 5:
HYDRIC SOILS
(See NRCS 2007 [a] and [b] in
References section.)

Table 10:
HYDRIC SOILS

Hydric Soils Categories	Acres	Percent of Watershed
All Hydric	167,429	40%
Not Hydric	112,490	27%
Partially Hydric	138,318	33%

RESOURCE CONCERNS

Water Quantity

While the watershed is located in the Capacity Use (CU) and Notice of Intent (NOI) areas, there are no *apparent* water quantity limitations. Irrigation demand in Orangeburg and Calhoun Counties is an order of magnitude higher than that of other counties. Presumably, this irrigation demand arises from the primary cropland located in the Southern Atlantic Loam plains (Figure 1). Another agricultural use for water is for livestock (confined and grazing) watering, and while this use is less intensive that for irrigation, it is typically more widespread.

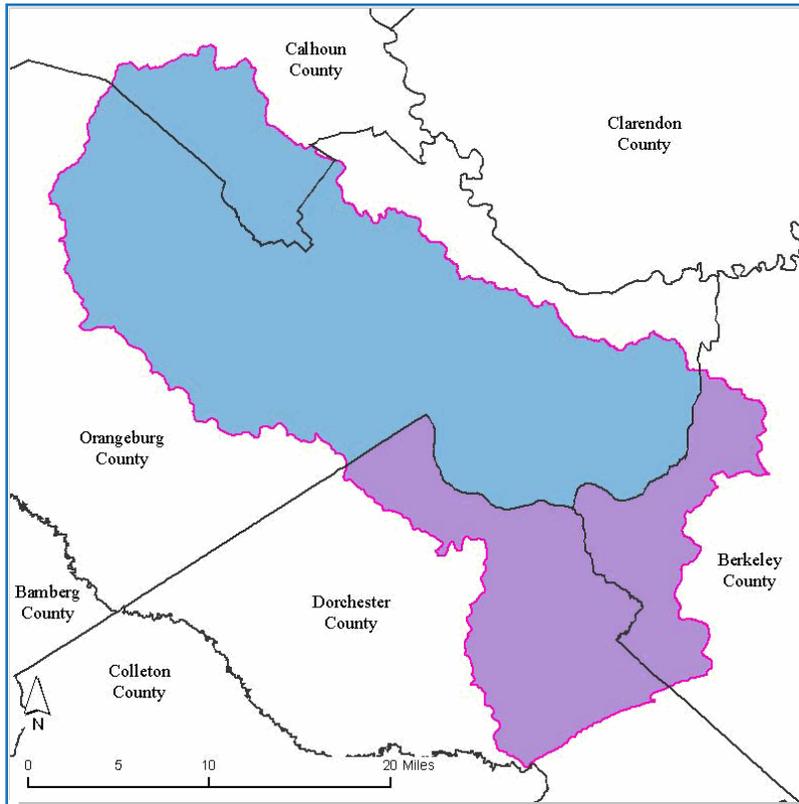


FIGURE 6: WATERSHED RELATIVE TO CAPACITY USE AREAS, NOTICE OF INTENT AREAS, AND CONES OF DEPRESSION

Table 11: CAPACITY USE, NOTICE OF INTENT, AND CONES OF DEPRESSION AREA IN WATERSHED
(See SCDHEC 2007 [c] and SCDNR 2004 in References Section.)

Area	Percent of Watershed
 % Watershed in Cone of Depression and Capacity Use (CU) Area	0%
 % Watershed in SCDHEC Capacity Use (CU) Area	30%
 % Watershed in SCDHEC Notice of Intent (NOI) Area	70%

RESOURCE CONCERNS

Water Quantity Cont.

Table 12:
INDICATORS OF IRRIGATION WATER USAGE (WHOLE COUNTY DATA ARE USED)
(See NASS 2002 and SCDNR 2004 in References Section)

County	Total Irrigated Water Used MGD	Total NASS Cropland (ac)	Cropland Under Irrigation (ac)	Percent Cropland Under Irrigation	Water Use Gal/Ac/Day for Irrigated Land
Berkeley	1.83	17,389	602	3.5	3,040
Calhoun	21.20	56,296	4,617	8.2	4,592
Dorchester	0.60	31,334	175	0.6	3,429
Orangeburg	47.60	156,637	16,808	10.7	2,832

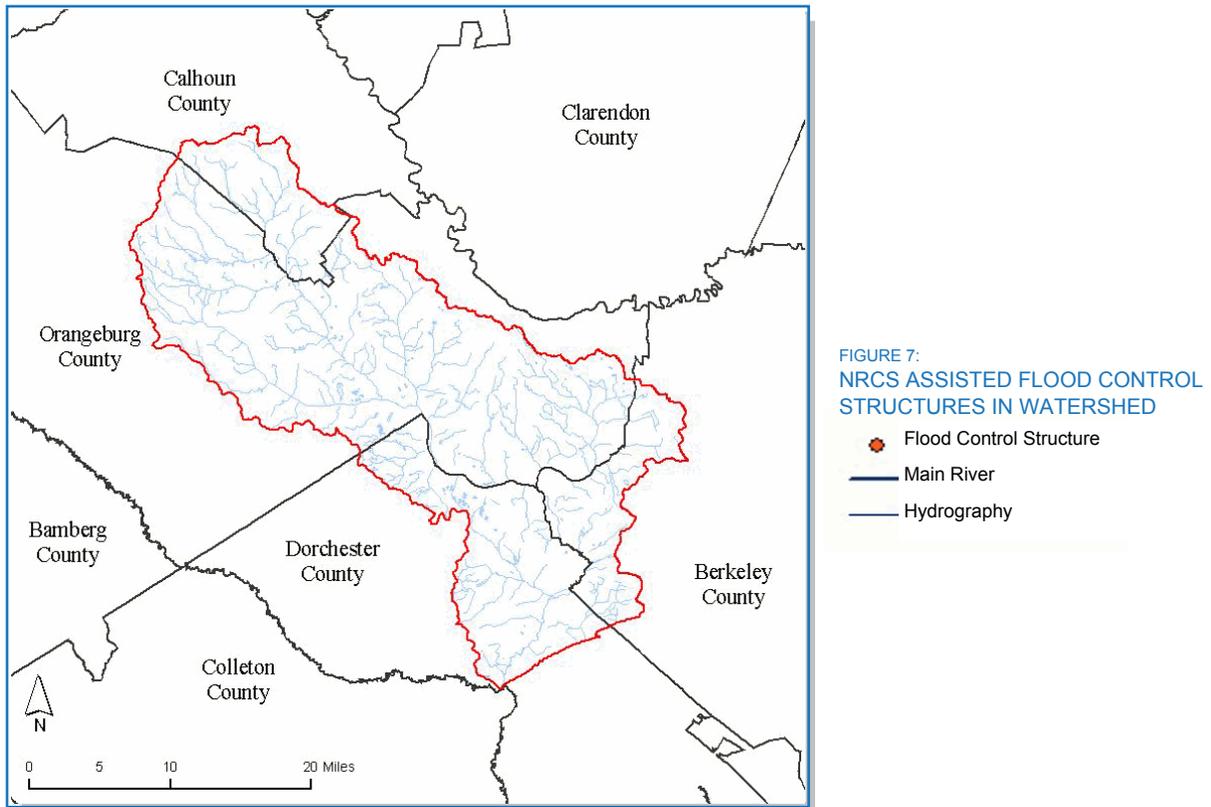


Table 13:
NRCS IMPLEMENTED FLOOD CONTROL STRUCTURES

Number of Structures (in Watershed)	Maximum Storage (AcFt)	Number of Structures by Hazard Class			
		High	Low	Significant	Unclassified
0	-	0	0	0	0

RESOURCE CONCERNS

Water Quality

The number of surface water quality impairments is shown in Table 15 resulting in a "303(d)" listing of that Water Quality Monitoring Site (WQMS). Table 5 indicates what progress has been made to address surface water quality through the Total Maximum Daily Load (TMDL) process. Once a TMDL plan is approved, the WQMS is removed from the 303(d) list even though the standard may not have been attained. Note that standards for total nitrogen, total phosphorus, and chlorophyll-a only exist for lakes; therefore, no stream in the state can be listed for any of these three parameters.

The primary concern in the subbasin is fecal coliform. This concern will be addressed through ongoing TMDLs (Table 5). A secondary impairment is for biological (aquatic community) criteria (Table 15).

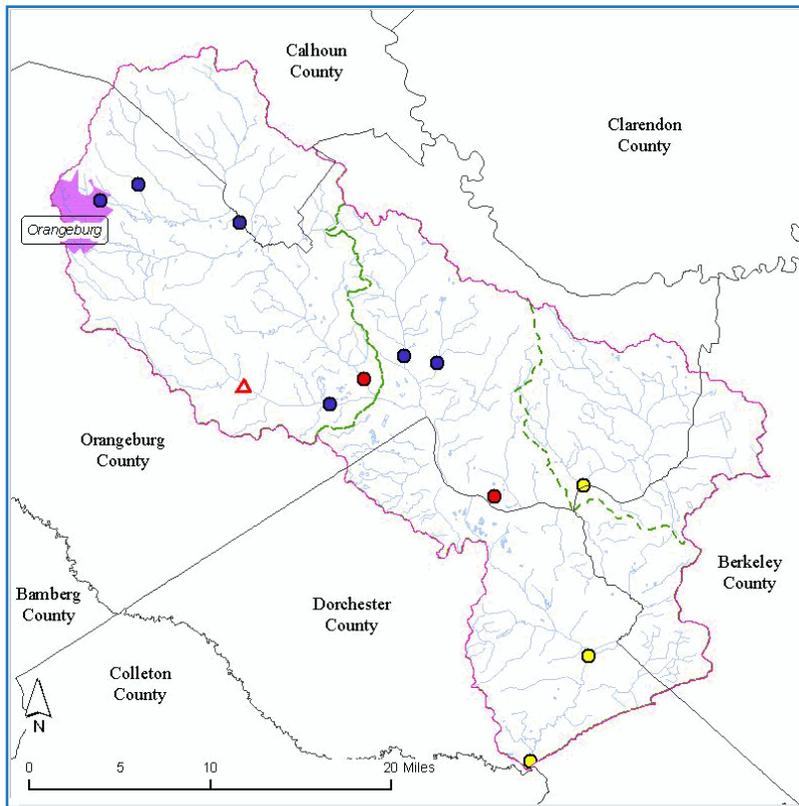


Table 14:
WATER QUALITY MONITORING SITES

Permanent Water Quality Monitoring Sites (WQMS)	11
Random Water Quality Monitoring Sites (WQMS)	4

FIGURE 8:
PERMANENT WATER QUALITY MONITORING SITES

- WQMS (No Impairment)
- WQMS (303d Listed)
- WQMS (Approved TMDL)
- ▲ Waste Water Treatment Plant
- Hydrography
- Hydrologic Unit Code 10 Boundary

Table 15:
NUMBER OF MONITORING SITES SHOWING SURFACE WATER QUALITY IMPAIRMENTS
(See SCDHEC 2006 in References for the state 303(d) list.)

Recreational Use Standard		Fish Tissue Standard		Shellfish Harvest Standard	
Parameter	Impairments	Parameter	Impairments	Parameter	Impairments
Fecal Coliform	10	Mercury	3	Fecal Coliform	NA
		PCB's	0		
Aquatic Life Use Standard					
Parameter	Impairments	Parameter	Impairments	Parameter	Impairments
Biological	5	Dissolved Oxygen	4	Total Phosphorus	0
Chlorophyll A	0	Ammonia Nitrogen	0	pH	2
Chromium	0	Nickel	0	Turbidity	0
Copper	1	Total Nitrogen	0	Zinc	0

RESOURCE CONCERNS

Plant Condition

Plants of Economic Importance

Plants of economic importance are shown in Table 16. The crops shown in this table are from NASS data where the top five crops, by acres, in each county are displayed. The timber statistics (see Clemson Extension Forest Services 2003 in References) indicate the relative importance of the timber industry within the state and the importance of the timber industry compared to agriculture within the county.

Native Plant Species

According to SC DNR's "Comprehensive Wildlife Conservation Strategy: 2005 - 2010" (see SCDNR 2005 in References section), the following applies to this subbasin: the Four Hole Swamp is a typical blackwater stream where hardwood forests located on narrow floodplains of tributary streams exist, supporting variants of bottomland hardwood and cypress-tupelo swamps. In the headwaters, and the wet flats immediately above the floodplain, pocosinlike shrub thickets, and (under suitable fire conditions) pure stands of Atlantic white cedar occur.

Upland areas consist of forests dominated by hardwoods, primarily oaks and hickories, and are typically on fire-suppressed upland slopes near river floodplains or between rivers and tributaries. Vegetation composition is similar to the oak-hickory forest in the Piedmont, where it is a major vegetation type. Representative canopy trees are: white oak (*Quercus alba*), black oak (*Quercus velutina*), post oak (*Quercus stellata*), mockernut hickory (*Carya tomentosa*), pignut hickory (*Carya glabra*), loblolly pine (*Pinustaeda*), flowering dogwood (*Cornus florida*) and black gum (*Nyssa sylvatica*).

Table 16:

WHOLE COUNTY DATA OF PLANTS OF ECONOMIC IMPORTANCE IN SUBBASIN (See: USDA NASS 2002 & Clemson University Forest Extension Services 2003 in References section)

Plant	Counties
All Cotton	Dorchester, Calhoun, Orangeburg
All Wheat for grain	Orangeburg, Calhoun
Corn for grain	Berkeley, Calhoun, Orangeburg, Dorchester
Forage - land used for all hay and haylage, grass silage, and greenchop	Orangeburg, Calhoun, Dorchester, Berkeley
Short-rotation woody crops	Dorchester
Soybeans	Orangeburg, Calhoun, Berkeley, Dorchester
Timber Revenues Exceed Ag. Revenues	Berkeley

Table 17:

FEDERALLY LISTED THREATENED AND ENDANGERED PLANT SPECIES IN WATERSHED (See USFW 2006 in References section.)

Common Name	Latin Name	Status
Bog asphodel	<i>Nartheicum americanum</i>	Supported Proposals to List
Canby's dropwort	<i>Oxypolis canbyi</i>	Endangered
Chaff-seed	<i>Schwalbea americana</i>	Endangered
Pondberry	<i>Lindera melissifolia</i>	Endangered

RESOURCE CONCERNS

Fish and Wildlife

For additional information, the SC Department of Natural Resources has completed a "Comprehensive Wildlife Conservation Strategy: 2005 - 2010" (see SCDNR 2005 in References section).

In 2005, mercury advisories were issued for 57 water bodies in South Carolina. Higher concentrations of mercury in fish tissue tend to occur in the Coastal Plain of South Carolina with relatively lower concentrations (and therefore fewer advisories) in the Piedmont. For more details on fish advisories, please refer to the SCDHEC fish advisory website at:

<http://www.scdhec.gov/environment/water/fish/>

Table 18:

FEDERALLY LISTED THREATENED AND ENDANGERED WILDLIFE SPECIES IN WATERSHED

(See USFW 2006 in References section.)

Common Name	Latin Name	Status
Flatwoods salamander	<i>Ambystoma cingulatum</i>	Threatened
Red-cockaded woodpecker	<i>Picoides borealis</i>	Endangered
Wood stork	<i>Mycteria americana</i>	Endangered

Table 19:

FEDERALLY LISTED THREATENED AND ENDANGERED AQUATIC SPECIES IN WATERSHED

(See USFW 2006 in References section.)

Common Name	Latin Name	Status
Shortnose sturgeon	<i>Acipenser brevirostrum</i>	Endangered

RESOURCE CONCERNS

Domestic Animals

Grazing livestock populations tend to be higher in Orangeburg County than other counties in the subbasin (Table 20). Confined operations consist mostly of poultry (layers and broilers), hogs, pigs, and some dairy (Table 21). Note that most of the confined operations are clustered in Orangeburg County (Figure 9).

Table 20:
WHOLE COUNTY GRAZING ANIMAL POPULATION DATA FROM 2002 AG. CENSUS
 (See NASS 2002 in References section. "D" in table = "Cannot be disclosed".)

County	Cows/Calves	Grazing/Forage (ac)	County Rank in State
Berkeley	2,137	2,754	42
Calhoun	2,546	1,955	39
Dorchester	4,310	4,373	31
Orangeburg	16,735	11,360	10

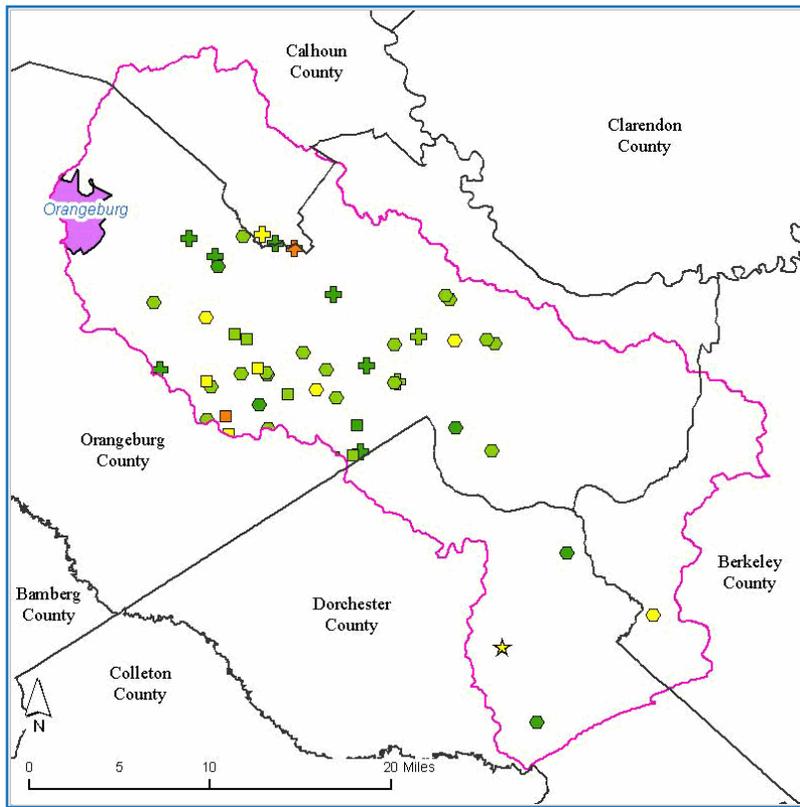


Table 21:
CONFINED ANIMAL POPULATION [As given by SCDHEC] (Au = Animal Unit = 1,000 lbs)

Beef Live Weight (Au)	-
Dairy Live Weight (Au)	3,395
Horse Live Weight (Au)	-
Poultry Live Weight (Au)	6,786
Swine Live Weight (Au)	2,424
Turkey Live Weight (Au)	376

FIGURE 9:
TYPE AND SIZE OF CONFINED ANIMAL OPERATION

Permit Design Count (Live Weight AU)	Symbol
0 - 163	Green square
164-372	Light green square
373 - 680	Yellow square
681 - 1360	Orange square
1361 - 7076	Red square
*	Beef
■	Dairy
▲	Other
●	Poultry
+	Swine
★	Turkey

ECONOMIC & SOCIAL FACTORS

The number of full-time farmers is similar to the state average of 47% and farm sizes are *higher* than the state average of 197 ac (Table 22), suggesting average to above average levels of participation in conservation programs in the subbasin. Farm sizes *decreased* by an estimated 9% between 1997 and 2002, well below the SC average of 13% for the same period. Loss of cropland between 1997 and 2002 is estimated at 5%, *lower* than the SC average of 8%.



The relative importance of crop and livestock commodity groups in the watershed is shown in Tables 24 and 25; a *qualitative* indication of the relative importance of timber is provided on Table 16.

For more economic and farm information from the 2002 Agricultural Census, more detailed reports for all South Carolina counties can be found at:

<http://www.nass.usda.gov/census/census02/profiles/sc/index.htm>

Table 22:
2002 FARM CENSUS DATA (WHOLE COUNTY DATA SHOWN) (SC average farm size = 197 ac)

County	Total Number of Farms	% Full Time Farmers	% Farms > 180 (ac)	Average Farm Size (ac)
Berkeley	398	47%	18%	143
Calhoun	281	49%	44%	337
Dorchester	365	47%	17%	158
Orangeburg	968	45%	32%	283
Weighted Avg*	784	45%	32%	273

Table 23:
2002 FARM CENSUS ECONOMIC DATA (WHOLE COUNTY DATA SHOWN) (Results in \$1,000)

County	Market Value of Ag Products Sold	Market Value of Crops Sold	Market Value of Livestock, Poultry, and Their Products	Farms with sales < \$10,000
Berkeley	25,966	24,886	1,080	339
Calhoun	11,581	7,963	3,618	206
Dorchester	12,660	2,634	10,025	300
Orangeburg	69,128	32,355	36,773	727
Weighted Avg*	53,561	25,696	27,864	592



Table 24:
VALUE OF CROP COMMODITY GROUPS - COUNTY RANK IN STATE
(See NASS 2002 in References section. "D" in table = "Cannot be disclosed".)

County	Value of All Crops	Grains & Oilseeds	Tobacco	All Cotton	Vegetables & Melons	Fruits, Nuts, & Berries	Nursery, Etc.	Christmas Trees & Woody Crops	Hay & other Crops
Berkeley	8	(D)	(D)	(D)	37	29	(D)	-	41
Calhoun	26	15	(D)	8	(D)	28	11	(D)	38
Dorchester	37	17	15	17	29	22	(D)	(D)	(D)
Orangeburg	5	1	-	7	9	10	5	1	1

* Weighted averages are estimated based on agricultural land use area.

ECONOMIC & SOCIAL FACTORS

Table 25:

VALUE OF LIVESTOCK AND POULTRY COMMODITY GROUPS - RANK IN STATE

(See NASS 2002 in References section. "D" in table = "Cannot be disclosed".)

County	Value of						
	Livestock, poultry	Poultry, Eggs	Cattle & Calves	Milk & Dairy	Hogs & Pigs	Sheep & Goats	Horses, etc.
Berkeley	43	(D)	42	23	(D)	36	23
Calhoun	32	30	39	-	11	(D)	38
Dorchester	23	20	31	(D)	(D)	33	31
Orangeburg	12	14	10	2	4	(D)	4

REFERENCES

- Clemson University Extension Forest Service. 2001. *Cash Receipts from Timber Harvests - 2001 Ag and Timber Comparison*. Compiled by A. Harper. Available at:
http://www.clemson.edu/extfor/forest_data/
- Griffith, G.E., Omernik, J.M., Comstock, J.A., Schafale, M.P., McNab, W.H., Lenat, D.R., MacPherson, T.F., Glover, J.B., and Shelburne, V.B., 2002, Ecoregions of North Carolina and South Carolina, (color poster with map, descriptive text, summary tables, and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:1,500,000). Available at:
http://www.epa.gov/wed/pages/ecoregions/ncsc_eco.htm
- National Resource Inventory (NRI) 1997. Estimates of water erosion from Cropland by 8-digit HUC. Available at:
<http://www.nrcs.usda.gov/technical/land/erosion.html>
- NatureServe 2006. Distribution of native fish species by watershed. NatureServe. Available at:
<http://www.natureserve.org/getData/>
- South Carolina Department of Health and Environmental Control (SCDHEC) 2006. Listing of Impaired Waters (or 303(d) list). Available at:
http://www.scdhec.gov/environment/water/docs/06_303d.pdf
- South Carolina Department of Health and Environmental Control (SCDHEC) 2007 (a). Total Maximum Daily Load Documents. Available at:
<http://www.scdhec.gov/environment/water/tmdl/tmdlsc.htm>
- South Carolina Department of Health and Environmental Control (SCDHEC) 2007 (b). Watershed Water Quality Assessments. Available at:
<http://www.scdhec.gov/environment/water/shed/>
- South Carolina Department of Health and Environmental Control (SCDHEC) 2007 (c). Water use and reporting Program (Capacity Use) SCDHEC. Available at:
<http://www.scdhec.net/environment/water/capuse.htm>
- South Carolina Department of Natural Resources (SCDNR) 2005. Comprehensive Wildlife Conservation Strategy (2005 - 2010). Columbia, SC. SCDNR. Available at:
<http://www.dnr.sc.gov/cwcs>
- South Carolina Department of Natural Resources (SCDNR) 2002. SC GAP Analysis and Dynamic Mapping. Columbia, SC. SCDNR. Available at:
<http://www.dnr.sc.gov/GIS/gap/mapping.html>
- South Carolina Department of Natural Resources (SCDNR) 2004. South Carolina Water Plan, Second Edition (January 2004). Columbia, SC. SCDNR. Available at:
<http://www.dnr.sc.gov/water/hydro/wtrplanerrata.html>
- USDA Farm Services Agency in South Carolina (FSA-SC) 2006. CRP Data. Columbia SC. USDA/FSA
- USDA Natural Resources Conservation Services (NRCS) 2007 (a). National Soil Information System (NASIS). USDA/NRCS. County Soils Data (tabular) information available at:
<http://soildatamart.nrcs.usda.gov/>

REFERENCES

USDA Natural Resources Conservation Services (NRCS) 2007 (b). Soil Survey Geographic (Ssurgo) Database. USDA/NRCS. County Soils Data (spatial). Available at:

<http://soildatamart.nrcs.usda.gov/>

USDA Natural Resources Conservation Services in South Carolina (NRCS-SC) 2006. GRP, FRPP, and WHP. Columbia, SC. USDA/NRCS.

USDA National Agricultural Statistical Service (NASS) 2002. 2002 Census of Agriculture. Washington, DC: USDA/NASS.

US Fish and Wildlife Service (USFWS) 2007. USFWS Threatened and Endangered Species System (TESS). Available at:

http://ecos.fws.gov/tess_public/StartTESS.do

US Fish and Wildlife Service (USFWS) 2006. South Carolina Distribution Records of Endangered, Threatened, Candidate and Species of Concern, October 2006. Available at:

http://www.fws.gov/charleston/docs/etcountylist_10_06.htm

APPENDIX

Level III Common Resource Area (Ecological Region) Descriptions

Middle Atlantic Coastal Plain (63)

The Middle Atlantic Coastal consists of low elevation, flat plains, with many swamps, marshes, and estuaries. Forest cover in the region, once dominated by longleaf pine in the Carolinas, is now mostly loblolly and some shortleaf pine, with patches of oak, gum, and cypress near major streams. Pine plantations for pulpwood and lumber are typical, with some areas of cropland. In South Carolina, the Middle Atlantic Coastal Plain is divided into three level IV ecoregions: Carolinian Barrier Islands and Coastal Marshes (63g), Carolina Flatwoods (63h), Mid-Atlantic Floodplains and Low Terraces (63n).

Southeastern Plains (65)

The Southeastern Plains are irregular with broad interstream areas have a mosaic of cropland, pasture, woodland, and forest. In the past centuries, human activities (logging, agriculture and fire suppression) removed almost all of the longleaf pine forests. Elevations and relief are greater than in the Southern Coastal Plain (75), but generally less than in much of the Piedmont (45). The ecoregion has been divided into three level IV ecoregions within South Carolina: Sand Hills (65c), Atlantic Southern Loam Plains (65l), and Southeastern Floodplains and Low Terraces (65p). Note: The Atlantic Southern Loam Plains (65l) is a major agricultural zone, with deep, well-drained soils, and is characterized by high percentages of cropland.

NRCS Conservation Practices used for Conservation Treatment Categories in Table 3

Report Category	Practice Codes
Buffer and Filter Strips	332, 391, 393, 412
Conservation Tillage	324, 329, 329A, 329B, 344, 484
Erosion Control	327, 328, 330, 340, 342, 561, 585, 586
Irrigation Water Management	441, 449
Nutrient Management	590
Pest Management	595
Prescribed Grazing	528, 528A
Trees and Shrubs	490, 612, 655, 656, 66
Wetlands	657, 658, 659
Wildlife Habitat	644, 645

APPENDIX

Hydrologic Unit Numbering System

In 2005, the NRCS in cooperation with the U.S. Geological Survey, the South Carolina Department of Health and Environmental Control, and the U.S. Forest Service updated the South Carolina part of the USGS standard hydrologic unit map series. The report, "Development of a 10- and 12- Digit Hydrologic Unit Code Numbering System for South Carolina, 2005", describes and defines those efforts. The following is from the Abstract contained in that report: "A hydrologic unit map showing the subbasins, watersheds, and subwatersheds of South Carolina was developed to represent 8-, 10-, and 12-digit hydrologic unit codes, respectively. The 10- and 12-digit hydrologic unit codes replace the 11- and 14-digit hydrologic unit codes developed in a previous investigation. Additionally, substantial changes were made to the 8-digit subbasins in the South Carolina Coastal Plain. These modifications include the creation of four new subbasins and the renumbering of existing subbasins." The report may be obtained at http://www.sc.nrcs.usda.gov/technical/HUC_report.pdf. See Table 2 in the report for a cross-reference of old to new 8-digit HUC.

This subbasin profile uses the new HUC 8 numbering system with its modified and newly created subbasins. The NRCS reports implemented practices by 8-digit Hydrologic Unit Code. All NRCS reported Conservation Practices were reported using the older numbering system. 2005 and 2006 data were converted to the new HUC 8 numbering system through the Latitude and Longitude data reported with the applied practice. The use of these differing numbering systems has resulted in some NRCS implemented practices being credited in this report to an 8-digit HUC as reported by the NRCS but not correctly credited in the new numbering system. Likewise, the newly created 8-digit HUC will not be credited with the 2004 applied practices.