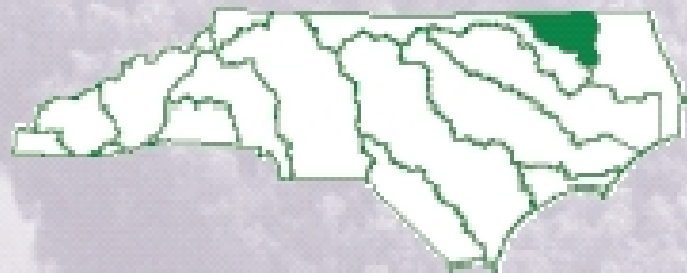


Watershed Restoration Plan for the Chowan River Basin



2002



EXECUTIVE SUMMARY

This document, prepared by the North Carolina Wetlands Restoration Program (NCWRP), presents a description of Targeted Local Watersheds within the Chowan River Basin. It is the first update since the original Basinwide Wetlands and Riparian Restoration Plan for the Chowan River Basin was released in 1998. This plan is different from the preceding document in that a more in-depth description is provided focusing on the areas of interest, the Targeted Local Watersheds. Local watersheds are targeted based on their need and opportunity for stream, wetland and riparian buffer restoration.

The watershed approach adopted by the NCWRP is the outgrowth of the recognition that water quality improvements are likely to have more pronounced and longer lasting effects if assessments and restoration efforts are focused on the local watershed level as opposed to discrete and isolated stream segments within the basin as a whole. The NCWRP hopes that the geographic targets provided will be used by other agencies, groups and local governments for the location of water quality improvement projects. Coordinating project implementation in watersheds with significant restoration need can allow for organizations with similar goals to generate greater positive ecological impact on North Carolina's aquatic resources through complementary efforts with cumulative benefits.

This document is designed for use in conjunction with the *Guide to NCWRP's Watershed Restoration Planning Strategy* (NCWRP, 2001). General information pertaining to program goals and plan methodology is provided in the planning guide. Information relating to Chowan River Basin restoration goals and basin-specific resource assessments are contained within this Restoration Plan.

In general, this document provides an overview of the Chowan River Basin, and describes each Targeted Local Watershed. In the overview of the basin (Section 2) is a map showing all four Chowan River subbasins highlighting the Targeted Local Watersheds. Section 2 contains a general description of the basin, habitat information, permitted wetlands losses and use support information.

In Section 3, basin-specific restoration goals are outlined, as well as a brief discussion regarding the Targeted Local Watershed selection process. This section also provides detailed information regarding the stakeholder process that was a valuable part of the development of this plan, as public input was solicited and weighed heavily in the selection of Targeted Local Watersheds.

Targeted Local Watersheds, organized by subbasin, are described in Section 4. Each section describes a subbasin and is followed by a map of that subbasin. Maps of Targeted Local Watersheds follow the text describing the watersheds.

Section 5 contains contact information for various water quality initiatives taking place within the Chowan River Basin, including contacts for programs and projects being undertaken at the state and local levels.

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SECTION 1: INTRODUCTION

Purpose and Background of the NC Wetlands Restoration Program

Recognizing the value of wetlands and riparian areas for maintaining water quality, storing floodwaters, providing fish and wildlife habitat, and performing other valuable functions, the North Carolina General Assembly established the North Carolina Wetlands Restoration Program (NCWRP) in 1996. The purpose of the NCWRP is to restore, enhance, preserve and create wetlands, stream and riparian buffer areas throughout North Carolina's seventeen major river basins (G.S. 143-214.9). The goals of the program are:

- To protect and improve water quality by restoring wetland and stream functions and values lost through historic, current and future permitted impacts.
- To achieve a net increase in wetlands acres, functions, and values in all of North Carolina's major river basins.
- To promote a comprehensive approach for protecting natural resources.
- To provide a consistent approach to addressing wetland and stream mitigation requirements associated with wetland regulations, and to increase the ecological effectiveness of mitigation projects.

Purpose of Watershed Restoration Plans

To accomplish the goals described above, the NCWRP develops Watershed Restoration Plans to focus planning and implementation of restoration activities within each of the 17 major river basins. These plans provide information on areas in the state that the NCWRP has determined are a priority for restoration efforts. The NCWRP uses the Watershed Restoration Plans to target degraded wetland and riparian areas which, if restored, could contribute significantly to the goal of protecting and enhancing watershed functions.

The purpose of this document is to communicate to interested parties and individuals specific areas in the Chowan River Basin where the NCWRP will consider implementing restoration projects. This document also provides justification for those choices. It is intended to complement two other NC Division of Water Quality (DWQ) documents: 1) the Chowan River Basinwide Water Quality Plan (2002), and 2) *the Guide to the NCWRP's Watershed Restoration Planning Strategy* (NCWRP, 2001).

One purpose for communicating the specific watersheds where the NCWRP intends to focus its projects is to encourage other groups and organizations to consider implementing projects in these areas also. The NCWRP believes that multiple restoration projects concentrated within a local watershed will result in greater benefits to water quality and aquatic habitat.

Application of Geographic Information Systems (GIS)

In order to target areas of focus, the NCWRP relies heavily on geographic data. With a variety of habitat and water quality data available digitally, NCWRP staff can view a variety of information about river basins, subbasins and local watersheds to evaluate watersheds for restoration need and opportunity. The NCWRP uses the following data for this analysis: water

quality data (use support ratings and surface water quality classifications), resource information (location of streams, wetlands and important aquatic habitats), and basic location references (such as municipalities, roads and county boundaries).

As a component of the Watershed Restoration Plans, the NCWRP develops GIS-based maps to communicate NCWRP priority areas for restoration projects. Each restoration plan includes maps of the river basin, all subbasins that contain Targeted Local Watersheds, and each Targeted Local Watershed. To reduce printing costs, most of these maps are black and white. However, a full set of color maps are provided through the NCWRP web site for anyone interested in referencing more thorough and detailed geographic information on NCWRP targeted watersheds.

To evaluate watershed conditions, the NCWRP assesses multiple data and information sources describing the location and condition of natural resources. The information described in Sections 2 and 3 was compiled from a number of existing sources including DWQ's Basinwide Water Quality Plans, the Natural Heritage Program's Rare Plant and Animal Lists and the Wildlife Resource Commission's Division of Game and Inland Fisheries Draft Management Plan for the Chowan River Basin (WRC, 1998). A more detailed discussion of the types of information evaluated by the NCWRP is included in Section 2 of *the Guide to NCWRP's Watershed Restoration Planning Strategy*.

Perhaps the most important sources of information used by NCWRP in evaluating local watershed conditions within a given river basin are local resource professionals who work within or near the watersheds in question. These resource professionals include county and district staff within the Natural Resources Conservation Service (NRCS), Soil & Water Conservation Districts, Wildlife Resources Commission (WRC), DENR Regional Office staff, Cooperative Extension Service, and planning and stormwater management staff in county and municipal agencies. The NCWRP solicits input (advice, comments, recommendations) from these local resource professionals as part of the public review process for our Draft Targeted Local Watershed selections [see Section 3].

SECTION 2: OVERVIEW OF THE CHOWAN RIVER BASIN

Most of the following information is a summary of information contained in the Chowan River Basin Water Quality Plan produced by the Division of Water Quality in July of 2002.

The Chowan River Basin is located in the northeastern coastal plain of North Carolina and southeastern Virginia. The North Carolina portion includes all or part of Northhampton, Hertford, Gates, Bertie and Chowan counties. The Chowan River is formed at the border of Virginia and North Carolina by the confluence of the Nottoway and Blackwater Rivers, and it flows southeastward into the Albemarle Sound. The majority of the river's watershed (75%) is in Virginia

The Chowan River Basin in North Carolina is composed of two major drainages: the Chowan River and the Meherrin River. The Chowan River basin is part of the Albemarle-Pamlico Estuarine system, the second largest estuarine system in the United States. In 1987, this estuarine system became part of the Environmental Protection Agency National Estuary Program and was the subject of a major study known as the Albemarle Pamlico Estuarine Study (APES).

In response to elevated nitrogen and phosphorous levels resulting from point and nonpoint pollution sources in the Chowan river Basin, The Environmental Management Commission adopted the Chowan River Basin Nutrient Sensitive Waters (NSW) Management Strategy Plan in 1982. The NSW plan was updated in 1990 to reduce nitrogen loading by 20% and phosphorous loading by 35-40%.

Habitat Information

Most of the following information is a summary of information contained in the Chowan River Basin Water Quality Plan produced by the Division of Water Quality in July of 2002.

The Chowan River Basin is located in the coastal physiographic province of the state. The basin contains two estuarine community types: Tidal Freshwater Marsh and Tidal Cypress Gum Swamps. The basin also contains examples of high quality wetland communities such as Small Depression Pocosins, Pond Pine Woodlands, Nonriverine Wet Hardwood Forests, Peatland Atlantic White Cedar Forest and Nonriverine Swamp forest.

Perhaps the most important wetland community in the Chowan river Basin is the Tidal Cypress-Gum Swamp, which is found along much of the shoreline of the Chowan River (DWQ, 2002). Tidal swamps are flooded on a tidal cycle rather than seasonally, as is typical of many floodplain communities. The Chowan Swamp/Bennets Creek/Catherine Creek Swamps natural area contains some of the largest areas of Tidal Cypress-Gum Swamps in the state. This area is also critical as fish nursery area (DMF, 2002). This natural area consists of approximately 16,000 acres along the northern floodplain of the Chowan River. The Colerain/Cow Island Swamp and Slopes natural area also lies in the floodplain of the Chowan River and features Tidal Cypress-Gum Swamp along its shoreline as well as other wetland communities farther from the river. This area is located downstream from the Chowan Swamp, on the western shore of the river in Hertford and Bertie counties.



Division Of Water Quality



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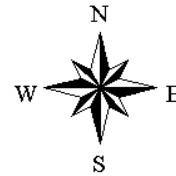
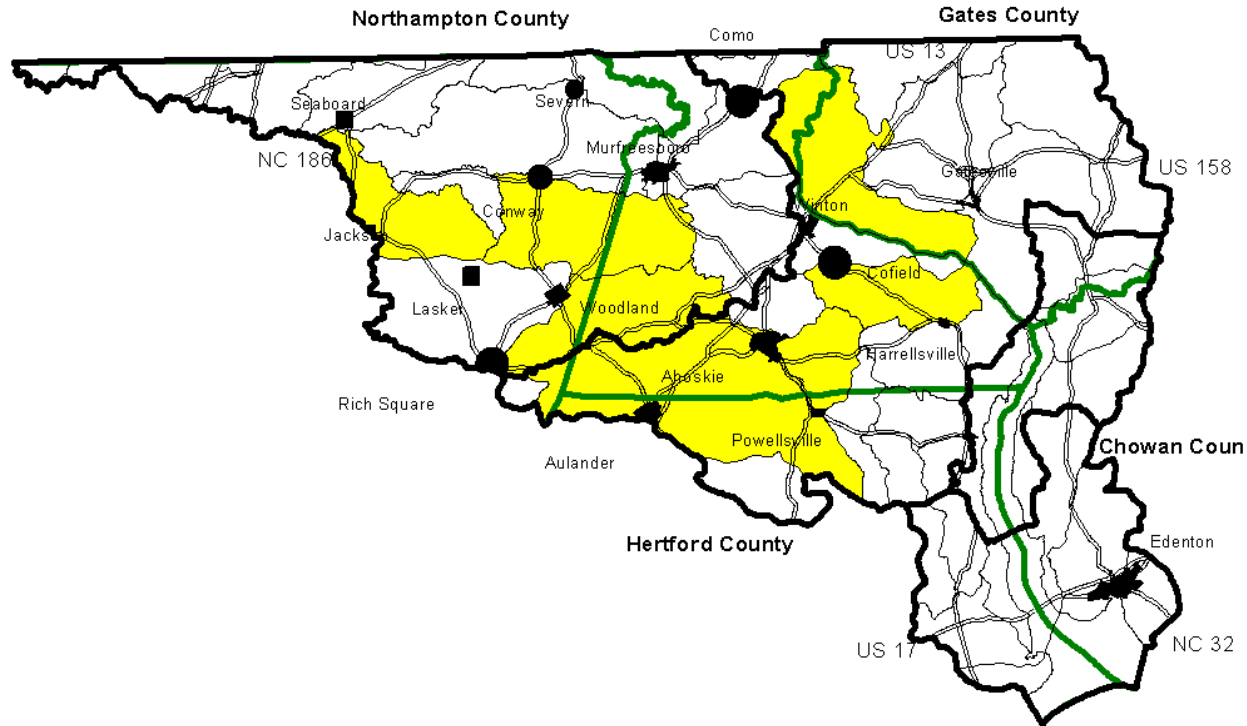


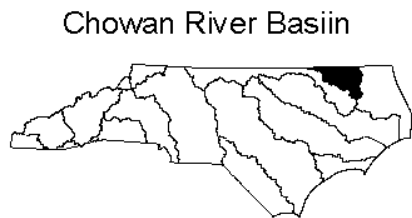
Figure 1 Chowan River Basin



- Local Watershed Boundaries
- Subbasin Boundaries
- County Boundaries
- Primary Roads
- Municipalities
- Targeted Local Watersheds

This map was produced on 01/02/02 by the North Carolina Division of Water Quality Wetlands Restoration Program. Data was provided by the North Carolina Center for Geographic Information and Analysis.

The map is based on:
 Projection: Stateplane
 Zone: 4901
 Datum: NAD 83
 Spheroid: GRS 1980
 Units: Meters



Wetland and Riparian Area Species Information

The Chowan River Basin has over 30 rare animal and plant species. There are 5 threatened mussel species and one endangered fish (Shortnose Sturgeon) in the river basin. (Natural Heritage Program, 2001).

In addition, the Chowan River Basin has three federally listed rare plant species. Many of the rare plants in the Chowan Basin grow in the wet soils of bottomlands, backswamps and swamp forests and are indirectly affected by water quality and quantity (Natural Heritage Program, 2002).

According to the N.C. Wildlife Resources Commission (WRC), over 60 fish species inhabit the waters of the Chowan River Basin, including a variety with commercial and recreational importance. Anadromous species such as striped bass, hickory and American shad, and river herring migrate into the Albemarle Sound and its tributaries to spawn each spring. The most popular recreational fish is the Largemouth Bass, with numerous tournaments taking place each year. The Chowan River also supports commercial fisheries of striped bass, river herring, American shad, white perch and catfish (Wildlife Resources Commission, 1998).

A detailed listing of the state's rare animal and plant species can be found in the "Natural Heritage Program List of Rare Animal Species of North Carolina" or the "Natural Heritage Program List of the Rare Plant Species of North Carolina" which are published annually. In addition, more information about fisheries in the Chowan River Basin can be found in the "Draft Fisheries Management Plan for the Chowan River Basin" developed by the N.C. Wildlife Resources Commission, Division of Inland Fisheries.

Permitted Wetland and Stream Losses

The Division of Water Quality regulates activities involving streams and wetlands to ensure that construction projects cause minimal damage to these resources and that unavoidable impacts are addressed through mitigation projects. One important role of the NCWRP is to provide compensation for permitted impacts to wetlands and streams that fall below the regulatory threshold of less than one acre for wetlands and less than 150 feet for streams. The NCWRP uses the permitting database maintained by the Wetlands/401 Certification Unit of the Division of Water Quality to evaluate where the permitted impacts to wetlands and streams across the river basin are the greatest and where NCWRP projects are needed to offset unmitigated impacts.

Tables 1 through 4 below present a summary of permitted wetland and stream impacts in the Chowan River Basin for 1995 to 2001, broken down by subbasins (source: DWQ -Wetlands 401 Program, 2002). Permitted **wetland impacts** total 35.2 acres over this time period, with projects in Subbasin 2 accounting for nearly 50% of this total. Permitted *but unmitigated* [less than 1 acre] impacts to wetlands total 15.8 acres over the same time period, with Subbasins 1 and 2 accounting for over 70% of these smaller, but cumulatively important permitted impacts. These are the largest subbasins in the river basin and have also experienced a great deal of historical wetland loss (DCM, 1999). Unmitigated [less than 1 acre] wetland impacts in the basin cumulatively represent 45% of the total permitted impacts to wetlands in the basin. **Stream impacts** from 1996 to 2001 total only 183 linear feet, with Subbasin 1 accounting for 51% and

Subbasins 2 and 4 accounting for 44.5% each. All (100%) of these stream impacts are unmitigated stream impacts because no individual impact was for greater than 150 linear feet.

Table 1: Permitted Wetland Impacts (acres) in the Chowan River Basin by subbasin from 1995-2001.

Division of Water Quality Subbasins	Counties in Subbasin	1995	1996	1997	1998	1999	2000	2001	Subbasin Total
03-01-01	Bertie, Gates, Hertford	3.53	1.12	0.8	1.16	.32	1	0.15	8.1
03-01-02	Hertford Northhampton	9.49	1.81	2.1	1.58	0.9	0.1	1.49	17.5
03-01-03	Bertie, Chowan, Gates, Hertford	0.02	0.01	0.1	0.2	0.9	0	0	1.2
03-01-04	Bertie, Chowan	0.7	0.4	0.3	0.37	4.92	1.7	0.02	8.4
TOTAL ACRES		13.74	3.34	3.3	3.31	7.04	2.8	1.66	35.2

Table 2: Permitted Unmitigated Wetland Impacts (acres) in the Chowan River Basin by subbasin from 1995-2001 Projects less than 1 acre.

Division of Water Quality Subbasins	Counties in Subbasin	1995	1996	1997	1998	1999	2000	2001	Subbasin Total
03-01-01	Bertie, Gates, Hertford	3.53	1.12	.79	.01	.32	.04	0.2	6
03-01-02	Hertford Northhampton	.34	.01	.56	1.6	.9	0.07	1.5	5
03-01-03	Bertie, Chowan, Gates, Hertford	0.2	0.01	0.1	0.2	.9	0	0	1.4
03-01-04	Bertie, Chowan	0.7	0.4	.29	.4	.92	.67	0.00	3.4
TOTAL ACRES		4.8	1.5	1.74	2.2	3.	.8	1.7	15.8

Table 3: Permitted Stream Impacts (linear feet) in the Chowan River Basin by subbasin from 1995-2001.

Division of Water Quality Subbasins	Counties in Subbasin	1995	1996	1997	1998	1999	2000	2001	Subbasin Total
03-01-01	Bertie, Gates, Hertford	0	0	6	0	0	0	88	94
03-01-02	Hertford Northhampton	0	0	0	0	0	0	44	44
03-01-03	Bertie, Chowan, Gates, Hertford	0	0	0	0	0	0	0	0
03-01-04	Bertie, Chowan	45	0	0	0	0	0	0	45
TOTAL FEET		45	0	6	0	0	0	132	183

Table 4 Permitted Unmitigated Stream Impacts (linear feet) in the Chowan River Basin by DWQ Subbasin from 1996-2001: Projects less than 150 linear feet

Division of Water Quality Subbasins	Counties in Subbasin	1995	1996	1997	1998	1999	2000	2001	Subbasin Total
03-01-01	Bertie, Gates, Hertford	0	0	6	0	0	0	88	94
03-01-02	Hertford Northhampton	0	0	0	0	0	0	44	44
03-01-03	Bertie, Chowan, Gates, Hertford	0	0	0	0	0	0	0	0
03-01-04	Bertie, Chowan	45	0	0	0	0	0	0	45
TOTAL FEET		45	0	6	0	0	0	132	183

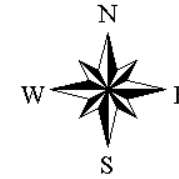
Division of Water Quality Use Support Ratings

Waters are classified according to their best-intended uses. Determining how well a water body supports its designated uses is an important method of interpreting water quality data and assessing water quality. The NCWRP uses the use support assessments as criteria in determining restoration need within a local watershed. A water body that is designated as "partially supporting" or "not supporting" its designated uses indicates that wetland and/or stream restoration initiatives within that local watershed could be beneficial to water quality. These two use support designations will cause a water body to be listed as "impaired". If nonpoint source pollution issues are indicated as factors affecting water quality, the NCWRP may consider it as a water body in need of restoration.

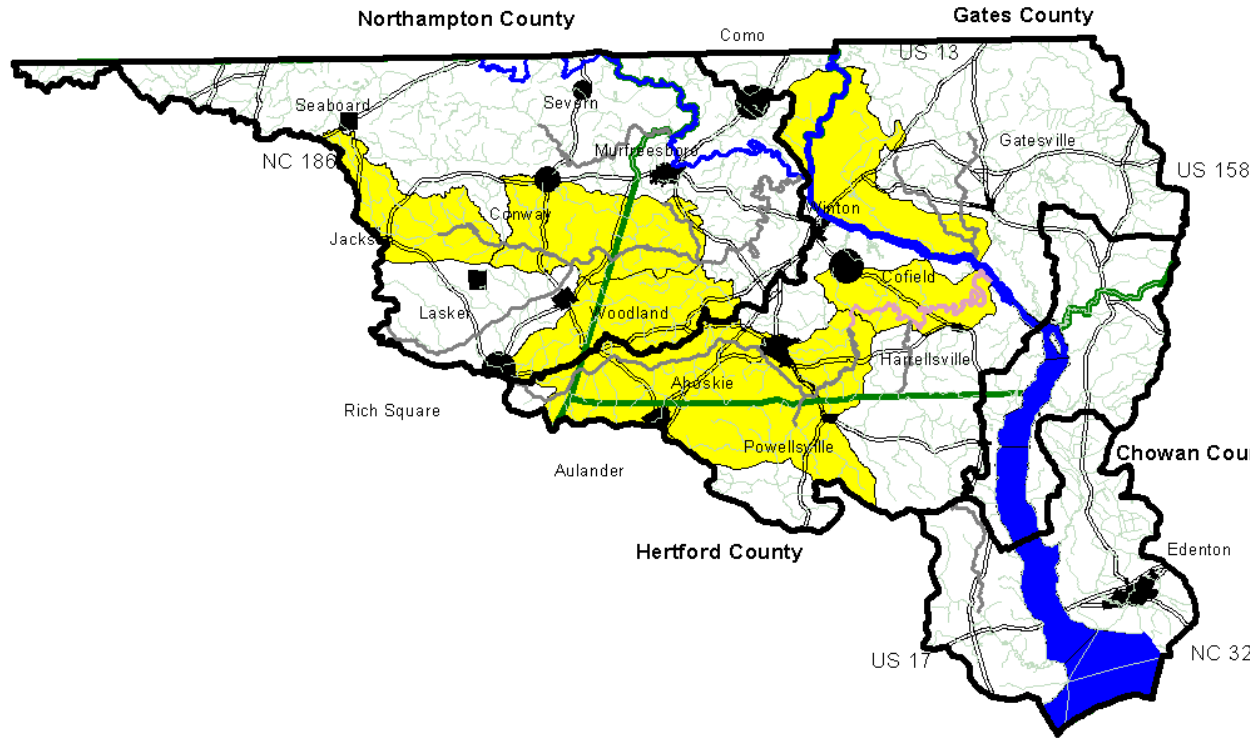
The Chowan River Basin (Figure 2) has a total 802.6 miles of freshwater streams. For the aquatic life category, 0% are rated as not supporting; 2.8% are rated as partially supporting; and

13.3 % are rated as fully supporting. The remaining 83.8% of freshwater streams in the Chowan River Basin were not rated.

For individuals wanting more detail about use support ratings, the Chowan River Basinwide Water Quality Plan can be downloaded from the Division of Water Quality website at <http://h2o.enr.state.nc.us/basinwide/> or is available from the Division of Water Quality at (919) 733-5083 ext. 374.

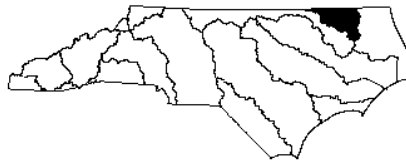


**Figure 2
Chowan
River Basin
Use Support
Classifications**



- Local Watershed Boundaries
- Targeted Local Watersheds
- Subbasin Boundaries
- Use support classifications**
- Fully Supporting
- Not Rated
- Partially Supporting
- Not Monitored
- Primary Roads
- Municipalities

Chowan River Basin



This map was produced on 01/02/02 by the North Carolina Division of Water Quality Wetlands Restoration Program. Data was provided by the North Carolina Center for Geographic Information and Analysis. The map is based on:
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SECTION 3: RESTORATION GOALS FOR THE CHOWAN RIVER BASIN

Based on an assessment of existing watershed characteristics and resource information, the NCWRP has developed four broad restoration goals for the Chowan River Basin. Each goal reflects the NCWRP's watershed restoration strategy to focus restoration projects within local watersheds in order to address water quality impacts from nonpoint source pollution. The goals also reflect the NCWRP's focus on restoring wetland and riparian area values such as maintaining and enhancing water quality, increasing storage of floodwaters, and improving fish and wildlife habitat. The restoration goals for the Chowan River Basin are listed below.

- Reduce sediment loading and other pollutants from surface runoff by increasing the soil retention, filtration, and nutrient uptake functions of wetland and riparian areas;
- Stabilize streambanks to reduce erosion and sedimentation;
- Restore the aquatic habitat and floodwater storage functions of streams (and adjacent riparian zones) affected by historical channelization and ditching projects;
- Restore and protect wildlife corridors and other key links to high-value habitat areas and;
- Restore and preserve fishery nursery habitat to promote species richness and diversity.

Targeted Local Watersheds

In order to meet the identified restoration goals, the NCWRP has identified seven Targeted Local Watersheds in the Chowan River Basin (see Figures 1 and 2). These geographic priorities have been selected based on need and opportunity for restoration in order to focus projects in specific areas in the basin. The decision-making process used to make these selections is described in detail in the *Guide to NCWRP's Watershed Restoration Planning Strategy* (NCWRP, 2001). The purpose for selecting the Targeted Local Watersheds for NCWRP focus is to concentrate project efforts in areas with the highest need and opportunity for restoration. In doing so, projects are more likely to result in water quality protection and improvement through the cumulative benefit of multiple projects.

Public Input into the Targeted Local Watershed Selection Process

To solicit input on Targeted Local Watershed selections, NCWRP staff attended Chowan River Workshops in March of 2001. The NCWRP mailed out its Draft Targeted Local Watersheds letter on April 18th, 2002. The following agencies and groups received this mailing: The Natural Resources Conservation Service, NC Soil and Water Conservation Districts, Department of Environment and Natural Resources (Washington Regional Office), the US Fish and Wildlife Service, The North Carolina Sea Grant Program, the North Carolina Wildlife Resources Commission, North Carolina Farm Service Agency, NC Coastal Land Trust, NC Forest Service, and county and municipal governments within the Chowan River basin.

Additionally the Draft Targeted Local Watersheds were presented at the DWQ Chowan River Draft Basinwide Water Quality Plan Public Meeting in Ahoskie, NC on May 14th, 2002. The deadline for commenting on the Draft Targeted Local Watersheds was June 7, 2002. The majority of comments supported the designation of Ahoskie Creek as a Targeted Local Watershed.

Important Local Watersheds Outside Targeted Local Watersheds

The 7 local watersheds that have been "targeted" in this Plan represent those which, in the best professional judgment of the NCWRP and based on the best available information, are (1) likely to provide the best opportunities for stream, wetlands, or riparian buffer restoration; and (2) which may have ongoing water quality initiatives and projects that could be linked with NCWRP restoration projects; and (3) which also have a clear and significant need for water quality and aquatic habitat restoration or preservation. The fact that a given local watershed within the Chowan River Basin may not have been selected as a Targeted Local Watershed in this Plan does not necessarily mean that the watershed is not worthy of water quality or habitat restoration initiatives. The Chowan River Basin may contain additional local watershed units, beyond the 7 Targeted Local Watersheds identified in this plan, that hold unique or significant natural resources and that may be affected by nonpoint source pollution.

The NCWRP appreciates the information and recommendations we receive from interested citizens in the Basin. We generally focus our restoration efforts in Targeted Local Watersheds (TLWs); however, we will consider other opportunities for restoration projects that may fall outside of our TLWs, if they make good economic, hydrologic, and ecological sense.

SECTION 4: TARGETED LOCAL WATERSHEDS IN THE CHOWAN RIVER BASIN BY SUBBASIN

This section summarizes the condition of natural resources within each of the Targeted Local Watersheds in the Chowan River Basin. Information on Targeted Local Watersheds is organized by subbasin. This section also includes information about potential causes of resource degradation within these areas from the Division of Water Quality's Chowan River Basinwide Water Quality Plan (DWQ, 2002), comments provided by resource professionals within the basin, and comments from the public within the basin. Maps of each described subbasin showing the Targeted Local Watersheds are provided (Figures 3 and 7).

The term "local watershed" denotes a small, defined drainage area within a larger subbasin. Specifically, the term "local watershed" or "Targeted Local Watershed" refers to the 14-digit hydrologic unit as defined by the Natural Resource Conservation Service. The term "subbasin" is reserved solely to denote a subbasin of the larger Chowan River Basin, as defined by the Division of Water Quality.

Subbasin 03-01-01	
<i>Area (square miles):</i>	579
<i>1990 Population Estimate:</i>	24,884
<i>Land Cover:</i>	
Forest/Wetland	73%
Surface Water	2%
Urban	<1%
Cultivated Crop	24%
Pasture/managed herbaceous	1%
<i>Use Support Summary (Aquatic Life) for Freshwater Streams (miles):</i>	
• Fully Supporting	39.8
• Partially Supporting	22.5
• Not Supporting	0
• Not Rated	347

Subbasin 03-01-01 – Upper Chowan River:

This subbasin consists of the Chowan River and its major tributaries, the Wiccacon River and Ahoskie Creek. The Chowan River arises from the confluence of the Nottoway and Blackwater rivers at the NC/VA state line. Table 5 provides a statistical summary of Targeted Local Watersheds in this subbasin.

Chowan Swamp Targeted Local Watershed 30020

The Chowan Swamp on the north and east side of the Chowan River is a high quality natural area and is sited by the DRAFT Chowan River Habitat Protection Plan as a critical fish nursery (WRC 2002). The Chowan Swamp Natural Area totaling 6,000 acres, managed by the Division of Parks and Recreation, occupies the southern third of this area. This watershed

is targeted for preservation (not restoration) purposes.

Ahoskie Creek Targeted Local Watersheds 50011, 50030

During the DRAFT Targeted Local Watershed comment period Ahoskie Creek was mentioned as needing restoration more often than any other stream in the area (personal communications, spring 2002). DWQ's biological sampling in 2001 indicated that Ahoskie Creek and many of its tributaries west on NC 13 have been channelized (DWQ, ESB 2002). Ahoskie Creek is currently not rated but does suffer from habitat degradation due to channelization (DWQ, 1997, 2002).

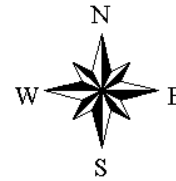
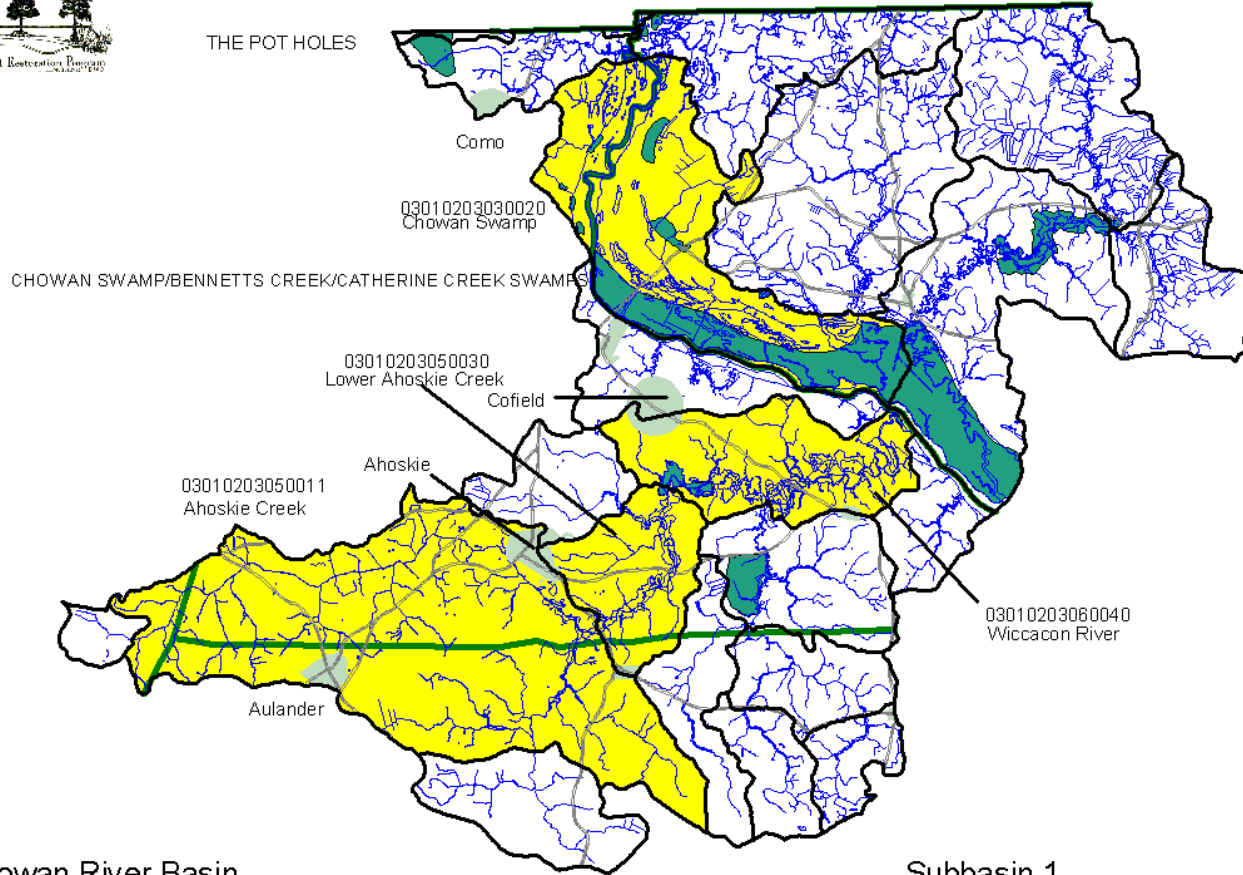


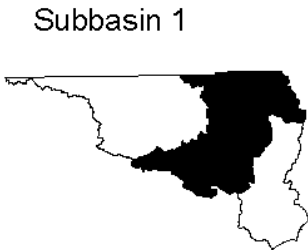
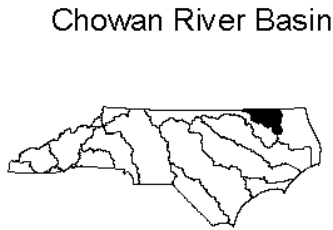
Figure 3
Chowan River Basin
Subbasin 1



- Local Watershed Boundaries
- Targeted Local Watersheds
- Primary Roads
- Municipal Boundaries
- Hydrography
- Significant Natural Heritage Areas
- County Boundaries

This map was produced on 01/02/02 by the North Carolina Division of Water Quality Wetlands Restoration Program. Data was provided by the North Carolina Center for Geographic Information and Analysis.

The map is based on:
 Projection: Stateplane
 Zone: 4901
 Datum: NAD 83
 Spheroid: GRS 1980
 Units: Meters



Wiccacon River Targeted Local Watershed 60040

The Wiccacon River is the only impaired river in the subbasin, based on monitoring data used to determine its latest use support rating (DWQ, 2002). Channelization, nonpoint source pollution from agricultural activities, and an increasing number of animal operations within the watershed are suspected to have contributed to impairment in the Wiccacon River. A local nonpoint source pollution control effort needs to be implemented in this watershed to reduce the problems of nutrient and sediment loading (DWQ, 2002).

Table 5: Summary of information about Targeted Local Watersheds in Chowan River Basin Subbasin 03-01-01.

Targeted Local Watershed	Chowan Swamp	Ahoskie Creek	Lower Ahoskie Creek	Wiccacon River
County	Gates	Bertie Northhampton, Hertford	Bertie Hertford	Hertford
14-digit Hydrologic Unit #	03010203030020	03010203050011	03010203050030	03010203060040
Land Area (Square Miles):	61.6	107.42	21.47	31.71
Miles of Impaired Streams ¹ :	NA	NA	NA	22.52
Possible Causes of Degradation ² :	NA	Habitat Degradation	Habitat Degradation	Low DO, Nutrients
Possible Sources of Degradation ² :	NA	Hydromodification	Hydromodification	Agriculture
Stream on NC 2000 303(d) List ³ ?	No	No	No	Yes
Cleared Land Cover:	4%	27%	29%	19%
Developed Land Cover:	0%	1%	1%	0%
Forested Land Cover:	90%	71%	69%	78%
Presence of Aquatic Natural Heritage Element? ⁴	Yes	No	Yes	No
<p>1 Miles of impaired streams indicates the approximate number of stream miles within the local watershed that are rated as either partially supporting (PS) or not supporting (NS).</p> <p>2 Possible causes and sources of degradation indicates either point or nonpoint source pollution. Causes and sources include: 1) Habitat degradation (a notable reduction in habitat diversity or change in habitat quality--includes sedimentation, bank erosion, channelization, lack of riparian vegetation, loss of pools or riffles, loss of woody habitat, and stream bed scour.) 2) Agriculture (row crops and animal operations-- where cattle is noted, cattle were observed on site at the time of sampling or the watershed hosts many cattle farms) 3) Non-urban development (residential and/or commercial development outside urban areas).</p> <p>3 Stream on 303(d) List indicates whether the Targeted Local Watershed contains waters which are on the North Carolina's 2000 303(d) List (not yet approved by the US EPA).</p> <p>4 The Natural Heritage Program has identified one or more unique aquatic species or habitat in this watershed.</p>				



Division Of Water Quality



1 0 1 2 Miles

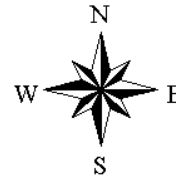
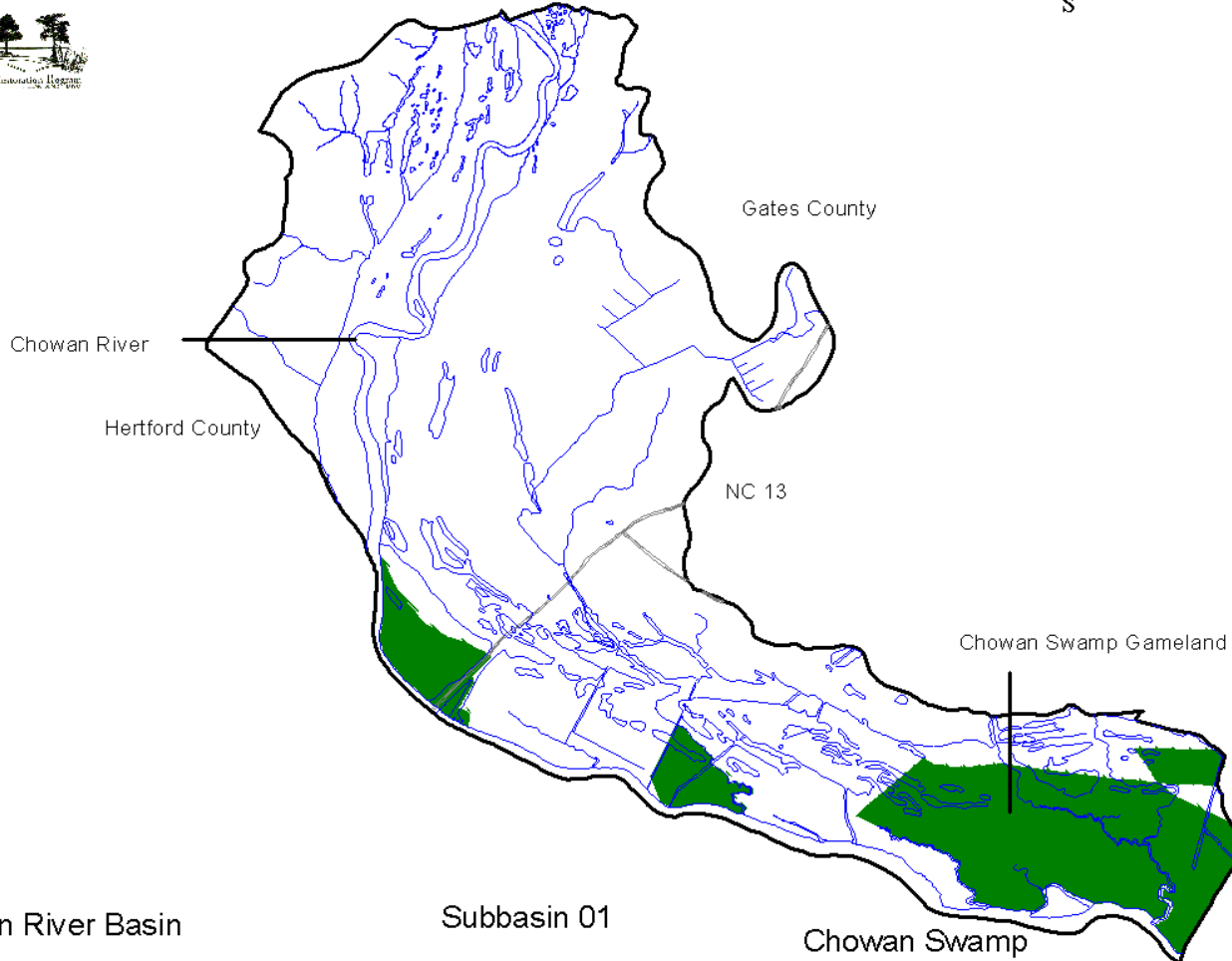


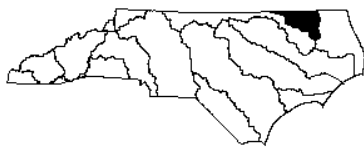
Figure 4
Chowan River Basin
Subbasin 01
Targeted Local
Watershed
30020
Chowan River Swamp



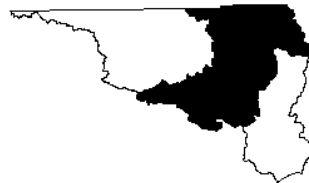
- Hydrography
- Primary Roads
- Local Watershed Boundaries
- Gamelands

This map was produced on 01/02/02 by the North Carolina Division of Water Quality Wetlands Restoration Program. Data was provided by the North Carolina Center for Geographic Information and Analysis. The map is based on: Projection: Stateplane Zone: 4901 Datum: NAD 83 Spheroid: GRS 1980 Units: Meters

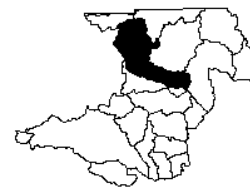
Chowan River Basin



Subbasin 01



Chowan Swamp





Division Of Water Quality

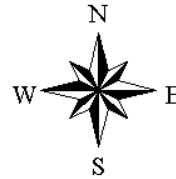
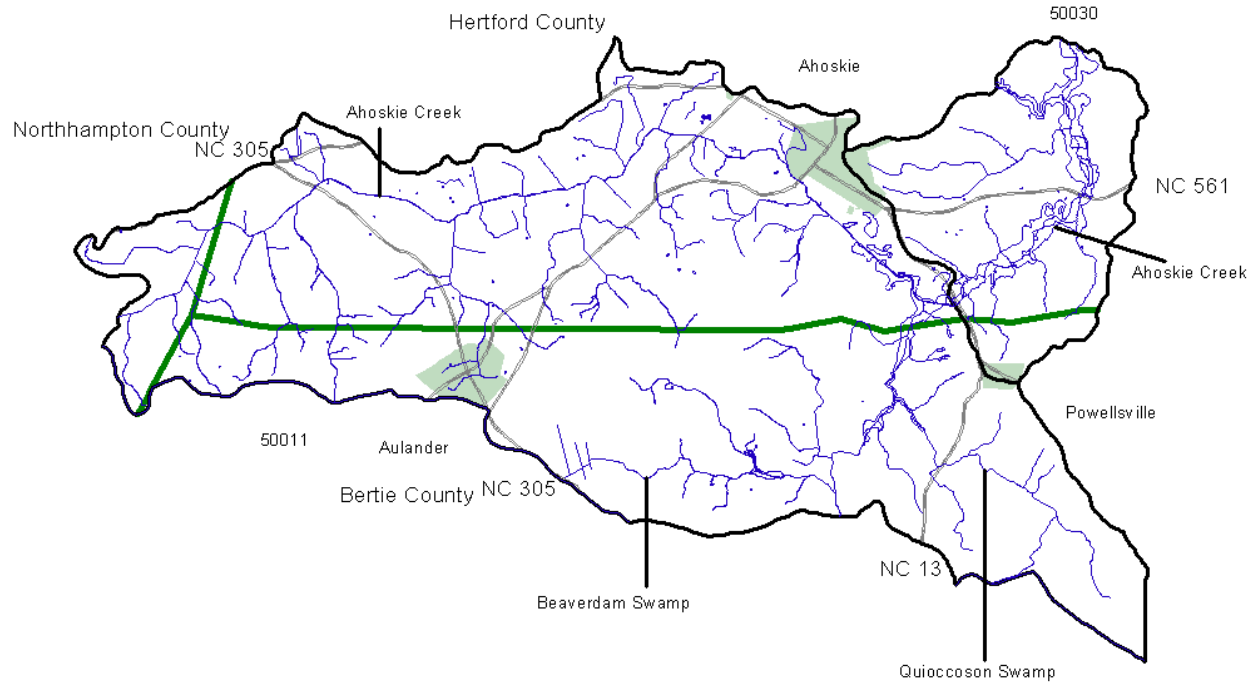


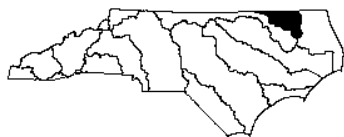
Figure 5
Chowan River Basin
Subbasin 01
Targeted
Local Watersheds
50011 and 50030
Ahoskie Creek



- Hydrography
- Primary Roads
- County Boundaries
- Municipal Boundaries
- Local Watershed Boundaries

This map was produced on 01/02/02 by the North Carolina Division of Water Quality Wetlands Restoration Program. Data was provided by the North Carolina Center for Geographic Information and Analysis. The map is based on:
 Projection: Stateplane
 Zone: 4901
 Datum: NAD 83
 Spheroid: GRS 1980
 Units: Meters

Chowan River Basin



Subbasin 01



Ahoskie Creek





Division Of Water Quality

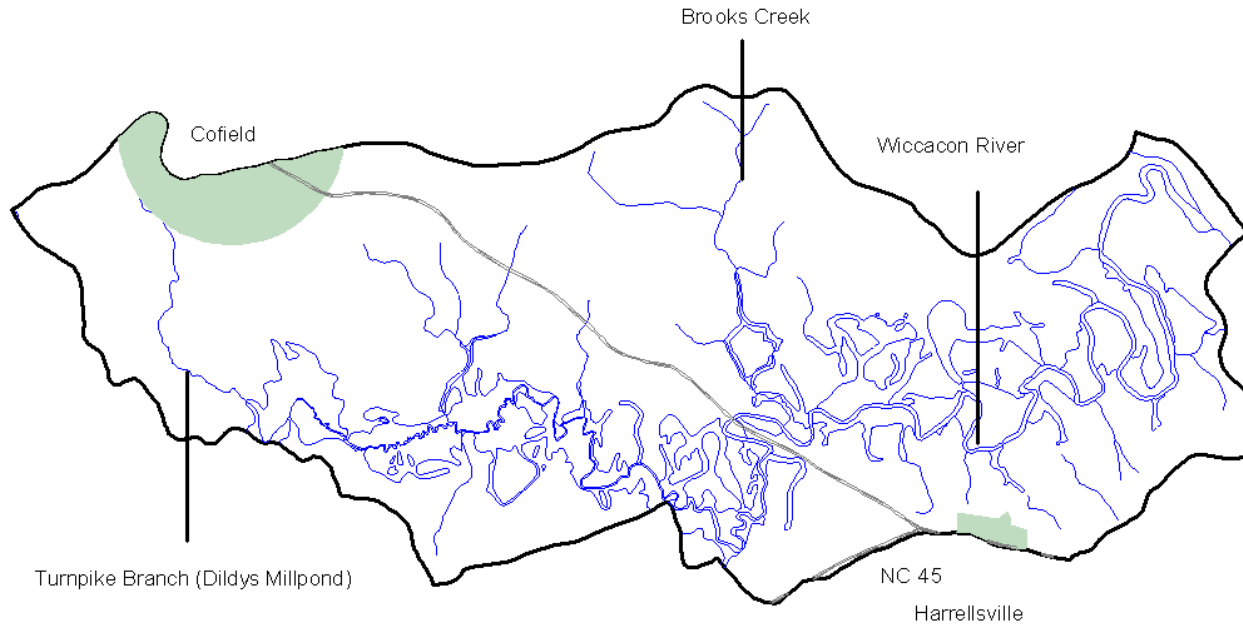
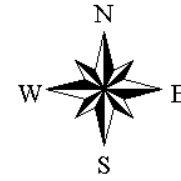
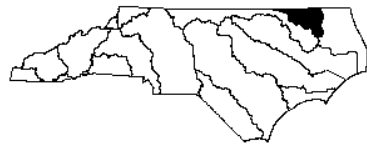


Figure 6
Chowan River Basin
Subbasin 01
Targeted
Local Watershed
60040
Wiccacon River

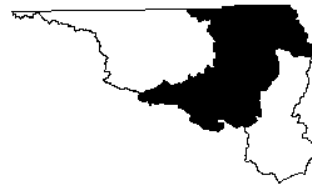
- Hydrography
- Primary Roads
- Municipal Boundaries
- Local Watershed Boundaries

This map was produced on 01/02/02 by the North Carolina Division of Water Quality Wetlands Restoration Program. Data was provided by the North Carolina Center for Geographic Information and Analysis. The map is based on: Projection: Stateplane Zone: 4901 Datum NAD 83 Spheroid: GRS 1980 Units: Meters

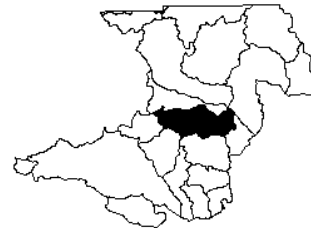
Chowan River Basin



Subbasin 01



Wiccacon River



Subbasin 03-01-02	
Area (square miles):	494
1990 Population Estimate:	22,713
<i>Land Cover:</i>	
Forest/Wetland	65%
Surface Water	<1%
Urban	<1%
Cultivated Crop	32%
Pasture/managed herbaceous	1%
<i>Use Support Summary (Aquatic Life) for Freshwater Streams (miles):</i>	
• Fully Supporting	45.5
• Partially Supporting	0
• Not Supporting	0
• Not Rated	241.0

Subbasin 03-01-02 – Meherrin River and Tributaries:

This subbasin includes the Meherrin River and its tributary streams. The Meherrin flows into North Carolina from Greenville County, Virginia. The Potecasi River, the Meherrin’s largest tributary, enters the Meherrin in Bertie County. Table 6 provides a statistical summary of Targeted Local Watersheds in this subbasin.

Potecasi Creek Targeted Local Watersheds 10010 and 10030

Potecasi Creek was determined to be severely stressed by macroinvertebrate sampling in 2000 (DWQ, ESB 2002). Two of its tributaries, Painter Swamp and Bells Branch are on the 2000 303(d) list, but were not

rated as impaired during the most recent sampling. The 1997 Chowan River Basinwide Water Quality Plan noted channelization as a potential source of impairment for the creek (DWQ, 1997).

Cutawhiskie Swamp Targeted Local Watershed 00010

Cutawhiskie Swamp received low habitat scores in its most recent bioassessment. The Swamp has several channelized sections with straight channels and moderate to severe bank erosion (DWQ, ESB 2002).

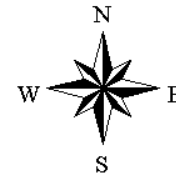
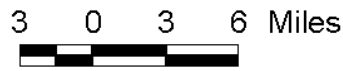
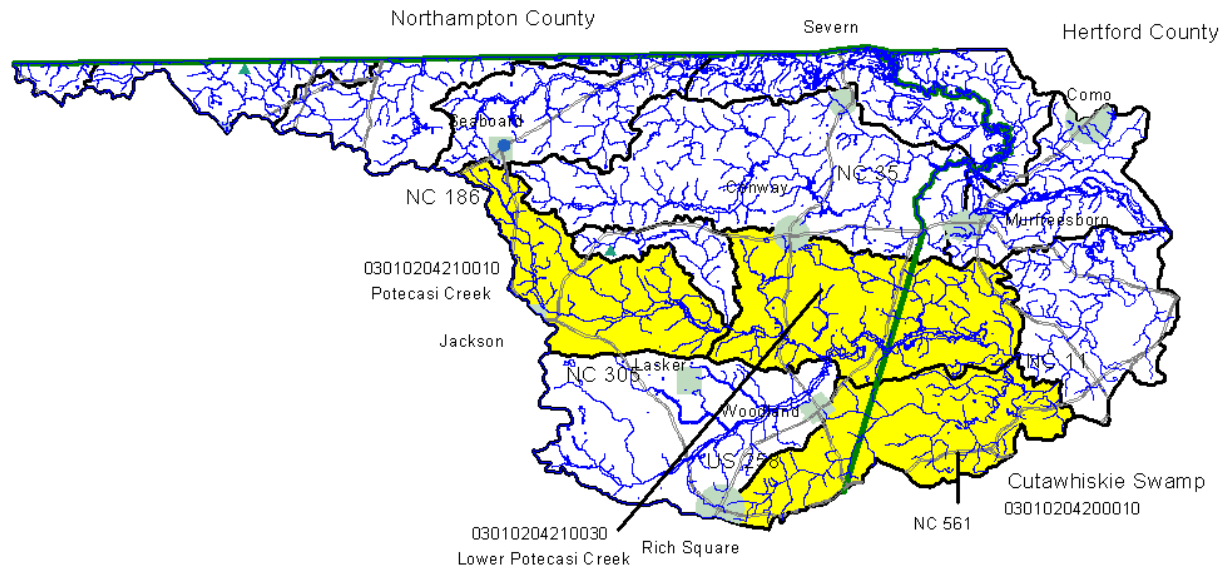
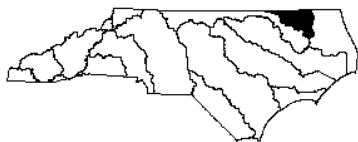


Figure 7
Chowan River Basin
Subbasin 02

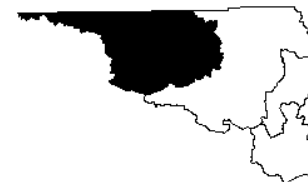


- Local Watershed Boundaries
- Targeted Local Watersheds
- Hydrography
- Primary Roads
- County Boundaries
- Municipal Boundaries

Chowan River Basin



Subbasin 2



This map was produced on 6/17/02 by the North Carolina Division of Water Quality Wetlands Restoration Program. Data was provided by the North Carolina Center for Geographic Information and Analysis.

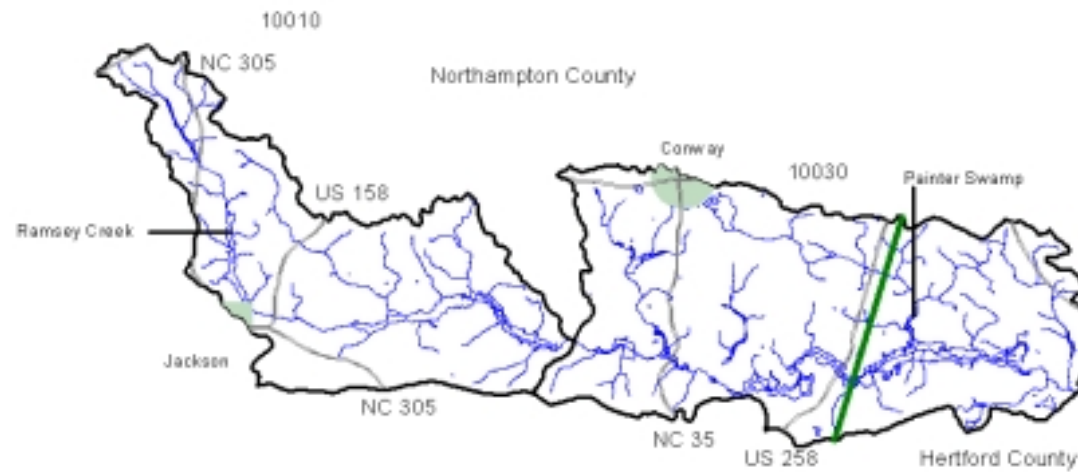
The map is based on:
 Projection: Stateplane
 Zone: 4901
 Datum: NAD 83
 Spheroid: GRS1980
 Units: Meters

Table 6: Summary of information about Targeted Local Watersheds in Chowan River Basin Subbasin 03-01-02.

Targeted Local Watershed	Upper Potecasi Creek	Lower Potecasi Creek	Cutawhiskie Swamp
County	Northampton	Hertford Northampton,	Hertford Northampton
14-digit Hydrologic Unit #	03010204210010	03010204210030	03010204200010
Land Area (Square Miles):	37.93	59.01	47.08
Miles of Impaired Streams¹:	NA	NA	NA
Possible Causes of Degradation²:	Habitat Degradation	Habitat Degradation	Habitat Degradation
Possible Sources of Degradation²:	Hydromodification	Hydromodification	Hydromodification
Stream on NC 2000 303(d) List³?	No	Yes	No
Cleared Land Cover:	35%	38%	25%
Developed Land Cover:	0%	1%	0%
Forested Land Cover:	65%	61%	75%
<p>1 Miles of impaired streams indicates the approximate number of stream miles within the local watershed that are rated as either partially supporting (PS) or not supporting (NS).</p> <p>2 Possible causes and sources of degradation indicates either point or nonpoint source pollution. Causes and sources include: 1) Habitat degradation (a notable reduction in habitat diversity or change in habitat quality--includes sedimentation, bank erosion, channelization, lack of riparian vegetation, loss of pools or riffles, loss of woody habitat, and stream bed scour.) 2) Agriculture (row crops and animal operations-- where cattle is noted, cattle were observed on site at the time of sampling or the watershed hosts many cattle farms) 3) Non-urban development (residential and /or commercial development outside urban areas).</p> <p>3 Stream on 303(d) List indicates whether the Targeted Local Watershed contains waters which are on the North Carolina's 2000 303(d) List (not yet approved by the US EPA).</p>			

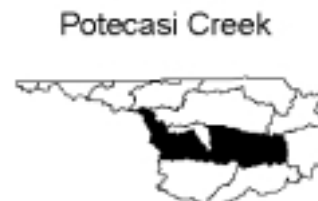
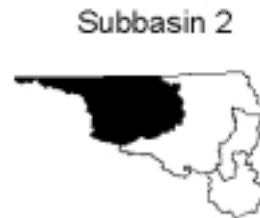


Figure 8
Chowan River Basin
Subbasin 02
Targeted Local
Watersheds
10010 and 10030
Potecasi Creek



- Hydrography
- Primary Roads
- County Boundaries
- Municipal Boundaries
- Local Watershed Boundaries

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 Projection: Stateplane
 Zone: 4901
 Datum: NAD 83
 Spheroid: GRS1980
 Units: Meters

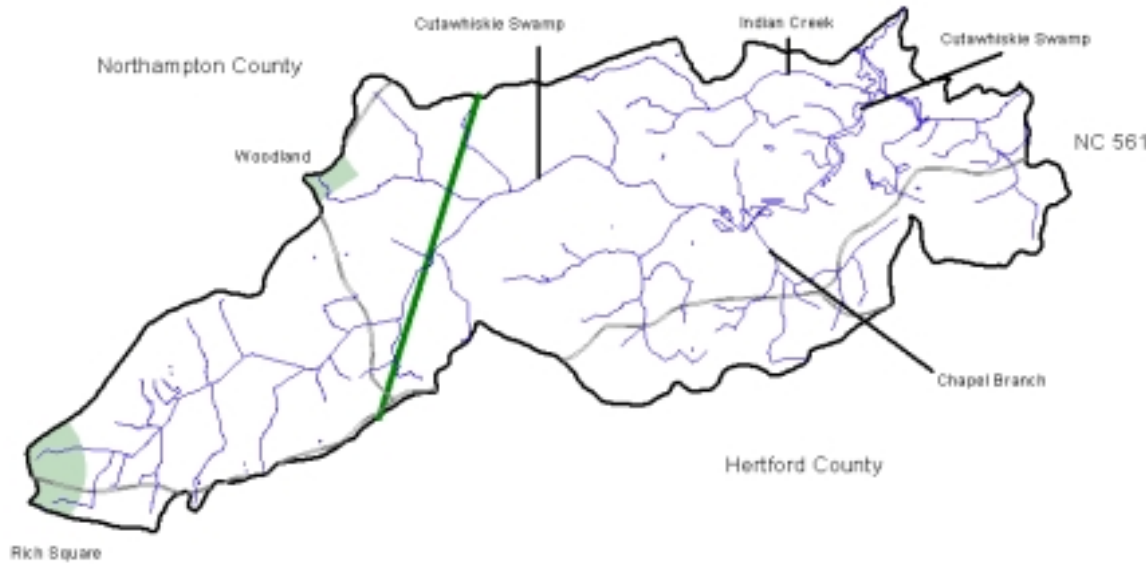




Division Of Water Quality



Figure 9
Chowan River Basin
Subbasin 2
Targeted Local
Watershed
00010
Cutawhiskie Swamp



- Hydrography
- Primary Roads
- County Boundaries
- Local Watershed Boundaries
- Municipal Boundaries

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The map is based on:
Projection: Stateplane
Zone: 4901
Datum: NAD 83
Spheroid: GRS1980
Units: Meters

Chowan River Basin



Subbasin 2



Cutawhiskie Swamp



SECTION 5: CONTACT INFORMATION FOR THE CHOWAN RIVER BASIN

The NCWRP can implement restoration projects cooperatively with other state and federal programs as well as environmental groups. The NCWRP believes that integrating wetland or stream restoration with other projects such as livestock exclusion or stormwater management will often increase the overall water quality benefits of the project. In selecting Targeted Local Watersheds, the NCWRP considers completed and ongoing restoration efforts in the watershed to determine if there are opportunities to link NCWRP projects with these efforts through the watershed approach. Section C of the Chowan River Basinwide Water Quality Plan provides a comprehensive overview of current and future water quality initiatives and projects throughout the Chowan River Basin. The purpose of this section is to provide contact information for the projects and programs discussed in Section 4 of this document and for programs or initiatives underway in the Chowan River Basin that are potential building blocks for NCWRP project efforts.

Table 7: Contacts for Federal water quality programs and initiatives in the Chowan River Basin.

ORGANIZATION	CONTACT	ADDRESS	PHONE	E-MAIL / WEB SITE
Environmental Protection Agency Wetland Section	Kathy Mathews		(706) 355-8780	
Natural Resource Conservation Service	Contact the county office for contact information			www.nc.nrcs.usda.gov
Bertie County		PO Box 566 Windsor, NC 27983-0566	(252) 794-5305	
Chowan County		414 West Queen Street Edenton, NC 27932	(252) 482-4127	
Gates County		PO Box 61 Gatesville, NC 27938	(252) 357-1881	
Hertford County		PO Box 265 Winton, NC 27986	(252) 358-7846	
Northampton County		PO Box 218 Jackson, NC 27845	(252) 534-2591	

Table 8: Contacts for Statewide water quality programs and initiatives in the Chowan River Basin.

ORGANIZATION	CONTACT	ADDRESS	PHONE	E-MAIL / WEB SITE
Clean Water Management Trust Fund	Damon Tatum Eastern Field Representative	505 Copley Dr. Kill Devil Hills, NC 27948	(252) 441-6672	Damon@cwmtf.net
Division of Soil and Water Conservation - District Offices NC 27017	Contact the county office for contact information			www.enr.state.nc.us/DSWC/
Bertie County		County Office Bldg. Room 11 PO Box 566 Windsor, NC 27983-0566	(252) 794-5305	
Chowan County		414 West Queen Street Edenton, NC 27932	(252) 482-4127	
Gates County		PO Box 61 Gatesville, NC 27938	(252) 357-1881	
Hertford County		PO Box 265 Winton, NC 27986	(252) 358-7846	
Northampton County		PO Box 218 Jackson, NC 27845	(252) 534-2591	
Division of Water Quality				www.h2o.enr.state.nc.us
Washington Regional Office	Jim Mulligan	943 Washington Square Mall Washington, NC 27889	(252) 946-6481	
Basinwide Planning Program	Jennifer Everett	1617 Mail Service Center Raleigh, NC 27699-1617	(919) 733-5083 ext. 374	Jennifer.Everett@ncmail.net
Section 319 Grant Program	Sean Groom	1617 Mail Service Center Raleigh, NC 27699-1617	(919) 733-5083 ext. 582	Sean.Groom@ncmail.net h2o.enr.state.nc.us/nps/319.htm

ORGANIZATION	CONTACT	ADDRESS	PHONE	E-MAIL / WEB SITE
Wetlands Restoration Program	George Norris Watershed Planner	1619 Mail Service Center Raleigh, NC 27699-1619	(919) 733- 5312	George.Norris@ncmail.net et h2o.enr.state.nc.us/wrp/index.htm .
Albemarle-Pamlico National Estuary Program	Bill Crowell	1601 Mail Service Center Raleigh, NC 27699-1601	(919) 715- 1327	Bill.Crowell@ncmail.net

Table 9: Contacts for Local Water Quality Programs and Initiatives in the Chowan River Basin.

ORGANIZATIONS AND PROJECTS	CONTACT	ADDRESS	PHONE	E-MAIL / WEB SITE
<i>North Carolina Coastal Federation</i>		3609 Hwy 24 Newport, NC 28570	(800) 232-6210	http://www.nccoast.org

References Cited

North Carolina Department of Environment and Natural Resources (DENR), Division of Water Quality. “Chowan River Basinwide Water Quality Management Plan.” July 2002.

North Carolina Department of Environment and Natural Resources (DENR), Division of Water Quality. **Environmental Sciences Branch (ESB)** “Basin Assessment Report – Chowan River Basin” January, 2002.

North Carolina Department of Environment and Natural Resources (DENR), Division of Water Quality. “Chowan River Basinwide Water Quality Management Plan.” September 1997.

North Carolina Marine Fisheries Program, DENR “DRAFT Chowan River Basin Habitat Protection Plan” 2002

North Carolina Natural Heritage Program, DENR, Division of Parks and Recreation “Natural Heritage Program List of the Rare Animal Species of North Carolina.” 2001.

North Carolina Natural Heritage Program, DENR, Division of Parks and Recreation. “Natural Heritage Program List of the Rare Plant Species of North Carolina.” 2002.

North Carolina Wildlife Resources Commission, Division of Inland Fisheries. Draft Fisheries Management Plan for the Chowan River. June 1998.

APPENDIX 1

COMPREHENSIVE LIST OF TARGETED LOCAL WATERSHEDS IN THE CHOWAN RIVER BASIN

The following is the list of local watersheds targeted by the NCWRP in the Chowan River Basin. Other agencies, individuals and private groups are encouraged to target their search for restoration sites within these local watersheds. The local watershed codes are the 14-digit codes that have been designated by the USDA Natural Resources Conservation Service (NRCS).

DWQ Subbasin	Watershed Name	14 Digit Hydrologic Unit
03-01-01	Chowan Swamp	03010203030020
03-01-01	Ahoskie Creek	03010203050011
03-01-01	Lower Ahoskie Creek	03010203050030
03-01-01	Wiccacon River	03010203060040
03-01-02	Upper Potecasi Creek	03010204210010
03-01-02	Lower Potecasi Creek	03010204210030
03-01-02	Cutawhiskie Swamp	03010204200010