# Pasquotank River Basin Restoration Priorities

## September 2009

Ecosystem Enhancement Program

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Cover Photo: Sand Point Marsh on Croatan Sound, Roanoke Island, NC

## Introduction

This document, prepared by the North Carolina Ecosystem Enhancement Program (EEP), presents a description of Targeted Local Watersheds within North Carolina's portion of the Pasquotank River Basin. This is an update of the original document developed in 2002 by the NC Wetlands Restoration Program (NC WRP) *Watershed Restoration Plan for the Pasquotank River Basin 2002*.

The 2002 plan described 7 Hydrologic Units (14-digit HUs as denoted by the United States Geological Survey) to be targeted for stream, wetland, and riparian buffer restoration and protection, and for watershed planning efforts (i.e., Targeted Local Watersheds or TLWs). Three of these TLWs have been recommended for delisting. In this update, 7 new TLWs have been added as targets for restoration and preservation efforts in the Pasquotank River Basin along.

In addition to updating the *Watershed Restoration Plan for the Pasquotank River Basin 2002*, this report complements information found in the *Pasquotank River Basinwide Water Quality Plan* (NC DWQ 2007). These two reports provide much of the justification for selection of HUs by detailing water quality conditions, resource management activities, and restoration and preservation needs in North Carolina's portion of the Pasquotank River Basin.

In past documents, North Carolina Division of Water Quality (DWQ) "subbasin" units were used to organize the document and discussion of the selected TLWs. This document, however, uses the US Geological Survey's (USGS) 8-digit Cataloging Unit in the river basin as the framework for organization and discussion of TLWs.

## What is a River Basin Restoration Priority?

EEP develops River Basin Restoration Priorities (RBRPs) to guide its mitigation activities within each of North Carolina's 17 major river basins. The RBRPs delineate specific watersheds that exhibit a need for restoration and protection of wetlands, streams and riparian buffers. These priority watersheds, called Targeted Local Watersheds (TLWs), are the USGS delineated 14-digit HUs which receive priority for EEP planning and project funds. The designation may also benefit stakeholders writing watershed improvement grants (e.g., Section 319 or Clean Water Management Trust Fund) by giving added weight to their proposals.

*North Carolina General Statute 143-214.10* charges EEP to pursue wetland and riparian restoration activities in the context of basin restoration plans, one for each of the 17 major river basins in the State, with the goal of protecting and enhancing water quality, fisheries, wildlife habitat, recreational opportunities and preventing floods.

## Criteria for Selecting a Targeted Local Watershed

EEP evaluates a variety of GIS data and resource and planning documents on water quality and habitat conditions to select TLWs. Public comment and the professional judgment of local resource agency staff also play a critical role in targeting local watersheds. TLWs are chosen based on an evaluation of three factors—problems, assets, and opportunities. Problems reflect the need for restoration; assets reflect the ability for a watershed to recover from degradation and the need for land conservation; and opportunities indicate the potential for local partnerships in restoration and conservation work. Methods for evaluation of these three factors are outlined below:

**Problems:** EEP evaluates DWQ use support ratings, the presence of impaired or 303(d)-listed streams, and DWQ Basinwide Plans to identify streams with known problems. EEP also assesses the potential for degradation by evaluating land cover data, riparian buffer condition, impervious cover, road density, and projected population change.

**Assets:** In order to gauge the natural resource value of each watershed, EEP considers the forest and wetland area, land in public or private conservation, riparian buffer condition, high quality resource waters, and NC Natural Heritage Program data.

**Opportunity:** EEP reviews restoration and protection projects that are already on the ground, such as Clean Water Management Trust Fund projects, US Clean Water Act Section 319 initiatives, mitigation banks[1], and land conservation efforts. EEP also considers the potential for partnership opportunities by consulting with local, state, and federal resource agencies and conservation organizations to assess the potential to partner in their priority areas.

In addition to these factors, local resource professional feedback is an important element in selecting TLWs. Comments and recommendations of local resource agency professionals, including staff with Soil & Water Conservation districts, the Natural Resources Conservation Service (NRCS), county and municipal planning staff, NC Department of Environment and Natural Resources (DENR) regional staff, local and regional land trusts and other watershed organizations provide integral input to the TLW selection process. Local resource professionals often have specific and up-to-date information regarding the condition of local streams and wetlands. Furthermore, local resource professionals may be involved in water resource protection initiatives that provide good partnership opportunities for EEP restoration and preservation projects and EEP Local Watershed Planning initiatives.

[1] Army Corps of Engineer data from July 2009 indicates three mitigation banks are present in the Pasquotank River Basin.

Finally, TLWs that were chosen for the last Watershed Restoration Plan or RBRP document are reevaluated. If new information reveals that a watershed is not a good TLW candidate, then it will be removed from the TLW list. An explanation of the reasons for its delisting is provided in the last section of this document. A description of issues resulting in each TLW's designation is included in this section also.

## Pasquotank River Basin Catalog Unit Overview

The Pasquotank River Basin (USGS Catalog Unit 03010205) begins in the Great Dismal Swamp in Virginia. This CU is an expansive area of flat to gently sloping land surrounding the Albemarle Sound. Several major river systems flow into the Albemarle including the Chowan, Perquimans, Little, Pasquotank, North, Roanoke, and Alligator rivers. In the eastern portion of the CU, Currituck and Croatan sounds run from north to south and are bound on the east by the Outer Banks. This CU is about 2140 square miles including both land and open water.

Edenton, Hertford/Winfall, Elizabeth City, and Kitty Hawk/Kill Devil Hills/Nags Head are the largest towns and cities in the CU. The CU encompasses 45 14-digit hydrologic units and contains part or all of nine counties in the coastal plain. Waterbodies in the basin exhibit a broad range of conditions, from the brackish waters of the Albemarle Sound to the tidal freshwater marshes of the upper Currituck to the freshwater rivers and streams throughout. Unique in this CU is Lake Phelps, a large shallow lake located in Pettigrew State Park.

## Pasquotank River Basin Catalog Unit Restoration Goals

Based on an assessment of existing watershed characteristics and resource information, EEP has developed restoration and protection goals for the Basin's single Catalog Unit (CU). These goals are outlined below:

**CU 03010205**

The most important recommendation for the Pasquotank River CU is to support implementation of the NC Coastal Habitat Protection Plan (Street et al, 2005) and its associated implementation plans (NC Division of Marine Fisheries, 2007; NCDMF, 2009). EEP is committed to advancing these goals by supporting efforts to:

- Develop additional Strategic Habitat Areas (SHAs) and coordinate data and methodology improvements with other state and federal agencies
- Map, monitor and restore SAV
- Improve and restore shellfish beds
- Implement agricultural BMPs to reduce nonpoint source inputs to the estuary

- Remove barriers to anadromous fish movement and improve nursery and spawning habitats
- Protect, augment and connect Natural Heritage Areas and other conservation lands

EEP will actively develop projects that can coincidentally meet CHPP objectives while meeting its primary mitigation requirements within designated planning areas. The program will continue to promote innovative coastal mitigation methods such as the split function crediting strategy proposed expert panels in the White Oak Local Watershed Plan project titled *Coordinating Compensatory Mitigation Requirements to Meet the Goals of the Coastal Habitat Protection Plan* (2009).

The Pasquotank CU offers an array of assets, especially noteworthy are its large forested tracts and conservation areas. An important priority here is to promote projects that reestablish riparian buffers and corridors of substantial width to improve connectivity of these protected areas. Agricultural impacts are also prevalent throughout the CU, including nonpoint source runoff and hydrologic modification. Projects that address agricultural runoff are important here. The watershed will also benefit from stream restoration projects that reestablish more natural pattern, hydrology and habitat, especially in heavily ditched headwater areas. Additionally, this CU has an abundance of diverse marsh habitats along an extensive shoreline. Wetland and marsh restoration projects, as well as shoreline stabilization are high priorities for areas prone to erosion from natural exposure or from heavy boat traffic. Finally, in developed areas like Elizabeth City, Manteo and the Outer Banks, projects that address stormwater runoff and treatment are of primary importance.

## Pasquotank River Basin TLW Overview

Seven HUs were targeted in the 2002 *Watershed Restoration Plan for the Pasquotank River Basin.* In this 2009 update, however, an additional seven HUs are designated as TLWs. Three HUs have their TLW status removed. In total, 11 HUs are highlighted as TLWs by EEP in this 2009 RBRP.

Table 1 provides a partial summary of information used to select TLWs. Additionally, Figure 1 is a map of the Pasquotank River Basin showing current TLWs and those with removed TLW designation.

**Table 1. Pasquotank River Basin TLW Summary** (pink highlight indicates existing TLWs, turquoise indicates new TLWs, red indicates de-listed TLWs).

| HUCODE | HU_Name | HU Area[1] (mi) | Stream Length[2] (mi) | Ag Area[3] (%) | Forest Area[4] (%) | Imperv Area[5] (%) | HQW or ORW Length[6] (%) | WSW Length[7] (%) | SNHA Area[8] (%) | NHEO[9] (#) | Conserv Area[10] (%) | 303(d) Length[11] (%) | Animal Ops[12] (#) | Non-forested Stream Buffer[13] (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Catalog Unit 03010205 | | | | | | | | | | | | | | |
| 03010205010020 | Upper Pasquotank River | 238.8 | 398.3 | 33.7 | 62.7 | 0.2% | 0.0 | 12.7 | 34.3 | 24 | 28.5 | 0.0% | 9 | 53% |
| 03010205020010 | Tull & Buckskin Creeks | 108.8 | 420.7 | 46.2 | 46.2 | 0.3% | 0.0 | 0.0 | 19.2 | 41 | 3.4 | 0.0% | 1 | 71% |
| 03010205040010 | Sawyers Creek | 14.5 | 53.2 | 72.1 | 24.8 | 0.3% | 0.0 | 0.0 | 0.0 | 0 | 0.0 | 0.0% | 2 | 72% |
| 03010205050010 | Knobbs & Areneuse Creeks | 116.6 | 353.3 | 59.2 | 30.7 | 1.6% | 0.0 | 4.0 | 5.8 | 17 | 1.1 | 0.0% | 7 | 64% |
| 03010205130010 | Kendrick Creek | 85.2 | 303.3 | 47.0 | 48.1 | 0.4% | 0.0 | 0.0 | 8.4 | 10 | 9.2 | 3.4% | 17 | 70% |
| 03010205160010 | Phelps Lake | 115.4 | 243.1 | 42.7 | 33.0 | 0.3% | 0.0 | 0.0 | 38.6 | 25 | 43.9 | 9.9% | 6 | 65% |
| 03010205170010 | Scuppernong River | 82.0 | 344.3 | 29.1 | 65.4 | 0.5% | 0.0 | 0.0 | 18.8 | 23 | 10.3 | 2.9% | 13 | 49% |
| 03010205180010 | Little Alligator River | 137.2 | 407.5 | 19.2 | 77.5 | 0.2% | 7.7 | 0.0 | 59.9 | 53 | 50.8 | 0.0% | 1 | 72% |
| 03010205220010 | Upper Currituck Sound | 17.5 | 43.4 | 20.8 | 61.0 | 0.0% | 0.0 | 0.0 | 58.6 | 20 | 59.4 | 0.0% | 0 | 86% |
| 03010205230020 | Manteo | 38.8 | 48.5 | 3.7 | 37.1 | 4.0% | 1.9 | 0.0 | 10.8 | 21 | 11.0 | 20.5% | 0 | 93% |
| 03010205230030 | Kitty Hawk & Oregon Inlet | 66.4 | 57.9 | 11.1 | 26.5 | 6.0% | 0.0 | 0.0 | 12.7 | 78 | 22.2 | 5.3% | 0 | 48% |
| 03010205010010 | Folly Swamp | 6.9 | 17.3 | 39.7 | 58.9 | 0.1% | 0.0 | 0.0 | 0.0 | 0 | 2.0 | 0.0% | 3 | 51% |
| 03010205070010 | Little River | 73.8 | 125.7 | 68.3 | 24.6 | 0.2% | 0.0 | 0.0 | 0.0 | 3 | 0.3 | 6.8% | 5 | 79% |
| 03010205190010 | Alligator River | 224.6 | 502.4 | 3.0 | 93.5 | 0.1% | 5.3 | 0.0 | 79.2 | 174 | 91.7 | 1.9% | 0 | 29% |

[1]Hydrologic Unit (HU) Area estimate based on USGS 14-digit HU boundaries (USDA NRCS 1998).
[2]Stream Length estimate derived from blue line streams on USGS 1:24,000 scale maps (NC CGIA 2008).
[3]Agricultural Area estimate based on 2001 National Land Cover Database (NLCD) (Homer et al., 2004).
[4]Forest Area estimate based on 2001 NLCD (Homer et al., 2004).
[5]Impervious Area Estimates based on 2001 NLCD (Homer et al., 2004).
[6]High Quality Waters (HQW) and Outstanding Resources Waters (ORW) (NC CGIA 2008).
[7]Water Supply Watershed (WSW) length (NC GIA 2008).
[8]Significant Natural Heritage Areas (SNHA) estimates (NC NHP 2007[1]).
[9]Natural Heritage Element Occurrences (NHEO) (NC NHP 2007[2]).
[10]Conserved Area estimate based on federal, state, and local land under protection (NC GIA 2008).
[11]303(d) List of impaired waters (NC DWQ 2006[2]).
[12]Animal Operations estimates based on NC estimates for pork, poultry, and bovine operations in 2007 (NCDA, 2007).
[13]Non-forested Stream Buffer estimate based on 2001 NLCD and a 100 foot buffer distance from USGS blue line streams.

## Pasquotank River Basin Targeted Local Watershed Map

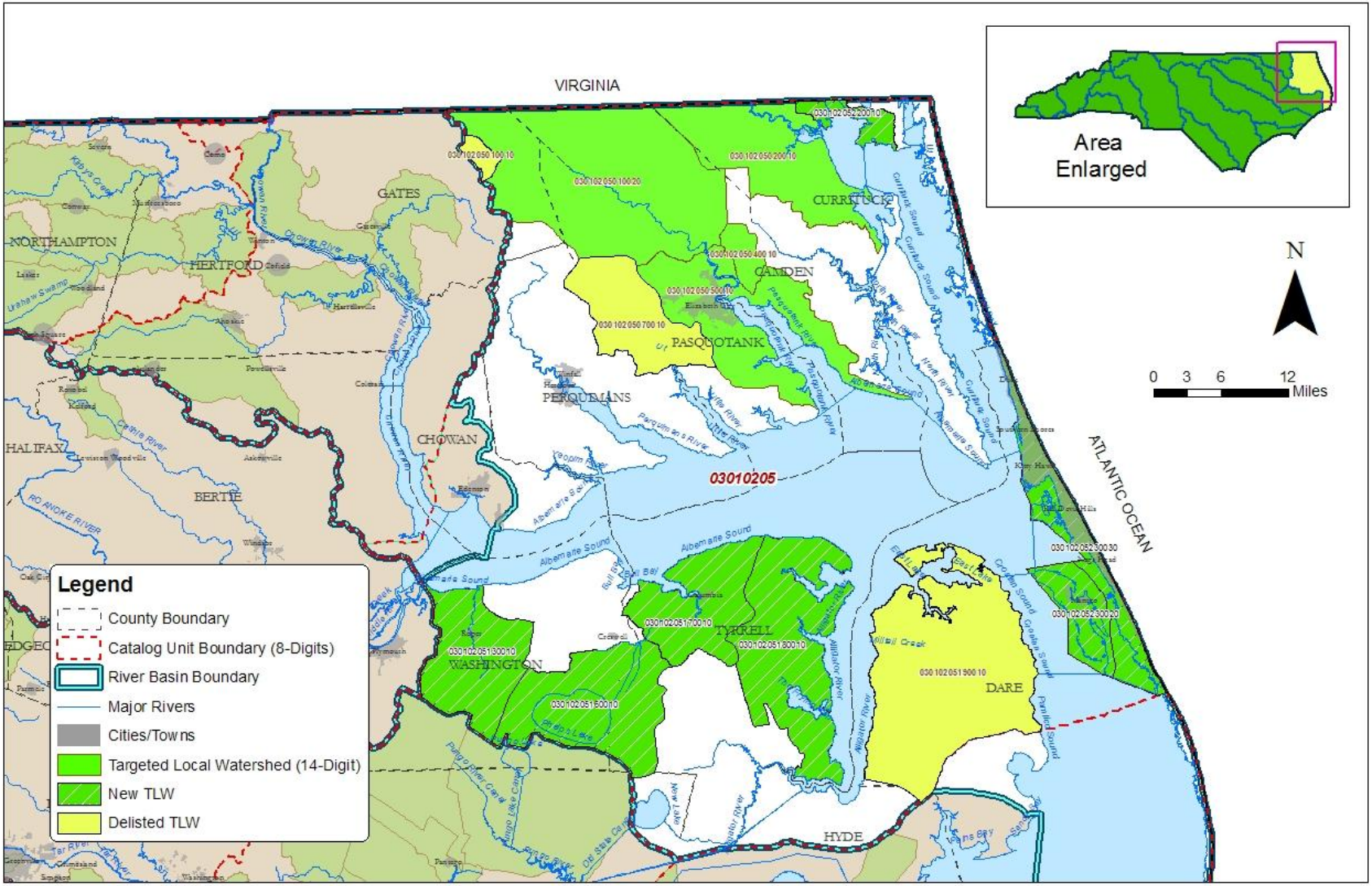



**Figure 1. TLWs, Pasquotank River Basin.**

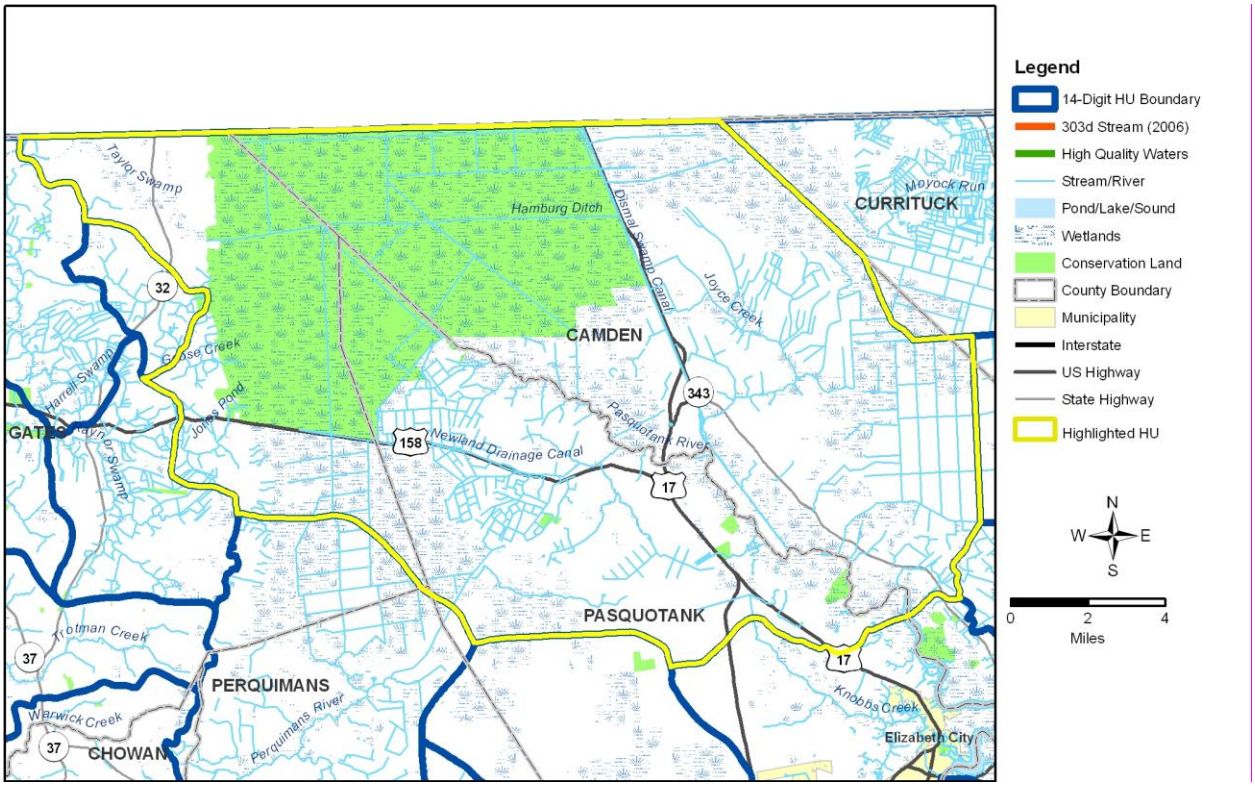
## Discussion of Pasquotank River Basin Targeted Local Watersheds

The following section provides maps and descriptions of TLWs and a discussion of the environmental conditions and activities that lead to their selection.

### Upper Pasquotank River: 03010205010020

The Upper Pasquotank River HU includes Joyce Creek, the Newland Drainage Canal and a substantial portion of the Great Dismal Swamp (preserved in the Great Dismal Swamp National Wildlife Refuge and the Great Dismal Swamp State Natural Area). The Great Dismal Swamp Canal bisects the watershed in the northeast. At nearly 240 square miles, it is the largest HU designated as a TLW in this CU. Approximately 34% of the land area is in agriculture and much of the agricultural land outside the Swamp has been ditched and dammed. Nine permitted animal operations can be found here. About half of the waterways have woody vegetation buffers. Twenty-four Natural Heritage Element Occurrences (NHEOs) are documented in the watershed and 34% of the HU is designated Significant Natural Heritage Area (SNHA). The Coastal Land Conservancy has developed one project here. The watershed has very little impervious surface and minimal concentrated development. That, coupled with very little slope throughout, helps to minimize the impacts of stormwater runoff for most areas here. There are about 13 miles of planned Transportation Improvement Program (TIP) projects in the watershed.

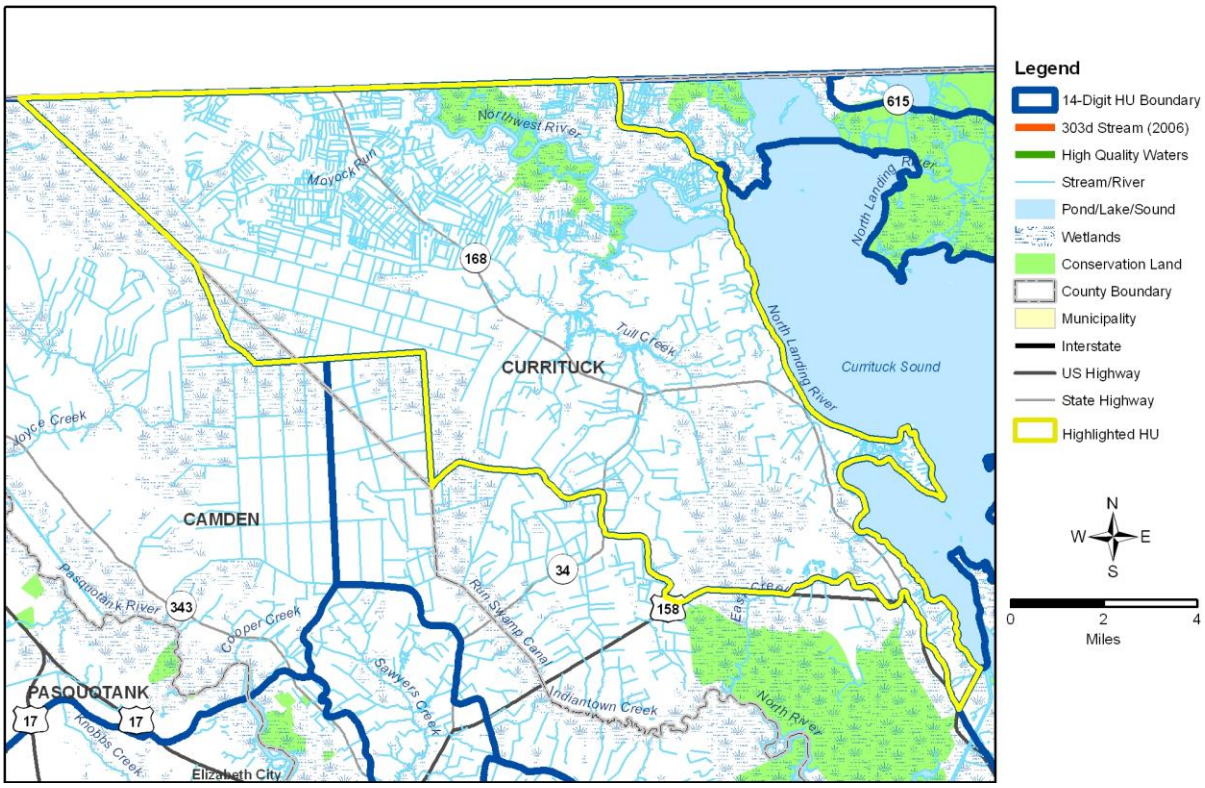
Priorities for this watershed include buffer and riparian corridor restoration, ditch rehabilitation, and removal of fish barriers.



## Tull & Buckskin Creeks: 03010205020010

This HU encompasses approximately 109 square miles, with nearly 3% open water surface. The watershed is home to one Section 319 and two Clean Water Management Trust Fund water quality improvement projects. Forty-one Natural Heritage Element Occurrences are documented here with 19% of the watershed designated as Significant Natural Heritage Area. There are about 13 miles of anticipated TIP projects. Over 70% of the streams and ditches here are unbuffered. One permitted animal operation is present in the watershed. Forty-six percent of the HU is used for agriculture.

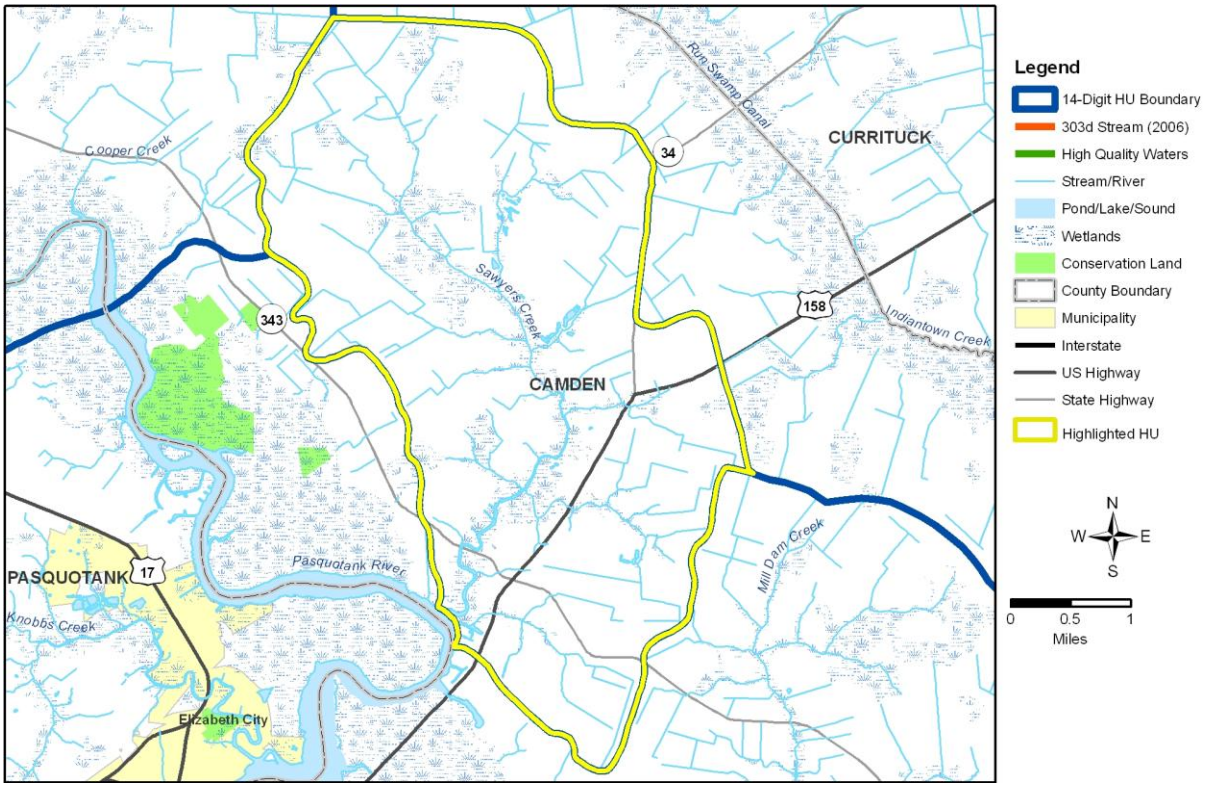
Priorities for this HU include reestablishment of riparian buffers and reestablishing more natural channel conditions in areas that are heavily ditched.



## Sawyers Creek: 03010205040010

The Sawyers Creek watershed is only about 14.5 square miles. It was part of the EEP's Pasquotank River Local Watershed Plan (2003). It is dominated by agricultural land use (72%). Most of the streams and ditches (72%) remain unbuffered. Two permitted animal operations can be found here. The TIP has planned approximately 3.3 miles of projects. No watershed improvement projects are documented in Sawyers Creek.

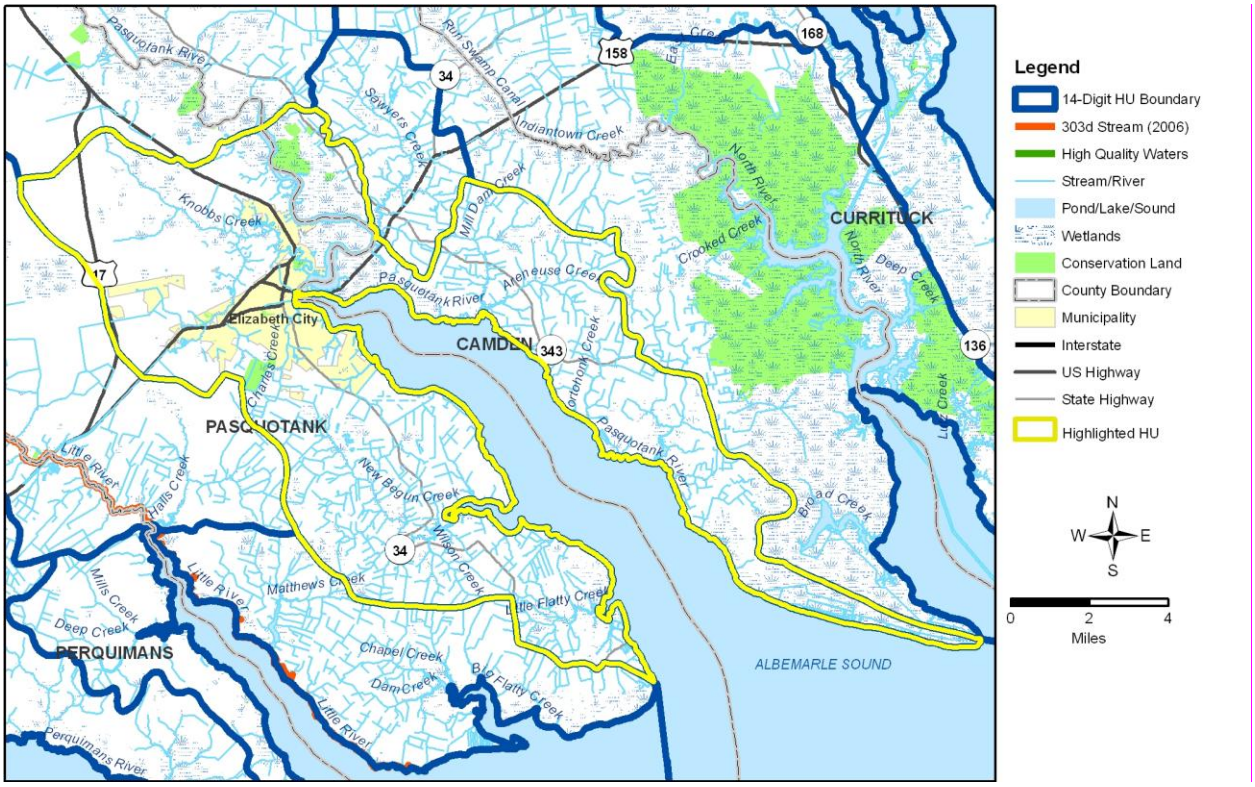
High priority projects in this relatively small watershed should reestablish woody buffers.



## Knobbs & Areneuse Creeks: 03010205050010

This HU actually consists of multiple small creek systems including Charles, Mill Dam, Portohonto, Newbegun, and Big Flatty creeks in addition to Knobbs and Areneuse creeks. The land area is bisected by the very substantial Pasquotank River southeast of Elizabeth City. This wide, tidal segment of the Pasquotank River is outside of this HU. The watershed is about 117 square miles with about 2% of that existing as open water. Thirty-six percent of the streams and rivers here are buffered with woody vegetation. The NC Department of Transportation (DOT) has projected about 10 miles of improvement projects for the watershed. Approximately 1.6% of the surface area is considered impervious, primarily concentrated in the vicinity of Elizabeth City. Seven animal operations exist here with 59% of the land use in agriculture. There are one CWMTF and two Coastal Land Trust projects in the watershed. EEP developed two restoration projects in Elizabeth City. The watershed boasts 17 NHEOs and 6% SNHA. These creeks are all part of the Pasquotank River Local Watershed Plan developed by EEP.

Priority projects for this HU should include agricultural BMPs, stormwater BMPs (especially around Elizabeth City), restoration of ditched systems, and reestablishment of riparian buffers.



## Kendrick Creek: 03010205130010

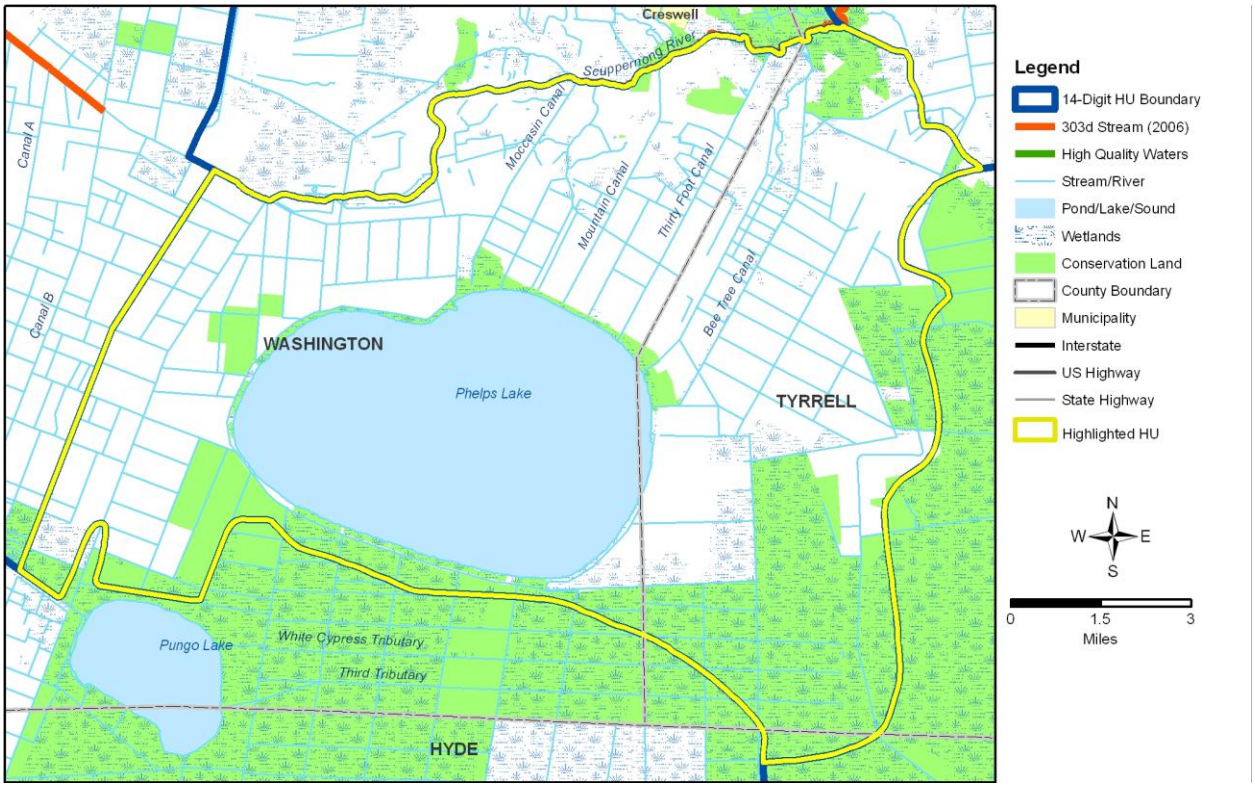
The Kendrick Creek Watershed is 85 square miles, with 5% of the area developed and 47% in agricultural use. There are 303 miles of stream and ditches, 30% of which are buffered. The majority of the watershed has been ditched to help improve drainage for agriculture and sylviculture. Nine percent of the HU is conservation area and 8% is designated SNHA. Ten NHEO can be found in the watershed. The CWMTF sponsored one project here and the DWQ 319 program sponsored three. Seventeen permitted animal operations occur here as well. Kendrick Creek an adjacent canal both drain into the town of Roper, NC and are on the 303(d) list of impaired waters for NC. The impaired stream length accounts for 3.4% of the total stream miles here. The NCDOT has planned 7.6 miles of transportation projects for the area.

Primary goals here are to restore headwater ditch systems and to establish buffers that reduce inputs, especially into the impaired streams. Projects that augment or improve connectivity between conservation lands should also be developed.

## Phelps Lake: 03010205160010

The Phelps Lake watershed has an area of 115 square miles. Ninety square miles are land and about 25 square miles are open water. Phelps Lake is a 16,600 acre lake averaging about 7 feet deep. Pettigrew State Park engulfs the lake with 1300 acres of land, including some near pristine examples of pocosin forest. The HU has 243 miles of streams with about 35% of them buffered. Forty-four percent of the watershed is conservation area, including 39% designated SNHA. Twenty-five NHEO have been documented here. Two CWMTF projects have been constructed here as well as one Wildlife Resources Commission (WRC) project. Twenty-four miles (10%) of streams are listed on the state's 303(d) list of impaired waters. Six animal operations occur in the watershed. Very little impervious surface exists here (0.3%) and there are no scheduled TIP projects. Forty-three percent of the watershed is in agriculture and the headwaters are very heavily ditched.

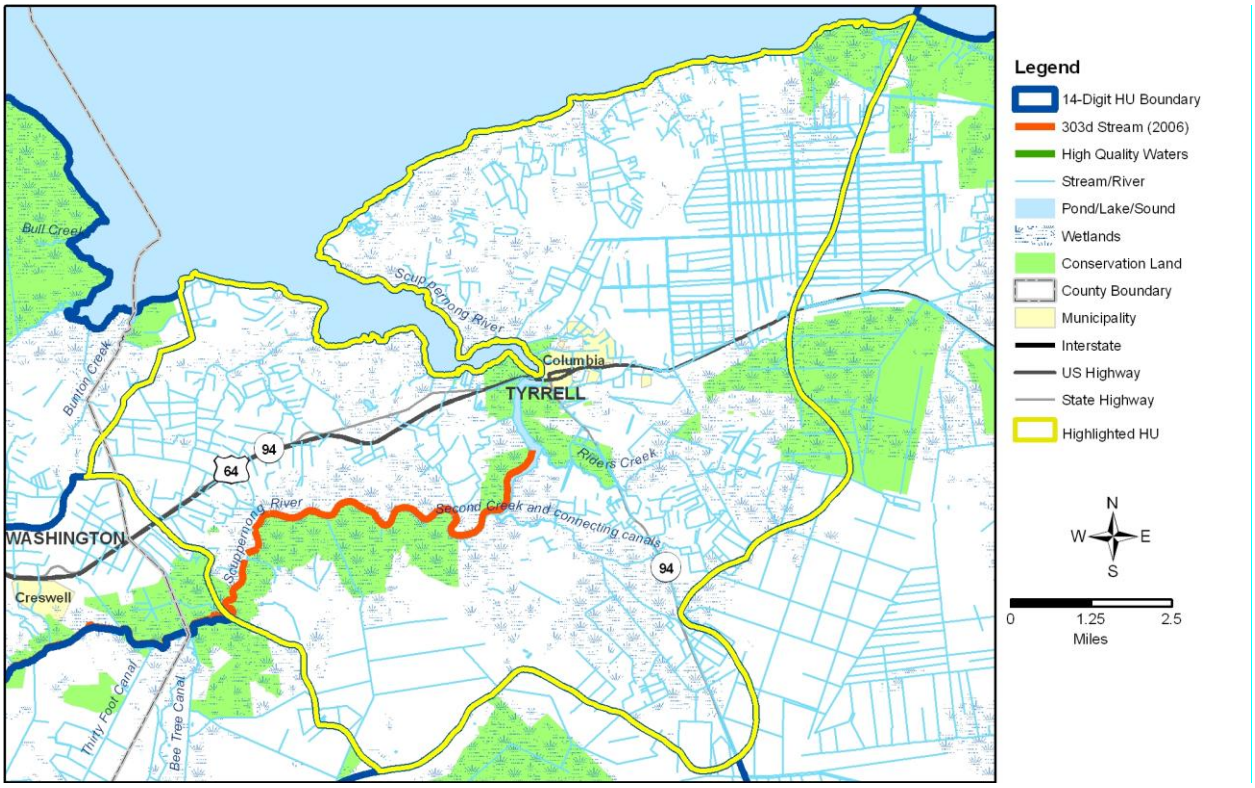
Watershed improvement projects in the Phelps Lake HU should concentrate on restoring ditched streams and reestablishing riparian buffers.



## Scuppernong River: 03010205170010

The Scuppernong River watershed covers about 82 square miles, including about 1% open water. Four percent of the land is developed while 29% is used for agriculture. Thirteen animal operations can be found here. Three-hundred forty-four miles of stream and canals exist in the watershed. Slightly more than half of these waterways are buffered with woody riparian vegetation. Ten percent of the watershed is dedicated conservation area, with 19% SNHA. Twenty-three NHEOs are documented in the Scuppernong River HU. Nearly 10 miles of stream (2.9%) are listed on the state 303(d) list of impaired waters. NCDOT has planned 10.6 miles of improvement projects in this HU. Five CWMTF water quality improvement projects have been built here. Three mitigation banks have been established here to produce restoration credits for nonriparian wetlands.

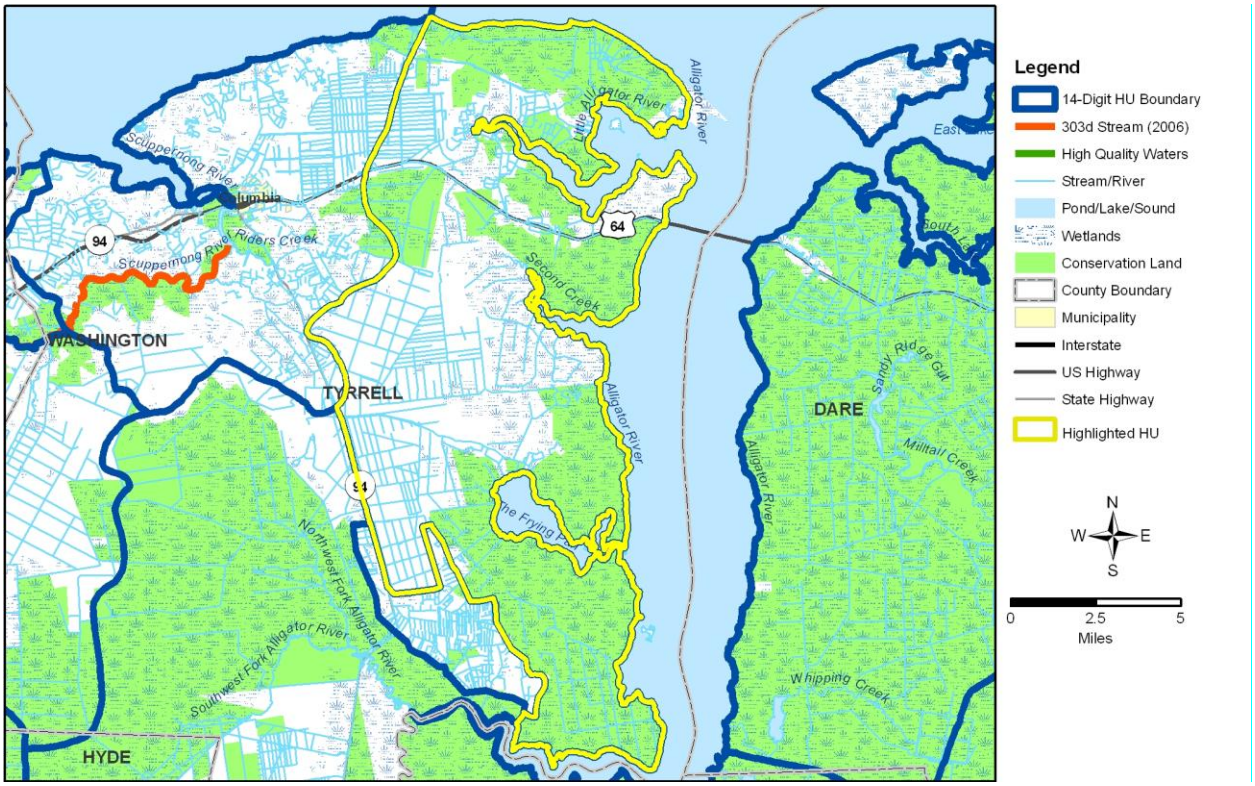
This watershed will benefit most from projects that establish buffers that reduce impacts of agriculture and enhance connectivity of preserved areas. Restoration of streams and wetlands in heavily ditched areas is also a high priority.



## Little Alligator River: 03010205180010

The Little Alligator River watershed covers about 137 square miles. Two-and-a-half percent is developed land, 19% is in agriculture, and about 1% is open water. There are 408 miles of streams, ditches and canals of which 28% are buffered with woody plants. Half the HU is conservation area with 60% designated SNHA. Fifty-three NHEOs have been documented here. In this HU, CWMTF established four projects and the Coastal Land Conservancy established two. NCDOT's TIP anticipates construction of 9.6 miles of road projects here in the foreseeable future.

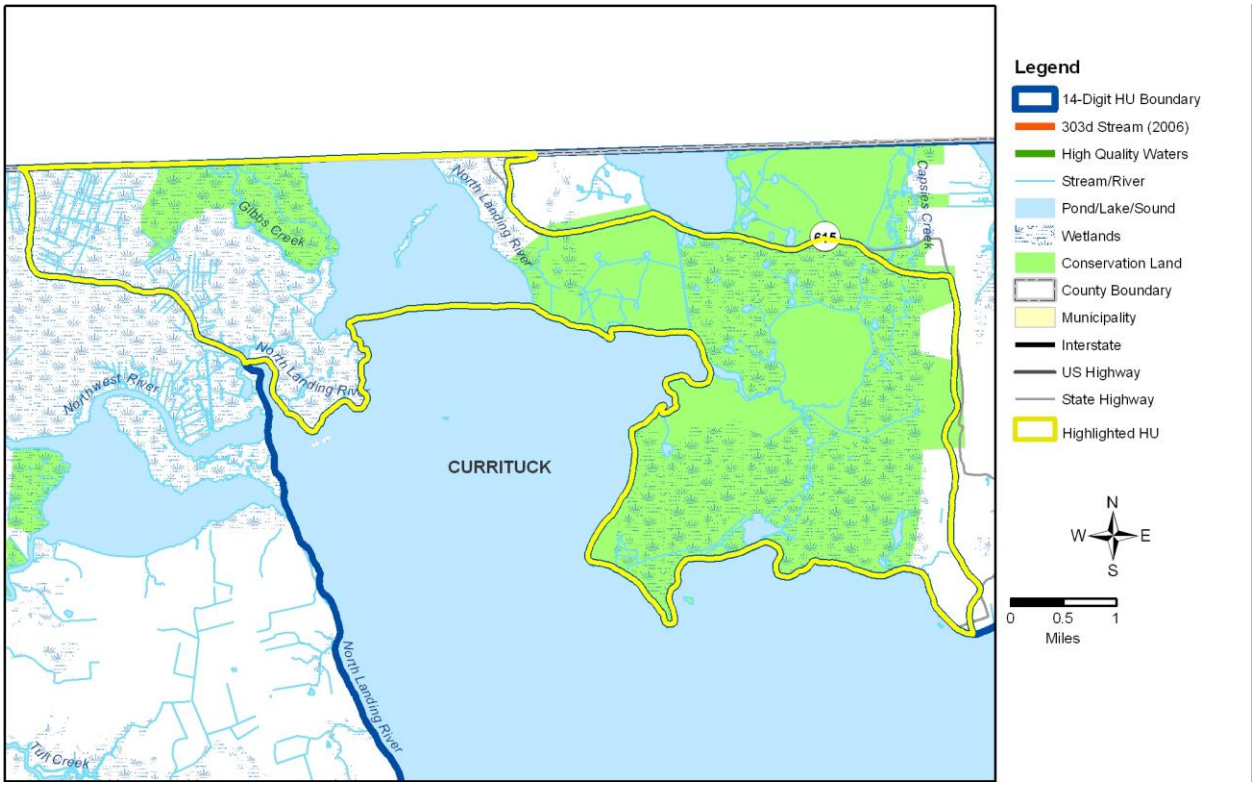
This watershed will best benefit from riparian buffer projects and corridor development, including preservation of additional wetlands. Restoration of ditched networks to a more natural condition will also improve the system.



## Upper Currituck Sound: 03010205220010

The Upper Currituck Sound HU is relatively small at 17.5 square miles total, but it incorporates a broad mix of habitats and restoration opportunities. Twenty-one percent of the watershed is in agricultural production and 16% is open water. There are 43 miles of stream and canals here of which only 14% are buffered. Nearly 60% of the HU is designated conservation land, most of this is SNHA. Twenty NHEOs can be found here. A single CWMTF project was established in the watershed.

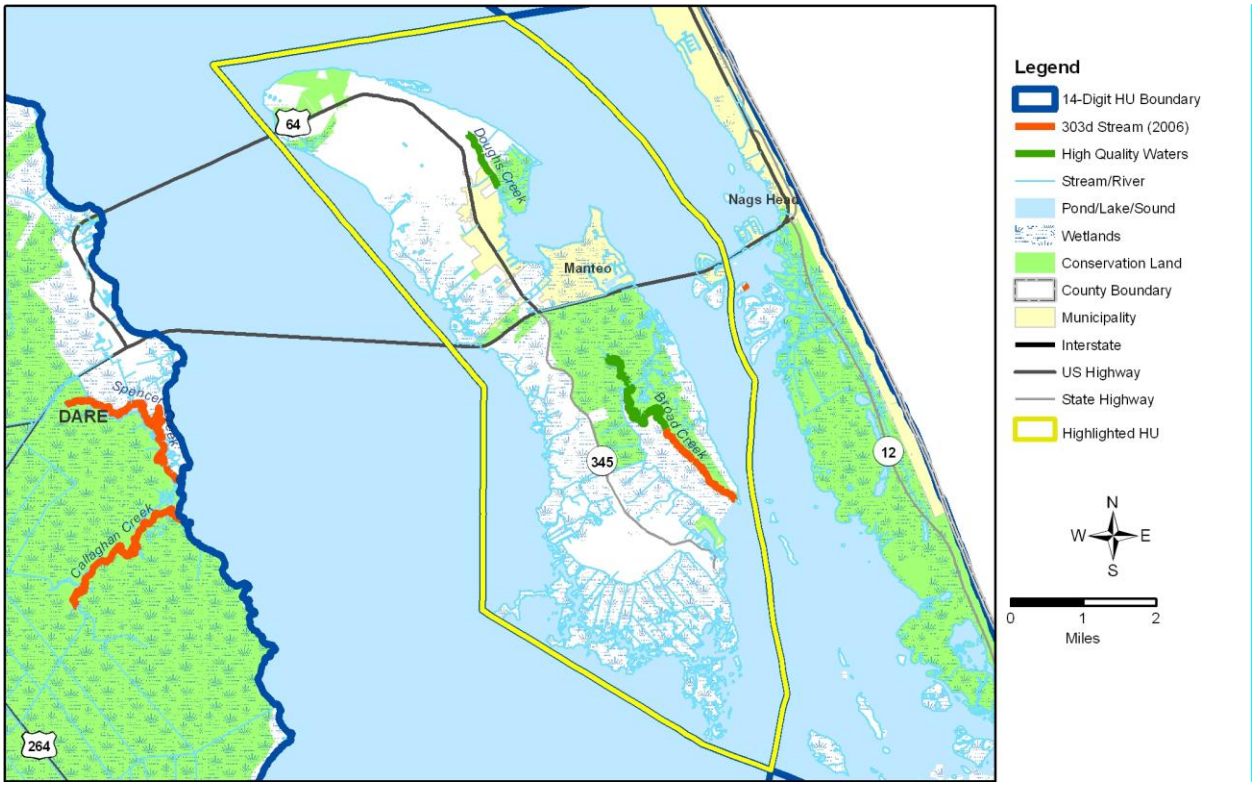
This watershed lends itself well to restoration of seagrass and oyster beds, including in the context of non-traditional mitigation. Shoreline stabilization projects such as the Living Shorelines developed by the NC Coastal Federation would benefit the marshes along the sound in this HU. Woody buffers should be established where appropriate as well.



## Manteo: 03010205230020

The HU that includes Manteo is about 39 square miles, approximately equal parts land area and open water. Eight percent of the total HU area is developed with an imperviousness estimate approaching 4%. An additional four percent is used for agriculture. Eleven percent of the area is SNHA. Twenty-one NHEOs exist here. Of the 49 miles of stream here, about 2% are designated high quality waters (HWQ) by the Division of Water Quality (DWQ). Ninety-three percent of streams are unbuffered in this HU. Significant beds of oysters and submerged aquatic vegetation (SAV) historically existed in the waters surrounding the island. The NC Coastal Federation established a Living Shoreline project adjacent to Festival Park and designed a stormwater marsh project with a Living Shoreline component in a major canal draining into Shallowbag Bay, an impaired waterbody. Additionally there are six CWMTF projects found here. About 21% of the waterbodies in the HU are 303(d)-listed.

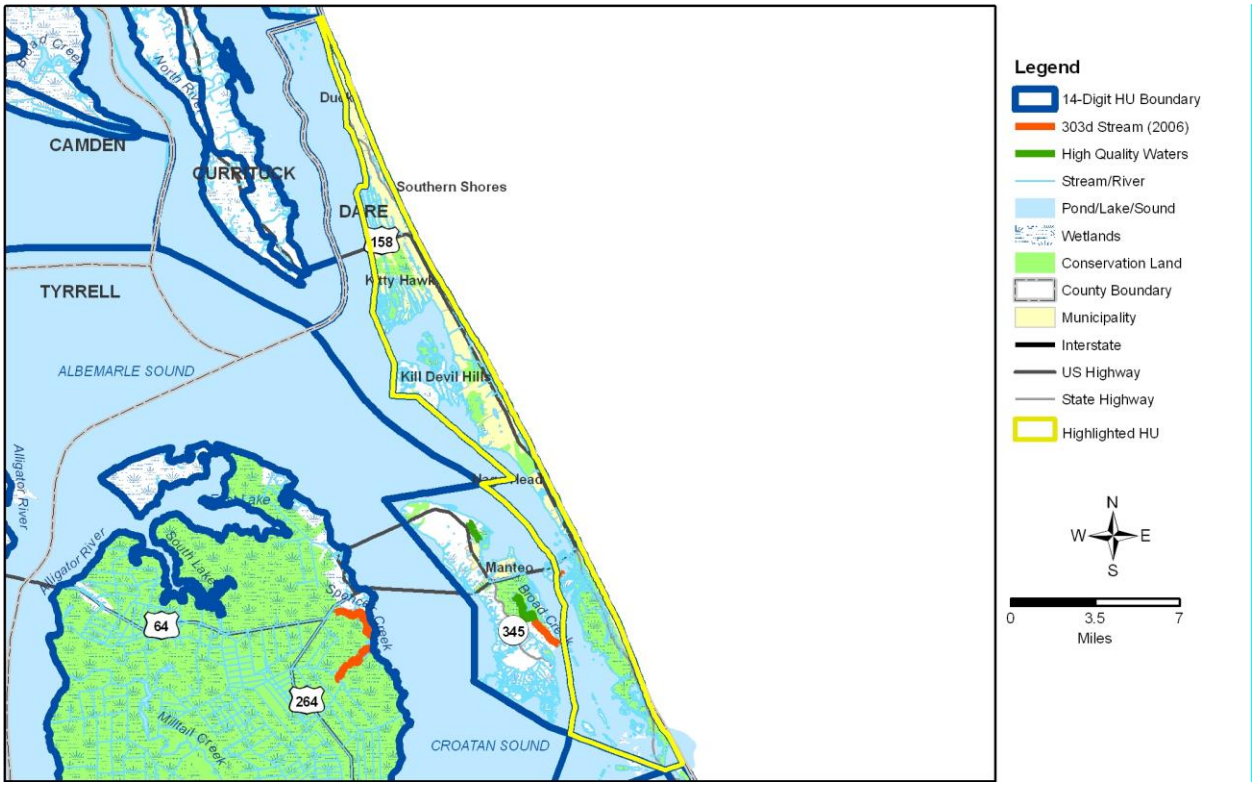
The Manteo HU priorities include developing BMP projects that offset the impacts of stormwater runoff and those that protect the shoreline. Marsh, SAV and oyster reef restoration are high priority projects here too.



## Kitty Hawk & Oregon Inlet: 03010205230030

This HU consists of 66 square miles total, including 40% open water, 12% developed land, 11% agricultural land, and 10% bare land. Six percent of the HU is considered impervious surface. There are 58 miles of stream with 48% of them unbuffered. Twenty-two percent of the watershed is dedicated conservation area and 13% is designated SNHA. There is relatively high occurrence of Natural Heritage Elements here (78 total), especially bird species. The Section 319 program of DWQ has sponsored one project in the watershed and CWMTF has funded three. There are three miles (5.3%) of 303(d)-listed streams in this HU.

Stormwater BMPs are the highest priority for the developed areas in this HU. Other non-traditional projects (for mitigation) that are important in this HU include shoreline stabilization and oyster & SAV restoration.



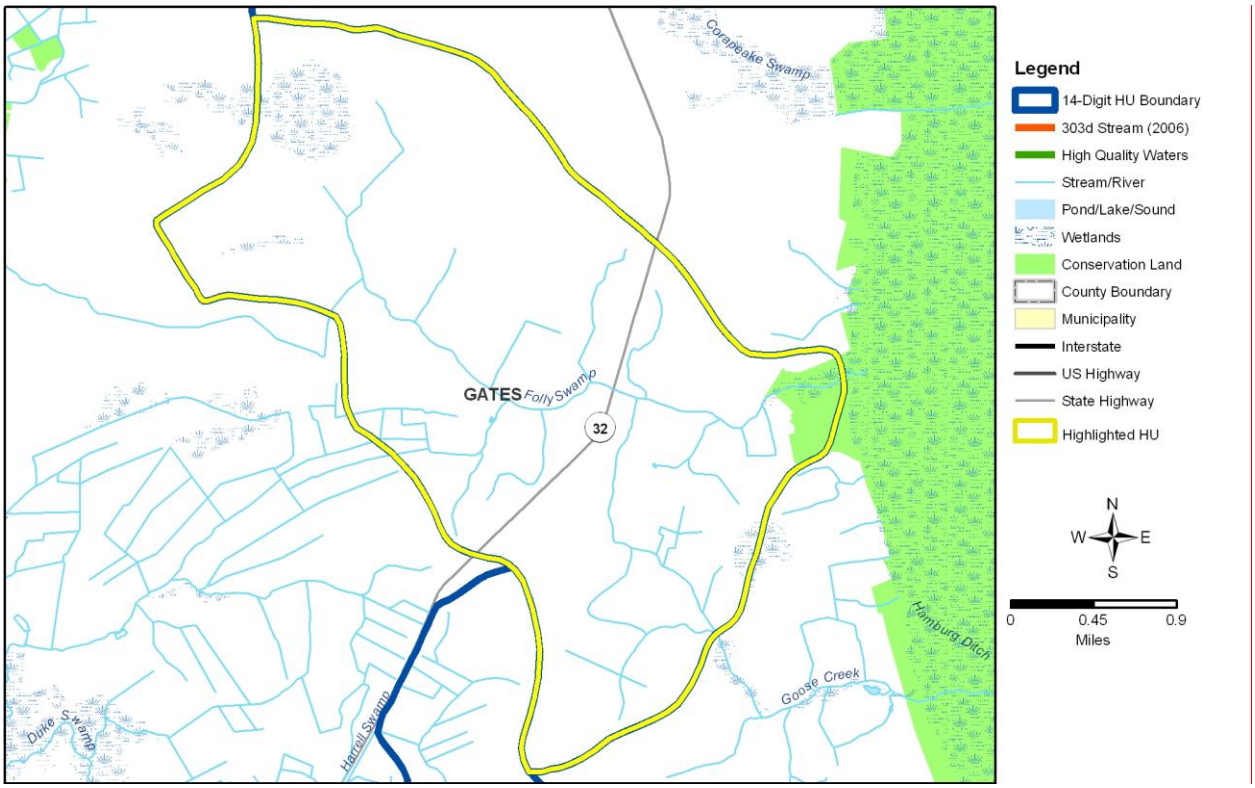
## Information on Watersheds with removed TLW designation

This section contains information on HUs that had their TLW designation removed. This change in designation affected three TLWs in the Pasquotank.

Folly Swamp: 03010205010010

The Folly Swamp watershed is the smallest TLW in this 8-digit catalog unit. The total area is slightly less than seven square miles with only 1% of that considered developed land. Forty-percent of the HU is used for agriculture. About 18 miles of stream exist in the watershed, nearly half of them buffered with woody vegetation. Two percent of this watershed is conservation land. One cattle and two poultry operations are found here also.

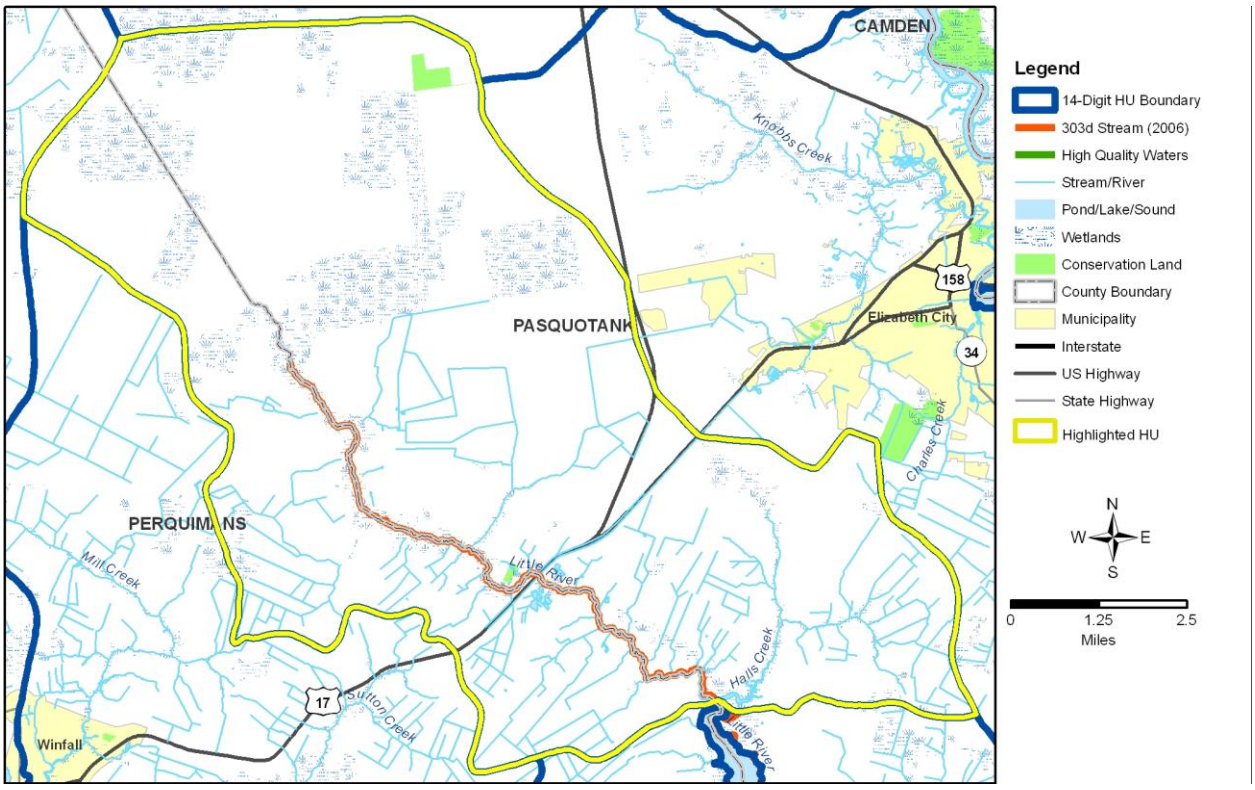
This watershed ranked among the lowest of all the HUs for both asset and opportunity indicators. Despite having a low to moderate score for problem indicators, the watershed isn't a high priority for targeting when compared to the new and remaining TLWs. This HU has been de-listed.



## Little River: 03010205070010

The Little River HU encompasses 74 square miles with very little development (1%). Most of the land (68%) is in agricultural use, including one swine and four cattle farms. There are 126 miles of stream here, 79% unbuffered. Nearly 7% of the streams are designated impaired on NC's 303(d) list. Only 0.7 miles of TIP projects are slated for the watershed in the near future.

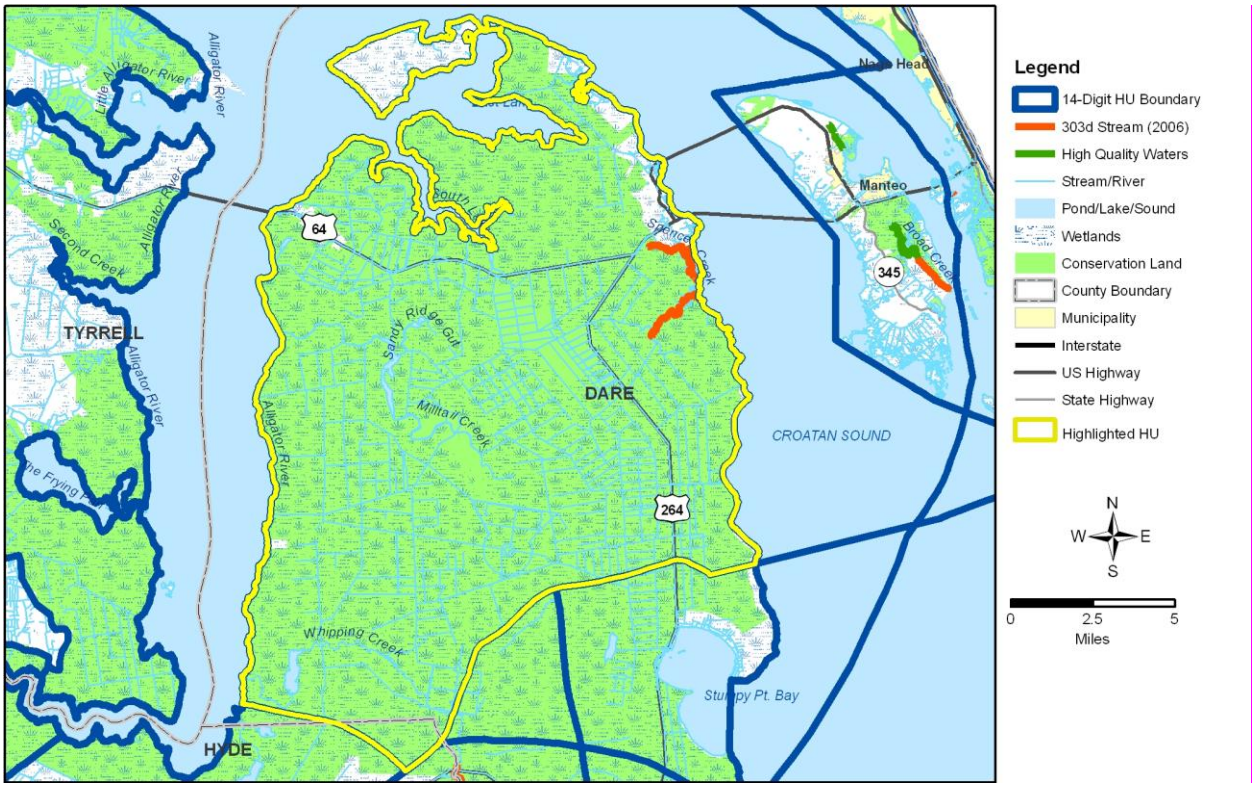
Similar to Folly Swamp, this HU has some problem indicators, but little in the way of assets and opportunities. Compared to other TLWs in the Pasquotank, this one ranks too low to maintain its designation as a target.



## Alligator River: 03010205190010

The Alligator River TLW is easily the best protected HU in the Pasquotank catalog unit. It covers 225 square miles with a little over 1% development. About 3% is used for agriculture and 2% exists as open water. There are 502 miles of stream, 71% of those are buffered. Twenty-seven miles are designated Outstanding Resource Waters (ORW) by DWQ. A whopping 92% of the total area is preserved in the Alligator River National Wildlife Refuge. The Natural Heritage Program designated 79% of the total HU area as SNHA. One-hundred seventy-four NHEOs have been documented in the watershed. Nearly 10 miles of stream (1.9%) are 303(d)-listed. Almost 12 miles of TIP projects are anticipated for the watershed, primarily along US Routes 64 & 264.

Because so much of the watershed is already protected, restoration projects would be more effective in other HUs where more problems and opportunities exist. This de-listing is a positive occurrence.



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## For More Information

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## Definitions

8-digit Catalog Unit (CU) – The USGS developed a hydrologic coding system to delineate the country into uniquely identified watersheds that can be commonly referenced and mapped. North Carolina has 54 of these watersheds uniquely defined by an 8-digit number. EEP typically addresses watershed – based planning and restoration in the context of the 17 river basins (each has a unique 6-digit number), 54 catalog units and 1,601 14-digit hydrologic units.

14–digit Hydrologic Unit (HU) – In order to address watershed management issues at a smaller scale, the U.S. Natural Resources Conservation Service (NRCS) developed methodology to delineate and uniquely identify watersheds at a scale smaller than the 8-digit catalog unit. A hydrologic unit is a drainage area delineated to nest in a multilevel, hierarchical drainage system. Its boundaries are defined by hydrographic and topographic criteria that delineate an area of land upstream from a specific point on a river, stream or similar surface waters. North Carolina has 1,601 14-digit hydrologic units.

EEP – The North Carolina Ecosystem Enhancement Program combines existing wetlands restoration initiatives (formerly the Wetlands Restoration Program or NCWRP) of the N.C. Department of Environment and Natural Resources with ongoing efforts by the N.C. Department of Transportation (NCDOT) to offset unavoidable environmental impacts from transportation-infrastructure improvements.

GIS - A geographic information system integrates hardware, software, and data for capturing, managing, analyzing, and displaying all forms of geographically referenced information.

NCDWQ – North Carolina Division of Water Quality

NCWRP – The North Carolina Wetlands Restoration Program was a wetland restoration program under NC DENR and a predecessor of the NCEEP.

NPDES - National Pollutant Discharge Elimination System (NPDES) program was established by the federal government to control point-source discharges of water pollution. The NPDES Permitting and Compliance Program of North Carolina's Division of Water administers the program for the state. The Program aims to protect, maintain and enhance the State's waters by fostering compliance with North Carolina's environmental statutes, regulations and permits.

RBRP - The River Basin Restoration Priorities are documents that delineate specific watersheds (Targeted Local Watersheds) within a River Basin that exhibit both the need and opportunity for wetland, stream and riparian buffer restoration.

TLW - Targeted Local Watershed, are 14-digit hydrologic units which receive priority for EEP planning and restoration project funds.

USGS – United States Geological Survey

Watershed Restoration Plan – Previous namesake of the RBRP documents.