

Section B: Chapter 9

Yadkin-Pee Dee River Subbasin 03-07-09

Uwharrie River Watershed including Lake Reese

9.1 Water Quality Overview

Subbasin 03-07-09 at a Glance

Land and Water

| | |
|---------------|---------------------|
| Total area: | 388 mi ² |
| Stream miles: | 274.8 |
| Lake acres: | 469.4 |

Population Statistics

| | |
|-----------------|-----------------------------|
| 1990 Est. Pop.: | 41,702 people |
| Pop. Density: | 108 persons/mi ² |

Land Cover (%)

| | |
|---------------------------------|------|
| Forest/Wetland: | 75.9 |
| Surface Water: | 0.7 |
| Urban: | 1.1 |
| Cultivated Crop: | 1.5 |
| Pasture/ Managed Herbaceous: | 20.8 |

This subbasin is comprised entirely of the Uwharrie River watershed. The Uwharrie River begins below High Point in the northwestern portion of Randolph County. It flows south through the newly-formed Town of Trinity and continues for several miles on the same southern path through Lake Reese and the Uwharrie National Forest in Montgomery County before entering the Yadkin-Pee Dee River just below Falls dam. Major tributaries include the Little Uwharrie River, Caraway Creek and Back Creek.

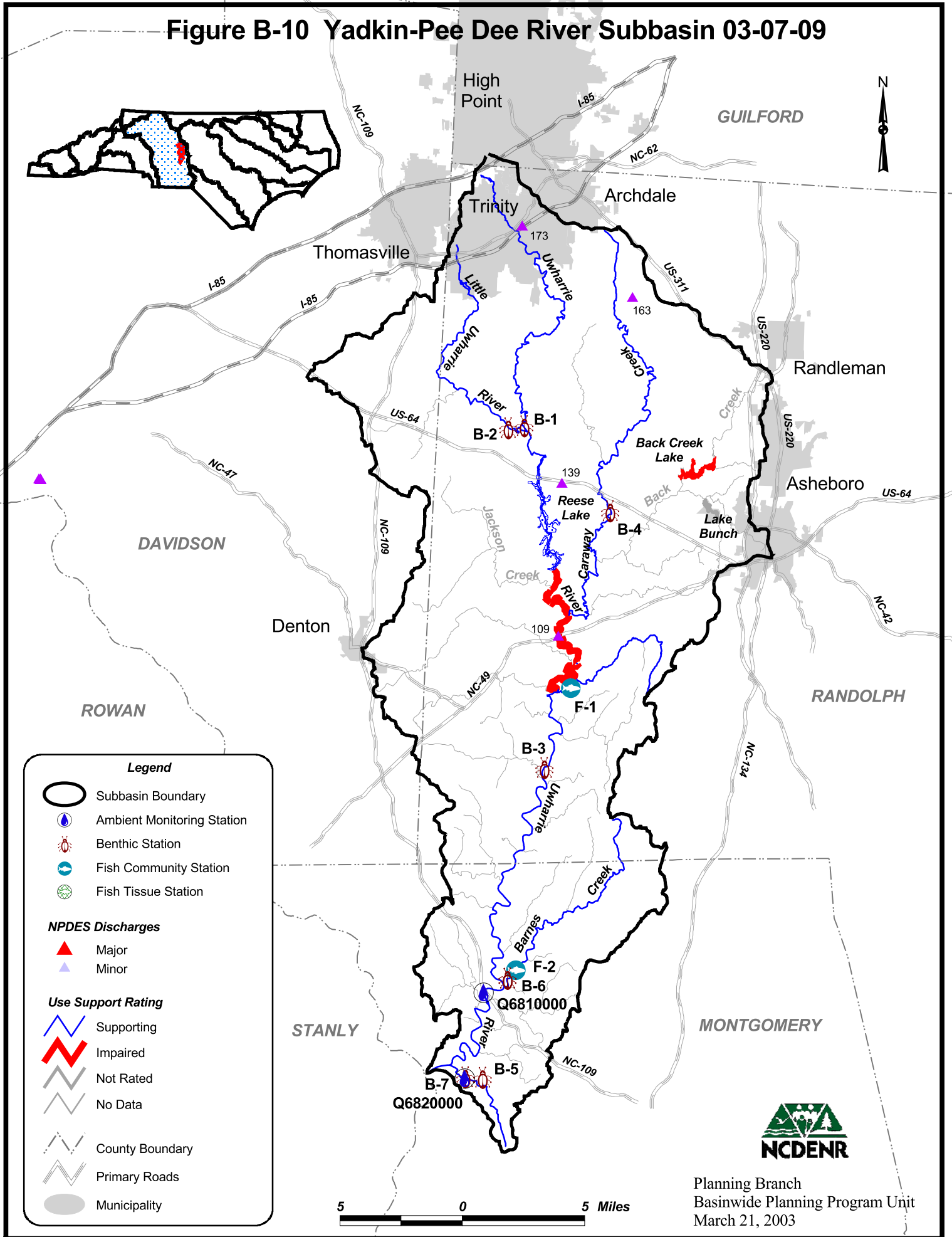
A map including the locations of NPDES discharges and water quality monitoring stations is presented in Figure B-10. Table B-18 contains a summary of monitoring data types, locations and results. Use support ratings for waters in this subbasin are summarized in Table B-19. Appendix I provides a key to discharge identification numbers. Refer to Appendix III for a complete listing of monitored waters and more information about use support ratings.

Most of the land is forested (76 percent), but a significant amount is also used for agriculture (22 percent). Only a very small portion is characterized as urban. The population of the subbasin is estimated to be more than 50,000 people, although the density is still rather low compared with the statewide average. Projected population increases for Randolph and Montgomery counties are 37 and 24 percent, respectively, between 2000 and 2020.

There are only five NPDES permitted discharges and seven registered animal operations in this subbasin. The capacity for dairy and swine production decreased significantly, while poultry production capacity increased 37 percent between 1994 and 1998. Facilities with compliance or toxicity problems are discussed in following sections.

A large portion of the Uwharrie National Forest is found within this subbasin. The streams that drain this area host a large numbers of rare mollusks, as well as the Carolina darter. Barnes Creek and its tributaries in the National Forest are classified Outstanding Resource Waters. Currently, other streams throughout the watershed, including the Uwharrie River mainstem, are being evaluated to determine their suitability for this highest level of protection. Back Creek, draining to and including Back Creek Lake, as well as an unnamed tributary to Cedar Fork Creek draining to and including Lake Bunch, are classified WS-II. This classification provides an equivalent level of protection as that of HQW.

Figure B-10 Yadkin-Pee Dee River Subbasin 03-07-09



Legend

- Subbasin Boundary
- Ambient Monitoring Station
- Benthic Station
- Fish Community Station
- Fish Tissue Station

NPDES Discharges

- Major
- Minor

Use Support Rating

- Supporting
- Impaired
- Not Rated
- No Data
- County Boundary
- Primary Roads
- Municipality



Table B-18 DWQ Monitoring Locations, Bioclassifications and Notable Chemical Parameters (1998-2002) for Yadkin-Pee Dee River Subbasin 03-07-09

| Site | Stream | County | Road | Bioclassification or Noted Parameter ² |
|---|------------------------------------|------------|------------|---|
| <i>Benthic Macroinvertebrate Community Monitoring</i> | | | | |
| B-1 | Uwharrie River ¹ | Randolph | SR 1406 | Good-Fair |
| B-2 | Little Uwharrie River ¹ | Randolph | SR 1405 | Good-Fair |
| B-3 | Uwharrie River | Randolph | SR 1143 | Good |
| B-4 | Caraway Creek ¹ | Randolph | SR 1331 | Good-Fair |
| B-5 | Uwharrie River | Montgomery | NC 109 | Excellent |
| B-6 | Barnes Creek ¹ | Montgomery | SR 1303 | Excellent |
| B-7 | Dutchmans Creek ¹ | Montgomery | SR 1150 | Excellent |
| <i>Fish Community Monitoring</i> | | | | |
| | Uwharrie River ¹ | Randolph | SR 1406 | Excellent |
| F-1 | Betty McGees Creek ¹ | Randolph | SR 1107 | Good |
| F-2 | Barnes Creek ¹ | Montgomery | SR 1303 | Excellent |
| <i>Ambient Monitoring</i> | | | | |
| Q6810000 | Uwharrie River | Montgomery | NC 109 | None |
| Q6820000 | Dutchmans Creek | Montgomery | SR 1150 | None |
| <i>Yadkin-Pee Dee River Basin Association Monitoring</i> | | | | |
| Q6705000 | Uwharrie River | Randolph | NC 49 | Dissolved oxygen |
| <i>Lakes Assessment</i> | | | | |
| -- | McCrary Lake | Randolph | 1 station | None |
| -- | Lake Bunch | Randolph | 1 station | Nutrients |
| -- | Back Creek Lake | Randolph | 3 stations | % DO saturation, pH, Nutrients |
| -- | Lake Reese | Randolph | 3 stations | Nutrients |

¹ Historical data of this type are available for this waterbody; refer to Appendix II. Sites may vary.

² Parameters are noted if in excess of state standards in more than 10 percent of samples collected within the assessment period (9/1996-8/2001).

For more detailed information on sampling and assessment of streams in this subbasin, refer to the *Basinwide Assessment Report - Yadkin-Pee Dee River Basin* (NCDENR-DWQ, June 2002), available from DWQ Environmental Sciences Branch at <http://www.esb.enr.state.nc.us/bar.html> or by calling (919) 733-9960.

Table B-19 Use Support Ratings Summary (2002) for Monitored and Evaluated Freshwater Streams (miles) and Lakes (acres) in Yadkin-Pee Dee River Subbasin 03-07-09

| Use Support Category | Units | Supporting | Impaired | Not Rated | No Data | Total ¹ |
|--|-------|------------|--------------|-----------|---------|--------------------|
| Aquatic Life/Secondary Recreation | miles | 108.1 | 27.3 | 0.6 | 138.8 | 274.8 |
| | acres | 69.6 | 354.8 | 45.0 | 0.0 | 469.4 |
| Fish Consumption² | miles | 0.0 | 274.8 | 0.0 | 0.0 | 274.8 |
| | acres | 0.0 | 469.4 | 0.0 | 0.0 | 469.4 |
| Primary Recreation | miles | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| | acres | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Water Supply | miles | 99.1 | 0.0 | 0.0 | 0.0 | 99.1 |
| | acres | 342.9 | 0.0 | 0.0 | 0.0 | 342.9 |

¹ Total stream miles/acres assigned to each use support category in this subbasin. Column is not additive because some stream miles are assigned to more than one category.

² These waters are impaired based on fish consumption advice issued for three species of freshwater fish due to mercury contamination. Refer to page 104 of Section A for details.

9.2 Status and Recommendations for Previously Impaired Waters

This section reviews use support and recommendations detailed in the 1998 basinwide plan, reports status of progress, gives recommendations for the next five-year cycle, and outlines current projects aimed at improving water quality for each water. The 1998 Yadkin-Pee Dee River basin plan did not identify any Impaired waters in this subbasin.

9.3 Status and Recommendations for Newly Impaired Waters

Back Creek Lake and a portion of the Uwharrie River are Impaired based on recent DWQ monitoring (1998-2001). This section outlines the potential causes and sources of impairment and provides recommendations for improving water quality.

9.3.1 Back Creek Lake (250 acres)

Current Status

Back Creek Lake is currently Impaired due to violations of the percent dissolved oxygen water quality standard. Nutrient concentrations are high, and algae blooms which contribute to taste and odor problems in drinking water are common. Back Creek Lake is a drinking water supply source for the City of Asheboro. There are no NPDES permitted discharges to the watershed; however, many animal operations do exist. Cattle with direct access to Back Creek Lake have been observed by DWQ staff.

2002 Recommendations

A strategy for nutrient reduction, that includes best management practices for agricultural activities, is needed for the Back Creek Lake watershed. Despite the fact that these waters are classified WS-II, the amount of developed area is rapidly increasing. DWQ will work with the City of Asheboro to ensure that its local water supply watershed ordinance is being properly

implemented in the headwaters of Back Creek. Randolph County is required to obtain an NPDES permit for municipal stormwater systems under the Phase II stormwater rules. Asheboro will likely be required to obtain a stormwater permit during the next basinwide planning cycle. Refer to page 37 of Section A, Chapter 2 for details. Section A, Chapter 4 contains recommendations for reducing habitat degradation and the effects of urban runoff. Controlling erosion from construction sites and implementing best management practices to control stormwater are two important strategies for reducing nutrient inputs to the lake.

Water Quality Improvement Initiatives

The Back Creek watershed (03040103 050050) is one of 55 watersheds in the Yadkin-Pee Dee River basin that has been identified by the Wetlands Restoration Program as an area with the greatest need and opportunity for stream and wetland restoration efforts. This watershed will be given higher priority than a nontargeted watershed for the implementation of NCWRP restoration projects. Refer to page 278 in Section C for details.

9.3.2 Uwharrie River (26.7 miles from dam at Lake Reese to Betty McGees Creek)

Current Status

Water quality monitoring at NC 49 below Lake Reese revealed dissolved oxygen concentrations below 5.0 mg/l in 15 percent of samples collected. Two percent of samples contained concentrations less than 4.0 mg/l. Releases from the dam at Lake Reese upstream could contribute to problems with dissolved oxygen at this location.

2002 Recommendations

Further investigation into the causes and sources of these water quality impacts is needed before recommendations to improve water quality can be made. DWQ will notify local agencies of water quality concerns regarding these waters and work with them to conduct further monitoring.

9.4 Section 303(d) Listed Waters

No waters in this subbasin are on the state's draft 2002 303(d) list. Back Creek Lake and the portion of the Uwharrie River discussed above will likely be added to the list in the future. Refer to Appendix IV for more information on the state's 303(d) list and listing requirements.

9.5 Status and Recommendations for Waters with Notable Impacts

Based on DWQ's most recent use support assessment, the surface waters discussed below are not Impaired. However, notable water quality impacts were documented. While these waters are not considered Impaired, attention and resources should be focused on them over the next basinwide planning cycle to prevent additional degradation or facilitate water quality improvement. A discussion of how impairment is determined can be found in Appendix III.

Although no action is required for these streams, voluntary implementation of BMPs is encouraged and continued monitoring is recommended. DWQ will notify local agencies and others of water quality concerns discussed below and work with them to conduct further monitoring and to locate sources of water quality protection funding. Additionally, education on

local water quality issues is always a useful tool to prevent water quality problems and to promote restoration efforts. Nonpoint source agency contacts are listed in Appendix VI.

9.5.1 Caraway Creek

Caraway Creek was support threatened in 1998, and the basin plan discusses problems with the discharge from Countryside Mobile Home Park WWTP. The recommendation was for the facility to evaluate alternatives to discharging at this location. If no alternatives were feasible, DWQ planned to apply advanced tertiary limits for oxygen-consuming wastes under the zero flow policy. During the most recent cycle of NPDES permit renewals, Countryside MHP received the recommended advanced tertiary limits. The facility is in significant noncompliance for BOD, ammonia and total suspended solids.

The Caraway Creek watershed contains several animal operations, and many small headwater tributaries are dammed for farm ponds. Although the stream continued to receive a Good-Fair bioclassification, moderate habitat degradation was observed. Dissolved oxygen was low when compared with other sites across the subbasin.

DWQ will continue to work with Countryside MHP to protect Caraway Creek from further degradation associated with this discharge. However, further investigation into the causes and sources of water quality impacts throughout the watershed is needed before specific recommendations to improve water quality can be made. Local actions are needed to reduce the effects of nonpoint source pollution, particularly from agricultural activities, and to restore habitat throughout the watershed. Refer to Section A, Chapter 4 for details about reducing habitat degradation.

9.5.2 Lake Reese Upper Uwharrie River Watershed

The dam at Lake Reese almost divides the Uwharrie River watershed in half. The headwaters of the Uwharrie River are heavily developed, and the urban and agricultural land use in the upper portion of the watershed stands in significant contrast to the vastly forested and undeveloped lower portion. Habitat degradation was noted at a benthic macroinvertebrate site above Lake Reese, and the community indicated occasional impacts from low dissolved oxygen. In the lake itself, nutrients are elevated and chlorophyll *a* concentrations are considered moderate. During sampling in 2001, the water had a yellow cast due to algae production. An increase in productivity has been observed between 1989 (mesotrophic) and 2001 (eutrophic) which corresponds roughly to the increase in developed areas upstream.

Local actions are needed to reduce the effects of nonpoint source pollution in the Lake Reese watershed. DWQ will notify local agencies of water quality concerns regarding these waters and work with them to conduct further monitoring and to locate sources of water quality protection funding. In addition, Randolph County, as well as High Point, Archdale and Trinity, are required to obtain NPDES permits for municipal stormwater systems under the Phase II stormwater rules. Refer to page 37 of Section A, Chapter 2 for details. Section A, Chapter 4 contains recommendations for reducing habitat degradation and the effects of urban runoff.

The upper Uwharrie River watershed (03040103 050010) is one of 55 watersheds in the Yadkin-Pee Dee River basin that has been identified by the NC Wetlands Restoration Program (NCWRP) as an area with the greatest need and opportunity for stream and wetland restoration efforts. This watershed will be given higher priority than a nontargeted watershed for the implementation of NCWRP restoration projects. Refer to page 278 in Section C for details.

9.5.3 Little Uwharrie River

The headwaters of the Little Uwharrie River are in Davidson and Randolph counties. The river flows generally southeast into the Uwharrie River just above its confluence with Lake Reese. This watershed is mostly in agricultural land use; however, development on tributaries draining Trinity is moderate. Increased development in the watershed along NC 109 and US 64 is likely in the future. Benthic macroinvertebrates have received Good-Fair bioclassifications in both 1996 and 2001; however, habitat degradation, primarily in the form of sedimentation, was observed. Local programs that focus on nonpoint source pollution reduction will be essential to protecting and improving water quality. Davidson and Randolph counties, as well as Trinity, are required to obtain NPDES permits for municipal stormwater systems under the Phase II stormwater rules. Refer to page 37 of Section A, Chapter 2 for details.

9.6 Additional Water Quality Issues within Subbasin 03-07-09

The previous parts discussed water quality concerns for specific stream segments. This section discusses water quality issues related to multiple watersheds within the subbasin. Information found in this section may be related to concerns about things that threaten water quality or about plans and actions to improve water quality.

9.6.1 Projected Population Growth

From 2000 to 2020, the estimated population increase for Randolph County is 37 percent and much of this growth is likely to occur in and around Asheboro. Population is also expected to increase by 24 percent for Montgomery County over the same 20-year period. Growth management within the next five years will be imperative, especially in and around urbanizing areas and along highway corridors, in order to protect or improve water quality in this subbasin. Growth management can be defined as the application of strategies and practices that help achieve sustainable development in harmony with the conservation of environmental qualities and features of an area. On a local level, growth management often involves planning and development review requirements that are designed to maintain or improve water quality. Refer to Section A, Chapter 4 for more information about urbanization and development and recommendations to minimize impacts to water quality.