

Executive Summary

North Carolina's Basinwide Approach to Water Quality Management

Basinwide water quality planning is a nonregulatory watershed-based approach to restoring and protecting the quality of North Carolina's surface waters. The NC Division of Water Quality (DWQ) prepares basinwide water quality plans for each of the 17 major river basins in the state. Each basinwide plan is revised at five-year intervals. While these plans are prepared by DWQ, their implementation and the protection of water quality entail the coordinated efforts of many agencies, local governments and stakeholders in the state. The first basinwide plan for the Yadkin-Pee Dee River basin was completed in 1998.

This draft document is the first five-year update of the *Yadkin-Pee Dee River Basinwide Water Quality Plan*. The format of this plan was revised in response to comments received during the first planning cycle. DWQ replaced much of the general information in the first plan with more detailed information specific to the Yadkin-Pee Dee River basin. A greater emphasis was placed on identifying causes and sources of pollution for individual streams in order to facilitate local restoration efforts.

DWQ considered information received during five public workshops held in the basin. Discussions with local resource agency staff and citizens during draft plan development were also essential. This input, along with that received during the upcoming public meetings and comment period, will help guide continuing DWQ activities in the basin.

Goals of the Basinwide Planning Approach

The goals of DWQ's Basinwide Planning Program are to:

- identify water quality problems and restore full use to impaired waters;
- identify and protect high value resource waters;
- protect unimpaired waters while allowing for reasonable economic growth;
- develop appropriate management strategies to protect and restore water quality;
- assure equitable distribution of waste assimilative capacity for dischargers; and
- improve public awareness and involvement in the management of the state's surface waters.

Yadkin-Pee Dee River Basin Overview

From its headwaters in northwestern North Carolina and southern Virginia, the Yadkin River flows southeast across North Carolina's densely populated midsection. The Yadkin River is impounded several times before merging with the Uwharrie River to become the Pee Dee, creating two of the largest lakes in a chain of six. Ultimately the Pee Dee River empties into the Atlantic Ocean at Winyah Bay near Georgetown and Myrtle Beach, South Carolina.

In the North Carolina portion of the Yadkin-Pee Dee River basin (roughly 50 percent of the entire watershed), 5,862 miles of freshwater streams drain 7,221 square miles of terrain. There

are nearly 23,000 acres of lakes. The basin includes portions of 21 counties and 93 municipalities. Most of the basin's estimated 1.5 million people are located along the I-40 and I-85 corridors and in the areas surrounding Winston-Salem, Salisbury and Charlotte. The basin population is projected to increase 36 percent to nearly two million people by 2020.

Approximately 50 percent of the basin is forested, and more than 95 percent is in private ownership. Nearly 30 percent is used for agriculture and about 13 percent is developed. Comparisons between land use in 1982 and 1997 show significant decreases in the amount of cultivated cropland and forested land in the basin. A substantial increase in the urban/built-up land use category occurred over the 15-year period. In addition, nearly 43 percent of the increase in developed area occurred within a five-year period between 1992 and 1997.

Originating in the Blue Ridge Mountains, and draining portions of North Carolina's Piedmont, Sandhills and Coastal Plain, it is no surprise that the Yadkin-Pee Dee River basin contains a wide variety of habitat types, as well as many rare plants and animals. The large river serves as a corridor for plants and animals migrating from the mountains to the Coastal Plain, and vice-versa. The basin contains 38 aquatic species that are endangered, threatened, of special concern or significantly rare by the NC Natural Heritage Program.

Assessment of Water Quality in the Yadkin-Pee Dee River Basin

Surface waters are classified according to their best intended uses. Determining how well a waterbody supports its uses (*use support* status) is an important method of interpreting water quality data and assessing water quality. Surface waters are currently rated as *Supporting* or *Impaired*. These ratings refer to whether the classified uses of the water (such as water supply, aquatic life protection and recreation) are being met. For example, waters classified for aquatic life protection and secondary recreation (Class C for freshwater) are rated Supporting if data used to determine use support meet certain criteria. However, if these criteria are not met, then the waters would be rated as Impaired. Waters with inconclusive data are listed as Not Rated. Waters lacking data are listed as No Data.

DWQ assesses ecosystem health and human health risk through the development of use support ratings for six categories: aquatic life and secondary recreation, fish consumption, shellfish harvesting, primary recreation, water supply and "other" uses. These categories are tied to the uses associated with the primary classifications applied to NC rivers and streams. A single water could have more than one use support rating corresponding to one or more of the six use support categories. For many waters, a use support category will not be applicable (N/A) to the use classification of that water (e.g., water supply is only applied to Class WS waters). This method of determining use support differs from that done prior to 2000; there is no longer an *overall* use support rating for a water.

Aquatic Life/Secondary Recreation

The aquatic life/secondary recreation use support category is applied to all waters in North Carolina. Therefore, this category is applied to the total number of stream miles (5,862.2) and lake acres (22,987.6) in the North Carolina portion of the Yadkin-Pee Dee River basin.

Approximately 37 percent of stream miles (2,181.8) and 91 percent of lake acres (21,020.1) were monitored for the protection of aquatic life and secondary recreation by DWQ during this basinwide planning cycle (Table 1). Impaired waters account for 17 percent of monitored stream miles and 56 percent of monitored lake acres.

Table 1 Aquatic Life/Secondary Recreation Use Support Summary (2001)

Aquatic Life/Secondary Recreation Use Support Ratings	Monitored and Evaluated Waters*		Monitored Waters Only**	
	Miles or Acres	%	Miles or Acres	%
Supporting	2,659.4 mi 4,119.8 ac	45.4% 17.9%	1,655.3 mi 2,696.5 ac	75.9% 12.8%
Impaired	379.2 mi 11,694.4 ac	6.5% 50.9%	379.2 mi 11,694.4 ac	17.4% 55.6%
Not Rated	147.3 mi 6,629.2 ac	2.5% 28.8%	147.3 mi 6,629.2 ac	6.7% 31.5%
No Data	2,676.3 mi 544.2 ac	45.6% 2.4%		
TOTAL	5,862.2 mi 22,987.6 ac		2,181.8 mi 21,020.1 ac	

* = Percent based on total of all streams, both monitored and evaluated.

** = Percent based on total of all monitored streams.

Fish Consumption

Like the Aquatic Life/Secondary Recreation use support category, fish consumption is also applied to all waters in the state. Fish consumption use support ratings are based on fish consumption guidelines issued by the NC Department of Health and Human Services. If a fish consumption advisory is posted at the time of the use support assessment, the water is rated Impaired.

Due to high levels of mercury in three freshwater and four saltwater fish species, the NC Division of Public Health has issued broad health advice for consumption of these fish caught south and east of Interstate 85. Therefore, High Rock Lake, Tuckertown Reservoir, Badin Lake, Falls Reservoir, Lake Tillery and Blewett Falls Lake are all Impaired in the fish consumption use support category. In addition, a specific fish consumption advisory is posted for largemouth bass from Ledbetter Lake due to elevated mercury concentrations.

Fish tissue was monitored in only 0.1 percent of stream miles (6.3) and 0.3 percent of lake acres (67.0) during this basinwide planning cycle. A basinwide summary of current fish consumption ratings is presented in Table 2.

Table 2 Fish Consumption Use Support Summary (2001)

Aquatic Life/Secondary Recreation Use Support Ratings	Monitored and Evaluated Waters*		Monitored Waters Only**	
	Miles or Acres	%	Miles or Acres	%
Supporting	3,224.2 mi	55.0%	0.0 mi	0.0%
	1,651.9 ac	7.2%	0.0 ac	0.0%
Impaired	2,638.0 mi	45.0%	6.3 mi	100.0%
	21,335.7 ac	95.8%	67.0 ac	100.0%
TOTAL	5,862.2 mi		6.3 mi	
	22,987.6 ac		67.0 ac	

* = Percent based on total of all streams, both monitored and evaluated.

** = Percent based on total of all monitored streams.

Primary Recreation

There are 218 stream miles and 15,314 lake acres currently classified for primary recreation (Class B) in the Yadkin-Pee Dee River basin. Primary recreation use support ratings are based on swimming advisories issued by the NC Department of Health and Human Services. Currently, there is one swimming advisory posted for a portion of Elk Creek in subbasin 03-07-01.

Approximately 28 percent of stream miles (61.5) and 97 percent of lake acres (14,886.4) were monitored for the protection of primary recreation by DWQ over the past five years (Table 3). Impaired waters account for 14.5 percent of monitored stream miles.

Table 3 Primary Recreation Use Support Summary (2001)

Aquatic Life/Secondary Recreation Use Support Ratings	Monitored and Evaluated Waters*		Monitored Waters Only**	
	Miles or Acres	%	Miles or Acres	%
Supporting	85.9 mi	39.4%	52.4 mi	85.2%
	14,886.4 ac	97.2%	14,886.4 ac	100.0%
Impaired	9.1 mi	4.2%	9.1 mi	14.5%
	0.0 ac	0.0%	0.0 ac	0.0%
No Data	122.9 mi	56.4%		
	427.3 ac	2.8%		
TOTAL	217.9 mi		61.5 mi	
	15,313.7 ac		14,886.4 ac	

* = Percent based on total of all streams, both monitored and evaluated.

** = Percent based on total of all monitored streams.

Water Supply

There are 1,655.6 stream miles and 21,549.0 lake acres currently classified for water supply (Class WS-I through WS-V) in the Yadkin-Pee Dee River basin. All were evaluated within the past five years; all are fully supporting.

Recommended Management Strategies for Restoring Impaired Waters

The long-range mission of basinwide planning is to provide a means of addressing the complex problem of planning for increased development and economic growth while maintaining, protecting and enhancing water quality and intended uses of the Yadkin-Pee Dee River basin's surface waters. Within this basinwide plan, DWQ presents management strategies and recommendations for those waters considered to be impaired or that exhibit some notable water quality problem.

Table 4 presents monitored Impaired waters in the Yadkin-Pee Dee River basin, summaries of the recommended management strategies, and location of further information in the basinwide plan.

Table 4 Monitored Impaired Waters within the Yadkin-Pee Dee River Basin (2001)

Subbasin	Impaired Water*	Category of Impairment	Potential Sources	Recommended Management Strategies	Chapter in Section B
03-07-01	Elk Creek ^{1,2}	Primary Recreation	NP	DWQ will monitor again in 2003. Local initiatives are needed to address nonpoint source pollution in the watershed.	1 (pg 118)
03-07-03	Lovills Creek ²	Aquatic Life/ Sec. Recreation	P, NP	DWQ will monitor following removal of discharge. Local initiatives are needed to address nonpoint source pollution in the watershed.	3 (pg 138)
03-07-03	Faulkner Creek ¹	Aquatic Life/ Sec. Recreation	NP	DWQ will develop a sediment TMDL and work with local agencies to reduce habitat degradation.	3 (pg 138)
03-07-03	Heatherly Creek ¹	Aquatic Life/ Sec. Recreation	NP	DWQ plans to conduct further investigation into the causes and sources of biological impairment during this basinwide planning cycle.	3 (pg 138)
03-07-04	Muddy Creek ¹	Aquatic Life/ Sec. Recreation	NP	Local initiatives are needed to address nonpoint source pollution in the watershed. Many local governments in the watershed are required to obtain stormwater permits under Phase II.	4 (pg 146)
03-07-04	Salem Creek ^{1,2}	Aquatic Life/ Sec. Recreation	NP	DWQ will develop a fecal coliform TMDL and work with local agencies to reduce bacteriological contamination. Kernersville and Forsyth County will likely join Winston-Salem in the Phase II stormwater program.	4 (pg 146)
03-07-04	Grants Creek ^{1,2}	Aquatic Life/ Sec. Recreation	P, NP	DWQ will work with local stakeholders to implement the EPA-approved TMDL for fecal coliform. Rowan County and Salisbury are required to obtain Phase II stormwater permits.	4 (pg 146)
03-07-04	Town Creek ²	Aquatic Life/ Sec. Recreation	NP	DWQ plans to conduct further investigation into the causes and sources of biological impairment during this basinwide planning cycle. Rowan County and Salisbury are required to obtain Phase II stormwater permits.	4 (pg 146)
03-07-04	High Rock Lake	Aquatic Life/ Sec. Recreation	P, NP	Both point and nonpoint management strategies are discussed in more detail in the Executive Summary, beginning on page xxvii below.	4 (pg 146)
03-07-06	South Yadkin River ²	Aquatic Life/ Sec. Recreation	P, NP	DWQ will work with the discharger to regain compliance. Local initiatives are needed to address nonpoint source pollution in the watershed.	6 (pg 167)
03-07-06	Fourth Creek ¹	Aquatic Life/ Sec. Recreation	NP	DWQ will work with local stakeholders to implement the EPA-approved TMDL for fecal coliform. Local initiatives are needed to address nonpoint source pollution in the watershed.	6 (pg 167)
03-07-06	Third Creek ¹	Aquatic Life/ Sec. Recreation	P, NP	DWQ will work with the discharger to regain compliance. DWQ will also investigate the source of color and develop an appropriate color reduction strategy during this basinwide planning cycle. Local initiatives are needed to address nonpoint source pollution in the watershed.	6 (pg 167)

Subbasin	Impaired Water*	Category of Impairment	Potential Sources	Recommended Management Strategies	Chapter in Section B
03-07-06	Second Creek ^{1,2}	Aquatic Life/ Sec. Recreation		DWQ will work with the dischargers to regain compliance. Local initiatives are needed to address nonpoint source pollution in the watershed.	6 (pg 167)
03-07-07	Lake Thom-A-Lex ¹	Aquatic Life/ Sec. Recreation	NP	Local initiatives are needed to address nonpoint source pollution, including development of a nutrient reduction strategy.	7 (pg 180)
03-07-07	Abbotts Creek	Aquatic Life/ Sec. Recreation	P, NP	Implement High Rock Lake management strategy (see further discussion on page xxvii below).	7 (pg 180)
03-07-07	Rich Fork	Aquatic Life/ Sec. Recreation	P, NP	Implement High Rock Lake management strategy (see further discussion on page xxvii below). DWQ will work with the discharger to regain compliance. Additional modeling of assimilative capacity for oxygen-consuming wastes is needed. DWQ will develop a fecal coliform TMDL and work with local agencies to reduce bacteriological contamination. Many local governments in the watershed are required to obtain stormwater permits under Phase II. Local initiatives are needed to address nonpoint source pollution in the watershed.	7 (pg 180)
03-07-07	Hamby Creek ¹	Aquatic Life/ Sec. Recreation	P, NP	DWQ will develop a fecal coliform TMDL and work with local agencies to reduce bacteriological contamination. DWQ will work with the discharger to regain compliance. DWQ also plans to conduct further investigation into the causes and sources of biological impairment during this basinwide planning cycle. Local initiatives are needed to address nonpoint source pollution in the watershed. Many local governments in the watershed are required to obtain stormwater permits under Phase II.	7 (pg 180)
03-07-07	North Hamby Creek	Aquatic Life/ Sec. Recreation	NP	Further investigation is needed into the causes and sources of impairment before specific management strategies can be developed.	7 (pg 180)
03-07-07	Swearing Creek ¹	Aquatic Life/ Sec. Recreation	NP	Local initiatives are needed to address nonpoint source pollution in the watershed.	7 (pg 180)
03-07-08	Yadkin River	Aquatic Life/ Sec. Recreation	NP	DWQ will work with Yadkin Division of APGI during the FERC relicensing process to improve dissolved oxygen concentrations below High Rock dam.	8 (pg 191)
03-07-08	Lick Creek	Aquatic Life/ Sec. Recreation	P, NP	DWQ will continue to monitor Lick Creek to evaluate improvements following facility upgrade. Local initiatives are needed to address nonpoint source pollution in the watershed.	8 (pg 191)
03-07-08	Little Mountain Creek ²	Aquatic Life/ Sec. Recreation	P, NP	DWQ plans to conduct further investigation into the causes and sources of biological impairment during this basinwide planning cycle.	8 (pg 191)
03-07-09	Uwharrie River	Aquatic Life/ Sec. Recreation	P, NP	Further investigation is needed into the causes and sources of impairment before specific management strategies can be developed.	9 (pg 199)

Subbasin	Impaired Water*	Category of Impairment	Potential Sources	Recommended Management Strategies	Chapter in Section B
03-07-09	Back Creek Lake ¹	Aquatic Life/ Sec. Recreation	NP	Local initiatives are needed to address nonpoint source pollution, including development of a nutrient reduction strategy.	9 (pg 199)
03-07-10	Pee Dee River	Aquatic Life/ Sec. Recreation	P, NP	DWQ will work with CP&L-Progress Energy during the FERC relicensing process to improve dissolved oxygen concentrations below Tillery dam. DWQ will work with the discharger to regain compliance. Permit limits for new and expanding discharges are also outlined in the plan.	10 (pg 206)
03-07-11 03-07-12	Rocky River ²	Aquatic Life/ Sec. Recreation	P, NP	DWQ will work with local stakeholders to implement a TMDL for fecal coliform. Additional modeling of assimilative capacity for oxygen-consuming wastes is needed. Local initiatives are needed to address nonpoint source pollution, particularly from stormwater runoff.	11, 12 (pgs 213, 224)
03-07-11	Dye Branch ^{1,2}	Aquatic Life/ Sec. Recreation	P, NP	Local initiatives are needed to address nonpoint source pollution in the watershed, particularly from stormwater runoff.	11 (pg 213)
03-07-11	Coddle Creek ^{1,2}	Aquatic Life/ Sec. Recreation	NP	DWQ plans to conduct further investigation into the causes and sources of biological impairment during this basinwide planning cycle. Many local governments in the watershed are required to obtain stormwater permits under Phase II. Local initiatives are needed to address nonpoint source pollution in the watershed, particularly from stormwater runoff.	11 (pg 213)
03-07-12	Goose Creek ²	Aquatic Life/ Sec. Recreation	P, NP	DWQ, in coordination with other natural resource agencies, will develop a site-specific management strategy for the watershed which provides for the maintenance and recovery of water quality conditions necessary to sustain the Carolina heelsplitter. DWQ will develop a fecal coliform TMDL and work with local agencies to reduce bacteriological contamination. Many local governments in the watershed are required to obtain stormwater permits under Phase II. Local initiatives are needed to address nonpoint source pollution in the watershed.	12 (pg 224)
03-07-12	Duck Creek ¹	Aquatic Life/ Sec. Recreation	NP	Will be included in the development of a site-specific management strategy for the Goose Creek watershed which provides for the maintenance and recovery of water quality conditions necessary to sustain the Carolina heelsplitter, as well as the fecal coliform TMDL. Local initiatives are needed to address nonpoint source pollution in the watershed.	12 (pg 224)
03-07-12	North Fork Crooked Cr ²	Aquatic Life/ Sec. Recreation	P, NP	Further investigation is needed into the causes and sources of impairment before specific management strategies can be developed. Local initiatives are needed to address nonpoint source pollution in the watershed.	12 (pg 224)

Subbasin	Impaired Water*	Category of Impairment	Potential Sources	Recommended Management Strategies	Chapter in Section B
03-07-14	Richardson Creek ¹	Aquatic Life/ Sec. Recreation	NP	DWQ will work with DWR to address flow issues below the Lake Lee dam. Local actions are needed to reduce nutrients from all sources.	14 (pg 243)
03-07-14	Lanes Creek	Aquatic Life/ Sec. Recreation	NP	Further investigation is needed into the causes and sources of impairment before specific management strategies can be developed. Local initiatives are needed to address nonpoint source pollution in the watershed.	14 (pg 243)
03-07-16	Ledbetter Lake	Fish Consumption	NP	Work for regional solutions to mercury deposition through the Mercury Task Force and Water Quality Section Workgroup. Continue to monitor fish tissue contamination.	16 (pg 256)
03-07-16	Pee Dee River	Aquatic Life/ Sec. Recreation	NP	DWQ will work with CP&L-Progress Energy during the FERC relicensing process to improve dissolved oxygen concentrations below Blewett Falls dam.	16 (pg 256)

* These waters are currently, or will be placed, on the 303(d) list, and a TMDL and/or management strategy will be developed to address causes and sources of impairment. Refer to Appendix IV for further information regarding 303(d) listing methodology.

¹ Only limited progress towards developing and implementing nonpoint source pollution strategies for these Impaired waters can be expected without additional resources.

² This Impaired water lies within a NC Wetlands Restoration Program Targeted Local Watershed. Refer to page 278 of Section C for details.

Key

P = Point Sources

NP = Nonpoint Sources

TMDL = Total Maximum Daily Load (Refer to the Glossary in Appendix VII for further information.)

FERC = Federal Energy Regulatory Commission

High Rock Lake Management Strategy

Located on the mainstem of the Yadkin River in Rowan and Davidson counties, High Rock Lake is the largest and most upstream of the Yadkin-Pee Dee chain lakes. Completed in 1929, the reservoir was constructed to provide hydroelectric power and is owned and operated by Yadkin Division of Alcoa Power Generating, Inc., a wholly owned subsidiary of Alcoa, Inc. (Yadkin Division of APGI). The 3,850-square mile watershed lies within seven subbasins (03-07-01 through 03-07-07). Water quality concerns for High Rock Lake date back the mid-1970s, and the need for nutrient reduction strategies to address problems due to accelerated eutrophication has been apparent since the mid-1990s.

Increased monitoring of High Rock Lake over the most recent assessment period has allowed DWQ to determine that the lake is Impaired. The decision is based on high levels of nutrients, combined with chlorophyll *a*, turbidity and percent dissolved oxygen saturation in excess of state standards. Low dissolved oxygen and high turbidity in the Abbotts Creek and Crane Creek Arms are also contributing to aquatic life impairment.

The current NPDES permits for the High Point Westside WWTP, Thomasville WWTP and Lexington WWTP outline mass-based summer and winter discharge limits for total phosphorus, which will be required beginning in 2004. No new NPDES permitted discharges will be permitted into the Abbotts, Swearing, Grants and Crane Creek arms of High Rock Lake. No increase in loading will be permitted for existing NPDES discharges into these same arms. Other existing discharges (in addition to the three major discharges mentioned above) will receive notification that discharge limits for total phosphorus may be required in the future.

Due to adverse dissolved oxygen concentrations in High Rock Lake, further investigation is warranted. Development of both a nutrient response model and a watershed loading model will assist in assessing water quality in High Rock Lake. DWQ staff will begin reviewing existing monitoring locations, frequency and parameters in preparation for designing a TMDL field study for High Rock Lake and the upper Yadkin River basin. DWQ will focus on developing and conducting the field study during this basinwide planning cycle. The field study will likely require 18 months to complete. The Yadkin-Pee Dee River Basin Association (details on page 296) has expressed interest in modeling the High Rock Lake watershed. DWQ will continue to work with the association to understand and manage this complex watershed.

DWQ will continue to place priority on developing TMDLs for streams in the High Rock Lake watershed. TMDLs for fecal coliform in the Fourth Creek and Grants Creek watersheds have been approved by the USEPA, and in the case of Fourth Creek, plans to implement the TMDL are being developed. Fecal coliform TMDLs are underway in the Salem Creek and Rich Fork watersheds as well. Strategies used to reduce fecal coliform concentrations in these watersheds will also help reduce nutrient and sediment loading to the upper portion of the basin, and ultimately High Rock Lake.

In addition, DWQ will work more closely with other agencies that set priorities for nonpoint source pollution reduction in the Yadkin-Pee Dee River basin, such as the NC Wetlands Restoration Program, NC Division of Soil and Water Conservation and USDA Natural

Resources Conservation Service, to get funding for best management practices targeted towards the High Rock Lake watershed.

Addressing Waters on the State's 303(d) List

For the next several years, addressing water quality impairment in waters that are on the state's 303(d) list will be a DWQ priority. Section 303(d) of the federal Clean Water Act requires states to develop a list of waters not meeting water quality standards or which have impaired uses. States are also required to develop Total Maximum Daily Loads (TMDLs) or management strategies for 303(d) listed waters to address impairment. EPA issued guidance in August 1997 that called for states to develop schedules for developing TMDLs for all waters on the 303(d) list within 8-13 years.

There are approximately 2,830 miles and 388,000 acres of Impaired waters on the draft 2002 303(d) list in NC. The rigorous and demanding task of developing TMDLs for each of these waters during an 8 to 13-year time frame will require the focus of much of the water quality program's resources. Therefore, it will be a priority for North Carolina's water quality programs over the next several years to develop TMDLs for 303(d) listed waters.

Strategies for Addressing Notable Water Quality Impacts in Unimpaired Waters

Often during DWQ's use support assessment, water quality concerns are documented for waters that are Supporting designated uses. While these waters are not considered Impaired, they are discussed so that attention and resources can be focused on these waters over the next basinwide planning cycle to prevent additional degradation or facilitate water quality improvement. These discussions are found in Part 5.5 of each subbasin chapter in Section B.

Challenges Related to Achieving Water Quality Improvements

To achieve the goal of restoring impaired waters throughout the basin, DWQ will need to work more closely with other state agencies and stakeholders to identify and control pollutants. DWQ plans to notify local agencies and others of water quality concerns for both impaired and unimpaired waters in the Yadkin-Pee Dee River basin and work with them to conduct further monitoring and to locate sources of water quality protection funding for these unimpaired waters. The costs of restoration will be high, but several programs exist to provide funding for restoration efforts. These programs include the Clean Water Management Trust Fund, the NC Agricultural Cost Share Program, the NC Wetlands Restoration Program, and the federally funded Environmental Quality Incentives Program.

With increased development occurring, there will be significant challenges ahead in balancing economic growth with the protection of water quality in this mountainous basin. Point source impacts on surface waters can be measured and addressed through the basinwide planning process. Nonpoint sources of pollution can be identified through the basinwide plan, but actions to address these impacts must be taken at the local level. Such actions should include: development and enforcement of local erosion control ordinances; requirement of stormwater best management practices for existing and new development; development and enforcement of

buffer ordinances; and land use planning that assesses impacts on natural resources. This basinwide plan presents many water quality initiatives and accomplishments that are underway within the basin. These actions provide a foundation on which future initiatives can be built.