

## Section B - Chapter 2

### Catawba River Subbasin 03-08-31

Lower Creek, Wilson Creek, Johns River and Lake Rhodhiss

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## 2.1 Subbasin Overview

### *Subbasin 03-08-31 at a Glance*

#### **Land and Water Area**

Total area:	581 mi <sup>2</sup>
Land area:	578 mi <sup>2</sup>
Water area:	3 mi <sup>2</sup>

#### **Population Statistics**

2000 Est. Pop.:	90,041 people
Pop. Density:	160 persons/mi <sup>2</sup>

#### **Land Cover (percent)**

Forest/Wetland:	85%
Surface Water:	1%
Urban:	3%
Agriculture:	11%

#### **Counties**

Avery, Burke, Caldwell and  
Watauga

#### **Municipalities**

Blowing Rock, Cajah Mountain,  
Cedar Rock, Connelly Springs,  
Drexel, Gamewell, Glen Alpine,  
Granite Falls, Lenoir, Morganton,  
Rhodhiss, Rutherford College,  
Sawmills and Valdese

This subbasin contains many headwater tributaries designated as HQW because they are native trout waters. Portions of this catchment, including Wilson Creek, are within the Pisgah National Forest and have received ORW designation. Wilson Creek itself recently received designation from the National Park Service as a Wild and Scenic River. The Johns River catchment contains high quality areas, but also has widespread agricultural land use and is threatened by residential development.

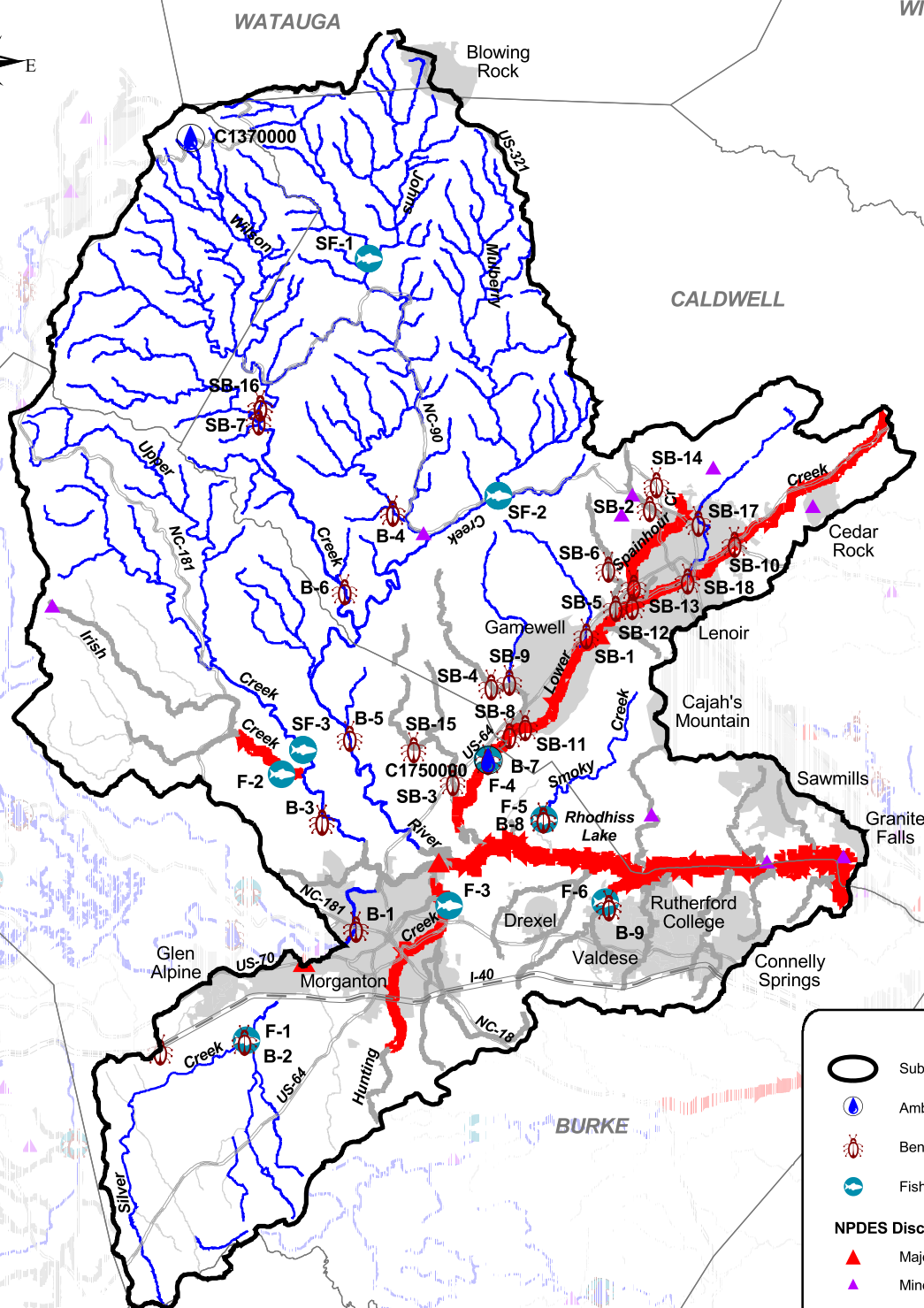
There were 32 benthic macroinvertebrate community samples and 15 fish community samples (Figure B-2 and Table B-3) collected during this assessment period. One site improved; five sites remained the same; two sites had a lower bioclassification, and 23 sites were sampled for the first time during this assessment period. Data were also collected from three ambient monitoring stations as well. Refer to *2003 Catawba River Basinwide Assessment Report* at <http://www.esb.enr.state.nc.us/bar.html> and Section A, Chapter 3 for more information on monitoring.

The Burke County population is expected to increase by over 20 percent by the year 2020 (Table A-6). Urban development and runoff from Lenoir and Morganton have impacted several tributaries to the Catawba River in the southeastern portion of the subbasin.

There are three ambient monitoring sites in this subbasin: Lower Creek near Morganton, Wilson Creek near Gragg (a high elevation, headwater site), and Lake Rhodhiss. None of these sites represents typical water quality for this subbasin. Wilson Creek had many low pH measurements. This pattern had not been observed at this site since the early 1990s, and it suggested that similar low pH values may be occurring in other high elevation streams that drain forested catchments. Such areas have low buffering capacity and are most susceptible to acid precipitation.

Five facilities in this subbasin monitor effluent toxicity. The two largest municipal dischargers (Lenoir's WWTP, 6 MGD; and Morganton's WWTP, 8 MGD) have experienced occasional failures over the last ten years. Lenoir's facility failed about 25 percent of its self-monitoring

Figure B-2 Catawba River Subbasin 03-08-31



**Legend**

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

**NPDES Discharges**

- Major
- Minor

**Use Support Rating**

- Supporting
- Impaired
- Not Rated
- No Data

- Primary Roads
- County Boundary
- Municipality



Table B-3 DWQ Assessment and Use Support Ratings Summary for Monitored Waters in Subbasin 03-08-31

Waterbody	Assessment Unit Number	DWQ Classification	Length / Area	Category	Data Type with Map Number and Data Results			Use Support Rating	
					Biological	Ambient	Other	2004	1998
Abingdon Creek	11-39-6	C	5.6 mi.	AL	SB-1 NI-02			S	-
Blair Fork	11-39-3-1	C	2.6 mi.	AL	SB-2 NR--02			NR	-
Bristol Creek	11-39-8	WS-IV	5.6 mi.	AL	SB-3 NR--02			NR	PS
CATAWBA RIVER (including backwaters of Rhodhiss Lake below elevation 995)	11-(32.7)	WS-IV	3.9 mi.	AL	B-1 GF--97 B-1 GF--02			S	FS
CATAWBA RIVER (Rhodhiss Lake below elevation 995)	11-(37)	WS-IV & B CA	1,848.5 ac.	AL		C2030000 ce	L-1 ce & Special Algal Studies ce	I	FS
Celia Creek	11-39-7-1-(2)	WS-IV	1.3 mi.	AL	SB-4 NR--02			NR	-
Gragg Prong	11-38-10	C Tr	4.0 mi.	AL	SF-1 E--98 SF-1 E--99			S	-
Greasy Creek	11-39-4	C	4.6 mi.	AL	SB-6 NR--02 SB-5 NR--02			NR	PS
Harper Creek	11-38-34-14	C Tr ORW	9.1 mi.	AL	SB-7 E--02			S	-
Hunting Creek	11-36-(0.7)	WS-IV	7.4 mi.	AL	F-3 F--02			I	-
Husband Creek	11-39-7-(1)	C	6.0 mi.	AL	SB-9 NI--02			S	ST
Irish Creek	11-35-3-(2)b	WS-III	3.0 mi.	AL	F-2 F--02			I	-
Johns River	11-38-(35.5)	WS-IV HQW	6.9 mi.	AL	B-5 G--02			S	-
Lower Creek	11-39-(0.5)a	C	8.8 mi.	AL	SB-10 P--02			I	ST
Lower Creek	11-39-(0.5)b	C	5.1 mi.	AL	SB-12 F--02			I	PS
Lower Creek	11-39-(6.5)	WS-IV	6.8 mi.	AL	B-7 F--02 F-4 GF--97 F4 GF--02 SB-11 F--02	C1750000 nce		I	PS
McGalliard Creek	11-44-(3)	WS-IV CA	3.9 mi.	AL	B-9 GF--97 B-9 G--02 F-6 G--97 F-6 F--03			I	ST
Mulberry Creek	11-38-32-(15)	C	5.4 mi.	AL	SF-2 E--99			S	FS

Table B-3 DWQ Assessment and Use Support Ratings Summary for Monitored Waters in Subbasin 03-08-31

Waterbody	Assessment Unit Number	DWQ Classification	Length / Area	Category	Data Type with Map Number and Data Results			Use Support Rating	
					Biological	Ambient	Other	2004	1998
Silver Creek	11-34-(0.5)	C	15.4 mi.	AL	F-1 GF--97 F-1 GF--02 B-2 E--02			S	ST
Smoky Creek	11-41-(1)	WS-IV	7.5 mi.	AL	B-8 G--97 B-8 GF--02 F-5 E--02			S	FS
Spainhour Creek	11-39-3	C	4.7 mi.	AL	SB-12 F--02 SB-13 F--02			I	PS
Upper Creek	11-35-2-(13)	WS-III Tr HQW	4.3 mi.	AL	SF-3 E--99			S	FS
Warrior Fork	11-35-(1)	WS-III	4.9 mi.	AL	B-3 E--97 B-3 G--02			S	FS
White Mill Creek	11-39-8-1-(2)	WS-IV	3.4 mi.	AL	SB-15 NR--02			NR	-
Wilson Creek	11-38-34	B Tr ORW	23.3 mi.	AL	B-6 E--02	C1370000 nce		S	FS
Zacks Fork Creek	11-39-1	C	8.0 mi.	AL	SB-17 NI--02			S	PS
Lower Creek	11-39-(6.5)	WS-IV	6.8 mi.	REC		C1750000 ce		NR	-
Wilson Creek	11-38-34	B Tr ORW	23.3 mi.	REC		C1370000 nce		S	FS

**Assessment Unit Number** - Portion of DWQ Classified Index where monitoring is applied to assign a use support rating.

<b>Use Categories:</b> AL - Aquatic Life REC - Recreation	<b>Monitoring data type:</b> F - Fish Community Survey B - Benthic Community Survey SF - Special Fish Community Study SB - Special Benthic Community Study A - Ambient Monitoring Site L - Lakes Assessment	<b>Bioclassifications:</b> E - Excellent      NI - Not Impaired G - Good          NR - Not Rated GF - Good-Fair F - Fair P - Poor	<b>Use Support Ratings 2004:</b> S - Supporting, I - Impaired, NR - Not Rated  <b>Use Support Ratings 1998:</b> FS - fully supporting, ST - supporting but threatened PS - partially supporting, NS - not supporting NR - not rated, N/A - not applicable
		<b>Ambient Data</b> nce - no criteria exceeded ce - criteria exceeded	

toxicity tests between 1992 and 1999, but has passed all tests since 2000. The last documented problem at Morganton's facility was in January 2002.

The site on Lower Creek reflected the influence of various point and nonpoint source problems with high turbidity, high fecal coliform bacteria concentrations, and elevated conductivity near the City of Lenoir. Samples from the site on Lake Rhodhiss often reflected algal bloom problems with elevated dissolved oxygen concentrations and pH values.

The Catawba River near the City of Morganton was rated Good-Fair in 1997 and 2002, based on benthic macroinvertebrate samplings. Some intolerant organisms were abundant at this site, but daily variations in flow, due to power generation at the upstream Lake James dam, affected the quality of the instream habitats. Many of the recently monitored streams that originate in the Pisgah National Forest had Good or Excellent water quality ratings based on either fish or macroinvertebrate data.

The middle portion of this subbasin has extensive areas used for the cultivation of ornamental shrubs and trees. While streams in this area usually still have good water quality, two sites have recently (2002) shown a decline from an Excellent to a Good bioclassification based on macroinvertebrate data: Warrior Fork and the lower section of the Johns River. It is not known if drought conditions contributed to this decline. A fish community sample from Irish Creek (a tributary of Warrior Fork) showed severe habitat problems and was rated Fair.

Where watersheds have become more developed around the cities of Morganton, Lenoir and Valdese, the stream bioclassifications were lower (Good-Fair or Fair). The physical characteristics of these streams have also changed. Lower, Silver, Hunting and McGalliard Creeks had lower gradients and were much sandier than streams in the northern part of the subbasin. McGalliard Creek showed a decline in bioclassification between 1997 and 2002, based on fish and macroinvertebrates. An intensive survey of the Lower Creek catchment in 2002 documented problems for many streams around Lenoir.

Waters in Parts 2.3 and 2.4 are identified by assessment unit number (AU#). This number is used to track defined segments in the water quality assessment database, 303(d) Impaired waters list, and the various tables in this basin plan. The assessment unit number is a subset of the DWQ index number (classification identification number). A letter attached to the end of the AU# indicates that the assessment is smaller than the DWQ index segment. No letter indicates that the assessment unit and the DWQ index segment are the same.

Use support ratings are summarized in Part 2.2 below. Recommendations, current status and future recommendations for waters that were Impaired in 1999 and newly Impaired waters are discussed in Part 2.3 below. Supporting waters with noted water quality impacts are discussed in Part 2.4 below. Refer to Appendix III for use support methods and more information on all monitored waters.

## **2.2 Use Support Assessment Summary**

Use support ratings in subbasin 03-08-31 were assigned for aquatic life, fish consumption, recreation and water supply. There is no fish consumption advice for waters in this subbasin;

therefore, all waters are rated No Data for Fish Consumption. All water supply waters are Supporting on an Evaluated basis based on reports from DEH regional water treatment plant consultants. Refer to Table B-4 for a summary of use support ratings by use support category for waters in the subbasin.

Table B-4 Summary of Use Support Ratings by Use Support Category in Subbasin 03-08-31

Use Support Rating	Aquatic Life	Fish Consumption	Recreation	Water Supply
<b>Monitored Waters</b>				
Supporting	119.6 mi	0	23.3 mi	0
Impaired	39.7 mi 1,848.5 ac	0	0	0
Not Rated	25.5 mi	0	6.8 mi	0
<b>Total</b>	<b>184.8 mi 1,848.5 ac</b>	<b>0</b>	<b>30.1 mi</b>	<b>0</b>
<b>Unmonitored Waters</b>				
Supporting	333.7 mi	0	0	241.9 mi 1,848.5 ac
Impaired	0.0 mi	0	0	0
Not Rated	102.1 mi	0	0	0
No Data	61.3 mi	682.0 mi 1,848.5 ac	651.9 mi. 1,848.5 ac.	0
<b>Total</b>	<b>497.1 mi</b>	<b>682.0 mi 1,848.5 ac</b>	<b>651.9 mi 1,848.5 ac</b>	<b>241.9 mi 1,848.5 ac</b>
<b>Totals</b>				
<b>All Waters</b>	<b>682.0 mi 1,848.5 ac</b>	<b>682.0 mi 1,848.5 ac</b>	<b>682.0 mi 1,848.5 ac</b>	<b>241.9 mi 1,848.5 ac</b>

Note: All waters includes monitored, evaluated and waters that were not assessed.

## 2.3 Status and Recommendations of Newly and Previously Impaired Waters

The following waters were identified in the 1999 basin plan as Impaired or are newly Impaired based on recent data. The current status and recommendations for addressing these waters are presented below. These waters are identified by assessment unit number (AU#). Refer to the overview above for more information on AUs.

**2.3.1 Lower Creek Watershed Including:**  
**Lower Creek [AU# 11-39-(0.5)a, 11-39-(0.5)b, 11-39-(6.5), and 11-39-(9)]**  
**Zacks Fork Creek [AU#11-39-1]**  
**Spainhour Creek [AU#11-39-3]**  
**Greasy Creek [AU#11-39-4]**  
**Bristol Creek [AU#11-39-8]**  
**Husband Creek [AU#11-39-7-(1)]**

The watershed of Lower Creek includes the City of Lenoir and drains the southwest portion of Caldwell County into the upper reaches of Lake Rhodhiss. 35.5 stream miles in the Lower Creek Watershed appear on the 2004 303(d) list.

1999 Recommendations

DWQ recommended that suggestions for improving water quality found in WPCOG Study (WPCOG, October 1998) be implemented in the Lower Creek watershed. The recommendations were grouped into two general areas: watershed protection and urban stormwater planning. DWQ noted that the key implementers of these recommendations, and others that may be developed in the future, are the local governments and citizens of the Lower Creek watershed.

WPCOG Study recommendations for watershed protection include:

1. Establish 50-foot buffers along streams in the Lower Creek watershed.
2. Within targeted subbasins, identify property owners interested in participating in nonpoint source demonstration projects.
3. Develop a strategy to raise awareness and educate the public about major pollution sources to Lower Creek.
4. Encourage bioengineered solutions for future projects to stabilize streambanks.
5. Establish a Lower Creek Nonpoint Source Team to assist in implementing recommendations and evaluate progress.

WPCOG Study recommendations for consideration by the local governments for urban stormwater include:

1. Adopt strategies and regulations to minimize new impervious surfaces.
2. Encourage use of curb cuts and reduce street curb and gutter systems.
3. Encourage cluster development or open space zoning near perennial streams.
4. Encourage treatment of "hot spots" including gas stations and trash storage and handling areas.
5. Label stormwater drains.
6. Participate in regional stormwater discussions.

Current Status and 2004 Recommendations

Based on data collected in this assessment period, approximately 20.7 miles of Lower Creek are now Impaired for aquatic life because of Fair and Poor bioclassifications all along the stream. This watershed also includes the entire length of Zacks Fork Creek (8.0 mi.), Spainhour Creek (4.7 mi.), Greasy Creek (4.6 mi.), Bristol Creek (5.6 mi.), and Husband Creek, (5.96 mi) all of which appear on the state's 303(d) list. Current data indicate Husband Creek is not impaired and will be removed from the 303(d) list during the 2006 revision.

DWQ is in the process of developing a TMDL to address turbidity violations in Lower Creek. In 2002, DWQ conducted an intensive study of the Lower Creek watershed to provide data and information for future TMDL development. The study clearly demonstrated the effects of poor land use practices, showing negative impacts to the biological community at all of the 17 sample sites included in the study. The study also indicated the absence of severe nutrient or organic enrichment, or toxic conditions. The study did note severe streambank erosion and nonexistent or inadequate riparian buffers at many sites. Zacks Fork Creek, Greasy Creek and Bristol Creek were too small to rate using standard evaluation techniques, and thus, were rated either Not Impaired (Upper Zacks Fork Creek) or Not Rated (Lower Zacks Fork, Greasy and Bristol Creeks). For a description of Use Support Methodology, refer to Appendix III. Despite methodology restrictions, the variability in stream integrity seen within the watershed points to the conclusion that overall, streams draining urban areas seem to be the most severely impacted.

In 2003, the EEP initiated a Local Watershed Plan for the Lower Creek watershed in Burke and Caldwell counties. The EEP will use the watershed plan to identify and prioritize wetland and stream restoration projects as well as best management practices to provide water quality and aquatic habitat improvements to the watershed. The watershed characterization, or compilation of existing data about watershed conditions, was completed in December 2003. The detailed watershed assessment including water quality monitoring, field assessment and a restoration plan is scheduled for completion by June 2005. The EEP will coordinate with local community groups, local governments and others to develop and implement the restoration plan. For more information about the Lower Creek Local Watershed Plan, contact Kristin Cozza of EEP at (704) 572-0955.

Until actions are taken to reduce urban stormwater runoff, it is reasonable to assume that stream integrity in the Lower Creek watershed will continue to remain fair at best, or decline. Stream restoration and watershed protection efforts should be coordinated with management strategies developed for Lake Rhodhiss. Please refer to Section A, Chapter 4, Part 4.11 for information on Low Impact Development and other techniques to minimize the impacts of stormwater runoff. More information on Lake Rhodhiss can be found below and Section A, Chapter 4, Part 4.7.2.

### **2.3.2 Lake Rhodhiss [AU# 11-(37)]**

#### ***Current Status and 2004 Recommendations***

Lake Rhodhiss is operated by Duke Power and is formed by the discharge of Lake James into the Catawba River, the Mud and Lower Creek watersheds, and by the Johns River. The lake was filled when the construction of the Rhodhiss Hydroelectric Station was completed in 1925. Lake Rhodhiss is a relatively small and narrow lake located between Lake James and Lake Hickory on the Catawba River. Three-fourths of the land in the watershed is forested, but the watershed is under increasing pressure from development. The waters of the lake are used for water supply by several municipalities, recreational purposes and hydropower generation. Algal blooms, taste and odor problems, violation of the pH standard, and percent dissolved oxygen saturation values above 120 percent indicate the reservoir (1,848.5 acres) suffers from eutrophication and is Impaired in its support of aquatic life.

Rhodhiss Lake has been sampled by DWQ since 1981. This lake is usually eutrophic although it was evaluated as mesotrophic in 1989 and 1997. Although there were high nutrient concentrations, algal blooms were often limited by the reservoir's short retention time. Drought



conditions increased retention times, and blooms of nuisance algae (especially blue-greens) were recorded in 2001 and 2002. The presence of algae, which creates taste and odor problems in treated drinking water, made it necessary for water treatment plants to use activated charcoal to make the water drinkable. Nutrient reductions may help to alleviate these problems.

In 1999, after reviewing the results of a water quality modeling effort by the WPCOG (Jaynes, 1994; and Giorgino et al., 1997), DWQ committed to developing a watershed management strategy for controlling nutrient inputs to the reservoir.

The water quality in Lake Rhodhiss has a dramatic impact on downstream conditions in Lake Hickory. The intimate link between these two reservoirs was made more evident by the continuance of taste and odor issues in Lake Hickory during the summer of 2002 until the algal populations died back in Lake Rhodhiss. This close relationship supports DWQ's conclusion that a regional watershed management plan, encompassing the drainages of both Lake Hickory and Lake Rhodhiss, must be developed to address the water quality concerns in each reservoir. Because such a strategy would be applied across multiple subbasins, please refer to Section A, Chapter 4, Part 4.7.2 for a detailed discussion.

### **2.3.3 McGalliard Creek [AU# 11-44-(3)]**

#### *Current Status and 2004 Recommendations*

The watershed of McGalliard Creek drains an area dissected by Interstate 40, US 64/70, and includes the Town of Valdese. The stream is also a tributary to Lake Rhodhiss and hosts a dramatic waterfall approximately 40 feet high. The Town of Valdese maintains a popular city park at the waterfall and hosts an annual family fishing tournament each June. About 1,200 trout are stocked in the waters above the falls for each tournament, but due to poor habitat conditions the fish do not survive long enough to reproduce. There are no NPDES dischargers in this watershed, but elevated conductivity measurements indicate impacts from urban runoff. A windshield survey conducted by DWQ in 2003 revealed most of the land in the watershed is established residential neighborhoods. Many lots lack sufficient riparian vegetation to restrict sediment and nutrient runoff during construction and from lawns. Declining fish bioclassifications at site F-6 have led to aquatic life Impairment in the 3.9-mile stream segment from McGalliard Falls to Lake Rhodhiss. The headwaters of McGalliard Creek are Not Rated.

The potential for McGalliard Creek to support a diverse aquatic population is high, but physical barriers to natural recolonization, like the waterfall and Lake Rhodhiss, make it unlikely without human intervention. Given the stable nature of land use in the watershed, DWQ encourages private property owners to install landscaping that reduces the amount of sediment and nutrient runoff entering the creek. Additionally, the Town of Valdese, through its Recreation Department, should consider implementing a habitat restoration project in the creek above the falls to increase the potential for stocked trout survival and enhance the visual appeal of the park. Finally, McGalliard Creek should be evaluated in any nutrient/sediment management plan developed for Lake Rhodhiss.

### **2.3.4 Irish Creek [AU# 11-35-3-(2)b]**

#### *Current Status and 2004 Recommendations*

The fish community in Irish Creek was sampled for the first time in 2002. Draining central Burke County, Irish and Upper Creeks join to form Warrior Fork, a tributary to the Catawba River north of the City of Morganton. The valleys in this area of Burke County are used extensively for nursery tree propagation. Consequently, the stream's instream and riparian habitats suffer. The fish community was rated Fair at site F-2. Resampling in 2003 also resulted in a Fair bioclassification, confirming the 2002 results. Thus, aquatic life is Impaired in this 3.0-mile segment from Roses Creek to Warrior Fork.

Given that a significant portion of land in this subbasin is dedicated to nursery tree propagation, there are excellent opportunities for the implementation of agriculture BMPs. DWQ will assist local groups with project development in cooperation with local landowners and the regional Soil and Water Conservation District to install and maintain BMPs. Additionally, Irish Creek should be evaluated in any nutrient/sediment management plan developed for Lake Rhodhiss.

### **2.3.5 Harper Creek [AU# 11-38-34-14]**

#### *Current Status and 2004 Recommendations*

Harper Creek lies within Pisgah National Forest, northeast of Gamewell. All nine miles of Harper Creek appear on the state's 303(d) list because of a historical listing for sediment.

DWQ sampled Harper Creek in 2002 (site SB-7) and determined that the benthic community was in Excellent condition. This suggests that either the stream was incorrectly listed as Impaired or the circumstances causing the reported sediment loads have since been abated. In either case, the Excellent bioclassification indicates Harper Creek is not Impaired and will be removed from the 303(d) list in 2006.

### **2.3.6 Hunting Creek [AU# 11-36-(0.7)]**

#### *Current Status and 2004 Recommendations*

The fish community in Hunting Creek was sampled for the first time in 2002 and received a Fair bioclassification at site F-3. It is therefore Impaired. Resampling in 2003 also resulted in a Fair bioclassification, confirming the 2002 results. This 7.4-mile segment (1 mile upstream of SR 1940 to 0.4 mile downstream of Pee Dee Branch) of urban stream drains the southern and southeastern areas of the City of Morganton in central Burke County. There are no NPDES facilities in the watershed. Much like Irish Creek, the instream and riparian habitats suffer due to the urbanization of the watershed. The stream is a tributary to the Catawba River just above Lake Rhodhiss.

As the Town of Morganton implements Phase II stormwater regulations, DWQ suggests it take measures to reduce urban stormwater impacts to the stream and advocates the use of LID and stormwater BMPs as outlined in Section A, Chapter 4, Part 4.11. Additionally, Hunting Creek should be evaluated in any nutrient/sediment management plan developed for Lake Rhodhiss (see Section A, Chapter 4, Part 4.7.2).

## 2.4 Status and Recommendations for Waters with Noted Impacts

The surface waters discussed in this section are not Impaired. However, notable water quality problems and concerns have been documented for some waters based on this assessment. While these waters are not Impaired, attention and resources should be focused on these waters to prevent additional degradation or facilitate water quality improvement. Waters in the following section are identified by assessment unit number (AU#). See overview for more information on AUs.

### 2.4.1 Johns River [AU# 11-38-(1), 11-38-(9), 11-38-(28), 11-38-(34.5), 11-38-(35.5), and 11-38-(36.5)]

#### Current Status and 2004 Recommendations

The Johns River originates in the Pisgah National Forest on the south side of the Grandfather Mountain drainage basin and flows southward to Collettsville. Just north of the Caldwell-Burke county line, Wilson Creek joins the Johns River, significantly increasing the flow. The Johns River then flows southward to the Catawba River at essentially the beginning of Lake Rhodhiss, just northeast of Morganton. The entire reach is 23.8 miles long.

The Johns River has historically received an Excellent bioclassification; but in 2002, the lower reach had declined by one bioclassification to Good at site B-5 and showed signs of nutrient enrichment, including excessive growth of filamentous algae and aquatic macrophytes. It is DWQ's recommendation that immediate action be taken to protect the remaining intact riparian forests in the upper reaches of the Johns River watershed and to implement agriculture BMPs in the areas where intensive agriculture is currently underway or likely to expand. Such actions could arrest the declining water quality in the lower Johns River watershed and insure good quality water well into the future.

Crescent Resources, a major landholder in the Johns River watershed, proposed just such a plan in 1997 (Crescent Resources, Inc., 1997). The plan would have protected over 2,000 acres by restoring, enhancing and preserving former and existing riparian and wetland habitats. Although this particular plan proved ultimately unsuccessful, it outlined a basic strategy that could still result in effective protection for the Johns River. It is DWQ's intent to pursue negotiations with multiple stakeholders (Crescent Resources, WRC, FWS, etc.) during the next basinwide cycle that would permanently protect natural habitat in the Johns River watershed. WRC is actively pursuing funding opportunities that would be used to protect riparian habitat in the watershed. DWQ supports that pursuit and will assist where possible.

### 2.4.2 Silver Creek [AU# 11-34-(0.5)]

#### Current Status and 2004 Recommendations

There are two sample sites on Silver Creek that are used to evaluate fish and benthic macroinvertebrate populations. The benthic site (B-2) has consistently produced Good-Fair results since 1992. The fish site (F-1), new this assessment period, produced an Excellent rating. These apparently contradictory results and concerns about pollution in this creek by local citizens suggest the need for further investigation into water quality conditions and potential

pollution sources is necessary. This creek would be a good candidate for assessment by local agencies or volunteer groups.

### **2.4.3 Catawba River [AU# 11-(32.7)]**

#### *Current Status and 2004 Recommendations*

This reach of the Catawba River passes near the center of Morganton and is heavily influenced by the releases from Bridgewater Dam at Lake James. DWQ biologists noted a decline in the biological community between site B-15 at Glen Alpine and site B-1 at NC 181. This may be the result of urban runoff entering through Silver Creek, Canoe Creek and along the banks of the mainstem. Negotiations during the FERC relicensing process (Section A, Chapter 4, Part 4.7.1) should result in more consistent flows that may help establish more robust benthic communities. Additionally, this segment should be evaluated in any nutrient/sediment management plan developed for Lake Rhodhiss (see Section A, Chapter 4, Part 4.7.2).