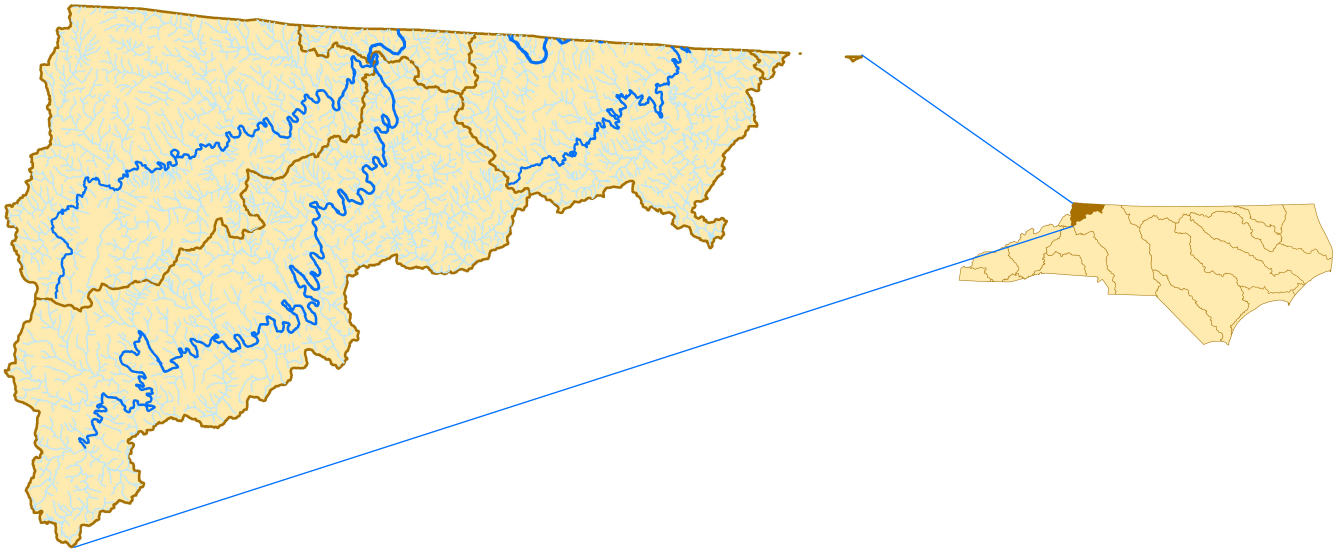
New River Basinwide Water Quality Plan

March 2011



North Carolina Department of
Environment and Natural Resources

Division of Water Quality
Basinwide Planning Unit

Table of Contents

Executive Summary

River Basin Description ES.1

Water Quality Data Overview ES.4

Stream Flow ES.4

Biological Data ES.4

Benthic Macroinvertebrate Sampling ES.5

Fish Community Sampling ES.6

Ambient Data ES.7

Turbidity ES.7

pH ES.7

Fecal Coliform Bacteria (FCB) ES.8

Population & Land Cover ES.9

Population ES.9

Land Cover ES.9

Watershed Water Quality Summaries ES.10

North Fork New River Watershed (0505000101) ES.10

Hydrologic Unit Codes (HUC): ES.10

South Fork New River/Fox Creek Watersheds (0505000102 & 03) ES.11

Little River/Chestnut Creek Watersheds (0505000104 & 06) ES.11

Basinwide Water Quality Issues & Other Information ES.11

Rising pH Levels Throughout the Basin ES.11

Formation of the New River Coalition ES.12

Christmas Tree Farming ES.12

Primary & Supplemental Freshwater Classifications ES.13

Approval of North Fork New River Watershed Reclassification: ES.14

On-Site Wastewater Treatment Systems (Septic Systems) ES.14

DWQ Basinwide Recommendations & Priorities ES.14

Basinwide Recommendations ES.14

Update of 7Q10 Flows in NPDES Permits ES.14

Conduct Study to Determine the Source of Increasing pH Levels ES.14

Elimination of Straight Pipes & Failing Septic Systems ES.14

Basinwide Riparian & Trout Water Buffer Educational Efforts ES.15

Basinwide Stream Priorities ES.15

CHAPTER 1 - North Fork New River Watershed

HUC 0505000101 Includes: Three Top Creek, Big Laurel Creek, Buffalo & Little Buffalo Creeks, Little & Big Horse Creeks & Helton Creek

General Watershed Description 1.1

Watershed Water Quality Overview 1.3

Water Quality Data Summary for this Watershed 1.3

Understanding the Data 1.3

Biological & Ambient Rating Converted to Use Support Category 1.3

Stream Flow 1.4

Biological Data 1.4

Benthic Macroinvertebrate Sampling 1.4

Fish Community Sampling 1.5

Fish Kills/Spill Events 1.6

Ambient Data 1.7

Long Term Ambient Monitoring 1.7

pH 1.7

Turbidity 1.8

Dissolved Oxygen 1.8

Temperature 1.9

Fecal Coliform Bacteria 1.9

Additional Studies 1.10

North Fork New River Sampling to Support Potential Reclassification 1.10

Recommendations & Action Plans at the Watershed Scale 1.13

DWQ Priority Summary 1.13

Status & Recommendations for Monitored Waters 1.14

North Fork New River (NFNR) 1.14

North Fork New River [AU#: 10-2-(1)] 1.14

Understanding this Section 1.14

Use Support & Monitoring Box: 1.14

North Fork New River [AU#: 10-2-(12)] 1.15

Three Top Creek (050500010101) 1.16

Three Top Creek [AU#: 10-2-13] 1.16

Big Laurel Creek (050500010102) 1.16

Big Laurel Creek [AU#: 10-2-14] 1.17

Headwaters North Fork New River (050500010103) 1.17
North Fork New River [AU#: 10-2-(1) & (12)] 1.17
Hoskin Fork [AU#: 10-2-7] 1.17

Little Horse Creek (050500010104) 1.18
Middle Fork Little Horse Creek [AU#: 10-2-21-8-1] 1.18
Little Horse Creek [AU#: 10-2-21-8] 1.18

Big Horse Creek (050500010105) 1.19
Big Horse Creek [AU#: 10-2-21-(7), (4.5) & (1.5)] 1.19

Upper North Fork New River (050500010106) 1.19
Rich Hill Creek [AU#: 10-2-15] 1.19
Little Buffalo Creek [AU#: 10-2-20-1] 1.20
Buffalo Creek [AU#: 10-2-20] 1.21
North Fork New River [AU#: 10-2-(12)] 1.21

Middle North Fork New River (050500010107) 1.21
Long Shoals Creek [AU#: 10-2-25] 1.21
Little Phoenix Creek [AU#: 10-2-23] 1.22

Helton Creek (050500010108) 1.24
Includes: Helton Creek [AU#: 10-2-27] 1.24
Helton Creek [AU#: 10-2-27] 1.24

Lower North Fork New River (050500010109) 1.25
North Fork New River [AU#: 10-2-(12)] 1.25

References 1.26

CHAPTER 2 - South Fork New River & Fox Creek Watersheds

HUCs 0505000102 & 0505000103 Includes: Meat Camp Creek, Elk Creek, Pine Swamp Creek, Beaver Creek, Naked Creek, Peak Creek, Cranberry Creek, Prather Creek, Grassy Creek & Bridle Creek

General Watershed Description 2.1

Watershed Water Quality Overview 2.3

Water Quality Data Summary for these Watersheds 2.3

Understanding the Data 2.3
Biological & Ambient Rating Converted to Use Support Category 2.3

Stream Flow 2.4

Biological Data 2.4
Benthic Macroinvertebrate Sampling 2.4
Fish Community Sampling 2.5
Fish Kills/Spill Events 2.6

Ambient Data 2.6

Long Term Ambient Monitoring *2.7*
pH *2.7*
Turbidity *2.8*
Dissolved Oxygen *2.8*
Temperature *2.9*
Fecal Coliform Bacteria *2.9*

Recommendations & Action Plans at the Watershed Scale 2.10

DWQ Priority Summary 2.10

Status & Recommendations for Monitored Waters 2.13

Understanding this Section 2.13
Use Support & Monitoring Box: *2.13*

South Fork New River (SFNR) 2.14
AU#'s: 10-1-(1), 10-1-(3.5)a & 10-1-(3.5)b *2.14*
AU#'s: 10-1-(3.5)c & 10-1-(14.5) *2.15*
AU#'s: 10-1-(20.5) & 10-1-(26)a *2.15*
AU#'s: 10-1-(26)b & 10-1-(30) *2.15*
AU#: 10-1-(33.5) *2.16*

South Fork New River Headwaters (HUC: 050500010201) 2.17
Middle Fork South Fork New River [AU#: 10-1-2-(1), (6), (14) & (15)] 2.17
East Fork South Fork New River [AU#: 10-1-3-(1), (7) & (8)] *2.18*
Winkler Creek [AU#:10-1-4-(1), (2), (3.5)a & (3.5)b] 2.19
Boone Creek (Kraut Creek) [AU#: 10-1-4-4] 2.20
South Fork New River [AU#: 10-1-(1), (3.5)a & (3.5)b] 2.21

Meat Camp Creek-South Fork New River (050500010202) 2.21
Howard Creek [AU#: 10-1-9] 2.21
Norris Fork [AU#: 10-1-10-2] 2.22
Meat Camp Creek [AU#: 10-1-10] 2.22
Cobb Creek [AU#: 10-1-10-3] 2.22
South Fork New River [AU#: 10-1-(3.5)c] 2.22

Elk Creek-South Fork New River (050500010203) 2.23
Pine Orchard Creek [AU#: 10-1-15-1] 2.23
Unnamed Tributary to South Fork New R. [AU#: 10-1-(14.5)ut4] 2.23
South Fork New River [AU#: 10-1-(3.5)c] 2.23

Old Fields Creek-South Fork New River (050500010204) 2.23
Unnamed Tributary to Mill Creek [AU#: 10-1-18ut4] 2.24
South Fork New River [AU#: 10-1-(14.5)] 2.24

Pine Swamp-South Fork New River (050500010205) 2.24
Pine Swamp Creek [AU#: 10-1-24] 2.24
South Fork New River [AU#: 10-1-(20.5)] 2.24

Beaver Creek-South Fork New River (050500010206) 2.25
South Beaver Creek [AU#: 10-1-25-2] 2.25
Obids Creek [AU#: 10-1-27] 2.25
South Fork New River [AU#: 10-1-(20.5), (26)a & (26)b] 2.25

Naked Creek-South Fork New River (050500010207) 2.26
Roan Creek [AU#: 10-1-31] 2.26
Naked Creek [AU#: 10-1-32] 2.26
South Fork New River [AU#: 10-1-(26)b, (30), (31.5) & (33.5)] 2.28

Cranberry Creek (050500010208) 2.28
Piney Fork [AU#: 10-1-37-3] 2.28
Cranberry Creek (Mulberry Creek) [AU#: 10-1-37] 2.28

Peak Creek-South Fork New River (050500010209) 2.29
Nathans Creek [AU#: 10-1-36] 2.29
Little Peak Creek [AU#: 10-1-35-4] 2.29
Ore Knob Branch [AU#: 10-1-35-3] 2.29
Peak Creek [AU#: 10-1-35-(1) & (2)a & b] 2.30
South Fork New River [AU#: 10-1-(33.5)] 2.30

Prather Creek-South Fork New River (050500010210) 2.31
Prathers Creek [AU#: 10-1-38] 2.31
South Fork New River [AU#: 10-1-(33.5)] 2.31

Grassy Creek-New River (050500010302) 2.31
Grassy Creek [AU#: 10-3] 2.31
New River [AU#: 10a] 2.32

References 2.33

CHAPTER 3 - Little River & Chestnut Creek Watersheds

HUC 0505000104 & 0505000106 Includes: Elk Creek, Bledsoe Creek, Pine Swamp Creek, Glade Creek, Brush Creek & Crab Creek

General Watershed Description 3.1

Watershed Water Quality Overview 3.3

Water Quality Data Summary for these Watersheds 3.3

Understanding the Data 3.3
Biological & Ambient Rating Converted to Use Support Category 3.3

Stream Flow 3.4

Biological Data 3.4
Benthic Macroinvertebrate Sampling 3.4
Fish Community Sampling 3.5
Fish Kills/Spill Events 3.6

Ambient Data 3.7
Long Term Ambient Monitoring *3.7*
pH *3.7*
Turbidity *3.8*
Dissolved Oxygen *3.8*
Temperature *3.9*
Fecal Coliform Bacteria *3.9*

Recommendations & Action Plans at the Watershed Scale 3.11

DWQ Notable Waters & Priority Summary 3.11

Status & Recommendations for Monitored Waters 3.12

Little River 3.12
Little River [AU#: 10-9-(1)a, (1)b, (6), & (11.5)] 3.12

Understanding this Section 3.12
Use Support & Monitoring Box: *3.12*
AU#: 10-9-(1)a *3.13*
AU#: 10-9-(6) *3.13*

Elk Creek (050500010401) 3.14
Elk Creek [AU#: 10-6-(1) & (2)] 3.14

Brush Creek - New River (050500010403) 3.14
New River [AU#: 10b] 3.14

Little River (050500010404) 3.15
Waterfalls Creek [AU#: 10-9-4] 3.15
Pine Swamp Creek [AU#: 10-9-5] 3.16
Little River [AU#: 10-9-(1)a] 3.16

Brush Creek (050500010405) 3.16
Laurel Branch [AU#: 10-9-10-2] 3.17
Brush Creek [AU#: 10-9-10] 3.17

Glade Creek - Little River (050500010406) 3.18
Bledsoe Creek [AU#: 10-9-7] 3.18
Little River [AU#: 10-9-(1)b & (6)] 3.19

Crab Creek - Little River (050500010407) 3.19
Moccasin Creek [AU#: 10-9-11] 3.19
Unnamed Tributary to Crab Creek [AU#: 10-9-12ut8 & 12ut8ut4] 3.20
Crab Creek [AU#: 10-9-12] 3.21
Little River [AU#: 10-9-(6) & (11.5)] 3.22

Chestnut Creek (050500010603) 3.22

References 3.22

Chapter 4 - Ore Knob Mine
Water Quality Issues & Restoration Efforts

Ore Knob Mine **4.1**

Mine History 4.1

Description of Contaminated Area & Impacts 4.3

Restoration Activity History (1990's to 2005) 4.3

Recent Activity (2005 to 2010) 4.3

319 Watershed Management Plan *4.3*

DWQ & Environmental Protection Agency Region 4 Activity *4.6*

References **4.7**

CHAPTER 5 - Water Quantity

Understanding Stream Flow **5.1**

Managing Flow from Impoundments **5.1**

Minimum Release Requirements 5.1

Water Supply, Demand, Availability & Planning **5.2**

Water Withdrawals 5.2

Local Water Supply Plan (LWSP) 5.3

The Town of Sparta *5.3*

The Town of Boone *5.3*

Source Water Assessment & Protection (SWAP) of Public Water Supplies in the New River Basin **5.4**

Introduction 5.4

Delineation of Source Water Assessment Areas 5.4

Wellhead Protection (WHP) Program *5.4*

Water Supply Watershed Protection (WSWP) Program *5.4*

Susceptibility Determination – NC's Overall Approach 5.5

Overall Susceptibility Rating *5.5*

Inherent Vulnerability Rating *5.5*

Contaminant Rating *5.5*

Inventory of Potential Contaminant Sources (PCSs) *5.5*

Source Water Protection 5.5

Public Water Supply Susceptibility Determinations in the New River Basin 5.6

References **5.6**

CHAPTER 6 - Local Initiatives & Voluntary Incentive Programs

Local Initiatives **6.1**

The Importance of Local Initiatives 6.1

National Committee for the New River 6.2

Land Protection *6.2*

Restoration *6.2*

Advocacy *6.2*

New River Builder Program *6.2*

Alleghany County/NRCS 6.3

Alleghany County Envirothon 6.3

Federal, State & Local Incentive Programs **6.3**

Construction Grants & Loans (CG&L) 6.3

Section 319 - Grant Program 6.4

Soil & Water Conservation 6.5

Agricultural Cost Share Program (ACSP) *6.5*

Community Conservation Assistance Program *6.6*

Clean Water Management Trust Fund (CWMTF) 6.8

CHAPTER 7 - Other Natural Resource Programs

Natural Resource Programs **7.1**

Ecosystem Enhancement Program (EEP) **7.1**

River Basin Restoration Priorities 7.1

Local Watershed Planning 7.2

EEP Projects in the New River Basin 7.2

Forestry **7.3**

Forestland Ownership* 7.3

Forest Water Quality Regulations 7.3

Other Water Quality Regulations 7.4

Water Quality Foresters 7.4

Forestry Best Management Practices 7.4

Protecting Stream Crossings with Bridgemats 7.4

Christmas Tree Production 7.5

Forest Regeneration & Planning 7.5

Education & Outreach 7.5

Contacts 7.5

References 7.6

CHAPTER 8 - 2010 Use Support & Methodology

CHAPTER 9 - Maps

CHAPTER 10 - Acronyms, Definitions, & Hyperlinks

Definitions 10.1

Acronyms 10.7

Hyperlink Index 10.11

Table of Tables

Executive Summary

Table ES-1: HUC Quick Reference ES.10
Table ES-2: Summary of Waterbody Classifications in the New River Basin..... ES.13
Table ES-3: Prioritization of Waters in the New River Basin (Highest to Lowest Priority)..... ES.16

Chapter 1

Table 1-1: Prioritization of Waters in the North Fork New River Watershed (Highest to Lowest Priority)... 1.13
Table 1-2: Example of a Use Support and Monitoring Box 1.14

Chapter 2

Table 2-1: Prioritization of Waters in the South Fork New River & Fox Creek Watersheds (Highest to Lowest Priority) 2.11
Table 2-2: Example of a Use Support and Monitoring Box 2.13

Chapter 3

Table 3-1: Prioritization of Waters in the Little River & Chestnut Creek Watersheds (Highest to Lowest Priority) 3.11
Table 3-2: Example of a Use Support and Monitoring Box 3.12

Chapter 4

Table 4-1: Monitoring Locations for Five of Nine Sites Sampled During 319 Project 4.3

Chapter 5

Table 5-1: Minimum Release from Impoundments in the New River Basin 5.2
Table 5-2: Current Surface Water Withdrawals by Local Water Supply Systems* 5.3
Table 5-3: SWAP Results for Surface Water Sources in the New River Basin 5.6

Chapter 6

Table 6-1: 319 Grant Contracts in the New River Basin Between 2003 & 2008 ..... 6.4
Table 6-2: Clean Water Management Trust Fund Projects Between 2003 - 2009 ..... 6.8

Chapter 7

Table 7-1: New River Basin TLWS & LWP Summary 7.2
Table 7-2: EEP Projects in Some Stage of Completion in the New River Basin (8-Digit HU 05050001)..... 7.3
Table 7-3: North Carolina DFR Contacts for the New River Basin..... 7.5

Permit Tables

Table 14-1: NPDES Point Source Discharger Permits in the New River Basin 4-A.2
Table 14-2: NPDES Non-Discharger Permits in the New River Basin 4-A.3
Table 14-3: Communities in the New River Basin Subject to Stormwater and/or Water Supply Watershed Stormwater Requirements. 4-A.4
Table 14-4: Stormwater Permits in the New River Basin 4-A.4
Table 14-5: Permitted Animal Operations in the New River Basin as of July 2010 ..... 4-A.6

Table of Figures

Executive Summary

Figure ES-1: The Entire New River - Kanawh River Basin (Hydrologic Unit Code 050500) ES.2
Figure ES-2: North Carolina Portion of the New River Basin ES.3
Figure ES-3: Yearly Average Flow Rates of the USGS Gage Station in the New River Basin, 1997-2008ES.4
Figure ES-4: Use Support Category Chart for Biological Ratings ES.4
Figure ES-5: Benthic Stations Color Coded by Current Rating in the New River Basin ES.5
Figure ES-6: Percents of Current Benthic Ratings in the New River Basin ES.5
Figure ES-7: Percent Change in Benthic Ratings in the New River Basin ES.5
Figure ES-8: Fish Community Stations Color Coded by Current Rating in the New River Basin..... ES.6
Figure ES-9: Percents of Current Fish Community Ratings in the New River Basin ES.6
Figure ES-10: Percent Change in Fish Community Ratings in the New River Basin..... ES.6
Figure ES-11: Percentage of Samples Exceeding the Turbidity Standard (2004-2008) ES.7
Figure ES-12: Percentage of Samples Exceeding the pH Standard (2004-2008) ES.7
Figure ES-14: Yearly Geometric Mean of All FCB Samples in the New River Basin ES.8
Figure ES-13: Percentage of Samples Exceeding the FCB Screening Criteria (2004-2008)..... ES.8
Figure ES-15: 2000 Population Per Square Mile by 10-Digit HUCs ES.9
Figure ES-16: 2010 Population Per Square Mile by 10-Digit HUCs ES.9
Figure ES-17: 2001 Land Cover in the New River Basin..... ES.10
Figure ES-18: Land Cover Percentage in the New River Basin ES.10
Figure ES-19: Yearly Mean & Median of All pH Samples in the New River Basin (1997-2009)..... ES.12

Chapter 1

Figure 1-1: North Fork New River Watershed (0505000101) 1.2
Figure 1-3: Example of a Use Support and Monitoring Box 1.3
Figure 1-2: Use Support Categories for Biological Ratings 1.3
Figure 1-4: Yearly Average Flow Rates (cfs) of the USGS Gage Station in the New River Basin Between 1997 & 2008 ..... 1.4
Figure 1-6: Current Benthic Site Ratings..... 1.5
Figure 1-5: Benthic Stations Color Coded by Current Rating in the North Fork New River Watershed 1.5
Figure 1-7: Change in Benthic Site Ratings 1.5
Figure 1-9: Current Fish Community Site Ratings..... 1.6
Figure 1-8: Fish Community Stations Color Coded by Current Rating in the North Fork New River Watershed 1.6
Figure 1-10: Change in Fish Community Site Ratings 1.6
Figure 1-11: Percentage of Samples Exceeding the pH Standards (2003-2008) 1.7
Figure 1-12: Summarized pH Values for All Data Collected at Ambient Sampling Stations in HUC 0505000101 ..... 1.7
Figure 1-13: Percentage of Samples Exceeding the Turbidity Standard (2003-2008)..... 1.8
Figure 1-15: Percentage of Samples Exceeding the DO Standard (2003-2008) 1.8
Figure 1-14: Summarized Turbidity Values for All Data Collected at Ambient Sampling Stations in HUC 0505000101 ..... 1.8

Figure 1-16: Summarized DO Values for All Data Collected at Ambient Sampling Stations in HUC 0505000101 ..... 1.8
Figure 1-17: Percentage of Samples Exceeding Temperature Standard (2003-2008) 1.9
Figure 1-18: Summarized Temperature Values for All Data Collected at Ambient Sampling Stations in HUC 0505000101 ..... 1.9
Figure 1-19: Percentage of Samples with Elevated FCB Levels (2003-2008) 1.9
Figure 1-20: Summarized Fecal Coliform Bacteria Values for All Data Collected at Ambient Sampling Stations in HUC 0505000101 with Overlaying Flow 1.10
Figure 1-21: North Fork New River Approved ORW & HQW Reclassification 1.12
Figure 1-22: Impacts from Improper Land Clearing Activity Upstream. Looking Upstream (Left), Looking Downstream (Right). 1.23
Figure 1-23: Post Streambank Stabilization Restoration Project. Looking Upstream (Left), Looking Downstream (Right). 1.23

Chapter 2

Figure 2-1: South Fork New River/Fox Creek Watersheds (0505000102 & 0505000103) 2.2
Figure 2-3: Example of a Use Support and Monitoring Box 2.3
Figure 2-2: Use Support Categories for Biological Ratings 2.3
Figure 2-4: Yearly Average Flow Rates (cfs) of the USGS Gage Station in the New River Basin Between 1997 & 2008 ..... 2.4
Figure 2-6: Current Benthic Site Ratings 2.5
Figure 2-5: Benthic Stations Color Coded by Current Rating in the South Fork New River Watershed 2.5
Figure 2-7: Change in Benthic Site Ratings 2.5
Figure 2-9: Current Fish Community Site Ratings 2.6
Figure 2-8: Fish Community Stations Color Coded by Current Rating in the South Fork New River Watershed 2.6
Figure 2-10: Change in Fish Community Site Ratings 2.6
Figure 2-11: Percentage of Samples Exceeding the pH Standards (2003-2008) 2.7
Figure 2-12: Summarized pH Values for All Data Collected at Ambient Sampling Stations in HUC 0505000102 ..... 2.7
Figure 2-13: Percentage of Samples Exceeding the Turbidity Standard (2003-2008) 2.8
Figure 2-15: Percentage of Samples Exceeding the DO Standard (2003-2008) 2.8
Figure 2-14: Summarized Turbidity Values for All Data Collected at Ambient Sampling Stations in HUC 0505000102 ..... 2.8
Figure 2-16: Summarized DO Values for All Data Collected at Ambient Sampling Stations in HUC 0505000102 ..... 2.8
Figure 2-17: Percentage of Samples Exceeding Temperature Standard (2003-2008) 2.9
Figure 2-18: Summarized Temperature Values for All Data Collected at Ambient Sampling Stations in HUC 0505000102 ..... 2.9
Figure 2-19: Percentage of Samples with Elevated FCB Levels (2003-2008) 2.9
Figure 2-20: Summarized Fecal Coliform Bacteria Values for All Data Collected at Ambient Sampling Stations in HUC 0505000102 with Overlaying Flow 2.10
Figure 2-21: Yearly pH Averages for K3250000 Between 1998 and 2009 ..... 2.16
Figure 2-22: Stream & Buffer Restoration Efforts Along South Fork (Left: March 2010; Right: May 2010) 2.17
Figure 2-23: Stream Restoration Efforts Along East Fork (Left: Before; Right: After) 2.19

Figure 2-24: Riparian Buffer Restoration Efforts Along Boone Creek (Left: March 2007; Right: October 2008) 2.21

Chapter 3

Figure 3-1: Little River Watershed (0505000104 & 0505000106) 3.2
Figure 3-3: Example of a Use Support and Monitoring Box 3.3
Figure 3-2: Use Support Categories for Biological Ratings 3.3
Figure 3-4: Yearly Average Flow Rates (cfs) of the USGS Gage Station in the New River Basin Between 1997 & 2008 ..... 3.4
Figure 3-6: Current Benthic Site Ratings 3.5
Figure 3-5: Benthic Stations Color Coded by Current Rating in the Little River Watershed 3.5
Figure 3-7: Change in Benthic Site Ratings 3.5
Figure 3-9: Current Fish Community Site Ratings 3.6
Figure 3-8: Fish Community Stations Color Coded by Current Rating in the Little River Watershed 3.6
Figure 3-10: Change in Fish Community Site Ratings 3.6
Figure 3-11: Percentage of Samples Exceeding the pH Standards (2003-2008) 3.7
Figure 3-12: Summarized pH Values for All Data Collected at Ambient Sampling Stations in HUC 0505000104 ..... 3.7
Figure 3-13: Percentage of Samples Exceeding the Turbidity Standard (2003-2008) 3.8
Figure 3-15: Percentage of Samples Exceeding the DO Standard (2003-2008) 3.8
Figure 3-14: Summarized Turbidity Values for All Data Collected at Ambient Sampling Stations in HUC 0505000104 ..... 3.8
Figure 3-16: Summarized DO Values for All Data Collected at Ambient Sampling Stations in HUC 0505000104 ..... 3.8
Figure 3-17: Percentage of Samples Exceeding Water Temperature Standard (2003-2008) 3.9
Figure 3-18: Summarized Temperature Values for All Data Collected at Ambient Sampling Stations in HUC 0505000104 ..... 3.9
Figure 3-19: Percentage of Samples with Elevated FCB Levels (2003-2008) 3.9
Figure 3-20: Summarized Fecal Coliform Bacteria Values for All Data Collected at Ambient Sampling Stations in HUC 0505000102 with Overlaying Flow 3.10
Figure 3-21: EEP Stream Restoration. (Left: Before; Right: Mid Construction) 3.21

Chapter 4

Figure 4-1: Photos Taken of the Waste/Tailings Piles During a Site Visit in December 2006 by DWQ. (Top Left: Top of Impoundment Facing the Settling Pond; Top Right: Looking North East Across the Impoundment; Bottom: On Impoundment Looking Back Across Tailings Pile.) 4.1
Figure 4-2: Tailings Impoundment and Ponds Features and Longitudinal Profile (Black & Veatch, 2008) .. 4.2
Figure 4-3: Sample Locations for the 319 Watershed Restoration Plan Project Funded by the 319 Grant* 4.4
Figure 4-4: Averages for Five Monitoring Sites Sampled for the Ore Knob 319 Project 4.5
Figure 4-5: Photos of Tailings Pile and Downstream Taken During a Site Visit in July 2007 by DWQ. (Top Left: Top of Larger Dam Facing the Settling Basin; Top Right: Settling Basin Looking Back Towards Larger Dam; Bottom Left: Top of Larger Dam Looking Back Across Tailings Pile; Bottom Right: Ore Knob Branch Downstream of Settling Basin Culvert.) 4.7

Chapter 6

Figure 6-1: Results of the NCNR's New River Builder Program (Left: 2005; Right: 2009) 6.2
Figure 6-2: NC ACSP BMPs Implemented in the New River Basin Between 1-2003 & 10-2010 ..... 6.7

Table of Appendices

Appendix 1: North Fork New River Watershed (0505000101)

- 1-A: Use Support Ratings for All Monitored Waters
- 1-B: Biological (Benthic & Fish) Sampling Site Data Sheets
- 1-C: Ambient Monitoring Systems Station Data Sheets
- 1-D: 12-Digit Subwatershed Maps

Appendix 2: South Fork New River & Fox Creek Watersheds (0505000102 & 0505000103)

- 2-A: Use Support Ratings for All Monitored Waters
- 2-B: Biological (Benthic & Fish) Sampling Site Data Sheets
- 2-C: Ambient Monitoring Systems Station Data Sheets
- 2-D: 12-Digit Subwatershed Maps

Appendix 3: Little River & Chestnut Creek Watersheds (0505000104 & 0505000106)

- 3-A: Use Support Ratings for All Monitored Waters
- 3-B: Biological (Benthic & Fish) Sampling Site Data Sheets
- 3-C: Ambient Monitoring Systems Station Data Sheets
- 3-D: 12-Digit Subwatershed Maps

Appendix 4: Permit Tables

- NPDES: Point Source Discharge Permits
- NPDES: Non-Discharge Permits
- Stormwater Permits
- Animal Operation Permits