

Appendix A

Use Support Ratings for All Monitored Waterbodies in Rocky River Subbasin HUC- 03040105

IR Category	Integrated Reporting Categories for individual Assessment Unit/Use Support Category/Parameter Assessments. A single AU can have multiple assessments depending on data available and classified uses.
1	Supporting the assessed use no criteria exceeded (NCE) for a parameter of interest (POI) in a Use Support Category (USC).
1t	Supporting the assessed use no criteria exceeded (NCE) for a parameter of interest (POI) in a Use Support Category and there is an approved TMDL for the POI.
2	Supporting or not Impaired for all monitored uses
3a	Instream/monitoring data are inconclusive (DI)
3c	No Data available for assessment
3t	No Data available for assessment –AU is in a watershed with an approved TMDL
4a	Impaired for the assessed USC/POI; There is a standards violation (SV) and an approved TMDL for the POI.
4b	Impaired for the assessed USC/POI; Other program expected to address POI
4c	Impaired for the assessed USC/POI loss of use (LOU) and POI is a non pollutant
4cr	Impaired for LOU Recreation use and there is no data for TMDL (swimming advisories posted)
4ct	Impaired for the assessed USC/POI and the AU is in a watershed that is part of TMDL study area for the POI.
4s	Impaired Biological integrity with an identified Aquatic Life Standards Violation listed in Category 5
5	Impaired for the assessed USC/POI in need of TMDL for POI
5s	Impaired Biological integrity and stressor study does not indicate aquatic life standard violations.

Yadkin-Peedee River Basin

Rocky River 8-Digit Subbasin 03040105

Assessment Unit Number	Name	Potential Stressors	Use Support Category	Use Support Rating	Reason for Rating	Parameter of Interest	Collection Year	Listing Year	IR Category
Description		Potential Sources							
Classification	DWQ Subbasin	Miles/Acres							
13-17-7	Back Creek	Habitat Degradation	Aquatic Life	Impaired	Biological Criteria Exceeded	Ecological/biological Integrity Benthos	2003	2008	5
From source to Rocky River		Stormwater Runoff							
C	03-07-11	12.5 FW Miles							
13-17-40-10	Barkers Branch	Fecal Coliform Bacteria	Aquatic Life	Supporting	No Criteria Exceeded	Water Quality Standards Aquatic Life	2006		1
From source to Lanes Creek		General Agriculture/Pasture							
WS-V	03-07-14	4.6 FW Miles							
		Low Dissolved Oxygen	Recreation	Not Rated	Potential Standards Violation	Fecal Coliform (recreation)	2006		3a
		Natural Conditions							
			Water Supply	Supporting	No Criteria Exceeded	Water Quality Standards Water Supply	2006		1
13-17-36-6	Bearskin Creek		Aquatic Life	Not Rated	Data Inconclusive	Ecological/biological Integrity FishCom	2006		3a
From source to Richardson Creek									
C	03-07-14	9.7 FW Miles							
13-17-40-11	Beaverdam Creek	Fecal Coliform Bacteria	Aquatic Life	Impaired	Standard Violation	Low Dissolved Oxygen	2006	2008	5
From source to Lanes Creek		General Agriculture/Pasture							
WS-V	03-07-14	12.1 FW Miles							
		Low Dissolved Oxygen	Aquatic Life	Not Rated	Data Inconclusive	Ecological/biological Integrity FishCom	2006		3a
		Natural Conditions							
			Recreation	Not Rated	Potential Standards Violation	Fecal Coliform (recreation)	2006		3a
			Water Supply	Supporting	No Criteria Exceeded	Water Quality Standards Water Supply	2006		1
13-17-31-5	Big Bear Creek	Habitat Degradation	Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity FishCom	2004		1
From source to Long Creek		Natural Conditions							
C	03-07-13	19.9 FW Miles							
		Nutrient Impacts	Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity Benthos	2006		1
		General Agriculture/Pasture							
13-17-8-5a	Caldwell Creek		Aquatic Life	Impaired	Biological Criteria Exceeded	Ecological/biological Integrity Benthos	2003	2008	5
From source to Freeman Drive									
C	03-07-11	6.0 FW Miles							
13-17-8-5b	Caldwell Creek		Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity Benthos	2003		1
From Freeman Drive to Reedy Creek									
C	03-07-11	1.4 FW Miles							
13-17-4	Clarke Creek	Habitat Degradation	Aquatic Life	Impaired	Biological Criteria Exceeded	Ecological/biological Integrity FishCom	2006	1998	5
From source to Rocky River		Stormwater Runoff							
C	03-07-11	5.5 FW Miles							
		Low Dissolved Oxygen	Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity Benthos	2002		1
		Stormwater Runoff							

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Rocky River 8-Digit Subbasin 03040105

Assessment Unit Number	Name	Potential Stressors	Use Support Category	Use Support Rating	Reason for Rating	Parameter of Interest	Collection Year	Listing Year	IR Category		
Description	Classification	DWQ Subbasin	Miles/Acres	Potential Sources							
13-17-5-2 Clarks Creek From source to Mallard Creek	C	03-07-11	4.4 FW Miles	Habitat Degradation Impervious Surface Stormwater Runoff	Aquatic Life	Impaired	Biological Criteria Exceeded	Ecological/biological Integrity Benthos	2003	2008	5
13-17-17 Clear Creek From source to Rocky River	C	03-07-12	13.1 FW Miles	Habitat Degradation Stormwater Runoff Turbidity Construction Impervious Surface MS4 NPDES	Aquatic Life	Impaired	Standard Violation	Turbidity	2006	2008	5
					Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity FishCom	2004		1
					Recreation	Supporting	No Criteria Exceeded	Fecal Coliform (recreation)	2006		1
13-17-6-(0.5) Coddle Creek From source to a point 0.5 mile downstream of East Coddle Creek	WS-II;HQW	03-07-11	7.6 FW Miles	Habitat Degradation General Agriculture/Pasture	Aquatic Life	Impaired	Biological Criteria Exceeded	Ecological/biological Integrity FishCom	2004	2008	5
					Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity Benthos	2003		1
13-17-6-(5.5) Coddle Creek From a point 0.2 mile upstream of N.C. Hwy. 73 to Rocky River	C	03-07-11	14.5 FW Miles	Turbidity Stormwater Runoff	Aquatic Life	Impaired	Standard Violation	Turbidity	2006	2008	5
					Aquatic Life	Impaired	Biological Criteria Exceeded	Ecological/biological Integrity Benthos	2006	1998	4s
					Recreation	Supporting	No Criteria Exceeded	Fecal Coliform (recreation)	2006		1
13-17-6-(1.5) Coddle Creek, including water supply reservoir for Concord From a point 0.5 mile downstream of East Coddle Creek to a point 0.2 mile upstream of N.C. Hwy. 73 (Concord water supply intake)	WS-II;HQW,CA	03-07-11	1.4 FW Miles		Aquatic Life	Not Rated	Data Inconclusive	Water Quality Standards Aquatic Life	2006		3a
13-17-9-4-(1.5) Cold Water Creek From dam at Lake Fisher to Irish Buffalo Creek	C	03-07-12	12.5 FW Miles	Turbidity	Aquatic Life	Impaired	Standard Violation	Turbidity	2006	2008	5
					Aquatic Life	Impaired	Biological Criteria Exceeded	Ecological/biological Integrity Benthos	2006	2008	4s
					Recreation	Supporting	No Criteria Exceeded	Fecal Coliform (recreation)	2006		1
13-17-9-4-(1) Cold Water Creek (Lake Fisher) From a point 0.5 mile downstream of Rowan County SR 1221 to dam at Lake Fisher	WS-IV;CA	03-07-12	0.6 FW Miles	Nutrient Impacts Stormwater Runoff	Aquatic Life	Not Rated	Data Inconclusive	Turbidity	2006		3a
					Aquatic Life	Not Rated	Data Inconclusive	Chlorophyll a	2006		3a
					Water Supply	Supporting	No Criteria Exceeded	Water Quality Standards Water Supply	2006		1
13-17-37 Cribs Creek From source to Rocky River	C	03-07-14	11.2 FW Miles		Aquatic Life	Not Rated	Data Inconclusive	Ecological/biological Integrity FishCom	2006		3a

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Rocky River 8-Digit Subbasin 03040105

Assessment Unit Number	Name	Potential Stressors	Use Support Category	Use Support Rating	Reason for Rating	Parameter of Interest	Collection Year	Listing Year	IR Category
Description		Potential Sources							
Classification	DWQ Subbasin	Miles/Acres							
13-17-20	Crooked Creek	Low Dissolved Oxygen	Aquatic Life	Supporting	No Criteria Exceeded	Water Quality Standards	2006		1
From source to Rocky River		Natural Conditions				Aquatic Life			
C	03-07-12	12.9 FW Miles				Ecological/biological Integrity	2006		1
		WWTP NPDES	Aquatic Life	Supporting	No Criteria Exceeded	FishCom			
		Turbidity				Ecological/biological Integrity	2006		1
		Construction	Aquatic Life	Supporting	No Criteria Exceeded	Benthos			
		Stormwater Runoff	Recreation	Supporting	No Criteria Exceeded	Fecal Coliform (recreation)	2006		1
13-17-5-3	Doby Creek	Habitat Degradation	Aquatic Life	Impaired	Biological Criteria Exceeded	Ecological/biological Integrity	2003	2008	5
From source to Mallard Creek		Impervious Surface				Benthos			
C	03-07-11	4.1 FW Miles							
		Stormwater Runoff							
13-17-18-3	Duck Creek		Aquatic Life	Impaired	Biological Criteria Exceeded	Ecological/biological Integrity	1998	2008	5
From source to Goose Creek						Benthos			
C	03-07-12	9.7 FW Miles							
13-17-11-(1)	Dutch Buffalo Creek	Habitat Degradation	Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity	2004		1
From source to a point 0.6 mile downstream of Cabarrus County SR 2416		General Agriculture/Pasture				FishCom			
WS-II;HQW	03-07-12	12.6 FW Miles							
		Natural Conditions							
13-17-11-(5)	Dutch Buffalo Creek	Habitat Degradation	Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity	2004		1
From a point 0.5 mile upstream of N.C. Hwy. 49 to Rocky River		General Agriculture/Pasture				FishCom			
C	03-07-12	11.3 FW Miles							
		Natural Conditions							
13-17-2	Dye Creek (Branch)	Habitat Degradation	Aquatic Life	Impaired	Biological Criteria Exceeded	Ecological/biological Integrity	2006	1998	5
From source to Rocky River		Impervious Surface				Benthos			
C	03-07-11	4.4 FW Miles							
		MS4 NPDES							
		Low Dissolved Oxygen							
		WWTP NPDES							
		Nutrient Impacts							
		WWTP NPDES							
		Toxic Impacts							
		WWTP NPDES							
13-17-6-1	East Fork Coddle Creek	Habitat Degradation	Aquatic Life	Impaired	Biological Criteria Exceeded	Ecological/biological Integrity	2003	2008	5
From source to Coddle Creek		General Agriculture/Pasture				Benthos			
WS-II;HQW	03-07-11	6.4 FW Miles							
		Natural Conditions							

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Description	Classification	DWQ Subbasin	Miles/Acres	Potential Sources					
13-17-18a	Goose Creek	Fecal Coliform Bacteria	Aquatic Life	Supporting	No Criteria Exceeded	Water Quality Standards	2006		1
From source to SR 1524		Animals				Aquatic Life			
C	03-07-12	3.2 FW Miles	Recreation	Impaired	Standard Violation	Fecal Coliform (recreation)	2006	1998	4a
		Failing Septic Systems							
		MS4 NPDES							
		WWTP NPDES							
		Habitat Degradation							
		Construction							
		Land Clearing							
		Turbidity							
		Construction							
		Impervious Surface							
		MS4 NPDES							
13-17-18b	Goose Creek	Fecal Coliform Bacteria	Aquatic Life	Supporting	No Criteria Exceeded	Water Quality Standards	2006		1
From SR 1524 to Rocky River		Animals				Aquatic Life			
C	03-07-12	13.1 FW Miles	Aquatic Life	Impaired	Biological Criteria Exceeded	Ecological/biological Integrity Benthos	2006	2004	5
		Failing Septic Systems							
		MS4 NPDES							
		WWTP NPDES							
		Habitat Degradation							
		Construction							
		Impervious Surface							
		MS4 NPDES							
		Low Dissolved Oxygen							
13-17-42	Hardy Creek		Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity	2006		1
From source to Rocky River						FishCom			
C	03-07-14	9.0 FW Miles							
13-17-9-(2)	Irish Buffalo Creek	Fecal Coliform Bacteria	Aquatic Life	Supporting	No Criteria Exceeded	Water Quality Standards	2006		1
From Kannapolis Water Supply Dam to Rocky River		Failing Septic Systems				Aquatic Life			
C	03-07-12	16.7 FW Miles	Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity	2006		1
		MS4 NPDES				FishCom			
		Habitat Degradation							
		MS4 NPDES							
		Stormwater Runoff							
		Nutrient Impacts							
		Stormwater Runoff							
		Turbidity							
		Impervious Surface							
		MS4 NPDES							

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Assessment Unit Number	Name	Potential Stressors	Use Support Category	Use Support Rating	Reason for Rating	Parameter of Interest	Collection Year	Listing Year	IR Category		
Description	Classification	DWO Subbasin	Miles/Acres	Potential Sources							
13-17-9-(1) Irish Buffalo Creek [Kannapolis Lake (Cannon Lake)] From a point 0.5 mile upstream of Rowan County SR 1197 to Kannapolis Water Supply Dam	WS-III;CA	03-07-12	0.7 FW Miles		Aquatic Life	Not Rated	Data Inconclusive	Water Quality Standards Aquatic Life	2006		3a
13-17-26 Island Creek From source to Rocky River	C	03-07-14	10.0 FW Miles		Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity FishCom	2006		1
13-17-40-(1) Lanes Creek From source to Marshville Water Supply Dam (located 0.1 mile downstream of Beaverdam Creek)	WS-V	03-07-14	27.4 FW Miles	Fecal Coliform Bacteria General Agriculture/Pasture	Aquatic Life	Not Rated	Potential Standards Violation	Turbidity	2006		3a
				Low Dissolved Oxygen Natural Conditions	Aquatic Life	Not Rated	Potential Standards Violation	Low Dissolved Oxygen	2006		3a
				Nutrient Impacts General Agriculture/Pasture	Aquatic Life	Not Rated	Data Inconclusive	Ecological/biological Integrity FishCom	2006		3a
				Turbidity General Agriculture/Pasture	Aquatic Life	Impaired	Biological Criteria Exceeded	Ecological/biological Integrity Benthos	1989	2004	5
					Recreation	Not Rated	Potential Standards Violation	Fecal Coliform (recreation)	2006		3a
					Water Supply	Supporting	No Criteria Exceeded	Water Quality Standards Water Supply	2006		1
13-17-40-(12) Lanes Creek From Marshville Water Supply Dam (located 0.1 mile downstream of Beaverdam Creek) to Rocky River	C	03-07-14	27.1 FW Miles	Habitat Degradation General Agriculture/Pasture Impoundment Natural Conditions	Aquatic Life	Impaired	Biological Criteria Exceeded	Ecological/biological Integrity Benthos	1996	1998	5
13-17-31-1 Little Long Creek From source to Long Creek	C	03-07-13	8.5 FW Miles	Habitat Degradation Impervious Surface	Aquatic Life	Impaired	Biological Criteria Exceeded	Ecological/biological Integrity Benthos	2006	1998	5
13-17-36-4-(0.5) Little Richardson Creek (Lake Monroe) From source to a point 0.6 mile upstream of Buck Branch	WS-IV	03-07-14	78.9 FW Acres	Chlorophyll a	Aquatic Life	Not Rated	Data Inconclusive	High pH	2006		3a
				High pH	Aquatic Life	Impaired	Standard Violation	Chlorophyll a	2006	2008	5

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Assessment Unit Number	Name	Potential Stressors	Use Support Category	Use Support Rating	Reason for Rating	Parameter of Interest	Collection Year	Listing Year	IR Category
Description		Potential Sources							
Classification	DWQ Subbasin	Miles/Acres							
13-17-36-4-(2)	Little Richardson Creek (Lake Monroe)		Aquatic Life	Not Rated	Data Inconclusive	High pH	2006		3a
From a point 0.6 mile upstream of Buck Creek to Richardson Creek			Aquatic Life	Impaired	Standard Violation	Chlorophyll a	2006	2008	5
WS-IV;CA	03-07-14	39.2 FW Acres							
13-17-31	Long Creek	Habitat Degradation	Aquatic Life	Supporting	No Criteria Exceeded	Water Quality Standards Aquatic Life	2006		1
From source to Rocky River		Stormwater Runoff	Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity FishCom	2004		1
C	03-07-13	26.7 FW Miles	Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity Benthos	2006		1
			Recreation	Supporting	No Criteria Exceeded	Fecal Coliform (recreation)	2006		1
13-17-5b	Mallard Creek	Habitat Degradation	Aquatic Life	Impaired	Standard Violation	Turbidity	2006	2008	5
From Stoney Creek to Rocky River		Impervious Surface	Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity FishCom	2006		1
C	03-07-11	4.8 FW Miles	Aquatic Life	Impaired	Biological Criteria Exceeded	Ecological/biological Integrity Benthos	2003	2008	4s
			Recreation	Supporting	No Criteria Exceeded	Fecal Coliform (recreation)	2006		1
13-17-8-4	McKee Creek	Fecal Coliform Bacteria	Aquatic Life	Impaired	Data Inconclusive	Sediment Historic Listing	1998	1998	5
From source to Reedy Creek		General Agriculture/Pasture	Aquatic Life	Impaired	Biological Criteria Exceeded	Ecological/biological Integrity Benthos	2003	2008	5
C	03-07-11	6.9 FW Miles	Recreation	Impaired	Standard Violation	Fecal Coliform (recreation)	1998	1998	4a
13-17-6-5-(1)	Mill Creek	Habitat Degradation	Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity Benthos	2003		1
From source to a point 0.3 mile downstream of Cabarrus County SR 1609		General Agriculture/Pasture							
WS-II;HQW	03-07-11	5.1 FW Miles							
13-17-36-15	Negro Head Creek (Salem Creek)	Habitat Degradation	Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity FishCom	2006		1
From source to Richardson Creek		General Agriculture/Pasture							
C	03-07-14	13.0 FW Miles							

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Assessment Unit Number	Name	Potential Stressors	Use Support Category	Use Support Rating	Reason for Rating	Parameter of Interest	Collection Year	Listing Year	IR Category
Description	Classification	DWQ Subbasin	Miles/Acres	Potential Sources					
13-17-20-1	North Fork Crooked Creek	Fecal Coliform Bacteria							
From source to Crooked Creek		Stormwater Runoff	Aquatic Life	Impaired	Standard Violation	Turbidity	2006	2004	5
C	03-07-12	12.0 FW Miles							
		Habitat Degradation	Aquatic Life	Impaired	Biological Criteria Exceeded	Ecological/biological Integrity Benthos	2000	1998	4s
		Construction	Recreation	Not Rated	Potential Standards Violation	Fecal Coliform (recreation)	2006		3a
		Stormwater Runoff							
		Turbidity							
		Construction							
		Stormwater Runoff							
13-17-4-1	North Prong Clarke Creek		Aquatic Life	Not Rated	Data Inconclusive	Ecological/biological Integrity Benthos	2002		3a
From source to Clarke Creek									
C	03-07-11	4.4 FW Miles							
13-17-6-3-(2)	Park Creek		Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity Benthos	2003		1
From a point 0.1 mile upstream of Cabarrus County SR 1615 to Coddle Cr.									
WS-II;HQW,CA	03-07-11	0.5 FW Miles							
13-17-4-4	Ramah Creek		Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity Benthos	2002		1
From source to Clarke Creek									
C	03-07-11	5.8 FW Miles							
13-17-8	Reedy Creek	Habitat Degradation	Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity FishCom	2006		1
From source to Rocky River		Impervious Surface							
C	03-07-11	15.2 FW Miles	Aquatic Life	Impaired	Biological Criteria Exceeded	Ecological/biological Integrity Benthos	2003	2008	5
		Stormwater Runoff							
13-17-36-(5)a1a	Richardson Creek		Aquatic Life	Impaired	Standard Violation	Turbidity	2006	2008	5
From Monroe Water Supply Dam (Lake Lee) to Mill Creek 13-17-36-10			Aquatic Life	Impaired	No Criteria Exceeded	Ecological/biological Integrity Benthos	2006	1998	4s
C	03-07-14	8.2 FW Miles	Recreation	Supporting	No Criteria Exceeded	Fecal Coliform (recreation)	2006		1
13-17-36-(5)a1b	Richardson Creek		Aquatic Life	Supporting	No Criteria Exceeded	Water Quality Standards Aquatic Life	2006		1
From Mill Creek 13-17-36-10 to Watson Creek			Aquatic Life	Impaired	No Criteria Exceeded	Ecological/biological Integrity Benthos	2006	1998	5
C	03-07-14	3.9 FW Miles	Recreation	Supporting	No Criteria Exceeded	Fecal Coliform (recreation)	2006		1
13-17-36-(5)a2	Richardson Creek	Turbidity	Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity Benthos	2006		1
From Watson Creek to Negro Head Creek (Salem Creek)			Recreation	Supporting	No Criteria Exceeded	Fecal Coliform (recreation)	2006		1
C	03-07-14	4.7 FW Miles							

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Description	Potential Sources								
Classification	DWQ Subbasin	Miles/Acres							
13-17-36-(5)b	Richardson Creek		Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity Benthos	2006		1
From mouth of Negro Head Creek (Salem Creek) to Rocky River									
C	03-07-14	15.3 FW Miles							
13-17-36-(3.5)	Richardson Creek (Lake Lee)	Chlorophyll a	Aquatic Life	Impaired	Standard Violation	Chlorophyll a	2006	2008	5
From a point 0.2 mile downstream of mouth of Beaverdam Creek to Monroe Water Supply Dam			Aquatic Life	Not Rated	Data Inconclusive	Ecological/biological Integrity FishCom	2006		3a
WS-IV;CA	03-07-14	2.5 FW Miles	Water Supply	Supporting	No Criteria Exceeded	Water Quality Standards Water Supply	2006		1
			Nutrient Impacts						
			General Agriculture/Pasture						
			General Agriculture/Pasture						
13-17a	Rocky River	Fecal Coliform Bacteria	Aquatic Life	Impaired	Standard Violation	Turbidity	2006	1998	5
From source to mouth of Reedy Creek			Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity FishCom	2006		1
C	03-07-11	34.1 FW Miles							
			Turbidity						
			Construction						
			Aquatic Life	Impaired	Biological Criteria Exceeded	Ecological/biological Integrity Benthos	2006	1998	4s
			MS4 NPDES						
			Stormwater Runoff						
			Recreation	Impaired	Standard Violation	Fecal Coliform (recreation)	1998	1998	4a
13-17b	Rocky River	Turbidity	Aquatic Life	Impaired	Standard Violation	Turbidity	2006	2004	5
From mouth of Reedy Creek to mouth of Dutch Buffalo Creek			Aquatic Life	Impaired	Biological Criteria Exceeded	Ecological/biological Integrity Benthos	2003	1998	4s
C	03-07-12	8.5 FW Miles							
			Recreation	Supporting	No Criteria Exceeded	Fecal Coliform (recreation)	2006		1
13-17c	Rocky River	Fecal Coliform Bacteria	Aquatic Life	Impaired	Standard Violation	Turbidity	2006	2004	5
From the mouth of Dutch Buffalo Creek to the mouth of Island Creek			Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity Benthos	2006		1
C	03-07-12	21.6 FW Miles							
			Turbidity						
			Construction						
			Recreation	Not Rated	Potential Standards Violation	Fecal Coliform (recreation)	2006		3a
			Stormwater Runoff						
13-17d	Rocky River	Fecal Coliform Bacteria	Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity Benthos	2006		1
From the mouth of Island Creek to the Pee Dee River			Aquatic Life	Impaired	Standard Violation	Turbidity	2006	2008	5
C	03-07-14	29.3 FW Miles							
			Turbidity						
			Land Clearing						
			Recreation	Not Rated	Potential Standards Violation	Fecal Coliform (recreation)	2006		3a
			Stormwater Runoff						
13-17-20-2a	South Fork Crooked Creek	Habitat Degradation	Aquatic Life	Impaired	Biological Criteria Exceeded	Ecological/biological Integrity FishCom	1995	1998	5
From source to SR 1515			Aquatic Life	Impaired	Biological Criteria Exceeded	Ecological/biological Integrity Benthos	1995	1998	5
C	03-07-12	5.6 FW Miles							
			Construction						
			Stormwater Runoff						

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Description	Classification	DWO Subbasin	Miles/Acres	Potential Sources							
13-17-20-2b From SR 1515 to Crooked Creek	South Fork Crooked Creek			Habitat Degradation Construction Stormwater Runoff	Aquatic Life	Impaired	Biological Criteria Exceeded	Ecological/biological Integrity Benthos	1995	1998	5
C	03-07-12	8.8	FW Miles								
13-17-4-2 From source to Clarke Creek	South Prong Clarke Creek				Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity Benthos	2002		1
C	03-07-11	3.5	FW Miles								
13-17-3-1 From source to West Branch Rocky River	South Prong West Branch Rocky River			Habitat Degradation Impervious Surface Land Clearing	Aquatic Life	Not Rated	Data Inconclusive	Ecological/biological Integrity Benthos	2002		3a
C	03-07-11	4.6	FW Miles								
13-17-36-9-(1) From source to a point 0.4 mile downstream of mouth of Stumplick Branch	Stewarts Creek			Habitat Degradation General Agriculture/Pasture Impervious Surface	Aquatic Life	Impaired	Biological Criteria Exceeded	Ecological/biological Integrity Benthos	2006	2008	5
WS-III	03-07-14	8.3	FW Miles								
13-17-36-9-(4.5) From a point 0.4 mile downstream of mouth of Stumplick Branch to Union County SR 1681 (City of Monroe water supply intake)	Stewarts Creek [Lake Twitty (Lake Stewart)]			Chlorophyll a Stormwater Runoff	Aquatic Life	Impaired	Standard Violation	Chlorophyll a	2006	2008	5
WS-III;CA	03-07-14	1.1	FW Miles		Water Supply	Supporting	No Criteria Exceeded	Water Quality Standards Water Supply	2006		1
13-17-5-5 From source to Mallard Creek	Stony Creek			Habitat Degradation Impervious Surface Stormwater Runoff Toxic Impacts Stormwater Runoff	Aquatic Life	Impaired	Biological Criteria Exceeded	Ecological/biological Integrity Benthos	2003	2008	5
C	03-07-11	5.1	FW Miles								
13-17-31-5-5 From source to Big Bear Creek	Stony Run			Habitat Degradation Natural Conditions Nutrient Impacts General Agriculture/Pasture	Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity FishCom	2006		1
C	03-07-13	11.9	FW Miles								
13-17-5-4 From source to Mallard Creek	Toby Creek				Aquatic Life	Impaired	Biological Criteria Exceeded	Ecological/biological Integrity Benthos	2003	2008	5
C	03-07-11	4.4	FW Miles								

Yadkin-Peedee River Basin

Rocky River 8-Digit Subbasin 03040105

Assessment Unit Number	Name	Potential Stressors	Use Support Category	Use Support Rating	Reason for Rating	Parameter of Interest	Collection Year	Listing Year	IR Category
Description	Classification	DWQ Subbasin	Miles/Acres	Potential Sources					
13-17-9-4-2-(2)	Unnamed Tributary to Cold Water Creek (Lake Concord)	Nutrient Impacts	Aquatic Life	Not Rated	Data Inconclusive	Chlorophyll a	2006		3a
From a point 0.7 mile downstream of Rowan/Cabarrus County Line to dam at Lake Concord			Water Supply	Supporting	No Criteria Exceeded	Water Quality Standards Water Supply	2006		1
WS-IV;CA	03-07-12	0.5 FW Miles							
13-17-3	West Branch Rocky River		Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity Benthos	2002		1
From source to Rocky River									
C	03-07-11	8.8 FW Miles							
13-17-6-7	Wolf Meadow Branch		Aquatic Life	Supporting	No Criteria Exceeded	Ecological/biological Integrity Benthos	2003		1
From source to Coddle Creek									
C	03-07-11	3.0 FW Miles							

Appendix B

**Ambient Monitoring Stations
Summary Sheets**

Ambient Monitoring System Station Summaries
 NCDENR, Division of Water Quality
 Basinwide Assessment Report

Location: ROCKY RIV AT SR 2420 NR DAVIDSON

Station #: Q7330000

Hydrologic Unit Code: 3040105

Latitude: 35.47490

Longitude: -80.77948

Stream class: C

Agency: NCAMBNT

NC stream index: 13-17

Time period: 01/29/2002 to 12/11/2006

Field	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	59	0	<4	0	0		6.1	6.8	7.3	8.4	10	11.5	12.4
	59	0	<5	0	0		6.1	6.8	7.3	8.4	10	11.5	12.4
pH (SU)	59	0	<6	0	0		6	6.6	6.8	7.1	7.4	7.6	7.7
	59	0	>9	0	0		6	6.6	6.8	7.1	7.4	7.6	7.7
Spec. conductance (umhos/cm at 25°C)	59	0	N/A				124	186	224	289	346	400	559
Water Temperature (°C)	59	0	>32	0	0		3.4	7	10.7	17.2	21.5	24.8	27.6
Other													
TSS (mg/L)	19	0	N/A				8	9	13	20	33	82	165
Turbidity (NTU)	59	0	>50	7	11.9	76.6	1.2	7.5	11	17	29	70	450
Nutrients (mg/L)													
NH3 as N	56	19	N/A				0.02	0.02	0.02	0.02	0.04	0.09	0.78
NO2 + NO3 as N	56	0	N/A				0.13	1.17	4.48	7.15	9.57	13	18
TKN as N	56	3	N/A				0.2	0.31	0.41	0.52	0.71	0.97	2.6
Total Phosphorus	56	0	N/A				0.08	0.34	0.74	1	1.3	1.63	2.3
Metals (ug/L)													
Aluminum, total (Al)	20	0	N/A				400	453	540	715	1175	3650	4900
Arsenic, total (As)	20	20	>10	0	0		5	5	5	10	10	10	10
Cadmium, total (Cd)	20	20	>2	0	0		2	2	2	2	2	2	2
Chromium, total (Cr)	20	20	>50	0	0		25	25	25	25	25	25	25
Copper, total (Cu)	20	1	>7	2	10	67.7	2	2	3	4	6	7	8
Iron, total (Fe)	20	0	>1000	10	50	100	540	578	720	1045	1550	3610	5100
Lead, total (Pb)	20	19	>25	0	0		10	10	10	10	10	10	12
Mercury, total (Hg)	20	20	>0.012	0	0		0.2	0.2	0.2	0.2	0.2	0.2	0.2
Nickel, total (Ni)	20	20	>88	0	0		10	10	10	10	10	10	10
Zinc, total (Zn)	20	1	>50	0	0		10	10	16	20	21	32	37
Fecal coliform (#/100mL)													
# results:	Geomean		# > 400: % > 400: %Conf:										
59	478		27	46	100								

Key:

result: number of observations

ND: number of observations reported to be below detection level (non-detect)

EL: Evaluation Level; applicable numeric or narrative water quality standard or action level

Results not meeting EL: number and percentages of observations not meeting evaluation level

%Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)

Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries
 NCDENR, Division of Water Quality
 Basinwide Assessment Report

Location: ROCKY RIV AT SR 2420 NR DAVIDSON

Station #: Q7330000

Hydrologic Unit Code: 3040105

Latitude: 35.47490

Longitude: -80.77948

Stream class: C

Agency: YPDRBA

NC stream index: 13-17

Time period: 01/16/2002 to 12/13/2006

	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	85	0	<4	0	0		5.6	6	6.5	8	10.1	11.2	11.9
	85	0	<5	0	0		5.6	6	6.5	8	10.1	11.2	11.9
pH (SU)	85	0	<6	0	0		6.5	6.7	6.8	7	7.4	8.1	8.3
	85	0	>9	0	0		6.5	6.7	6.8	7	7.4	8.1	8.3
Spec. conductance (umhos/cm at 25°C)	84	0	N/A				91	106	125	168	217	298	372
Water Temperature (°C)	85	0	>32	0	0		2.4	5	9.6	18.2	21.7	23.2	26.9
Other													
Turbidity (NTU)	60	0	>50	7	11.7	75.2	2.7	5.5	8.2	14	26.8	64.5	220
Nutrients (mg/L)													
NH3 as N	42	3	N/A				0.01	0.01	0.03	0.06	0.08	0.17	0.34
NO2 + NO3 as N	42	0	N/A				0.05	0.12	0.24	0.31	0.38	0.44	0.61
TKN as N	42	6	N/A				0.1	0.2	0.22	0.33	0.42	0.62	1.15
Total Phosphorus	42	1	N/A				0.02	0.03	0.05	0.08	0.12	0.2	0.31
Fecal coliform (#/100mL)													
# results:	Geomean			# > 400:	% > 400:	%Conf:							
60	109			5	8								

Key:

result: number of observations

ND: number of observations reported to be below detection level (non-detect)

EL: Evaluation Level; applicable numeric or narrative water quality standard or action level

Results not meeting EL: number and percentages of observations not meeting evaluation level

%Conf : States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)

Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries
 NCDENR, Division of Water Quality
 Basinwide Assessment Report

Location: ROCKY RIV AT US 29 NR HARRISBURG

Station #: Q7450000

Hydrologic Unit Code: 3040105

Latitude: 35.35897

Longitude: -80.67506

Stream class: C

Agency: YPDRBA

NC stream index: 13-17

Time period: 01/16/2002 to 12/13/2006

Field	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
D.O. (mg/L)	85	0	<4	0	0		5.5	5.8	6.3	7.6	10.2	10.8	12.7
	85	0	<5	0	0		5.5	5.8	6.3	7.6	10.2	10.8	12.7
pH (SU)	85	0	<6	0	0		6.5	6.8	6.9	7.1	7.4	8.1	8.4
	85	0	>9	0	0		6.5	6.8	6.9	7.1	7.4	8.1	8.4
Spec. conductance (umhos/cm at 25°C)	84	0	N/A				59	102	120	147	178	212	281
Water Temperature (°C)	85	0	>32	0	0		2.1	4.9	10.1	18.4	22.1	23.5	27.5
Other													
Turbidity (NTU)	60	0	>50	7	11.7	75.2	3	5.1	7	14.5	31.5	77.5	196
Fecal coliform (#/100mL)													
# results:	60												
Geomean	107												
# > 400:		4											
% > 400:			7										
%Conf:													

Key:

result: number of observations

ND: number of observations reported to be below detection level (non-detect)

EL: Evaluation Level; applicable numeric or narrative water quality standard or action level

Results not meeting EL: number and percentages of observations not meeting evaluation level

%Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)

Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries
 NCDENR, Division of Water Quality
 Basinwide Assessment Report

Location: MALLARD CRK AT PAVILLION RD NR HARRISBURG
Station #: Q7550000 **Hydrologic Unit Code:** 3040105
Latitude: 35.33232 **Longitude:** -80.71573 **Stream class:** C
Agency: YPDRBA **NC stream index:** 13-17-5
Time period: 01/16/2002 to 12/13/2006

	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	85	0	<4	0	0		5.2	5.7	6.2	7.4	9.9	10.8	12.4
	85	0	<5	0	0		5.2	5.7	6.2	7.4	9.9	10.8	12.4
pH (SU)	85	0	<6	0	0		6.4	6.8	7	7.1	7.5	8.2	9
	85	0	>9	0	0		6.4	6.8	7	7.1	7.5	8.2	9
Spec. conductance (umhos/cm at 25°C)	84	0	N/A				62	118	133	156	188	218	256
Water Temperature (°C)	85	0	>32	0	0		2.2	5	10.3	18.7	22.4	24.2	27.8
Other													
Turbidity (NTU)	60	0	>50	8	13.3	85.8	1.9	3.5	5.4	10.3	31	78.5	240
Nutrients (mg/L)													
NH3 as N	42	4	N/A				0.01	0.01	0.04	0.08	0.13	0.25	1.14
NO2 + NO3 as N	42	0	N/A				0.04	0.08	0.12	0.26	0.36	0.51	1.44
TKN as N	42	6	N/A				0.1	0.2	0.25	0.36	0.65	1.1	1.91
Total Phosphorus	42	0	N/A				0.02	0.04	0.05	0.08	0.12	0.25	0.77
Metals (ug/L)													
Aluminum, total (Al)	29	2	N/A				50	56	152	291	1640	6261	13371
Arsenic, total (As)	29	29	>10	0	0		5	5	5	5	5	5	5
Cadmium, total (Cd)	29	29	>2	0	0		1	1	1	1	1	1	1
Chromium, total (Cr)	29	22	>50	0	0		5	5	5	5	5	11	18
Copper, total (Cu)	29	8	>7	6	20.7	97.8	2	2	2	3	7	18	33
Iron, total (Fe)	29	0	>1000	18	62.1	100	268	562	790	1199	2796	9285	13735
Lead, total (Pb)	29	28	>25	0	0		5	5	5	5	5	5	11
Mercury, total (Hg)	29	29	>0.012	0	0		0.2	0.2	0.2	0.2	0.2	0.2	0.2
Nickel, total (Ni)	29	28	>88	0	0		10	10	10	10	10	10	13
Zinc, total (Zn)	29	23	>50	1	3.4		10	10	10	10	10	23	52

Fecal coliform (#/100mL)			
# results:	Geomean	# > 400:	% > 400: %Conf:
60	107	2	3

Key:
 # result: number of observations
 # ND: number of observations reported to be below detection level (non-detect)
 EL: Evaluation Level; applicable numeric or narrative water quality standard or action level
 Results not meeting EL: number and percentages of observations not meeting evaluation level
 %Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)
 Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries
 NCDENR, Division of Water Quality
 Basinwide Assessment Report

Location: MALLARD CRK AT SR 1300 NR HARRISBURG
Station #: Q7570000 **Hydrologic Unit Code:** 3040105
Latitude: 35.33378 **Longitude:** -80.66817 **Stream class:** C
Agency: YPDRBA **NC stream index:** 13-17-5

Time period: 01/16/2002 to 12/13/2006

	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	85	0	<4	0	0		5.2	5.6	6.2	7.3	9.7	10.6	12.5
	85	0	<5	0	0		5.2	5.6	6.2	7.3	9.7	10.6	12.5
pH (SU)	85	0	<6	0	0		6.5	6.8	6.9	7.1	7.4	8.1	8.5
	85	0	>9	0	0		6.5	6.8	6.9	7.1	7.4	8.1	8.5
Spec. conductance (umhos/cm at 25°C)	84	0	N/A				106	156	170	200	246	286	361
Water Temperature (°C)	85	0	>32	0	0		2.6	5.3	10.5	19.2	22.6	24.2	28.1
Other													
Turbidity (NTU)	60	0	>50	8	13.3	85.8	2.1	3.8	5.5	8.8	19.5	79.5	250
Nutrients (mg/L)													
NH3 as N	42	1	N/A				0.01	0.02	0.03	0.06	0.1	0.18	0.3
NO2 + NO3 as N	42	0	N/A				0.09	0.25	0.34	0.48	4.09	12.47	14.64
TKN as N	42	3	N/A				0.2	0.23	0.33	0.58	0.9	1.19	1.64
Total Phosphorus	42	0	N/A				0.04	0.05	0.07	0.11	0.78	1.62	2.17
Metals (ug/L)													
Aluminum, total (Al)	29	0	N/A				68	85	184	280	814	6041	15882
Arsenic, total (As)	29	29	>10	0	0		5	5	5	5	5	5	5
Cadmium, total (Cd)	29	28	>2	1	3.4		1	1	1	1	1	1	4
Chromium, total (Cr)	29	24	>50	0	0		5	5	5	5	5	10	14
Copper, total (Cu)	29	8	>7	7	24.1	99.4	2	2	2	3	8	16	40
Iron, total (Fe)	29	0	>1000	10	34.5	100	365	467	624	841	1245	6270	20875
Lead, total (Pb)	29	29	>25	0	0		5	5	5	5	5	5	5
Mercury, total (Hg)	29	29	>0.012	0	0		0.2	0.2	0.2	0.2	0.2	0.2	0.2
Nickel, total (Ni)	29	27	>88	0	0		10	10	10	10	10	10	19
Zinc, total (Zn)	29	13	>50	1	3.4		10	10	10	11	16	29	82

Fecal coliform (#/100mL)		# > 400:	% > 400:	%Conf:
# results:	Geomean			
60	122	4	7	

Key:
 # result: number of observations
 # ND: number of observations reported to be below detection level (non-detect)
 EL: Evaluation Level; applicable numeric or narrative water quality standard or action level
 Results not meeting EL: number and percentages of observations not meeting evaluation level
 %Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)
 Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries
 NCDENR, Division of Water Quality
 Basinwide Assessment Report

Location: ROCKY RIV AT SR 1304 NR HARRISBURG

Station #: Q7600000

Hydrologic Unit Code: 3040105

Latitude: 35.33445

Longitude: -80.64435

Stream class: C

Agency: YPDRBA

NC stream index: 13-17

Time period: 01/16/2002 to 12/13/2006

	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	85	0	<4	0	0		5.2	5.6	6.1	7.6	9.7	10.5	12.2
	85	0	<5	0	0		5.2	5.6	6.1	7.6	9.7	10.5	12.2
pH (SU)	85	0	<6	0	0		6.4	6.7	6.9	7.1	7.3	8	8.5
	85	0	>9	0	0		6.4	6.7	6.9	7.1	7.3	8	8.5
Spec. conductance (umhos/cm at 25°C)	84	0	N/A				83	122	132	188	228	288	373
Water Temperature (°C)	85	0	>32	0	0		2.5	5.2	10.3	19	22.8	23.9	28.2
Other													
Turbidity (NTU)	60	0	>50	11	18.3	98.5	3.8	7	9.9	16	32.8	147	350
Nutrients (mg/L)													
NH3 as N	42	2	N/A				0.01	0.01	0.05	0.08	0.12	0.25	2.02
NO2 + NO3 as N	42	0	N/A				0.34	1.31	3.41	4.34	5.57	6.02	9.32
TKN as N	42	0	N/A				0.27	0.39	0.52	0.69	0.85	1.05	2.53
Total Phosphorus	42	0	N/A				0.3	0.37	0.49	0.62	0.82	1.04	1.49
Metals (ug/L)													
Aluminum, total (Al)	47	0	N/A				110	147	335	701	2458	8863	12558
Arsenic, total (As)	47	46	>10	0	0		5	5	5	5	5	5	5
Cadmium, total (Cd)	47	46	>2	0	0		1	1	1	1	1	1	1
Chromium, total (Cr)	47	38	>50	0	0		5	5	5	5	5	10	19
Copper, total (Cu)	47	6	>7	11	23.4	99.8	2	2	2	4	7	16	33
Iron, total (Fe)	47	0	>1000	33	70.2	100	460	636	824	1373	2402	9094	18630
Lead, total (Pb)	47	43	>25	0	0		5	5	5	5	5	5	12
Mercury, total (Hg)	47	47	>0.012	0	0		0.2	0.2	0.2	0.2	0.2	0.2	0.2
Nickel, total (Ni)	47	45	>88	0	0		10	10	10	10	10	10	21
Zinc, total (Zn)	47	17	>50	0	0		10	10	10	12	21	31	39

Fecal coliform (#/100mL)

# results:	Geomean	# > 400:	% > 400:	%Conf:
60	107	5	8	

Key:

result: number of observations

ND: number of observations reported to be below detection level (non-detect)

EL: Evaluation Level; applicable numeric or narrative water quality standard or action level

Results not meeting EL: number and percentages of observations not meeting evaluation level

%Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)

Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries

NCDENR, Division of Water Quality

Basinwide Assessment Report

Location: CODDLE CRK AT SR 1304 ROBERTA RD NR ROBERTA MILL

Station #: Q7700000

Hydrologic Unit Code: 3040105

Latitude: 35.35919

Longitude: -80.63469

Stream class: C

Agency: YPDRBA

NC stream index: 13-17-6-(5.5)

Time period: 07/16/2003 to 12/13/2006

Field	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
D.O. (mg/L)	60	0	<4	0	0		5.3	5.9	6.4	7.7	10.1	11	12.6
	60	0	<5	0	0		5.3	5.9	6.4	7.7	10.1	11	12.6
pH (SU)	60	0	<6	0	0		6.6	6.7	6.8	7	7.2	7.3	7.5
	60	0	>9	0	0		6.6	6.7	6.8	7	7.2	7.3	7.5
Spec. conductance (umhos/cm at 25°C)	60	0	N/A				94	106	116	159	181	194	294
Water Temperature (°C)	60	0	>32	0	0		2.6	5.5	10.5	18.9	22.5	23.5	27.8
Other													
Turbidity (NTU)	42	0	>50	7	16.7	94.6	4.6	5.8	9.5	14.5	26.2	128	230
Fecal coliform (#/100mL)													
# results:	Geomean	# > 400:	% > 400:	%Conf:									
42	71	1	2										

Key:

result: number of observations

ND: number of observations reported to be below detection level (non-detect)

EL: Evaluation Level; applicable numeric or narrative water quality standard or action level

Results not meeting EL: number and percentages of observations not meeting evaluation level

%Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)

Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries
 NCDENR, Division of Water Quality
 Basinwide Assessment Report

Location: ROCKY RIV AT SR 1132 NR HARRISBURG

Station #: Q7780000

Hydrologic Unit Code: 3040105

Latitude: 35.32443

Longitude: -80.56033

Stream class: C

Agency: YPDRBA

NC stream index: 13-17

Time period: 01/16/2002 to 12/13/2006

	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	85	0	<4	0	0		5.2	5.5	6.4	7.6	10.2	10.8	13.2
	85	0	<5	0	0		5.2	5.5	6.4	7.6	10.2	10.8	13.2
pH (SU)	85	0	<6	0	0		6.6	6.8	6.9	7.1	7.4	8.1	8.3
	85	0	>9	0	0		6.6	6.8	6.9	7.1	7.4	8.1	8.3
Spec. conductance (umhos/cm at 25°C)	84	0	N/A				76	106	117	154	200	218	297
Water Temperature (°C)	85	0	>32	0	0		2.7	5.3	10.4	19	22.8	24	28.1
Other													
Turbidity (NTU)	60	0	>50	9	15	92.7	3.4	5.1	7.9	15	30.8	116.5	260
Nutrients (mg/L)													
NH3 as N	60	8	N/A				0.01	0.01	0.02	0.04	0.08	0.15	0.39
NO2 + NO3 as N	60	0	N/A				0.39	0.75	1.34	2.17	3.37	6.16	12.7
TKN as N	60	4	N/A				0.1	0.22	0.37	0.56	0.79	1.15	1.85
Total Phosphorus	60	0	N/A				0.02	0.16	0.19	0.26	0.53	1.07	3.1
Fecal coliform (#/100mL)													
# results:	Geomean			# > 400:	% > 400:	%Conf:							
60	90			3	5								

Key:

result: number of observations

ND: number of observations reported to be below detection level (non-detect)

EL: Evaluation Level; applicable numeric or narrative water quality standard or action level

Results not meeting EL: number and percentages of observations not meeting evaluation level

%Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)

Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries
 NCDENR, Division of Water Quality
 Basinwide Assessment Report

Location: IRISH BUFFALO CRK AT SR 1132 NR FAGGARTS
Station #: Q8090000 **Hydrologic Unit Code:** 3040105
Latitude: 35.34730 **Longitude:** -80.54769 **Stream class:** C
Agency: NCAMBNT **NC stream index:** 13-17-9-(2)

Time period: 01/29/2002 to 12/06/2006

	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	59	0	<4	0	0		5.8	7.4	8.1	9.7	11.4	12.9	16.1
	59	0	<5	0	0		5.8	7.4	8.1	9.7	11.4	12.9	16.1
pH (SU)	59	0	<6	0	0		6	6.5	6.9	7.5	7.9	8.2	9.6
	59	0	>9	1	1.7		6	6.5	6.9	7.5	7.9	8.2	9.6
Spec. conductance (umhos/cm at 25°C)	59	0	N/A				88	134	163	189	198	249	1233
Water Temperature (°C)	59	0	>32	0	0		4	5.8	10.2	16.4	22.7	24.5	28.5
Other													
TSS (mg/L)	20	5	N/A				2.5	2.5	2.6	5.2	46	81.8	99
Turbidity (NTU)	59	0	>50	5	8.5		1	2.6	3.5	6.4	12	50	450
Metals (ug/L)													
Aluminum, total (Al)	19	0	N/A				95	130	140	390	2300	9300	11000
Arsenic, total (As)	19	19	>10	0	0		5	5	5	10	10	10	10
Cadmium, total (Cd)	19	19	>2	0	0		2	2	2	2	2	2	2
Chromium, total (Cr)	19	19	>50	0	0		25	25	25	25	25	25	25
Copper, total (Cu)	19	5	>7	4	21.1	96.5	2	2	2	3	6	11	24
Iron, total (Fe)	19	0	>1000	6	31.6	99.8	180	190	310	510	2400	7400	13000
Lead, total (Pb)	19	17	>25	0	0		10	10	10	10	10	12	13
Mercury, total (Hg)	19	19	>0.012	0	0		0.2	0.2	0.2	0.2	0.2	0.2	0.2
Nickel, total (Ni)	19	19	>88	0	0		10	10	10	10	10	10	10
Zinc, total (Zn)	19	14	>50	0	0		10	10	10	10	11	38	49
Fecal coliform (#/100mL)													
# results:	Geomean	# > 400:		% > 400:		%Conf:							
56	267	16	29	95.7									

Key:
 # result: number of observations
 # ND: number of observations reported to be below detection level (non-detect)
 EL: Evaluation Level; applicable numeric or narrative water quality standard or action level
 Results not meeting EL: number and percentages of observations not meeting evaluation level
 %Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)
 Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries

NCDENR, Division of Water Quality
Basinwide Assessment Report

Location: COLD WATER CRK AT SR 1132 MIAMI CHURCH RD NR CONCORD
Station #: Q8200000 **Hydrologic Unit Code:** 3040105
Latitude: 35.36242 **Longitude:** -80.53033 **Stream class:** C
Agency: YPDRBA **NC stream index:** 13-17-9-4-(1.5)

Time period: 01/16/2002 to 12/13/2006

Field	# result	# ND	EL	Results not meeting EL			Percentiles							
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max	
Field	D.O. (mg/L)	85	0	<4	0	0		4.8	5.4	5.8	7.6	9.4	10.6	12.7
		85	0	<5	1	1.2		4.8	5.4	5.8	7.6	9.4	10.6	12.7
	pH (SU)	85	0	<6	0	0		6.6	6.7	6.9	7	7.3	8.2	8.4
		85	0	>9	0	0		6.6	6.7	6.9	7	7.3	8.2	8.4
	Spec. conductance (umhos/cm at 25°C)	84	0	N/A				72	95	111	138	167	192	262
Water Temperature (°C)	85	0	>32	0	0		1.4	5.2	10.2	18.6	22.4	23.5	28.4	
Other														
Turbidity (NTU)	60	0	>50	7	11.7	75.2		3	5	6.2	9.1	18.5	79.5	140
Fecal coliform (#/100mL)														
# results:	60													
Geomean	133													
# > 400:		5												
% > 400:			8											
%Conf:														

Key:

result: number of observations
ND: number of observations reported to be below detection level (non-detect)
EL: Evaluation Level; applicable numeric or narrative water quality standard or action level
Results not meeting EL: number and percentages of observations not meeting evaluation level
%Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)
Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries
 NCDENR, Division of Water Quality
 Basinwide Assessment Report

Location: ROCKY RIV AT US 601 NR CONCORD

Station #: Q8210000

Hydrologic Unit Code: 3040105

Latitude: 35.32445

Longitude: -80.51537

Stream class: C

Agency: NCAMBNT

NC stream index: 13-17

Time period: 01/29/2002 to 08/08/2005

	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	44	0	<4	0	0		4.4	6.8	7.2	8.4	10	11.6	12.1
	44	0	<5	1	2.3		4.4	6.8	7.2	8.4	10	11.6	12.1
pH (SU)	44	0	<6	1	2.3		5.8	6.4	6.8	7.2	7.5	7.6	8.5
	44	0	>9	0	0		5.8	6.4	6.8	7.2	7.5	7.6	8.5
Spec. conductance (umhos/cm at 25°C)	44	0	N/A				96	134	192	246	316	518	870
Water Temperature (°C)	44	0	>32	0	0		5	8.1	10.7	18.6	24.5	26.2	27.1
Other													
TSS (mg/L)	15	0	N/A				3	4.8	6	14	90	326	500
Turbidity (NTU)	44	0	>50	11	25	99.9	3.4	4.5	6.1	13	66.2	130	250
Nutrients (mg/L)													
NH3 as N	43	6	N/A				0.02	0.02	0.03	0.06	0.14	0.46	1.3
NO2 + NO3 as N	43	0	N/A				0.46	0.92	1.5	3	4.9	6.3	9.3
TKN as N	43	0	N/A				0.3	0.49	0.57	0.69	0.88	1.46	2.4
Total Phosphorus	43	0	N/A				0.04	0.31	0.36	0.61	0.94	1.52	3.4
Metals (ug/L)													
Aluminum, total (Al)	15	0	N/A				170	188	270	990	6200	21240	39000
Arsenic, total (As)	15	15	>10	0	0		5	5	5	10	10	10	10
Cadmium, total (Cd)	15	15	>2	0	0		2	2	2	2	2	2	2
Chromium, total (Cr)	15	15	>50	0	0		25	25	25	25	25	25	25
Copper, total (Cu)	15	0	>7	6	40	100	3	3	3	5	13	26	36
Iron, total (Fe)	15	0	>1000	8	53.3	100	370	388	610	1300	6700	22000	31000
Lead, total (Pb)	15	15	>25	0	0		10	10	10	10	10	10	10
Mercury, total (Hg)	15	15	>0.012	0	0		0.2	0.2	0.2	0.2	0.2	0.2	0.2
Nickel, total (Ni)	15	14	>88	0	0		10	10	10	10	10	11	12
Zinc, total (Zn)	15	2	>50	1	6.7		10	10	12	17	29	46	64
Fecal coliform (#/100mL)													
# results:	43												
Geomean	331												
# > 400:		15											
% > 400:		35											
%Conf:		99.3											

Key:

result: number of observations

ND: number of observations reported to be below detection level (non-detect)

EL: Evaluation Level; applicable numeric or narrative water quality standard or action level

Results not meeting EL: number and percentages of observations not meeting evaluation level

%Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)

Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries
 NCDENR, Division of Water Quality
 Basinwide Assessment Report

Location: ROCKY RIV AT US 601 NR CONCORD

Station #: Q8210000

Hydrologic Unit Code: 3040105

Latitude: 35.32445

Longitude: -80.51537

Stream class: C

Agency: YPDRBA

NC stream index: 13-17

Time period: 01/16/2002 to 12/13/2006

	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	85	0	<4	0	0		5	5.7	6.5	7.6	9.3	10.9	12.6
	85	0	<5	0	0		5	5.7	6.5	7.6	9.3	10.9	12.6
pH (SU)	85	0	<6	0	0		6.6	6.9	7	7.1	7.4	8.1	8.3
	85	0	>9	0	0		6.6	6.9	7	7.1	7.4	8.1	8.3
Spec. conductance (umhos/cm at 25°C)	84	0	N/A				92	116	124	145	168	187	328
Water Temperature (°C)	85	0	>32	0	0		3.1	6	10.5	19.1	22.6	23.8	28.3
Other													
Turbidity (NTU)	60	0	>50	8	13.3	85.8	3	5.1	7.9	13.5	25.8	120	520
Nutrients (mg/L)													
NH3 as N	60	9	N/A				0.01	0.01	0.02	0.06	0.11	0.18	0.79
NO2 + NO3 as N	60	1	N/A				0.01	0.19	0.49	1.25	2.25	3.91	5.53
TKN as N	60	1	N/A				0.16	0.22	0.34	0.49	0.78	1.06	1.88
Total Phosphorus	60	2	N/A				0.01	0.06	0.14	0.23	0.36	0.62	3.81
Fecal coliform (#/100mL)													
# results:	Geomean			# > 400:	% > 400:	%Conf:							
60	86			1	2								

Key:

result: number of observations

ND: number of observations reported to be below detection level (non-detect)

EL: Evaluation Level; applicable numeric or narrative water quality standard or action level

Results not meeting EL: number and percentages of observations not meeting evaluation level

%Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)

Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries
 NCDENR, Division of Water Quality
 Basinwide Assessment Report

Location: ROCKY RIV AT SR 1006 NR CONCORD

Station #: Q8220000

Hydrologic Unit Code: 3040105

Latitude: 35.31397

Longitude: -80.47864

Stream class: C

Agency: NCAMBNT

NC stream index: 13-17

Time period: 10/06/2005 to 12/06/2006

	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	15	0	<4	0	0		6	6.1	7	9.2	10.8	11.4	11.6
	15	0	<5	0	0		6	6.1	7	9.2	10.8	11.4	11.6
pH (SU)	15	0	<6	0	0		6.1	6.2	6.4	6.7	7.4	7.6	7.6
	15	0	>9	0	0		6.1	6.2	6.4	6.7	7.4	7.6	7.6
Spec. conductance (umhos/cm at 25°C)	15	0	N/A				142	142	204	238	281	362	380
Water Temperature (°C)	15	0	>32	0	0		6.9	7.6	11.1	15.9	23.3	25.1	25.3
Other													
TSS (mg/L)	5	0	N/A				6.8	6.8	6.8	25	63	99	99
Turbidity (NTU)	15	0	>50	3	20	94.4	2.9	4.5	9.1	19	50	210	300
Nutrients (mg/L)													
NH3 as N	15	2	N/A				0.02	0.02	0.04	0.07	0.1	0.12	0.13
NO2 + NO3 as N	15	0	N/A				1.4	1.46	2.4	3.3	4.5	7.66	8.5
TKN as N	15	0	N/A				0.53	0.55	0.67	0.72	0.89	1.28	1.4
Total Phosphorus	15	0	N/A				0.34	0.34	0.38	0.64	0.79	1.4	1.7
Metals (ug/L)													
Aluminum, total (Al)	5	0	N/A				210	210	250	1200	7750	14000	14000
Arsenic, total (As)	5	5	>10	0	0		5	5	5	5	5	5	5
Cadmium, total (Cd)	5	5	>2	0	0		2	2	2	2	2	2	2
Chromium, total (Cr)	5	5	>50	0	0		25	25	25	25	25	25	25
Copper, total (Cu)	5	0	>7	1	20		3	3	3	4	19	31	31
Iron, total (Fe)	5	0	>1000	3	60		420	420	455	1800	10150	18000	18000
Lead, total (Pb)	5	4	>25	0	0		10	10	10	10	14	17	17
Mercury, total (Hg)	5	5	>0.012	0	0		0.2	0.2	0.2	0.2	0.2	0.2	0.2
Nickel, total (Ni)	5	5	>88	0	0		10	10	10	10	10	10	10
Zinc, total (Zn)	5	0	>50	1	20		13	13	16	21	54	85	85
Fecal coliform (#/100mL)													
# results:	Geomean	# > 400:	% > 400:	%Conf:									
15	365	4	27	83.6									

Key:

result: number of observations

ND: number of observations reported to be below detection level (non-detect)

EL: Evaluation Level; applicable numeric or narrative water quality standard or action level

Results not meeting EL: number and percentages of observations not meeting evaluation level

%Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)

Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries

NCDENR, Division of Water Quality

Basinwide Assessment Report

Location: CLEAR CRK AT SR 1118 BEN BLACK RD NR BRIEF

Station #: Q8341000

Hydrologic Unit Code: 3040105

Latitude: 35.21628

Longitude: -80.54555

Stream class: C

Agency: YPDRBA

NC stream index: 13-17-17

Time period: 06/26/2002 to 12/13/2006

Field	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
D.O. (mg/L)	88	0	<4	0	0		5	5.5	5.8	7.1	9	10.4	11.2
	88	0	<5	0	0		5	5.5	5.8	7.1	9	10.4	11.2
pH (SU)	78	0	<6	0	0		6.5	6.8	6.9	7.1	7.3	7.9	8.3
	78	0	>9	0	0		6.5	6.8	6.9	7.1	7.3	7.9	8.3
Spec. conductance (umhos/cm at 25°C)	78	0	N/A				77	108	115	132	152	180	361
Water Temperature (°C)	88	0	>32	0	0		5.1	6.7	13.7	20.2	23.2	24.5	29.2
Other													
Turbidity (NTU)	54	0	>50	6	11.1	70.7	1.6	3.5	5.1	9.4	20	68	221
Fecal coliform (#/100mL)													
# results:	Geomean	# > 400:	% > 400:	%Conf:									
54	90	4	7										

Key:

result: number of observations

ND: number of observations reported to be below detection level (non-detect)

EL: Evaluation Level; applicable numeric or narrative water quality standard or action level

Results not meeting EL: number and percentages of observations not meeting evaluation level

%Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)

Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries

NCDENR, Division of Water Quality

Basinwide Assessment Report

Location: CLEAR CRK AT US 601 NR BRIEF

Station #: Q8342000

Hydrologic Unit Code: 3040105

Latitude: 35.19465

Longitude: -80.52928

Stream class: C

Agency: YPDRBA

NC stream index: 13-17-17

Time period: 01/16/2002 to 12/13/2006

	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	99	0	<4	0	0		4.5	5.8	6.1	7.3	8.9	10.5	11.6
	99	0	<5	2	2		4.5	5.8	6.1	7.3	8.9	10.5	11.6
pH (SU)	85	0	<6	0	0		6.5	6.9	7	7.1	7.4	8	8.3
	85	0	>9	0	0		6.5	6.9	7	7.1	7.4	8	8.3
Spec. conductance (umhos/cm at 25°C)	84	0	N/A				71	96	104	126	160	203	483
Water Temperature (°C)	99	0	>32	0	0		5	6.7	12.5	20.1	23	24.2	29
Other													
Turbidity (NTU)	60	0	>50	8	13.3	85.8	1.8	4.1	6.2	12	23.8	137	190
Fecal coliform (#/100mL)													
# results:	Geomean	# > 400:	% > 400:	%Conf:									
60	85	4	7										

Key:

result: number of observations

ND: number of observations reported to be below detection level (non-detect)

EL: Evaluation Level; applicable numeric or narrative water quality standard or action level

Results not meeting EL: number and percentages of observations not meeting evaluation level

%Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)

Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries
 NCDENR, Division of Water Quality
 Basinwide Assessment Report

Location: ROCKY RIV AT SR 1114 NR MIDLAND

Station #: Q8355000

Hydrologic Unit Code: 3040105

Latitude: 35.22117 **Longitude:** -80.48712

Stream class: C

Agency: YPDRBA

NC stream index: 13-17

Time period: 01/16/2002 to 12/13/2006

	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	85	0	<4	0	0		4.3	5.5	6.1	7.3	8.8	10.4	13
	85	0	<5	2	2.4		4.3	5.5	6.1	7.3	8.8	10.4	13
pH (SU)	85	0	<6	0	0		6.4	6.9	7	7.1	7.4	8	8.2
	85	0	>9	0	0		6.4	6.9	7	7.1	7.4	8	8.2
Spec. conductance (umhos/cm at 25°C)	84	0	N/A				71	94	109	136	178	234	342
Water Temperature (°C)	85	0	>32	0	0		1.6	7.1	12.1	20.4	23.4	24.7	28.7
Other													
TSS (mg/L)	42	0	N/A				1.9	2.7	5.3	8.8	21.2	252.5	1270
Turbidity (NTU)	60	0	>50	8	13.3	85.8	2.5	3.4	5.6	13.5	25	174	400
Nutrients (mg/L)													
NH3 as N	36	1	N/A				0.01	0.02	0.03	0.05	0.12	0.27	0.55
NO2 + NO3 as N	36	0	N/A				0.3	0.98	1.84	2.61	3.77	5.1	7.45
TKN as N	36	0	N/A				0.25	0.37	0.49	0.68	0.79	1.32	2.57
Total Phosphorus	36	0	N/A				0.04	0.2	0.26	0.42	0.56	0.94	1.57
Metals (ug/L)													
Aluminum, total (Al)	29	1	N/A				50	94	138	537	1022	15300	30592
Arsenic, total (As)	29	29	>10	0	0		5	5	5	5	5	5	10
Cadmium, total (Cd)	29	29	>2	0	0		1	1	1	1	1	1	1
Chromium, total (Cr)	29	24	>50	0	0		5	5	5	5	5	19	48
Copper, total (Cu)	29	5	>7	6	20.7	97.8	2	2	2	5	7	27	99
Iron, total (Fe)	29	0	>1000	15	51.7	100	236	348	537	1163	1780	14900	45300
Lead, total (Pb)	29	25	>25	0	0		5	5	5	5	5	9	13
Mercury, total (Hg)	29	29	>0.012	0	0		0.2	0.2	0.2	0.2	0.2	0.2	0.2
Nickel, total (Ni)	29	26	>88	0	0		10	10	10	10	10	12	32
Zinc, total (Zn)	29	16	>50	2	6.9		10	10	10	10	14	43	134
Fecal coliform (#/100mL)													
# results:	60												
Geomean	90												
# > 400:				4									
% > 400:				7									
%Conf:													

Key:

result: number of observations

ND: number of observations reported to be below detection level (non-detect)

EL: Evaluation Level; applicable numeric or narrative water quality standard or action level

Results not meeting EL: number and percentages of observations not meeting evaluation level

%Conf : States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)

Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries

NCDENR, Division of Water Quality

Basinwide Assessment Report

Location: GOOSE CRK IN HUNLEY CREEK SUBDIVISION

Station #: Q8359500

Hydrologic Unit Code: 3040105

Latitude: 35.13855

Longitude: -80.63363

Stream class: C

Agency: YPDRBA

NC stream index: 13-17-18

Time period: 01/16/2002 to 12/13/2006

	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	99	0	<4	0	0		4.8	5.4	5.7	6.9	8.5	9.9	11.3
	99	0	<5	1	1		4.8	5.4	5.7	6.9	8.5	9.9	11.3
pH (SU)	85	0	<6	0	0		6.6	6.8	6.9	7.1	7.4	8.1	8.3
	85	0	>9	0	0		6.6	6.8	6.9	7.1	7.4	8.1	8.3
Spec. conductance (umhos/cm at 25°C)	84	0	N/A				83	96	112	142	182	207	331
Water Temperature (°C)	99	0	>32	0	0		5.4	7.8	13.6	20.6	23.4	24.4	29.2
Other													
Turbidity (NTU)	60	0	>50	6	10	60.6	2.1	5.3	7.1	14	24.8	67.5	400
Fecal coliform (#/100mL)													
# results:	Geomean		# > 400:	% > 400:	%Conf:								
60	120		5	8									

Key:

result: number of observations

ND: number of observations reported to be below detection level (non-detect)

EL: Evaluation Level; applicable numeric or narrative water quality standard or action level

Results not meeting EL: number and percentages of observations not meeting evaluation level

%Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)

Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries
 NCDENR, Division of Water Quality
 Basinwide Assessment Report

Location: GOOSE CRK AT SR 1524 NR MINT HILL

Station #: Q8360000

Hydrologic Unit Code: 3040105

Latitude: 35.13090

Longitude: -80.63105

Stream class: C

Agency: NCAMBNT

NC stream index: 13-17-18

Time period: 01/07/2002 to 12/12/2006

Field	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	60	0	<4	4	6.7		1	5.1	6.8	8.4	10.4	12.3	14.7
	60	0	<5	5	8.3		1	5.1	6.8	8.4	10.4	12.3	14.7
pH (SU)	60	0	<6	1	1.7		5.9	6.3	6.6	6.8	7.4	7.9	8.6
	60	0	>9	0	0		5.9	6.3	6.6	6.8	7.4	7.9	8.6
Spec. conductance (umhos/cm at 25°C)	60	0	N/A				91	101	121	141	212	358	609
Water Temperature (°C)	60	0	>32	0	0		4	7.7	11.3	17.9	22.9	25.2	30.9
Other													
TSS (mg/L)	20	2	N/A				2.5	2.6	4	5	14.5	27.8	48
Turbidity (NTU)	60	0	>50	4	6.7		2.1	4	4.9	10.3	20	48.9	80
Nutrients (mg/L)													
NH3 as N	58	10	N/A				0.02	0.02	0.02	0.07	0.41	1.66	18
NO2 + NO3 as N	58	0	N/A				0.17	0.37	0.62	0.92	1.7	3.37	6.6
TKN as N	58	3	N/A				0.2	0.28	0.35	0.5	1.95	4.84	20
Total Phosphorus	58	0	N/A				0.06	0.07	0.09	0.2	0.96	2.41	4.8
Metals (ug/L)													
Aluminum, total (Al)	22	0	N/A				110	133	150	265	715	1350	2200
Arsenic, total (As)	22	22	>10	0	0		5	5	5	10	10	10	10
Cadmium, total (Cd)	22	22	>2	0	0		2	2	2	2	2	2	2
Chromium, total (Cr)	22	22	>50	0	0		25	25	25	25	25	25	25
Copper, total (Cu)	22	6	>7	2	9.1		2	2	2	3	5	11	18
Iron, total (Fe)	22	0	>1000	4	18.2	93.8	330	352	418	535	930	1100	3400
Lead, total (Pb)	22	22	>25	0	0		10	10	10	10	10	10	10
Mercury, total (Hg)	22	22	>0.012	0	0		0.2	0.2	0.2	0.2	0.2	0.2	0.2
Nickel, total (Ni)	22	22	>88	0	0		10	10	10	10	10	10	10
Zinc, total (Zn)	22	10	>50	1	4.5		10	10	10	12	28	42	90
Fecal coliform (#/100mL)													
# results:	Geomean		# > 400:		% > 400:		%Conf:						
59	582		33		56		100						

Key:

result: number of observations

ND: number of observations reported to be below detection level (non-detect)

EL: Evaluation Level; applicable numeric or narrative water quality standard or action level

Results not meeting EL: number and percentages of observations not meeting evaluation level

%Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)

Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries

NCDENR, Division of Water Quality

Basinwide Assessment Report

Location: GOOSE CRK AT SR 1524 NR MINT HILL

Station #: Q8360000

Hydrologic Unit Code: 3040105

Latitude: 35.13090

Longitude: -80.63105

Stream class: C

Agency: YPDRBA

NC stream index: 13-17-18

Time period: 01/16/2002 to 12/13/2006

	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	99	0	<4	2	2		3.6	5.1	5.4	6.6	8	9.5	11
	99	0	<5	8	8.1		3.6	5.1	5.4	6.6	8	9.5	11
pH (SU)	85	0	<6	0	0		6.5	6.8	6.9	7.1	7.4	8.1	8.4
	85	0	>9	0	0		6.5	6.8	6.9	7.1	7.4	8.1	8.4
Spec. conductance (umhos/cm at 25°C)	84	0	N/A				98	127	140	187	228	271	367
Water Temperature (°C)	99	0	>32	0	0		6.3	8	13.7	20.5	23.8	25.1	29.4
Other													
Turbidity (NTU)	60	0	>50	8	13.3	85.8	3.1	4.9	6.6	12	29.8	55	128
Fecal coliform (#/100mL)													
# results:	Geomean	# > 400:	% > 400:	%Conf:									
60	142	9	15										

Key:

result: number of observations

ND: number of observations reported to be below detection level (non-detect)

EL: Evaluation Level; applicable numeric or narrative water quality standard or action level

Results not meeting EL: number and percentages of observations not meeting evaluation level

%Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)

Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries
 NCDENR, Division of Water Quality
 Basinwide Assessment Report

Location: ROCKY RIV AT SR 1606 NR MONROE

Station #: Q8385000

Hydrologic Unit Code: 3040105

Latitude: 35.16987

Longitude: -80.47277

Stream class: C

Agency: YPDRBA

NC stream index: 13-17

Time period: 01/16/2002 to 12/13/2006

	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	85	0	<4	0	0		5.2	5.8	6.1	7.3	8.9	10.6	11.4
	85	0	<5	0	0		5.2	5.8	6.1	7.3	8.9	10.6	11.4
pH (SU)	85	0	<6	0	0		6.6	6.8	7	7.1	7.5	8.1	8.3
	85	0	>9	0	0		6.6	6.8	7	7.1	7.5	8.1	8.3
Spec. conductance (umhos/cm at 25°C)	84	0	N/A				78	110	130	152	171	196	403
Water Temperature (°C)	85	0	>32	0	0		6	7.6	12.2	20.5	23.3	24.8	28.6
Other													
Turbidity (NTU)	60	0	>50	9	15	92.7	1.8	3.4	6.7	12.5	27.8	146.7	1240
Nutrients (mg/L)													
NH3 as N	42	3	N/A				0.01	0.01	0.03	0.07	0.12	0.22	0.32
NO2 + NO3 as N	42	0	N/A				0.69	1.02	1.64	2.55	3.42	5.21	5.94
TKN as N	42	0	N/A				0.2	0.28	0.43	0.56	0.72	1.32	2.18
Total Phosphorus	42	0	N/A				0.13	0.22	0.26	0.38	0.59	0.84	2.03
Metals (ug/L)													
Aluminum, total (Al)	29	0	N/A				69	95	175	571	1038	13871	46471
Arsenic, total (As)	29	29	>10	0	0		5	5	5	5	5	5	5
Cadmium, total (Cd)	29	29	>2	0	0		1	1	1	1	1	1	1
Chromium, total (Cr)	29	24	>50	1	3.4		5	5	5	5	5	20	56
Copper, total (Cu)	29	6	>7	5	17.2	93.6	2	2	2	4	5	28	180
Iron, total (Fe)	29	0	>1000	16	55.2	100	219	354	517	1159	1636	18310	49950
Lead, total (Pb)	29	25	>25	0	0		5	5	5	5	5	8	20
Mercury, total (Hg)	29	29	>0.012	0	0		0.2	0.2	0.2	0.2	0.2	0.2	0.2
Nickel, total (Ni)	29	26	>88	0	0		10	10	10	10	10	12	47
Zinc, total (Zn)	29	18	>50	3	10.3	67.1	10	10	10	10	12	52	188

Fecal coliform (#/100mL)

# results:	Geomean	# > 400:	% > 400:	%Conf:
60	67	2	3	

Key:

result: number of observations

ND: number of observations reported to be below detection level (non-detect)

EL: Evaluation Level; applicable numeric or narrative water quality standard or action level

Results not meeting EL: number and percentages of observations not meeting evaluation level

%Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)

Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries

NCDENR, Division of Water Quality
Basinwide Assessment Report

Location: N FORK CROOKED CRK AT SR 1520 NR MONROE

Station #: Q8386000

Hydrologic Unit Code: 3040105

Latitude: 35.10785

Longitude: -80.61538

Stream class: C

Agency: YPDRBA

NC stream index: 13-17-20-1

Time period: 01/16/2002 to 12/13/2006

	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	99	0	<4	5	5.1		3.2	4.6	5.1	5.9	7.5	8.4	10.6
	99	0	<5	21	21.2	100	3.2	4.6	5.1	5.9	7.5	8.4	10.6
pH (SU)	85	0	<6	0	0		6.4	6.6	6.7	6.9	7.5	8	8.3
	85	0	>9	0	0		6.4	6.6	6.7	6.9	7.5	8	8.3
Spec. conductance (umhos/cm at 25°C)	84	0	N/A				104	140	164	210	304	344	472
Water Temperature (°C)	99	0	>32	0	0		6	7.6	13.7	20.7	23.4	24.8	29.6
Other													
Turbidity (NTU)	60	0	>50	8	13.3	85.8	5.4	7.7	10	17	30.5	69.5	126
Fecal coliform (#/100mL)													
# results:	Geomean	# > 400:	% > 400:	%Conf:									
60	215	17	28	95.7									

Key:

result: number of observations

ND: number of observations reported to be below detection level (non-detect)

EL: Evaluation Level; applicable numeric or narrative water quality standard or action level

Results not meeting EL: number and percentages of observations not meeting evaluation level

%Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)

Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries

NCDENR, Division of Water Quality
Basinwide Assessment Report

Location: N FORK CROOKED CRK AT SR 1514 NR MONROE

Station #: Q8386200

Hydrologic Unit Code: 3040105

Latitude: 35.10235

Longitude: -80.58428

Stream class: C

Agency: YPDRBA

NC stream index: 13-17-20-1

Time period: 01/16/2002 to 12/13/2006

	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	99	0	<4	5	5.1		3.1	4.5	5.1	6	7.7	8.7	10.3
	99	0	<5	18	18.2	99.6	3.1	4.5	5.1	6	7.7	8.7	10.3
pH (SU)	85	0	<6	0	0		6.5	6.7	6.7	6.9	7.4	8	8.3
	85	0	>9	0	0		6.5	6.7	6.7	6.9	7.4	8	8.3
Spec. conductance (umhos/cm at 25°C)	84	0	N/A				119	162	187	250	320	366	487
Water Temperature (°C)	99	0	>32	0	0		5.7	7.6	13.9	20.8	23.2	25	29.3
Other													
Turbidity (NTU)	60	0	>50	7	11.7	75.2	1	5.2	8	17	26.8	60	121
Fecal coliform (#/100mL)													
# results:	Geomean	# > 400:	% > 400:	%Conf:									
60	222	16	27	92.3									

Key:

result: number of observations

ND: number of observations reported to be below detection level (non-detect)

EL: Evaluation Level; applicable numeric or narrative water quality standard or action level

Results not meeting EL: number and percentages of observations not meeting evaluation level

%Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)

Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries

NCDENR, Division of Water Quality

Basinwide Assessment Report

Location: CROOKED CRK AT NC 218 NR MONROE

Station #: Q8388000

Hydrologic Unit Code: 3040105

Latitude: 35.13302

Longitude: -80.48958

Stream class: C

Agency: YPDRBA

NC stream index: 13-17-20

Time period: 01/16/2002 to 12/13/2006

Field	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
D.O. (mg/L)	99	0	<4	0	0		4.7	5.3	5.7	6.8	8.4	9.7	11
	99	0	<5	4	4		4.7	5.3	5.7	6.8	8.4	9.7	11
pH (SU)	85	0	<6	0	0		6.5	6.7	6.8	7.1	7.5	8	8.3
	85	0	>9	0	0		6.5	6.7	6.8	7.1	7.5	8	8.3
Spec. conductance (umhos/cm at 25°C)	84	0	N/A				98	126	141	178	205	254	496
Water Temperature (°C)	99	0	>32	0	0		5.1	7.5	13.7	20.8	23.4	25	29.1
Other													
Turbidity (NTU)	60	0	>50	5	8.3		2.4	4.1	6.7	13.5	26.5	44.9	150
Fecal coliform (#/100mL)													
# results:	Geomean	# > 400:	% > 400:	%Conf:									
60	112	5	8										

Key:

result: number of observations

ND: number of observations reported to be below detection level (non-detect)

EL: Evaluation Level; applicable numeric or narrative water quality standard or action level

Results not meeting EL: number and percentages of observations not meeting evaluation level

%Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)

Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries

NCDENR, Division of Water Quality

Basinwide Assessment Report

Location: CROOKED CRK AT SR 1601 NR MONROE

Station #: Q8388900

Hydrologic Unit Code: 3040105

Latitude: 35.13808

Longitude: -80.50538

Stream class: C

Agency: YPDRBA

NC stream index: 13-17-20

Time period: 01/16/2002 to 12/13/2006

	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	99	0	<4	0	0		4.1	5.1	5.6	6.4	8.2	9.3	10.6
	99	0	<5	8	8.1		4.1	5.1	5.6	6.4	8.2	9.3	10.6
pH (SU)	85	0	<6	0	0		6.5	6.7	6.8	7	7.4	8	8.4
	85	0	>9	0	0		6.5	6.7	6.8	7	7.4	8	8.4
Spec. conductance (umhos/cm at 25°C)	84	0	N/A				93	130	152	176	221	275	468
Water Temperature (°C)	99	0	>32	0	0		5.3	7.3	13.4	20.6	23.4	24.9	29.4
Other													
Turbidity (NTU)	60	0	>50	5	8.3		1.9	4.7	6	15	30.5	44.5	160
Fecal coliform (#/100mL)													
# results:	Geomean	# > 400:	% > 400:	%Conf:									
60	131	7	12										

Key:

result: number of observations

ND: number of observations reported to be below detection level (non-detect)

EL: Evaluation Level; applicable numeric or narrative water quality standard or action level

Results not meeting EL: number and percentages of observations not meeting evaluation level

%Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)

Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries
 NCDENR, Division of Water Quality
 Basinwide Assessment Report

Location: LONG CRK AT SR 1968 NR OAKBORO

Station #: Q8715000

Hydrologic Unit Code: 3040105

Latitude: 35.26667

Longitude: -80.25693

Stream class: C

Agency: YPDRBA

NC stream index: 13-17-31

Time period: 01/16/2002 to 12/13/2006

	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	85	0	<4	1	1.2		3.9	5.2	5.6	6.9	9.2	10.1	11.8
	85	0	<5	6	7.1		3.9	5.2	5.6	6.9	9.2	10.1	11.8
pH (SU)	85	0	<6	0	0		6.5	6.7	6.8	7.1	7.4	8	8.4
	85	0	>9	0	0		6.5	6.7	6.8	7.1	7.4	8	8.4
Spec. conductance (umhos/cm at 25°C)	84	0	N/A				92	154	170	234	319	440	733
Water Temperature (°C)	85	0	>32	0	0		3.6	5.9	10.7	19.3	23.2	24.9	29.2
Other													
Turbidity (NTU)	60	2	>50	1	1.7		1	1.9	2.8	5.4	9.5	22.9	65
Fecal coliform (#/100mL)													
# results:	Geomean		# > 400:	% > 400:	%Conf:								
60	166		9	15									

Key:

result: number of observations

ND: number of observations reported to be below detection level (non-detect)

EL: Evaluation Level; applicable numeric or narrative water quality standard or action level

Results not meeting EL: number and percentages of observations not meeting evaluation level

%Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)

Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries
 NCDENR, Division of Water Quality
 Basinwide Assessment Report

Location: LONG CRK AT SR 1917 NR ROCKY RIVER SPRINGS
Station #: Q8720000 **Hydrologic Unit Code:** 3040105
Latitude: 35.22392 **Longitude:** -80.25857 **Stream class:** C
Agency: NCAMBNT **NC stream index:** 13-17-31

Time period: 01/22/2002 to 12/19/2006

	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	58	0	<4	0	0		4.5	7	7.8	8.8	10.9	12.5	15
	58	0	<5	1	1.7		4.5	7	7.8	8.8	10.9	12.5	15
pH (SU)	58	0	<6	1	1.7		5.9	6.4	6.7	7.2	7.7	8.2	8.8
	58	0	>9	0	0		5.9	6.4	6.7	7.2	7.7	8.2	8.8
Spec. conductance (umhos/cm at 25°C)	58	0	N/A				69	123	137	182	261	521	1020
Water Temperature (°C)	58	0	>32	0	0		4	5.9	10	18.4	24.2	25.7	29.6
Other													
Chlorophyll a (ug/L)	1	0	>40	0	0		9	9	9	9	9	9	9
TSS (mg/L)	20	8	N/A				2.5	2.5	2.5	3.2	5.8	23.9	66
Turbidity (NTU)	58	2	>50	3	5.2		1	1.4	2.1	3.2	5.2	17.1	320
Nutrients (mg/L)													
NH3 as N	1	1	N/A				0.02	0.02	0.02	0.02	0.02	0.02	0.02
NO2 + NO3 as N	1	0	N/A				1.2	1.2	1.2	1.2	1.2	1.2	1.2
TKN as N	1	0	N/A				0.62	0.62	0.62	0.62	0.62	0.62	0.62
Total Phosphorus	1	0	N/A				0.14	0.14	0.14	0.14	0.14	0.14	0.14
Metals (ug/L)													
Aluminum, total (Al)	20	2	N/A				50	51	66	97	175	600	2500
Arsenic, total (As)	20	20	>10	0	0		5	5	5	10	10	10	10
Cadmium, total (Cd)	20	20	>2	0	0		2	2	2	2	2	2	2
Chromium, total (Cr)	20	20	>50	0	0		25	25	25	25	25	25	25
Copper, total (Cu)	20	0	>7	13	65	100	3	4	5	8	13	18	19
Iron, total (Fe)	20	0	>1000	1	5		120	124	178	260	442	644	2700
Lead, total (Pb)	20	20	>25	0	0		10	10	10	10	10	10	10
Mercury, total (Hg)	20	20	>0.012	0	0		0.2	0.2	0.2	0.2	0.2	0.2	0.2
Nickel, total (Ni)	20	20	>88	0	0		10	10	10	10	10	10	10
Zinc, total (Zn)	20	8	>50	0	0		10	10	10	10	15	17	36
Fecal coliform (#/100mL)													
# results:	Geomean	# > 400:	% > 400:	%Conf:									
56	118	10	18										

Key:
 # result: number of observations
 # ND: number of observations reported to be below detection level (non-detect)
 EL: Evaluation Level; applicable numeric or narrative water quality standard or action level
 Results not meeting EL: number and percentages of observations not meeting evaluation level
 %Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)
 Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries

NCDENR, Division of Water Quality
Basinwide Assessment Report

Location: LONG CRK AT SR 1917 NR ROCKY RIVER SPRINGS

Station #: Q8720000

Hydrologic Unit Code: 3040105

Latitude: 35.22392

Longitude: -80.25857

Stream class: C

Agency: YPDRBA

NC stream index: 13-17-31

Time period: 01/16/2002 to 12/13/2006

Field	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
D.O. (mg/L)	85	0	<4	2	2.4		3.6	5.1	5.6	6.7	9	10.1	11.4
	85	0	<5	4	4.7		3.6	5.1	5.6	6.7	9	10.1	11.4
pH (SU)	85	0	<6	0	0		6.5	6.7	6.9	7.1	7.4	8	8.4
	85	0	>9	0	0		6.5	6.7	6.9	7.1	7.4	8	8.4
Spec. conductance (umhos/cm at 25°C)	84	0	N/A				106	130	155	263	324	519	787
Water Temperature (°C)	85	0	>32	0	0		3.7	6	10.7	19.4	23.2	24.6	29.5
Other													
Turbidity (NTU)	60	1	>50	1	1.7		1	1.7	2.6	4.7	9.8	15	80
Fecal coliform (#/100mL)													
# results:	Geomean	# > 400:	% > 400:	%Conf:									
60	152	11	18										

Key:

result: number of observations

ND: number of observations reported to be below detection level (non-detect)

EL: Evaluation Level; applicable numeric or narrative water quality standard or action level

Results not meeting EL: number and percentages of observations not meeting evaluation level

%Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)

Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries
 NCDENR, Division of Water Quality
 Basinwide Assessment Report

Location: RICHARDSON CRK AT SR 1751 WALKUP AVE AT MONROE
Station #: Q8800000 **Hydrologic Unit Code:** 3040105
Latitude: 34.98970 **Longitude:** -80.50965 **Stream class:** C
Agency: YPDRBA **NC stream index:** 13-17-36-(5)

Time period: 01/17/2002 to 12/14/2006

	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	99	0	<4	0	0		5.1	5.6	6.2	6.8	9.2	10.1	11.3
	99	0	<5	0	0		5.1	5.6	6.2	6.8	9.2	10.1	11.3
pH (SU)	85	0	<6	0	0		6.7	6.8	7	7.1	7.3	8.1	8.5
	85	0	>9	0	0		6.7	6.8	7	7.1	7.3	8.1	8.5
Spec. conductance (umhos/cm at 25°C)	84	0	N/A				106	127	141	165	193	301	591
Water Temperature (°C)	99	0	>32	0	0		2.9	6.2	11.6	19.9	22.8	24.2	27.6
Other													
Turbidity (NTU)	60	0	>50	2	3.3		1.8	4.3	5.9	10	20.5	40	110
Nutrients (mg/L)													
NH3 as N	60	6	N/A				0.01	0.01	0.03	0.07	0.12	0.17	0.56
NO2 + NO3 as N	60	3	N/A				0.01	0.06	0.18	0.69	6.09	11.97	13.88
TKN as N	60	1	N/A				0.05	0.47	0.77	1.01	1.23	1.54	2.5
Total Phosphorus	60	0	N/A				0.02	0.07	0.12	0.31	1.36	1.96	2.96
Fecal coliform (#/100mL)													
# results:	Geomean	# > 400:		% > 400:		%Conf:							
59	83	3	5										

Key:
 # result: number of observations
 # ND: number of observations reported to be below detection level (non-detect)
 EL: Evaluation Level; applicable numeric or narrative water quality standard or action level
 Results not meeting EL: number and percentages of observations not meeting evaluation level
 %Conf : States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)
 Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries
 NCDENR, Division of Water Quality
 Basinwide Assessment Report

Location: RICHARDSON CRK AT SR 1006 NR MONROE
Station #: Q8820000 **Hydrologic Unit Code:** 3040105
Latitude: 35.03220 **Longitude:** -80.47163 **Stream class:** C
Agency: YPDRBA **NC stream index:** 13-17-36-(5)

Time period: 01/17/2002 to 12/14/2006

	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	99	0	<4	0	0		5.3	5.8	6.3	6.8	9.1	10.1	11.1
	99	0	<5	0	0		5.3	5.8	6.3	6.8	9.1	10.1	11.1
pH (SU)	85	0	<6	0	0		6.7	6.8	6.9	7.1	7.4	8.1	8.5
	85	0	>9	0	0		6.7	6.8	6.9	7.1	7.4	8.1	8.5
Spec. conductance (umhos/cm at 25°C)	84	0	N/A				103	126	156	193	291	494	685
Water Temperature (°C)	99	0	>32	0	0		2.7	6	11.4	20	22.7	24.3	27.9
Other													
Turbidity (NTU)	60	0	>50	4	6.7		1.7	1.9	3.4	6.8	10.8	43.5	150
Nutrients (mg/L)													
NH3 as N	60	8	N/A				0.01	0.01	0.03	0.07	0.13	0.26	0.73
NO2 + NO3 as N	60	0	N/A				0.51	1.92	5.54	11.44	16.94	22.59	28.5
TKN as N	60	1	N/A				0.1	0.81	1.03	1.35	1.73	2.05	2.18
Total Phosphorus	60	0	N/A				0.35	0.57	1.26	2.38	3.26	4.82	10.52
Fecal coliform (#/100mL)													
# results:	Geomean	# > 400:		% > 400:		%Conf:							
60	95	2	3										

Key:
 # result: number of observations
 # ND: number of observations reported to be below detection level (non-detect)
 EL: Evaluation Level; applicable numeric or narrative water quality standard or action level
 Results not meeting EL: number and percentages of observations not meeting evaluation level
 %Conf : States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)
 Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries

NCDENR, Division of Water Quality
Basinwide Assessment Report

Location: RICHARDSON CRK AT SR 1630 NR MONROE

Station #: Q8850000

Hydrologic Unit Code: 3040105

Latitude: 35.04597

Longitude: -80.45607

Stream class: C

Agency: YPDRBA

NC stream index: 13-17-36-(5)

Time period: 01/17/2002 to 06/25/2003

Field	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
D.O. (mg/L)	39	0	<4	0	0		5.3	5.6	6	6.4	8.7	10	11.2
	39	0	<5	0	0		5.3	5.6	6	6.4	8.7	10	11.2
pH (SU)	25	0	<6	0	0		6.9	7	7.5	8	8.3	8.5	8.9
	25	0	>9	0	0		6.9	7	7.5	8	8.3	8.5	8.9
Spec. conductance (umhos/cm at 25°C)	24	0	N/A				173	192	209	324	487	606	663
Water Temperature (°C)	39	0	>32	0	0		6.2	7.7	15.8	21.3	23.8	25.5	28.3
Other													
Turbidity (NTU)	18	0	>50	2	11.1	73.4	1.5	1.7	2.4	5.2	11.2	59.5	100
Fecal coliform (#/100mL)													
# results:	Geomean	# > 400:		% > 400:		%Conf:							
18	155	2		11									

Key:

result: number of observations

ND: number of observations reported to be below detection level (non-detect)

EL: Evaluation Level; applicable numeric or narrative water quality standard or action level

Results not meeting EL: number and percentages of observations not meeting evaluation level

%Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)

Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries
 NCDENR, Division of Water Quality
 Basinwide Assessment Report

Location: RICHARDSON CRK AT SR 1649 NR FAIRFIELD
Station #: Q8917000 **Hydrologic Unit Code:** 3040105
Latitude: 35.07111 **Longitude:** -80.40662 **Stream class:** C
Agency: NCAMBNT **NC stream index:** 13-17-36-(5)

Time period: 01/22/2002 to 12/19/2006

	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	57	0	<4	0	0		5.7	6.4	7.4	8.5	11.1	12.7	15.4
	57	0	<5	0	0		5.7	6.4	7.4	8.5	11.1	12.7	15.4
pH (SU)	57	0	<6	0	0		6.2	6.5	6.8	7.2	7.6	8.1	8.7
	57	0	>9	0	0		6.2	6.5	6.8	7.2	7.6	8.1	8.7
Spec. conductance (umhos/cm at 25°C)	57	0	N/A				60	144	198	368	533	763	925
Water Temperature (°C)	57	0	>32	0	0		5	7.2	11.4	18.5	23.5	26.1	27.9
Other													
TSS (mg/L)	20	8	N/A				2.5	2.5	2.5	3.8	5.8	11.7	41
Turbidity (NTU)	57	2	>50	3	5.3		1	1.5	2.3	3.3	8.6	28.4	220
Nutrients (mg/L)													
NH3 as N	41	18	N/A				0.02	0.02	0.02	0.02	0.03	0.11	0.36
NO2 + NO3 as N	41	0	N/A				0.1	1.32	3.5	7.9	12	16.8	25
TKN as N	41	0	N/A				0.33	0.71	0.86	1	1.1	1.46	2.2
Total Phosphorus	41	0	N/A				0.35	0.44	0.74	1.4	2.35	2.98	4.3
Metals (ug/L)													
Aluminum, total (Al)	20	1	N/A				50	53	67	130	245	774	2500
Arsenic, total (As)	20	20	>10	0	0		5	5	5	10	10	10	10
Cadmium, total (Cd)	20	20	>2	0	0		2	2	2	2	2	2	2
Chromium, total (Cr)	20	20	>50	0	0		25	25	25	25	25	25	25
Copper, total (Cu)	20	0	>7	6	30	99.8	4	4	5	6	7	9	14
Iron, total (Fe)	20	1	>1000	1	5		50	110	130	210	485	898	2700
Lead, total (Pb)	20	20	>25	0	0		10	10	10	10	10	10	10
Mercury, total (Hg)	20	20	>0.012	0	0		0.2	0.2	0.2	0.2	0.2	0.2	0.2
Nickel, total (Ni)	20	20	>88	0	0		10	10	10	10	10	10	10
Zinc, total (Zn)	20	5	>50	0	0		10	10	10	20	28	41	43
Fecal coliform (#/100mL)													
# results:	55												
Geomean	133												
# > 400:		9											
% > 400:		16											
%Conf:													

Key:

result: number of observations
 # ND: number of observations reported to be below detection level (non-detect)
 EL: Evaluation Level; applicable numeric or narrative water quality standard or action level
 Results not meeting EL: number and percentages of observations not meeting evaluation level
 %Conf : States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)
 Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries
 NCDENR, Division of Water Quality
 Basinwide Assessment Report

Location: LANES CRK AT SR 1005 LANDSFORD RD NR MARSHVILLE
Station #: Q9021300 **Hydrologic Unit Code:** 3040105
Latitude: 34.92316 **Longitude:** -80.34210 **Stream class:** WS-V
Agency: YPDRBA **NC stream index:** 13-17-40-(1)

Time period: 10/19/2006 to 12/14/2006

	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	3	0	<4	1	33.3		0.7	0.7	0.7	7.2	8.8	8.8	8.8
	3	0	<5	1	33.3		0.7	0.7	0.7	7.2	8.8	8.8	8.8
pH (SU)	3	0	<6	0	0		6.8	6.8	6.8	7.1	7.2	7.2	7.2
	3	0	>9	0	0		6.8	6.8	6.8	7.1	7.2	7.2	7.2
Spec. conductance (umhos/cm at 25°C)	3	0	N/A				206	206	206	245	261	261	261
Water Temperature (°C)	3	0	>32	0	0		9.1	9.1	9.1	15.4	16.1	16.1	16.1
Other													
TSS (mg/L)	3	0	N/A				1.9	1.9	1.9	24	1770	1770	1770
Turbidity (NTU)	3	0	>50	2	66.7		4.9	4.9	4.9	55	800	800	800
Nutrients (mg/L)													
NH3 as N	3	0	N/A				0.02	0.02	0.02	0.04	0.41	0.41	0.41
NO2 + NO3 as N	3	0	>10	0	0		0.06	0.06	0.06	1.56	2.56	2.56	2.56
TKN as N	3	0	N/A				0.61	0.61	0.61	1.05	1.77	1.77	1.77
Total Phosphorus	3	0	N/A				0.1	0.1	0.1	0.15	1.78	1.78	1.78
Metals (ug/L)													
Aluminum, total (Al)	1	0	N/A				28538	28538	28538	28538	28538	28538	28538
Arsenic, total (As)	1	0	>10	0	0		10	10	10	10	10	10	10
Cadmium, total (Cd)	1	1	>2	0	0		1	1	1	1	1	1	1
Chromium, total (Cr)	1	0	>50	0	0		35	35	35	35	35	35	35
Copper, total (Cu)	1	0	>7	1	100		20	20	20	20	20	20	20
Iron, total (Fe)	1	0	>1000	1	100		31600	31600	31600	31600	31600	31600	31600
Lead, total (Pb)	1	0	>25	0	0		23	23	23	23	23	23	23
Manganese, total (Mn)	1	0	>200	1	100		1290	1290	1290	1290	1290	1290	1290
Mercury, total (Hg)	1	1	>0.012	0	0		0.2	0.2	0.2	0.2	0.2	0.2	0.2
Nickel, total (Ni)	1	1	>25	0	0		10	10	10	10	10	10	10
Zinc, total (Zn)	1	0	>50	1	100		105	105	105	105	105	105	105
Fecal coliform (#/100mL)													
# results:	Geomean	# > 400:	% > 400:	%Conf:									
3	53	0	0										

Key:
 # result: number of observations
 # ND: number of observations reported to be below detection level (non-detect)
 EL: Evaluation Level; applicable numeric or narrative water quality standard or action level
 Results not meeting EL: number and percentages of observations not meeting evaluation level
 %Conf : States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)
 Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries
 NCDENR, Division of Water Quality
 Basinwide Assessment Report

Location: BARKERS BRANCH AT SR 1005 LANDSFORD RD NR MARSHVILLE
Station #: Q9021305 **Hydrologic Unit Code:** 3040105
Latitude: 34.93202 **Longitude:** -80.34358 **Stream class:** WS-V
Agency: YPDRBA **NC stream index:** 13-17-40-10

Time period: 01/09/2003 to 09/29/2004

	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	25	0	<4	0	0		4.2	5	6.2	7	10	10.9	11.1
	25	0	<5	2	8		4.2	5	6.2	7	10	10.9	11.1
pH (SU)	25	0	<6	0	0		6.7	6.8	6.9	7.1	7.2	7.5	8.1
	25	0	>9	0	0		6.7	6.8	6.9	7.1	7.2	7.5	8.1
Spec. conductance (umhos/cm at 25°C)	25	0	N/A				61	80	107	118	128	155	183
Water Temperature (°C)	25	0	>32	0	0		3	5.2	8.5	17.7	23.2	25.9	26.4
Other													
TSS (mg/L)	18	0	N/A				1	1.9	3.2	6.6	18.8	188.5	463
Turbidity (NTU)	18	0	>50	1	5.6		3.6	4.3	5.3	8	15.2	57.2	167
Nutrients (mg/L)													
NH3 as N	18	4	N/A				0.01	0.01	0.04	0.08	0.12	0.25	0.32
NO2 + NO3 as N	18	1	>10	0	0		0.01	0.02	0.06	0.41	1.3	2.85	3.15
TKN as N	18	0	N/A				0.34	0.45	0.73	0.86	1.25	1.65	1.96
Total Phosphorus	18	0	N/A				0.06	0.06	0.12	0.26	0.38	1.05	1.06
Metals (ug/L)													
Aluminum, total (Al)	18	2	N/A				50	94	108	252	395	2671	12072
Arsenic, total (As)	18	17	>10	0	0		5	5	5	5	5	5	8
Cadmium, total (Cd)	18	18	>2	0	0		1	1	1	1	1	1	1
Chromium, total (Cr)	18	17	>50	0	0		5	5	5	5	5	6	10
Copper, total (Cu)	18	2	>7	4	22.2	97.2	2	2	3	5	7	17	17
Iron, total (Fe)	18	0	>1000	7	38.9	100	119	274	651	938	2027	3152	9745
Lead, total (Pb)	18	17	>25	0	0		5	5	5	5	5	6	10
Manganese, total (Mn)	12	0	>200	6	50	100	59	59	86	232	365	1049	1247
Mercury, total (Hg)	18	18	>0.012	0	0		0.2	0.2	0.2	0.2	0.2	0.2	0.2
Nickel, total (Ni)	18	18	>25	0	0		10	10	10	10	10	10	10
Zinc, total (Zn)	18	9	>50	0	0		10	10	10	10	17	31	44
Fecal coliform (#/100mL)													
# results:	Geomean	# > 400:		% > 400:		%Conf:							
18	247	6	33	94.9									

Key:
 # result: number of observations
 # ND: number of observations reported to be below detection level (non-detect)
 EL: Evaluation Level; applicable numeric or narrative water quality standard or action level
 Results not meeting EL: number and percentages of observations not meeting evaluation level
 %Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)
 Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries
 NCDENR, Division of Water Quality
 Basinwide Assessment Report

Location: BEAVERDAM CRK AT SR 1005 NR MARSHVILLE

Station #: Q9021510

Hydrologic Unit Code: 3040105

Latitude: 34.95439

Longitude: -80.35166

Stream class: WS-V

Agency: YPDRBA

NC stream index: 13-17-40-11

Time period: 01/17/2002 to 09/27/2006

	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	50	0	<4	38	76	100	0.1	1.3	1.8	2.5	4	5.6	7.6
	50	0	<5	39	78	100	0.1	1.3	1.8	2.5	4	5.6	7.6
pH (SU)	50	0	<6	0	0		6.3	6.4	6.4	6.6	8	8.3	8.5
	50	0	>9	0	0		6.3	6.4	6.4	6.6	8	8.3	8.5
Spec. conductance (umhos/cm at 25°C)	49	0	N/A				93	122	185	251	355	412	484
Water Temperature (°C)	50	0	>32	0	0		3.2	5.2	9.1	19.3	21.8	22.7	25.6
Other													
TSS (mg/L)	36	2	N/A				1	2.3	3.5	5.7	13	27.3	42
Turbidity (NTU)	36	0	>50	0	0		3	3.7	5.1	8.1	17.2	25.6	47
Nutrients (mg/L)													
NH3 as N	36	5	N/A				0.01	0.01	0.02	0.06	0.17	0.56	1.14
NO2 + NO3 as N	36	6	>10	0	0		0.01	0.01	0.02	0.18	0.93	2.19	3.68
TKN as N	36	0	N/A				0.3	0.54	0.88	1.12	1.72	2.27	3.83
Total Phosphorus	36	0	N/A				0.06	0.15	0.28	0.44	0.84	1.04	1.45
Metals (ug/L)													
Aluminum, total (Al)	25	0	N/A				62	90	114	184	494	1807	6186
Arsenic, total (As)	25	21	>10	1	4		5	5	5	5	5	6	11
Cadmium, total (Cd)	25	24	>2	0	0		1	1	1	1	1	1	1
Chromium, total (Cr)	25	23	>50	0	0		5	5	5	5	5	5	6
Copper, total (Cu)	25	7	>7	4	16	90.2	2	2	2	3	6	16	26
Iron, total (Fe)	25	0	>1000	13	52	100	462	571	733	1045	3051	6086	9398
Lead, total (Pb)	25	22	>25	0	0		5	5	5	5	5	6	13
Manganese, total (Mn)	14	0	>200	6	42.9	100	28	34	64	150	530	1125	1293
Mercury, total (Hg)	25	25	>0.012	0	0		0.2	0.2	0.2	0.2	0.2	0.2	0.2
Nickel, total (Ni)	25	22	>25	0	0		10	10	10	10	10	12	13
Zinc, total (Zn)	25	14	>50	0	0		10	10	10	10	20	34	41
Fecal coliform (#/100mL)													
# results:	Geomean	# > 400:	% > 400:	%Conf:									
36	215	12	33	98.2									

Key:

result: number of observations

ND: number of observations reported to be below detection level (non-detect)

EL: Evaluation Level; applicable numeric or narrative water quality standard or action level

Results not meeting EL: number and percentages of observations not meeting evaluation level

%Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)

Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Ambient Monitoring System Station Summaries
 NCDENR, Division of Water Quality
 Basinwide Assessment Report

Location: ROCKY RIV AT SR 1935 NR NORWOOD

Station #: Q9120000

Hydrologic Unit Code: 3040105

Latitude: 35.15688

Longitude: -80.16583

Stream class: C

Agency: NCAMBNT

NC stream index: 13-17

Time period: 01/22/2002 to 12/19/2006

Field	# result	# ND	EL	Results not meeting EL			Percentiles						
				#	%	%Conf	Min	10th	25th	50th	75th	90th	Max
Field													
D.O. (mg/L)	58	0	<4	0	0		5.3	6.9	7.8	8.8	10.6	12.3	14.1
	58	0	<5	0	0		5.3	6.9	7.8	8.8	10.6	12.3	14.1
pH (SU)	58	0	<6	0	0		6.1	6.3	6.8	7.4	8.2	8.7	9.2
	58	0	>9	1	1.7		6.1	6.3	6.8	7.4	8.2	8.7	9.2
Spec. conductance (umhos/cm at 25°C)	58	0	N/A				75	126	155	198	241	367	792
Water Temperature (°C)	58	0	>32	0	0		4	6	10.8	19.8	25.9	28.6	30.7
Other													
TSS (mg/L)	21	2	N/A				2.5	3.4	5.9	10	38	101.6	120
Turbidity (NTU)	58	0	>50	13	22.4	99.9	2.3	4	5.4	11	37.5	120	700
Nutrients (mg/L)													
NH3 as N	57	28	N/A				0.01	0.02	0.02	0.02	0.03	0.1	0.22
NO2 + NO3 as N	57	0	N/A				0.55	0.97	1.45	1.8	2.35	3.28	6.5
TKN as N	57	0	N/A				0.23	0.42	0.5	0.64	0.79	0.91	3.4
Total Phosphorus	57	0	N/A				0.09	0.19	0.26	0.39	0.5	0.93	1.5
Metals (ug/L)													
Aluminum, total (Al)	21	0	N/A				93	172	250	330	3100	5020	6700
Arsenic, total (As)	21	21	>10	0	0		5	5	5	10	10	10	10
Cadmium, total (Cd)	21	21	>2	0	0		2	2	2	2	2	2	2
Chromium, total (Cr)	21	21	>50	0	0		25	25	25	25	25	25	25
Copper, total (Cu)	21	0	>7	5	23.8	98.6	3	4	4	6	7	13	17
Iron, total (Fe)	21	0	>1000	8	38.1	100	240	254	340	530	2700	4620	6100
Lead, total (Pb)	21	21	>25	0	0		10	10	10	10	10	10	10
Mercury, total (Hg)	21	21	>0.012	0	0		0.2	0.2	0.2	0.2	0.2	0.2	0.2
Nickel, total (Ni)	21	21	>88	0	0		10	10	10	10	10	10	10
Zinc, total (Zn)	21	10	>50	0	0		10	10	10	11	14	18	23
Fecal coliform (#/100mL)													
# results:	Geomean		# > 400: % > 400: %Conf:										
56	139		13	23	78.3								

Key:

result: number of observations

ND: number of observations reported to be below detection level (non-detect)

EL: Evaluation Level; applicable numeric or narrative water quality standard or action level

Results not meeting EL: number and percentages of observations not meeting evaluation level

%Conf: States the percent statistical confidence that the actual percentage of exceedances is at least 10% (20% for Fecal Coliform)

Stations with less than 10 results for a given parameter were not evaluated for statistical confidence

Appendix C

**Biological Data Sample Sites
Summary**

YADKIN RIVER HUC 03040105 - ROCKY RIVER

Description

This HUC contains subbasins 11 through 14 (Figure 6). Streams in the uppermost reach of the Rocky River watershed as well as the Coddle Creek catchment are located primarily in the Southern Outer Piedmont ecoregion and are characterized by sandy substrates and generally consistent summer flow regimes (Griffith *et al.* 2002). The Rocky River, the largest tributary of the Yadkin River, flows for approximately 25 river miles from its headwaters near Mooresville in Iredell County to its confluence with Irish Buffalo Creek in Cabarrus County. Outside of this region's numerous urban areas (e.g., Mooresville, Concord, Cornelius, Davidson, Huntersville, eastern Mecklenburg County), landuse is primarily agricultural.

Further downstream are the middle portion of the Rocky River watershed and four of its largest tributaries: Irish Buffalo Creek, Goose Creek, and Crooked Creek. Streams in this area primarily drain the metropolitan areas of Kannapolis and Concord in central Cabarrus County and landuse outside of these urban areas is primarily agricultural. Streams located in western Cabarrus County are contained within the Southern Outer Piedmont (Griffith *et al.* 2002) ecoregion and are characterized by sandy substrates and generally consistent summer flow regimes, while streams located in eastern Cabarrus County (and further south in Union County) are typical Carolina Slate Belt streams characterized by low summer flows, extensive bedrock formations, and the prevalence of boulder and cobble substrate in streams.

Big Bear and Long Creeks are the primary tributaries to the Rocky River in subbasin 13 and the area is encompassed wholly within the Carolina Slate Belt. The predominant landuse is almost evenly divided between forest and pasture and the Town of Albemarle is the only major metropolitan area in this area. The Albemarle WWTP (16.0 MGD) and the Town of Oakboro's WWTP (0.5 MGD) both discharge to Long Creek.

Subbasin 14 is the final subbasin in this HUC and includes the Rocky River and the entire watersheds of Richardson and Lanes Creeks which are large tributaries of the middle reach of the Rocky River. The Towns of Marshville, Wingate, and Monroe (along the US 74 corridor) are the only large urban areas in this subbasin. Landuse in this subbasin is mostly comprised of cultivated cropland, although there are large numbers of swine and poultry operations in this subbasin. Moreover, numerous confined animal operations (CAFOs) are found in the Richardson and Lanes Creeks catchments. These are also Slate Belt streams.

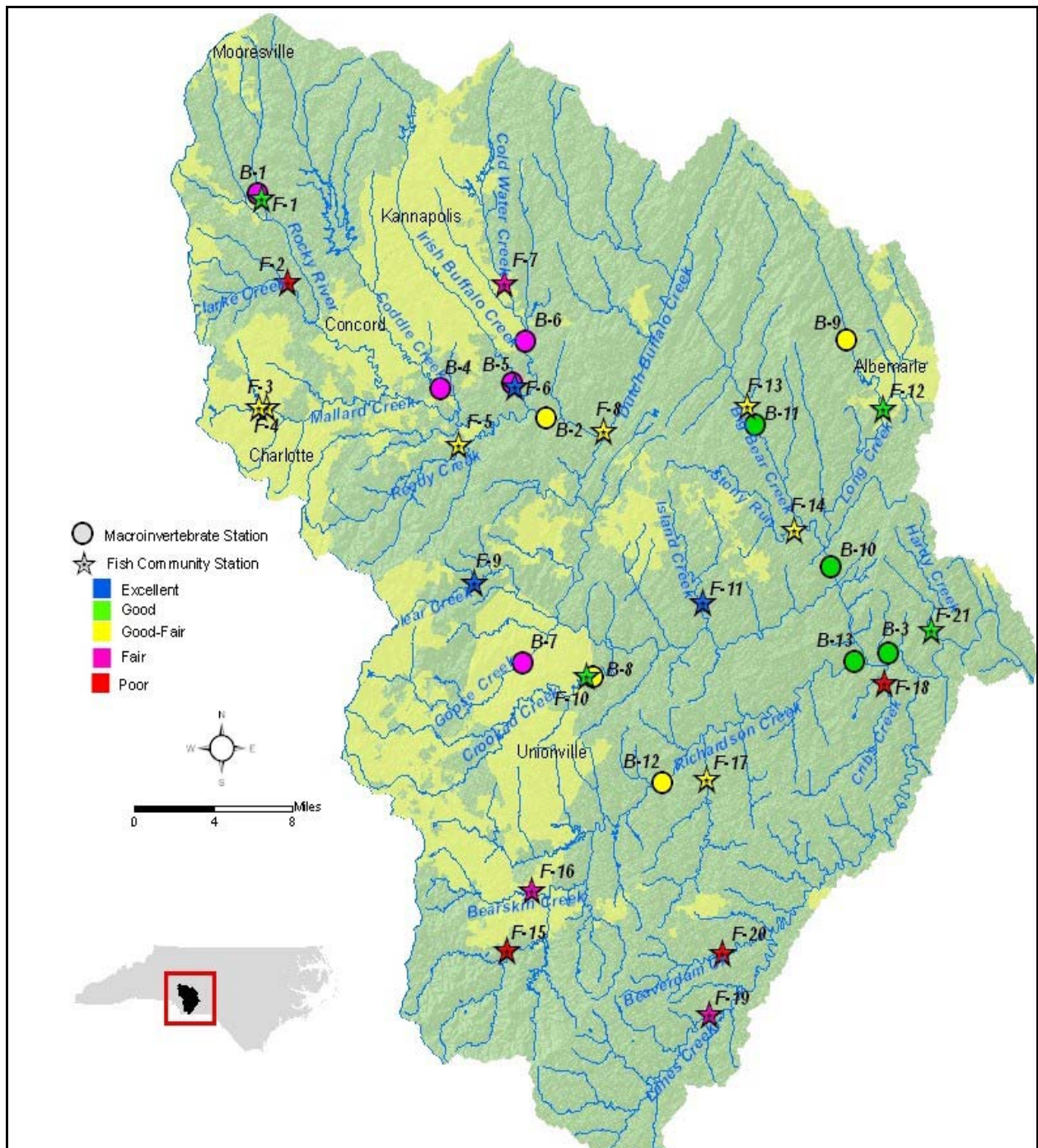


Figure 6. Sampling sites in HUC 03040105 in the Yadkin River basin. Monitoring sites are listed in Table 5.

Overview of Water Quality

In 2006, the Rocky River at SR 2420 location received a Fair benthos bioclassification which was unchanged from the 1996 and 2001 samples. A Fair benthos bioclassification was also assigned to Coddle Creek (NC 49) in 1996, 2001 and 2006. Fish samples included several locations exhibiting drastic changes in bioclassification: Rocky River (SR 1608) was Poor in 1999 but Good in 2006, while Mallard

Creek (SR 2467) was Excellent in 2001 but declined to Good-Fair in 2006. The only other fish site with previous data was Reedy Creek (SR 1136) which was Good-Fair in both 2001 and 2006. Two new fish sites were added and included Mallard Creek (SR 1300) which received a Good-Fair bioclassification and Clarke Creek (SR 1449) which received a Poor rating (Table 5).

Table 5. Waterbodies monitored in HUC 03040105 in the Yadkin River basin for basinwide assessment, 2001 and 2006.

Map # ¹	Waterbody	County	Location	2001	2006
B-1	Rocky R	Mecklenburg	SR 2420	Fair	Fair
B-2	Rocky R	Cabarrus	US 601	Fair	Good-Fair
B-3	Rocky R	Stanly	SR 1943	Good	Good
B-4	Coddle Cr	Cabarrus	NC 49	Fair	Fair
B-5	Irish Buffalo Cr	Cabarrus	SR 1132	Good-Fair	Fair
B-6	Coldwater Cr	Cabarrus	NC 49	Good-Fair	Fair
B-7	Goose Cr	Union	US 601	Poor	Fair
B-8	Crooked Cr	Union	SR 1547	Good-Fair	Good-Fair
B-9	Long Cr	Stanly	SR 1401	Good-Fair	Good-Fair
B-10	Long Cr	Stanly	SR 1917	Good-Fair	Good
B-11	Big Bear Cr	Stanly	SR 1225	Good	Good
B-12	Richardson Cr	Union	SR 1649	Fair	Good-Fair
B-13	Richardson Cr	Anson	SR 1600	Good	Good
F-1	Rocky R	Cabarrus	SR 1608	Poor (1999)	Good
F-2	Clarke Cr	Cabarrus	SR 1449	---	Poor
F-3	Mallard Cr	Mecklenburg	SR 2467	Excellent	Good-Fair
F-4	Mallard Cr	Cabarrus	SR 1300	---	Good-Fair (2004) ²
F-5	Reedy Cr	Cabarrus	SR 1136	Good-Fair	Good-Fair
F-6	Irish Buffalo Cr	Cabarrus	SR 1132	Good	Excellent
F-7	Coldwater Cr	Cabarrus	NC 73	Good-Fair	Fair
F-8	Dutch Buffalo Cr	Cabarrus	SR 2622 (NC 200)	Good	Good-Fair (2004) ²
F-9	Clear Cr	Mecklenburg	SR 3181	---	Excellent (2004) ²
F-10	Crooked Cr	Union	SR 1547	---	Good
F-11	Island Cr	Stanly	SR 1118	Excellent	Excellent
F-12	Long Cr	Stanly	off SR 1900	---	Good (2004) ²
F-13	Big Bear Cr	Stanly	NC 73 (SR 1134)	Good	Good-Fair (2004) ²
F-14	Stony Run	Stanly	SR 1970	---	Good-Fair
F-15	Richardson Cr	Union	NC 207	Good-Fair	Poor
F-16	Bearskin Cr	Union	NC 200	---	Fair
F-17	Salem Cr	Union	SR 1006	Good	Good-Fair
F-18	Cribs Cr	Anson	SR 1610	---	Poor
F-19	Lanes Cr	Union	SR 1929	Fair	Fair
F-20	Beaverdam Cr	Union	SR 1005	---	Poor
F-21	Hardy Cr	Stanly	SR 1934	---	Good

¹B = benthic macroinvertebrate monitoring sites; F = fish community monitoring sites.

²Special study site that has become a basinwide site.

Based upon benthic macroinvertebrate data, the Rocky River at US 601 reverted back to a Good-Fair bioclassification in 2006 (this station received Good-Fair ratings in 1989 and 1996) and was an improvement from Fair bioclassifications received here in 2001 and 2002. Conversely, Irish Buffalo Creek (SR 1132) declined to Fair for the first time in 2006 with all previous samples (1996 and 2001) receiving Good-Fair bioclassifications. This same trend was also noted for Coldwater Creek (NC 49): Fair in 2006, Good-Fair in 1996 and 2001. For 2006, Crooked Creek (SR 1547) maintained its Good-Fair rating from 2001 (which was an improvement from the Fair rating in 1996). Goose Creek (US 601) has been sampled in 1996, 1998, and 2001 with all collections resulting in a Poor bioclassification. In 2006, this station achieved a Fair rating. Five fish sites were sampled in subbasin 12, two of which represent new collections: Clear Creek (SR 3181) received an Excellent bioclassification while Crooked Creek (SR 1547) received a Good rating. Two of the three remaining fish stations in this subbasin declined in bioclassification with Coldwater Creek going from Good-Fair in 2001 to Fair in 2006 while Dutch Buffalo Creek at SR 2622 (NC 200) declined from Good to Good-Fair. Only Irish Buffalo Creek (SR 1132) improved in bioclassification from Good (2001) to Excellent in 2006.

In 2006 Long Creek (SR 1401) received a Good-Fair benthos rating and was unchanged from the 2001 collection. Long Creek (SR 1917) has shown a steady trend of improvement since sampling started at this benthos location with samples in 1983 and 1986 rating Fair, collections in 1989, 1996, and 2001 producing Good-Fair ratings, and the 2006 sample demonstrating additional improvement to a Good bioclassification. The 2006 sample at Big Bear Creek (SR 1225) received a Good bioclassification and was unchanged from the 2001 sample. Three fish stations were also sampled: Long Creek (off SR 1900) received a Good bioclassification while Stony Run (SR 1970) rated a Good-Fair. The only long-term fish site (Big Bear Creek at NC 73/SR 1134) declined from a Good bioclassification in 2002 to Good-Fair in 2006.

For 2006, three long-term benthos stations were sampled in subbasin 14. Rocky River (SR 1943) has been sampled at this location twice with both the 2001 and 2006 samples producing Good bioclassifications. The Rocky River has also been sampled nearby at SR 1935 (just one road crossing downstream of the present SR 1943 location) a total of eight times with two samples producing Good-Fair bioclassifications (1983 and 1986) and six collections resulting in Good bioclassifications: 1984 (two in 1985), 1986, 1988, 1990, and 1996. Richardson Creek (SR 1600) produced a Good bioclassification in both 2001 and 2006 and represented an improvement from the 1996 (Good-Fair) sample. Richardson Creek (SR 1649) received a Good-Fair bioclassification in 2006 improving from the Fair bioclassifications measured at this site in 1987, 1990, 1996, and 2001. There are eight stations monitored for fish community data in subbasin 14 and half of these represent new fish data: Bearskin Creek (NC 200) rated Fair, Cribs Creek (SR 1610) rated Poor, Beaverdam Creek (SR 1005) also received a Poor bioclassification, and Hardy Creek (SR 1934) produced a Good bioclassification. The remaining three fish locations exhibited very disparate patterns of bioclassifications with Lanes Creek (SR 1929) remaining Fair in 2001 and 2006, while Richardson Creek (NC 207) dropped from Good-Fair in 2001 to Poor in 2006 and Salem Creek (SR 1006) dropping from Good in 2001 to Good-Fair in 2006.

River and Stream Assessment

The benthos station on Dutch Buffalo Creek at NC 200 (Cabarrus County) was not successfully sampled in 2006. During the 2006 collection attempt, stream flow at this station actually reversed during the sample as an apparent result of its close proximity to the Rocky River which was very high after thunderstorms. The next week there was not enough flow to sample. Due to the interference with the Rocky River, this location should be dropped as a basin site.

Specific site summaries of the 13 benthic macroinvertebrate and 21 fish community samples may be found at this link: [03040105](#).

SPECIAL STUDIES

Wetlands Restoration Program Rocky River Study

Nearly all of the streams sampled in the Rocky River drainage had highly impervious catchments as a result of their proximity to urban and suburban areas of Charlotte. This highly impervious environment is reflected by the fact that 12 of 14 sites in the Rocky River catchment received Fair bioclassifications, while only 2 out of 6 sites in the less developed Coddle Creek catchment received bioclassifications of Fair or worse.

Many streams in southern Iredell, Rowan Cabarrus and eastern Mecklenburg County (Yadkin Subbasin 11) are experiencing impacts from existing agricultural and urban nonpoint activities in addition to impacts from the 15 minor and major NPDES discharges in this area. The potential deleterious impacts associated with these point and nonpoint sources resulted in the Wetlands Restoration Program (WRP) targeting these catchments for water quality and habitat quality improvement. (BAU Memo-031110)

Resamples of Fair Streams

Basinwide sampling in 2001 generated a number of new Fair ratings, which then required a resample in 2002 to determine if they should be placed on the 303d list. As part of this process, Rocky River at US 601 in Cabarrus County was re-sampled. Low flow at Rocky River (US 601) magnified the influence of upstream dischargers although the specific conductance was high in all years (1996: 680, 2001: 743,

2002: 558). Dominance by Hydropsychidae and Chironomidae indicated organic loading and low dissolved oxygen. There has been a steady shift towards a more tolerant community since 1996. (BAU Memo B-021001)

2006 Regional Office Requests

Samples were collected at three sites: Dye Creek below the Mooresville WWTP in Iredell County, Little Long Creek (Old Charlotte Road) in Albemarle in Stanly County, and Stewarts Creek in Union County. All three sites in this study had degraded benthic macroinvertebrate communities. Dye Creek below the Mooresville WWTP has had a Poor bioclassification since 1985. Though Poor again in 2006, there was a slight improvement in EPT taxa richness and the NCBI value. Little Long Creek is an urban stream that flows through Albemarle in Stanly County. It was given a Fair bioclassification and while lacking in EPT taxa, it did have a fairly diverse, though tolerant overall community. Stewarts Creek in Union County above Lake Twiddy was also rated Fair. This suburban stream is likely affected by both low flows and nonpoint runoff from its urban/suburban watershed. (BAU Memo B-060928)

Benthos Overlap Study—Richardson Creek

Richardson Creek (SR 1600, Anson County) was sampled as an overlap site in 2006. An EPT sample on 8/22/2006 received a Good bioclassification with 21 EPT collected, an EPTBI of 4.2 and an EPT abundance of 141. The 8/23/2006 EPT sample collected by another crew also produced a Good bioclassification with 24 EPT taxa collected, an EPTBI of 4.1, and an EPT abundance of 122. No memorandum is available for this internal study.

Fish Community Urbanization Study

Seven sites in this HUC were sampled by DWQ in 2004 as part of a North Carolina State University fish community urbanization study:

1. Mallard Creek at SR 1300, Cabarrus County, Good-Fair;
2. Coddle Creek at SR 1612, Cabarrus County, Poor;
3. Dutch Buffalo Creek at SR 1006 and at NC 200, Cabarrus County, both Good-Fair;
4. Clear Creek at SR 3181, Mecklenburg County, Excellent;
5. Long Creek, off SR 1900, Stanly County, Good; and
6. Big Bear Creek, SR 1134, Stanly County, Good-Fair (DWQ, unpublished data).

Benthic Macroinvertebrate Sample

Waterbody	Location	Date	Bioclassification
ROCKY R	SR 2420	08/21/06	Fair

County	Subbasin	8 digit HUC	Index Number	Latitude	Longitude
MECKLENBURG	11	03040105	13-17	352830	804647

Level IV Ecoregion	Stream Classification	Drainage Area (mi2)	Stream Width (m)	Stream Depth (m)
Southern Outer Piedmont	C	13	6	0.2

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	25	25	50	0

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
Rocky River WWTP	NC0046728	>1MGD

Water Quality Parameters

Temperature (°C)	26
Dissolved Oxygen (mg/L)	6.3
Specific Conductance (µS/cm)	375
pH (s.u.)	7.3
Water Clarity	slightly turbid

Site Photograph



Habitat Assessment Scores (max)

Channel Modification (5)	5
Instream Habitat (20)	7
Bottom Substrate (15)	3
Pool Variety (10)	2
Riffle Habitat (16)	3
Left Bank Stability (7)	2
Right Bank Stability (7)	2
Light Penetration (10)	7
Left Riparian Score (5)	5
Right Riparian Score (5)	2
Total Habitat Score (100)	38

Substrate	85% sand with some gravel
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Sample Date	Sample ID	ST	EPT	BI	EPT BI	Bioclassification
08/21/06	10057	48	9	6.6	6.1	Fair
08/21/01	8597	41	8	6.7	6.3	Fair
08/19/96	7164	N/A	7	N/A	5.8	Fair
03/26/85	3416	64	13	6.4	4.9	Fair

Taxonomic Analysis

New EPT taxa at this site are *Lype diversa* and *Proclleon*. The habitat score was 38 at this site and habitat may be a limiting factor. Tolerant taxa such as *Baetis intercalaris*, *Huydropsyche betteni*, *Boyeria vinosa* and *Physella* were abundant. There were no intolerant taxa present in 2006.

Data Analysis

This sampling location is in the upper Rocky River watershed, but is below the Mooresville/Rocky River WWTP which discharges to Dye Branch. This reach of the river is very small compared to downstream locations. Rocky River at SR 2420 has been sampled four times since 1985 and has received a bioclassification of Fair each time. However, the 1985 sample had the most EPT taxa (13) and the Lowest EPT BI of all the sampling efforts. Thus, a slight trend of decreasing water quality since 1985 is present.

FISH COMMUNITY SAMPLE

Waterbody	Location	Date	Bioclassification
Rocky R	SR 1608	05/12/06	Good

County	Subbasin	8 digit HUC	Latitude	Longitude	Index Number	Level IV Ecoregion
Cabarrus	11	03040105	352831	804648	13-17	Southern Outer Piedmont

Stream Classification	Drainage Area (mi2)	Elevation (ft)	Stream Width (m)	Average Depth (m)	Reference Site
C	13.4	--	6	0.3	No

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	95	0	5	0

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
Town of Mooresville's Rocky River WWTP; Instream Waste Concentration = 94%	NC0046728	5.2

Water Quality Parameters

Temperature (°C)	13.7
Dissolved Oxygen (mg/L)	6.6
Specific Conductance (µS/cm)	362
pH (s.u.)	6.6

Water Clarity	Clear
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Site Photograph



Habitat Assessment Scores (max)

Channel Modification (5)	5
Instream Habitat (20)	11
Bottom Substrate (15)	3
Pool Variety (10)	8
Riffle Habitat (16)	2
Left Bank Stability (7)	2
Right Bank Stability (7)	2
Light Penetration (10)	9
Left Riparian Score (5)	5
Right Riparian Score (5)	5
Total Habitat Score (100)	52

Substrate	Sand
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Sample Date	Sample ID	Species Total	NCIBI	Bioclassification
05/12/06	2006-45	16	50	Good
04/14/99	99-14	11	32	Poor
04/17/96	96-18	10	34	Poor

Most Abundant Species	Bluehead Chub and Redlip Shiner	Exotic Species	Green Sunfish
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Species Change Since Last Cycle	Losses -- none. Gains -- Spottail Shiner, Green Sunfish, Warmouth, Tessellated Darter, and Piedmont Darter.
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Data Analysis

Watershed -- drains small portions of southeastern Iredell, northeastern Mecklenburg, and northwestern Cabarrus counties, including the Town of Mooresville. **WWTP** -- flow is augmented by discharge; specific conductance declined 25% since 1999 (fewer textile dischargers); WWTP with rare violations for fecal coliform bacteria, lead, and total suspended solids over the period June 2001 to June 2006 (BIMS query 12/14/2006). **Habitat** -- soft, shifting sand; snags; entrenched; sloughing banks; stick riffles; snags in the current. **2006** -- 3rd greatest specific conductance of any fish site in 2006; increases in the numbers of species and fish; darters collected for the first time from the site; percentages of omnivores and diseased fish lower in 2006 than in 2001. **1996 - 2006** -- consistently low total habitat scores (~ 50); 16 species known from site, all collected in 2006; no suckers or piscivores ever collected from the site; dominant species usually Bluehead Chub and Rosyside Dace. Special Study conducted in 1999.

Benthic Macroinvertebrate Sample

Waterbody	Location	Date	Bioclassification
ROCKY R	US 601	08/29/06	Good-Fair

County	Subbasin	8 digit HUC	Index Number	Latitude	Longitude
CABARRUS	12	03040105	13-17	351926	803059

Level IV Ecoregion	Stream Classification	Drainage Area (mi2)	Stream Width (m)	Stream Depth (m)
Southern Outer Piedmont	C	392	15	0.3

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	50	25	25	0

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
Rocky River WWTP	NC0036269	34.0 MGD
Chemical Specialties Inc.	NC0006351	0.025 MGD
Mallard Creek WWTP	NC0030210	12.0 MGD
Rocky River WWTP	NC0046728	5.2 MGD

Water Quality Parameters

Temperature (°C)	27.5
Dissolved Oxygen (mg/L)	6.3
Specific Conductance (µS/cm)	327
pH (s.u.)	6.3

Water Clarity	slightly turbid
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Site Photograph



Habitat Assessment Scores (max)

Channel Modification (5)	5
Instream Habitat (20)	8
Bottom Substrate (15)	5
Pool Variety (10)	4
Riffle Habitat (16)	7
Left Bank Stability (7)	6
Right Bank Stability (7)	6
Light Penetration (10)	5
Left Riparian Score (5)	5
Right Riparian Score (5)	5
Total Habitat Score (100)	56

Substrate	Mostly sand with some gravel, cobble and silt
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Sample Date	Sample ID	ST	EPT	BI	EPT BI	Bioclassification
08/29/06	10069	53	13	6.4	5.5	Good-Fair
07/02/02	8847	40	9	6.8	6.5	Fair
08/22/01	8601	48	15	6.6	5.8	Fair
08/20/96	7168	56	19	6.1	5.5	Good-Fair
07/12/89	4978	66	19	6.3	5.4	Good-Fair

Taxonomic Analysis

Although *Caenis* was not collected in 2006 as in years past, *Lepidostoma* and *Chimarra* were present for the first time. Common and Abundant indicator taxa such as *Argia*, *Ophiogomphus*, *Tanytarsus*, *Limnodrilous hoffmeisteri* and two leech taxa suggest that this reach is stressed by low DO and nutrient enrichment. Intolerant taxa present in 2006 include *Lepidostoma* (TV=0.9) and *Nectopsyche* (TV=2.9).

Data Analysis

This site is located about one mile below the Rocky River WWTP which has an IWC of greater than 70%. It is also located below Kannapolis. This site rated Good-Fair in 1989 and 1996, fell to Fair in 2001 and the drought year of 2002, and then most recently received a bioclassification of Good-Fair in 2006. During 2002, only 9 EPT taxa were collected, as compared to 13-19 during the other years. The influence of the WWTP would be expected to increase in years of low flow. The Good-Fair rating in 2006 indicates some recovery toward the ratings found in 1989 and 1996.

Benthic Macroinvertebrate Sample

Waterbody	Location	Date	Bioclassification
ROCKY R	SR 1943	08/29/06	Good

County	Subbasin	8 digit HUC	Index Number	Latitude	Longitude
STANLY	14	03040105	13-17	350951	801222

Level IV Ecoregion	Stream Classification	Drainage Area (mi2)	Stream Width (m)	Stream Depth (m)
Carolina Slate Belt	C	1232	40	0.4

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	0	0	100	0

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
Lomg Creek WWTP	NC0024244	16.0 MGD
Monroe WWTP	NC0024333	10.4 MGD
Rocky River WWTP	NC0036269	34.0 MGD
Chemical Specialies Inc.	NC0006351	0.025 MGD
Mallard Creek WWTP	NC0030210	12.0 MGD
Rocky River WWTP	NC0046728	5.2 MGD

Water Quality Parameters

Temperature (°C)	27.2
Dissolved Oxygen (mg/L)	6.7
Specific Conductance (µS/cm)	247
pH (s.u.)	7.3
Water Clarity	slightly turbid

Site Photograph



Habitat Assessment Scores (max)

Channel Modification (5)	5
Instream Habitat (20)	20
Bottom Substrate (15)	8
Pool Variety (10)	0
Riffle Habitat (16)	7
Left Bank Stability (7)	6
Right Bank Stability (7)	6
Light Penetration (10)	2
Left Riparian Score (5)	3
Right Riparian Score (5)	3
Total Habitat Score (100)	60

Substrate Good mix of boulder, cobble, gravel, and sand

Sample Date	Sample ID	ST	EPT	BI	EPT BI	Bioclassification
08/29/06	10068	63	21	5.4	4.5	Good
08/23/01	8607	62	24	5.1	4.2	Good
08/21/96	7175	68	22	5.4	4.6	Good
07/24/90	5391	80	28	5.4	5.2	Good

Taxonomic Analysis

This site has only been sampled twice. As a result ten EPT taxa were not present in 2006 that were collected in 2001 and eight taxa were present in 2006 which have never been seen at this location. No particular stressor is suggested by the indicator taxa present in this reach. Several intolerant taxa were present at this location; *Psephenus herricki* (TV=2.4), *Microcyloepus pusillus* (TV=2.1), *Stenonema lenati* (TV=2.3), *Leucocuta* (TV=2.4) *Heptagenia* (TV=2.6) *Elimia* (TV=2.5), *Acroneuria mela* (TV=0.9), and *Hydropsyche demora* (TV=2.1).

Data Analysis

The Rocky River near Norwood is the most downstream monitoring location on the Rocky River. Data has been collected from this area (exact location moved one bridge up in 2001) since 1983, and this data can be found in prior basinwide reports. Although the ratings in both 2001 and 2006 were Good, there has been a slight decrease in water quality based on the Biotic Index and EPT taxa richness. The BI rose from 5.1 to 5.4 in 2006 and the number of EPT taxa fell from 24 in 2001 to 21 in 2006. This, however, was not enough to change the overall bioclassification.

FISH COMMUNITY SAMPLE

Waterbody	Location	Date	Bioclassification
Clarke Cr	SR 1449	07/18/06	Poor

County	Subbasin	8 digit HUC	Latitude	Longitude	Index Number	Level IV Ecoregion
Cabarrus	11	03040105	352451	804507	13-17-4	Southern Outer Piedmont

Stream Classification	Drainage Area (mi2)	Elevation (ft)	Stream Width (m)	Average Depth (m)	Reference Site
C	21.9	--	8	0.3	No

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	80	0	15	5 -- residential

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
None	---	---

Water Quality Parameters

Temperature (°C)	24.6
Dissolved Oxygen (mg/L)	2.9
Specific Conductance (µS/cm)	194
pH (s.u.)	6.3

Water Clarity	Gray-green turbidity
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Site Photograph



Habitat Assessment Scores (max)

Channel Modification (5)	4
Instream Habitat (20)	11
Bottom Substrate (15)	2
Pool Variety (10)	2
Riffle Habitat (16)	0
Left Bank Stability (7)	3
Right Bank Stability (7)	3
Light Penetration (10)	8
Left Riparian Score (5)	4
Right Riparian Score (5)	5
Total Habitat Score (100)	42

Substrate	Sand, silt
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Sample Date	Sample ID	Species Total	NCIBI	Bioclassification
07/18/06	2006-100	9	30	Poor

Most Abundant Species	Redbreast Sunfish and Eastern Mosquitofish	Exotic Species	Green Sunfish
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Species Change Since Last Cycle	N/A; new site in 2006.
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Data Analysis

Watershed -- drains northeastern Mecklenburg County, including the Town of Huntersville. **Habitat** -- poor quality instream habitats; sandy, shallow runs, side snags. **2006** -- 3rd lowest dissolved oxygen concentration and saturation of any fish site in 2006; less than the water quality standard; lowest NCIBI score of any fish site in 2006; low diversity, no suckers, no intolerant species, 63% of all fish were tolerant species including Golden Shiner, Eastern Mosquitofish, Redbreast Sunfish, and Green Sunfish.

FISH COMMUNITY SAMPLE

Waterbody	Location	Date	Bioclassification
Mallard Cr	SR 2467	07/18/06	Good-Fair

County	Subbasin	8 digit HUC	Latitude	Longitude	Index Number	Level IV Ecoregion
Mecklenburg	11	03040105	351936	804630	13-17-5	Southern Outer Piedmont

Stream Classification	Drainage Area (mi2)	Elevation (ft)	Stream Width (m)	Average Depth (m)	Reference Site
C	11.9	--	10	0.3	No

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	30	70	0	0

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
None	---	---

Water Quality Parameters

Temperature (°C)	22.3
Dissolved Oxygen (mg/L)	7.1
Specific Conductance (µS/cm)	139
pH (s.u.)	6.1

Water Clarity	Turbid
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Site Photograph



Habitat Assessment Scores (max)

Channel Modification (5)	5
Instream Habitat (20)	16
Bottom Substrate (15)	12
Pool Variety (10)	9
Riffle Habitat (16)	14
Left Bank Stability (7)	4
Right Bank Stability (7)	6
Light Penetration (10)	7
Left Riparian Score (5)	3
Right Riparian Score (5)	4
Total Habitat Score (100)	80

Substrate	Boulder, cobble, bedrock
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Sample Date	Sample ID	Species Total	NCIBI	Bioclassification
07/18/06	2006-99	16	44	Good-Fair
04/19/01	2001-26	20	56	Excellent
06/10/96	96-69	19	50	Good

Most Abundant Species	Spottail Shiner	Exotic Species	Green Sunfish and Redear Sunfish
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Species Change Since Last Cycle	Losses -- Rosyside Dace, Highback Chub, Highfin Shiner, White Sucker, Creek Chubsucker, and Brassy Jumprock. Gains -- Eastern Mosquitofish and Redear Sunfish.
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Data Analysis

Watershed -- drains a small northeast area of the City of Charlotte. **Habitat** -- good for an urban stream; extremely rocky and angular substrate, not channelized, low embeddedness, frequent riffles and shelves, and stable banks. **2006** -- suckers and intolerant species absent; number of Highback Chub (an intolerant species) declined from 96 to 0; increase in the percentage of omnivores, 46% of all fish were Spottail Shiner and Bluehead Chub. **1996 - 2006** -- total habitat scores averages ~ 75; specific conductance elevated, but not extremely high for an urban stream, ~ 140 µS/cm; an abundant and diverse community, 24 species known from the site; dominant species include Bluehead Chub, Redlip Shiner, Spottail Shiner, and Redbreast Sunfish; NCIBI scores and ratings variable, from Good-Fair to Excellent. Low flow affected stream.

FISH COMMUNITY SAMPLE

Waterbody	Location	Date	Bioclassification
Mallard Cr	SR 1300	07/16/04	Good-Fair

County	Subbasin	8 digit HUC	Latitude	Longitude	Index Number	Level IV Ecoregion
Cabarrus	11	03040105	352001	804006	13-17-5	Southern Outer Piedmont

Stream Classification	Drainage Area (mi2)	Elevation (ft)	Stream Width (m)	Average Depth (m)	Reference Site
C	37.5	--	7	0.4	No

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	100	0	0	0

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
Charlotte Mecklenburg Utility Department's Mallard Creek WWTP	NC 0030210	12

Water Quality Parameters

Temperature (°C)	22.6
Dissolved Oxygen (mg/L)	6.0
Specific Conductance (µS/cm)	385
pH (s.u.)	6.7

Water Clarity	Slightly turbid
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Habitat Assessment Scores (max)

Channel Modification (5)	5
Instream Habitat (20)	9
Bottom Substrate (15)	3
Pool Variety (10)	9
Riffle Habitat (16)	2
Left Bank Stability (7)	1
Right Bank Stability (7)	1
Light Penetration (10)	7
Left Riparian Score (5)	5
Right Riparian Score (5)	5
Total Habitat Score (100)	47

Site Photograph



Substrate	Sand
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Sample Date	Sample ID	Species Total	NCIBI	Bioclassification
07/16/04	2004-126	18	46	Good-Fair

Most Abundant Species	Spottail Shiner	Exotic Species	Channel Catfish and Green Sunfish
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Species Change Since Last Cycle	N/A; new site in 2004.
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Data Analysis

Watershed -- drains the northeastern metropolitan Charlotte area; site is ~2.3 miles below WWTP and ~ 0.6 miles above the mouth. **Habitat** -- lots of large, coarse, woody debris, deadfalls, and tree trunks in the creek; woody debris riffles; sandy runs; and undercuts; unstable and eroding banks. **2004** -- chlorine smell and very elevated specific conductance; very high percentage of omnivores present including Spottail Shiner (63% of all the fish), indicative of nutrient enrichment and favorable sandy run habitats; Creek Cub and Rosyside dace represented only by young-of-year; low flow and easily silted; sampled as part of a NCSU Urban Fish Study.

FISH COMMUNITY SAMPLE

Waterbody	Location	Date	Bioclassification
Reedy Cr	SR 1136	07/18/06	Good-Fair

County	Subbasin	8 digit HUC	Latitude	Longitude	Index Number	Level IV Ecoregion
Cabarrus	11	03040105	351812	803541	13-17-8	Southern Outer Piedmont

Stream Classification	Drainage Area (mi2)	Elevation (ft)	Stream Width (m)	Average Depth (m)	Reference Site
C	30.9	--	5	0.3	No

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	70	0	30	0

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
None	---	---

Water Quality Parameters

Temperature (°C)	24.7
Dissolved Oxygen (mg/L)	6.8
Specific Conductance (µS/cm)	329
pH (s.u.)	6.2

Water Clarity	Very slightly turbid
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Site Photograph



Habitat Assessment Scores (max)

Channel Modification (5)	5
Instream Habitat (20)	11
Bottom Substrate (15)	3
Pool Variety (10)	8
Riffle Habitat (16)	2
Left Bank Stability (7)	0
Right Bank Stability (7)	0
Light Penetration (10)	9
Left Riparian Score (5)	3
Right Riparian Score (5)	5
Total Habitat Score (100)	46

Substrate	Sand
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Sample Date	Sample ID	Species Total	NCIBI	Bioclassification
07/18/06	2006-101	17	46	Good-Fair
04/18/01	2001-24	17	46	Good-Fair

Most Abundant Species	Spottail Shiner and Bluehead Chub	Exotic Species	Green Sunfish
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Species Change Since Last Cycle	Losses -- White Sucker, Brassy Jumprock, Flat Bullhead, Margined Madtom, and Redear Sunfish. Gains -- Gizzard Shad, Sandbar Shiner, Warmouth, Largemouth Bass, and Piedmont Darter.
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Data Analysis

Watershed -- drains northeastern Mecklenburg and southwestern Cabarrus counties, including the northeast City of Charlotte metropolitan area. Downstream (but distance greater than 1 mi.) from seven WWTP and one WTP with a combined flow of 2.3 MGD (largest discharger is 0.95 MGD); very high specific conductance. **Habitat** -- sloughing banks contribute large quantities of sand; large, fallen tree trunks provide snags and side pools; severe erosion and sediment transport. **2006** -- high percentage of omnivores, ~ 50% of all the fish were Spottail Shiner and Bluehead Chub; no suckers. **2001 and 2006** -- low total habitat scores, specific conductance increased 1.5 times between 2001 and 2006; 22 species known from site, dominant species are Bluehead Chub and Spottail Shiner; no change in NCIBI scores or ratings.

Benthic Macroinvertebrate Sample

Waterbody	Location	Date	Bioclassification
CODDLE CR	NC 49	08/21/06	Fair

County	Subbasin	8 digit HUC	Index Number	Latitude	Longitude
CABARRUS	11	03040105	13-17-6-(5.5)	352034	803646

Level IV Ecoregion	Stream Classification	Drainage Area (mi2)	Stream Width (m)	Stream Depth (m)
Southern Outer Piedmont	C	74	10	0.2

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	0	50	50	0

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
N/A		

Water Quality Parameters

Temperature (°C)	25.8
Dissolved Oxygen (mg/L)	6.5
Specific Conductance (µS/cm)	202
pH (s.u.)	7.1
Water Clarity	slightly turbid

Site Photograph



Habitat Assessment Scores (max)

Channel Modification (5)	3
Instream Habitat (20)	7
Bottom Substrate (15)	3
Pool Variety (10)	4
Riffle Habitat (16)	3
Left Bank Stability (7)	5
Right Bank Stability (7)	5
Light Penetration (10)	7
Left Riparian Score (5)	2
Right Riparian Score (5)	2
Total Habitat Score (100)	41

Substrate	primarily sand with some gravel
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Sample Date	Sample ID	ST	EPT	BI	EPT BI	Bioclassification
08/21/06	10058	65	13	6.3	5.4	Fair
07/31/03	9119	48	12	6.6	5.8	Fair
08/21/01	8598	67	14	6.6	5.7	Fair
08/19/96	7165	N/A	13	N/A	5.4	Fair

Taxonomic Analysis

Two caddisfly taxa, *Pycnopsyche* and *Oecetis nocturna*, were collected at this site for the first time in 2006. No stoneflies have been seen at this site since 1996. Common and abundant indicator taxa such as *Calopteryx*, *Argia*, *Pisidium*, *Caenis*, *Conchapelopia gr*, *Rheocricotopus robacki*, and *Physella* suggest that low DO and organic enrichment may be issues at this location. Only two intolerant taxa were found in 2006, *Pycnopsyche* (TV=2.5) and *Nectopsyche* (TV=2.9).

Data Analysis

This location is below the Concord metropolitan area and receives urban runoff. Coddle Creek at NC 49 has received a Fair rating for each sampling event since 1996. The Biotic Index has remained fairly stable over that time period ranging from 6.3 to 6.6. In 2003, the sample collected contain much fewer taxa than in 2001 and 2006. This may be due to drought conditions in 2002. Overall, biotic conditions at this site improved slightly from 2001.

Benthic Macroinvertebrate Sample

Waterbody	Location	Date	Bioclassification
IRISH BUFFALO CR	SR 1132	09/29/06	Fair

County	Subbasin	8 digit HUC	Index Number	Latitude	Longitude
CABARRUS	12	03040105	13-17-9-(2)	352050	803252

Level IV Ecoregion	Stream Classification	Drainage Area (mi2)	Stream Width (m)	Stream Depth (m)
Southern Outer Piedmont	C	45	8	0.2

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	0	25	75	0

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
N/A		

Water Quality Parameters

Temperature (°C)	26.5
Dissolved Oxygen (mg/L)	7.2
Specific Conductance (µS/cm)	182
pH (s.u.)	8
Water Clarity	slightly turbid

Site Photograph



Habitat Assessment Scores (max)

Channel Modification (5)	5
Instream Habitat (20)	16
Bottom Substrate (15)	8
Pool Variety (10)	6
Riffle Habitat (16)	10
Left Bank Stability (7)	5
Right Bank Stability (7)	5
Light Penetration (10)	7
Left Riparian Score (5)	2
Right Riparian Score (5)	2
Total Habitat Score (100)	66

Substrate Mostly sand with some cobble, boulders and gravel

Sample Date	Sample ID	ST	EPT	BI	EPT BI	Bioclassification
09/29/06	10070	54	12	6.5	6.1	Fair
08/19/96	7166	58	15	6	5.3	Good-Fair

Taxonomic Analysis

Five EPT taxa were not present in 2006 as in years previous, however, *Acentrella* and *Paracloedes minutus* were collected for the first time at this site. Tolerant taxa such as *Baetis intercalaris*, *Stenonema modestum*, *Hydropsyche betteni*, *Cheumatopsyche*, *Calopteryx*, *Polypedilum illinoense* and *Corbicula fluminea* were abundant. However, no particular stressor was evident based on indicator taxa collected. The only intolerant taxon present was *Nectopsyche* (TV=2.9).

Data Analysis

This monitoring site is below Concord and receives urban runoff, but no large point source discharges. This site rated Good-fair in 1996 and Fair in 2006. This drop in bioclassification was due to a higher Biotic Index and lower EPT taxa richness in 2006. Reduced water quality over the ten year period is indicated by the data. Another possible cause for the decline in bioclassification might be the thick coating of algae that was covering all the rocks in the stream. This algae was identified as *Cymbella*.

FISH COMMUNITY SAMPLE

Waterbody	Location	Date	Bioclassification
Irish Buffalo Cr	SR 1132	05/12/06	Excellent

County	Subbasin	8 digit HUC	Latitude	Longitude	Index Number	Level IV Ecoregion
Cabarrus	12	03040105	352054	803254	13-17-9-(2)	Southern Outer Piedmont

Stream Classification	Drainage Area (mi2)	Elevation (ft)	Stream Width (m)	Average Depth (m)	Reference Site
C	45.4	--	10	0.4	No

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	50	0	45	5 -- residential

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
None	---	---

Water Quality Parameters

Temperature (°C)	14.2
Dissolved Oxygen (mg/L)	9.7
Specific Conductance (µS/cm)	206
pH (s.u.)	7.0

Water Clarity	Clear
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Site Photograph



Habitat Assessment Scores (max)

Channel Modification (5)	5
Instream Habitat (20)	16
Bottom Substrate (15)	8
Pool Variety (10)	6
Riffle Habitat (16)	12
Left Bank Stability (7)	6
Right Bank Stability (7)	6
Light Penetration (10)	8
Left Riparian Score (5)	4
Right Riparian Score (5)	4
Total Habitat Score (100)	75

Substrate	Cobble, gravel, sand
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Sample Date	Sample ID	Species Total	NCIBI	Bioclassification
05/12/06	2006-46	18	54	Excellent
04/19/01	2001-25	22	50	Good
04/17/96	96-20	20	52	Good

Most Abundant Species	Bluehead Chub and Fantail Darter	Exotic Species	Threadfin Shad and Green Sunfish
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Species Change Since Last Cycle	Losses -- Highback Chub, Golden Shiner, Whitemouth Shiner, Creek Chubsucker, Pumpkinseed, Redear Sunfish, and Largemouth Bass. Gains -- Gizzard Shad, Threadfin Shad, and Brassy Jumprock.
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Data Analysis

Watershed -- drains southwestern Rowan County and northern Cabarrus County, including the cities of Kannapolis and Concord; impounded upstream by Kannapolis Lake. **Habitat** -- borders the Carolina Slate Belt; cobble riffles; shallow, snag pools; a couple of fast runs. **2006** -- numbers of species and fish declined, but no appreciable change; some nutrient enrichment as evident by an higher than expected percentage of omnivores; species of shad likely migrants from the Rocky River. **1996 - 2006** -- high specific conductance (~ 200 µS/cm) from urban runoff, no known point source dischargers upstream; total habitat scores better in 2006 than 2001 (related to flow and re-vegetation of banks); 2 of 3 scores > 70; an abundant and diverse community; 26 species known from site; Bluehead Chub and Redlip Shiner have been the dominant species; NCIBI scores and ratings vary between medium Good and low Excellent.

FISH COMMUNITY SAMPLE

Waterbody	Location	Date	Bioclassification
Coldwater Cr	NC 73	05/12/06	Fair

County	Subbasin	8 digit HUC	Latitude	Longitude	Index Number	Level IV Ecoregion
Cabarrus	12	03040105	352457	803321	13-17-9-4-(1.5)	Southern Outer Piedmont

Stream Classification	Drainage Area (mi2)	Elevation (ft)	Stream Width (m)	Average Depth (m)	Reference Site
C	34.6	--	7	0.2	No

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	40	5	30	25 -- soccer complex

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
None	---	---

Water Quality Parameters

Temperature (°C)	15.1
Dissolved Oxygen (mg/L)	7.7
Specific Conductance (µS/cm)	202
pH (s.u.)	6.1

Water Clarity	Clear
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Site Photograph



Habitat Assessment Scores (max)

Channel Modification (5)	5
Instream Habitat (20)	8
Bottom Substrate (15)	3
Pool Variety (10)	3
Riffle Habitat (16)	1
Left Bank Stability (7)	2
Right Bank Stability (7)	2
Light Penetration (10)	9
Left Riparian Score (5)	3
Right Riparian Score (5)	4
Total Habitat Score (100)	40

Substrate	Sand
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Sample Date	Sample ID	Species Total	NCIBI	Bioclassification
05/12/06	2006-47	14	36	Fair
04/18/01	2001-23	17	44	Good-Fair
04/17/96	96-19	19	52	Good

Most Abundant Species	Whitemouth Shiner	Exotic Species	None
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Species Change Since Last Cycle	Losses -- Redlip Shiner, Highback Chub, Yellow Bullhead, Eastern Mosquitofish, and Fantail Darter. Gains -- White Sucker and Margined Madtom.
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Data Analysis

Watershed -- drains southwestern Rowan and northern Cabarrus counties, including the cities of Kannapolis and Concord; impounded upstream by lakes Fisher and Concord. **Habitat** -- riffles absent; shallow channel filled with sand; snags; unstable banks; ATVs with access to stream and evidence of being in the stream. **2006** -- declines in the number of fish and species; skewed trophic metrics, only one Bluehead Chub collected and 97% of all fish were insectivores. **1996 - 2006** -- specific conductance from urban runoff has increased from 130 in 1996 to 202 µS/cm in 2006, no known point source dischargers upstream; consistently low (~45) total habitat scores; total species at site = 22, but declining since 1996; dominant species are Whitemouth Shiner, Speckled Killifish, and Redbreast Sunfish; loss of intolerant species; declines in sunfish diversity and percentages of species with multiple age classes; and slight increase in the percentage of tolerant fish; NCIBI scores and ratings have gradually declined from Good in 1996 to Fair in 2006.

Benthic Macroinvertebrate Sample

Waterbody	Location	Date	Bioclassification
COLDWATER CR	NC 49	08/22/06	Fair

County	Subbasin	8 digit HUC	Index Number	Latitude	Longitude
CABARRUS	12	03040105	13-17-9-4-(1.5)	352236	803211

Level IV Ecoregion	Stream Classification	Drainage Area (mi2)	Stream Width (m)	Stream Depth (m)
Southern Outer Piedmont	C	57.6	10	0.4

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	0	50	50	0

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
N/A		

Water Quality Parameters

Temperature (°C)	24.4
Dissolved Oxygen (mg/L)	6.4
Specific Conductance (µS/cm)	101
pH (s.u.)	5.9
Water Clarity	turbid

Site Photograph



Habitat Assessment Scores (max)

Channel Modification (5)	4
Instream Habitat (20)	7
Bottom Substrate (15)	3
Pool Variety (10)	2
Riffle Habitat (16)	3
Left Bank Stability (7)	5
Right Bank Stability (7)	5
Light Penetration (10)	7
Left Riparian Score (5)	4
Right Riparian Score (5)	4
Total Habitat Score (100)	44

Substrate: sand with some gravel and silt

Sample Date	Sample ID	ST	EPT	BI	EPT BI	Bioclassification
08/22/06	10059	N/A	13	N/A	5.9	Fair
08/21/01	8600	N/A	15	N/A	5.5	Good-Fair
08/19/96	7167	N/A	14	N/A	5.1	Good-Fair

Taxonomic Analysis

Although the mayfly *Procladius* was seen for the first time in 2006, the stonefly *Eccopectera xanthenes* was not collected as it has been in the past. In fact no stoneflies were present in the 2006 sample as in previous years. The only intolerant taxon present in 2006 was *Serratella deficiens* (TV=2.8).

Data Analysis

Coldwater Creek drains Kannapolis and Concord before its confluence with Irish Buffalo Creek below this site. The bioclassification at Coldwater Creek NC 49 fell from Good-Fair in 2001 to Fair in 2006. In fact, the EPT Biotic Index has increased from 5.1 in 1996 to 5.5 in 2001 to 5.8 in 2006. This indicates a trend of decreasing water quality at this location. EPT taxa richness, however, has only changed slightly. The site was very turbid when sampled after a thunderstorm the night before.

FISH COMMUNITY SAMPLE

Waterbody	Location	Date	Bioclassification
Dutch Buffalo Cr	NC 200	07/16/04	Good-Fair

County	Subbasin	8 digit HUC	Latitude	Longitude	Index Number	Level IV Ecoregion
Cabarrus	12	03040105	352127	802551	13-17-11-(5)	Carolina Slate Belt

Stream Classification	Drainage Area (mi2)	Elevation (ft)	Stream Width (m)	Average Depth (m)	Reference Site
C	98.2	--	8	0.3	No

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	60	0	30	10 (rural residential)

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
None	---	---

Water Quality Parameters

Temperature (°C)	22.5
Dissolved Oxygen (mg/L)	6.3
Specific Conductance (µS/cm)	157
pH (s.u.)	6.9

Water Clarity	Clear
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Habitat Assessment Scores (max)

Channel Modification (5)	5
Instream Habitat (20)	9
Bottom Substrate (15)	3
Pool Variety (10)	7
Riffle Habitat (16)	2
Left Bank Stability (7)	2
Right Bank Stability (7)	2
Light Penetration (10)	9
Left Riparian Score (5)	4
Right Riparian Score (5)	3
Total Habitat Score (100)	46

Site Photograph



Substrate	Sand
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Sample Date	Sample ID	Species Total	NCIBI	Bioclassification
07/16/04	2004-127	14	42	Good-Fair
04/18/01	2001-22	19	52	Good
04/17/96	96-21	17	44	Good-Fair

Most Abundant Species	Spottail Shiner	Exotic Species	Green Sunfish and Redear Sunfish
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Species Change Since Last Cycle	Gains -- Flat Bullhead, Pumpkinseed, and sunfish hybrid. Losses -- Whitemouth Shiner, Highfin Shiner, Redlip Shiner, Highback Chub, Notchlip Redhorse, Speckled Killifish, and Largemouth Bass.
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Data Analysis

Watershed -- drains semi-rural eastern and northeastern Cabarrus and a small southeastern portion of Rowan counties; includes the Town of Mount Pleasant; site is ~ 0.6 miles above mouth and ~ 4.5 miles below the SR 2622 basinwide site sampled in 1996 and 2001, difference in the drainage area is 3.8 square miles. **Habitat** -- deadfalls, snags, undercuts, woody debris riffles, severe bank erosion, pools and sandy runs. **2004** -- low flow and easily silted; suckers absent; moderate total species diversity and abundance of tolerant fish (Satinfin Shiner; Creek Chub, Flat Bullhead, Redbreast Sunfish, Green Sunfish, and sunfish hybrids); high percentage of omnivores (Spottail Shiner and Bluehead Chub); Rosyside Dace, Speckled Killifish, Notchlip Redhorse, Brassy Jumprock, and Largemouth Bass represented only by young-of-year; sampled as part of a NCSU Urban Fish Study. **1996 - 2004** -- increase in the percentages of tolerant fish and omnivores+herbivores; 24 species known from the two lower reaches of the creek, not especially species rich for a stream of its size. A low flow affected stream in 2004.

FISH COMMUNITY SAMPLE

Waterbody	Location	Date	Bioclassification
Clear Cr	SR 3181	06/23/04	Excellent

County	Subbasin	8 digit HUC	Latitude	Longitude	Index Number	Level IV Ecoregion
Mecklenburg	12	03040105	351230	803447	13-17-17	Southern Outer Piedmont

Stream Classification	Drainage Area (mi2)	Elevation (ft)	Stream Width (m)	Average Depth (m)	Reference Site
C	12.6	--	6	0.4	No

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	75	0	0	25 (rural residential)

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
None	---	---

Water Quality Parameters

Temperature (°C)	23.5
Dissolved Oxygen (mg/L)	7.5
Specific Conductance (µS/cm)	146
pH (s.u.)	--

Water Clarity	Clear
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Habitat Assessment Scores (max)

Channel Modification (5)	5
Instream Habitat (20)	16
Bottom Substrate (15)	11
Pool Variety (10)	9
Riffle Habitat (16)	7
Left Bank Stability (7)	3
Right Bank Stability (7)	3
Light Penetration (10)	7
Left Riparian Score (5)	4
Right Riparian Score (5)	1
Total Habitat Score (100)	66

Site Photograph



Substrate	Cobble, bedrock
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Sample Date	Sample ID	Species Total	NCIBI	Bioclassification
06/23/04	2004-102	19	54	Excellent

Most Abundant Species	Bluehead Chub	Exotic Species	Green Sunfish
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Species Change Since Last Cycle	N/A; new site in 2004.
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Data Analysis

Watershed -- drains northeastern Mecklenburg County, including the Town of Mint Hill. **Habitat** -- a typical Carolina Slate Belt type stream; pools, short and shallow riffles, snags, deadfalls, unstable banks, and a narrow riparian zone along the right shoreline. **2004** -- a very abundant and diverse community for a stream with a relatively small watershed; only one species of sucker present; White Sucker represented only by young-of-year; creek dried-up during the 2002 drought (anecdotal comment from nearby landowner), if so, then fish community repopulated the creek very quickly; sampled as part of a NCSU Urban Fish Study.

Benthic Macroinvertebrate Sample

Waterbody	Location	Date	Bioclassification
GOOSE CR	US 601	08/22/06	Fair

County	Subbasin	8 digit HUC	Index Number	Latitude	Longitude
UNION	12	03040105	13-17-18	350914	803206

Level IV Ecoregion	Stream Classification	Drainage Area (mi2)	Stream Width (m)	Stream Depth (m)
Carolina Slate Belt	C	24	6	0.2

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	50	50	0	0

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
N/A		

Water Quality Parameters

Temperature (°C)	24.8
Dissolved Oxygen (mg/L)	5.7
Specific Conductance (µS/cm)	165
pH (s.u.)	0
Water Clarity	slightly turbid

Site Photograph



Habitat Assessment Scores (max)

Channel Modification (5)	5
Instream Habitat (20)	12
Bottom Substrate (15)	8
Pool Variety (10)	6
Riffle Habitat (16)	5
Left Bank Stability (7)	6
Right Bank Stability (7)	5
Light Penetration (10)	7
Left Riparian Score (5)	1
Right Riparian Score (5)	5
Total Habitat Score (100)	60

Substrate	Mostly sand with a mix of other substrates
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Sample Date	Sample ID	ST	EPT	BI	EPT BI	Bioclassification
08/22/06	10060	67	11	6.9	6.6	Fair
08/22/01	8603	48	5	7.2	6.0	Poor
04/21/98	7550	47	10	7.4	5.9	Poor
08/20/96	7170	N/A	2	N/A	6	Poor

Taxonomic Analysis

The mayflies *Isonychia*, *Baetis intercalaris*, and *Paracloeodes minutus* as well as the caddisfly *Hydroptila* were collected at this site for the first time in 2006. Common and Abundant indicator taxa such as *Caenis*, *Conchapelopia gr*, *Tanytarsus*, *Calopteryx*, *Argia*, *Dicrotendipes neomodestus*, *C/O SP1*, *Limnodrilus hoffmeisteri*, *Helisoma*, *Physella*, and three species of leeches suggest that low DO conditions and nutrient enrichment may be occurring at this site. *Psephenus herricki* was the only intolerant taxa present in 2006.

Data Analysis

Goose Creek is a small tributary of the Rocky River. The Goose Creek watershed is important as habitat for rare mussel species. Increasing development in the watershed has focused protection efforts in this area. The bioclassification at Goose Creek US 601 increased from Poor in 2001 to Fair in 2006. This trend can be seen in the decrease of the biotic Index from 7.4 in 1998 to 6.9 in 2006. In addition, total richness increased from 48 in 2001 to 67 in 2006 while the EPT abundance increased from 23 to 58 during the same time period. These changes indicate an increase in water quality over the past 5 years.

Benthic Macroinvertebrate Sample

Waterbody	Location	Date	Bioclassification
CROOKED CR	SR 1547	08/23/06	Good-Fair

County	Subbasin	8 digit HUC	Index Number	Latitude	Longitude
UNION	12	03040105	13-17-20	350842	802818

Level IV Ecoregion	Stream Classification	Drainage Area (mi2)	Stream Width (m)	Stream Depth (m)
Carolina Slate Belt	C	47	10	0.2

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	75	0	25	0

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
Crooked Cr WWTP #2	NC0069841	1.9 MGD

Water Quality Parameters

Temperature (°C)	25.7
Dissolved Oxygen (mg/L)	7
Specific Conductance (µS/cm)	319
pH (s.u.)	0
Water Clarity	slightly turbid

Site Photograph



Habitat Assessment Scores (max)

Channel Modification (5)	5
Instream Habitat (20)	16
Bottom Substrate (15)	12
Pool Variety (10)	6
Riffle Habitat (16)	10
Left Bank Stability (7)	6
Right Bank Stability (7)	6
Light Penetration (10)	5
Left Riparian Score (5)	5
Right Riparian Score (5)	5
Total Habitat Score (100)	76

Substrate Mostly cobble and gravel with few boulders and sand

Sample Date	Sample ID	ST	EPT	BI	EPT BI	Bioclassification
08/23/06	10061	63	11	6.3	5.8	Good-Fair
08/22/01	8604	68	18	5.9	5.2	Good-Fair
08/20/96	7171	N/A	12	N/A	4.6	Fair

Taxonomic Analysis

Although *Asioplax dolani* and *Oecetis persimilis* were found for the first time at this site in 2006, both *Neoperla* and *Stenacron interpunctatum* were not present as they were in previous years. Common and abundant indicator taxa such as *Caenis*, *Argia*, *Helisoma*, *Conchapelopia gr*, *Procladius*, *Dicrotendipes neomodestus*, *Tanytarsus*, *C/O SP1*, and *Physella* suggest that Low DO and nutrient enrichment may be problems at this location. *Psephenus herricki* (TV=2.4) and *Asioplax* (TV=1.4) were the only intolerant taxa present.

Data Analysis

This site on Crooked Creek assesses water quality in the entire watershed, including the upstream WWTP. The Biotic Index at this location has increased from 5.9 in 2001 to 6.3 in 2006, at the same time that EPT taxa richness has dropped from 18 to 11. This indicates a decrease in water quality at this site in the past 10 years, despite the Good-Fair ratings in both 2001 and 2006. EPT taxa richness in 2006 was similar to the value in 1996 when the site was rated Fair, despite a more intense sampling method in 2006.

FISH COMMUNITY SAMPLE

Waterbody	Location	Date	Bioclassification
Crooked Cr	SR 1547	07/19/06	Good

County	Subbasin	8 digit HUC	Latitude	Longitude	Index Number	Level IV Ecoregion
Union	12	03040105	350841	802817	13-17-20	Carolina Slate Belt

Stream Classification	Drainage Area (mi2)	Elevation (ft)	Stream Width (m)	Average Depth (m)	Reference Site
C	47.3	--	12	0.3	No

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	100	0	0	0

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
Union County's Crooked Creek WWTP No. 2; Instream Waste Concentration = 100%	NC0069841	1.9

Water Quality Parameters

Temperature (°C)	25.8
Dissolved Oxygen (mg/L)	6.2
Specific Conductance (µS/cm)	473
pH (s.u.)	6.7

Water Clarity	Clear
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Site Photograph



Habitat Assessment Scores (max)

Channel Modification (5)	5
Instream Habitat (20)	18
Bottom Substrate (15)	12
Pool Variety (10)	8
Riffle Habitat (16)	5
Left Bank Stability (7)	5
Right Bank Stability (7)	5
Light Penetration (10)	7
Left Riparian Score (5)	5
Right Riparian Score (5)	5
Total Habitat Score (100)	85

Substrate	Cobble, boulder, gravel
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Sample Date	Sample ID	Species Total	NCIBI	Bioclassification
07/19/06	2006-105	20	48	Good

Most Abundant Species	Bluehead Chub and Redbreast Sunfish	Exotic Species	Green Sunfish
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Species Change Since Last Cycle	N/A; new site in 2006.
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Data Analysis

Watershed -- drains northwestern Union and a small part of southeastern Mecklenburg counties, including the cities of Indian Trail and Mathews. **WWTP** -- highest specific conductance of any fish site in 2006; WWTP augments flow during drought periods; WWTP with frequent violations between 2002 and 2006 for biochemical oxygen demand; violations rare for total suspended solids; proceeded to enforcement and Notice of Violations (BIMS query 12/14/2006). **Habitat** -- a typical Carolina Slate Belt type stream; pools and short, shallow riffles. **2006** -- abundant and diverse fauna; percentage of tolerant fish (primarily Redbreast Sunfish) moderately high; suckers absent, only represented by young-of-year Creek Chubsucker and White Sucker. Carolina Darter, a species of Special Concern, collected at the site.

FISH COMMUNITY SAMPLE

Waterbody	Location	Date	Bioclassification
Island Cr	SR 1118	04/13/06	Excellent

County	Subbasin	8 digit HUC	Latitude	Longitude	Index Number	Level IV Ecoregion
Stanly	14	03040105	351151	802226	13-17-26	Carolina Slate Belt

Stream Classification	Drainage Area (mi2)	Elevation (ft)	Stream Width (m)	Average Depth (m)	Reference Site
C	19.2	--	8	0.3	No

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	80	0	20	0

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
None	---	---

Water Quality Parameters

Temperature (°C)	13.4
Dissolved Oxygen (mg/L)	8.6
Specific Conductance (µS/cm)	106
pH (s.u.)	5.8

Water Clarity	Clear, but easily silted
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Site Photograph



Habitat Assessment Scores (max)

Channel Modification (5)	5
Instream Habitat (20)	16
Bottom Substrate (15)	14
Pool Variety (10)	9
Riffle Habitat (16)	12
Left Bank Stability (7)	5
Right Bank Stability (7)	5
Light Penetration (10)	7
Left Riparian Score (5)	5
Right Riparian Score (5)	5
Total Habitat Score (100)	83

Substrate	Cobble, bedrock, boulder
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Sample Date	Sample ID	Species Total	NCIBI	Bioclassification
04/13/06	2006-17	18	54	Excellent
04/11/01	2001-13	20	54	Excellent

Most Abundant Species	Bluehead Chub and Tessellated Darter	Exotic Species	Green Sunfish and Redear Sunfish
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Species Change Since Last Cycle	Losses -- Rosyside Dace, Greenfin Shiner, Whitefin Shiner, Highback Chub, White Sucker, and Notchlip Redhorse. Gains -- Spottail Shiner, Bluegill, Redear Sunfish, and Largemouth Bass.
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Data Analysis

Watershed -- drains the southwest corner of Stanly County; primarily rural with small towns of Stanfield and Oakboro. **Habitat** -- a typical Carolina Slate Belt type stream; bedrock and cobble riffles; side deadfalls; undercut with roots; flocculent periphyton; low flow. **2006** -- a substantial decline in the number of fish (from 472 in 2001 to 194 in 2006); loss of two species of suckers and an intolerant species; but an increase in the diversity of sunfish and the percentage of piscivores. **2001 and 2006** -- 24 species known from the site; Bluehead Chub dominant species; no change in NCIBI scores or ratings. Carolina Darter, a species of Special Concern, was collected in 2001 and 2006. Qualifies as High Quality Waters with Excellent ratings and habitats, if petitioned.

Benthic Macroinvertebrate Sample

Waterbody	Location	Date	Bioclassification
LONG Cr	SR 1401	08/23/06	Good-Fair

County	Subbasin	8 digit HUC	Index Number	Latitude	Longitude
Stanly	13	03040105	13-17-31	352251	801450

Level IV Ecoregion	Stream Classification	Drainage Area (mi2)	Stream Width (m)	Stream Depth (m)
Carolina Slate Belt	C	27	6	0.3

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	90	10	0	0

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)

Water Quality Parameters

Temperature (°C)	24.2
Dissolved Oxygen (mg/L)	7.3
Specific Conductance (µS/cm)	221
pH (s.u.)	6.8
Water Clarity	turbid

Site Photograph



Habitat Assessment Scores (max)

Channel Modification (5)	4
Instream Habitat (20)	14
Bottom Substrate (15)	12
Pool Variety (10)	5
Riffle Habitat (16)	14
Left Bank Stability (7)	5
Right Bank Stability (7)	6
Light Penetration (10)	9
Left Riparian Score (5)	5
Right Riparian Score (5)	4
Total Habitat Score (100)	78

Substrate Rubble, boulder, sand, silt

Sample Date	Sample ID	ST	EPT	BI	EPT BI	Bioclassification
08/23/06	10083	NA	17	NA	4.9	Good-Fair
08/20/01	8594	NA	17	NA	5.1	Good-Fair

Taxonomic Analysis

EPT taxa richness has been identical at this location since sampling commenced in 2001. Although total EPT taxa richness has not changed, there were several, largely pollution intolerant EPT taxa collected at this location for the first time and included the mayfly *Heptagenia marginalis*, the stonefly *Eccoptura xanthenes*, and the caddisflies *Diplectrona modesta*, and *Polycentropus sp.*

Data Analysis

The new additional EPT taxa collected at this location in 2006 helped lower the EPTBI slightly from 2001 levels. In addition, while EPT richness was identical, EPTN increased slightly from 77 in 2001 to 83 in 2006. Overall, these data suggest stable conditions in the Long Creek watershed.

FISH COMMUNITY SAMPLE

Waterbody	Location	Date	Bioclassification
Long Cr	off SR 1900	06/24/04	Good

County	Subbasin	8 digit HUC	Latitude	Longitude	Index Number	Level IV Ecoregion
Stanly	13	03040105	351959	801251	13-17-31	Carolina Slate Belt

Stream Classification	Drainage Area (mi2)	Elevation (ft)	Stream Width (m)	Average Depth (m)	Reference Site
C	32.9	--	8	0.3	No

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	50	0	25	25 (Town of Albemarle's WWTP)

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
None	---	---

Water Quality Parameters

Temperature (°C)	24.4
Dissolved Oxygen (mg/L)	6.1
Specific Conductance (µS/cm)	226
pH (s.u.)	--

Water Clarity	Clear
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Habitat Assessment Scores (max)

Channel Modification (5)	4
Instream Habitat (20)	15
Bottom Substrate (15)	6
Pool Variety (10)	8
Riffle Habitat (16)	4
Left Bank Stability (7)	4
Right Bank Stability (7)	4
Light Penetration (10)	8
Left Riparian Score (5)	5
Right Riparian Score (5)	5
Total Habitat Score (100)	63

Site Photograph



Substrate	Cobble
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Sample Date	Sample ID	Species Total	NCIBI	Bioclassification
06/24/04	2004-106	18	50	Good

Most Abundant Species	Redbreast Sunfish	Exotic Species	Green Sunfish
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Species Change Since Last Cycle	N/A; new site in 2004.
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Data Analysis

Watershed -- drains north-central Stanly, including the City of Albemarle, northeastern Cabarrus, and a very small portion of southeastern Rowan counties; site is on WWTP property, but above the WWTP discharge and above the confluence with Little Long Creek; site is ~ 2.8 miles below Long Lake. **Habitat** -- a typical Carolina Slate Belt type stream; shallow, cobble runs; some snags; some urban debris in the creek and along the banks. **2004** -- elevated specific conductance (urban runoff); no intolerant species; high percentage of tolerant fish, including Golden Shiner, White Sucker, Flat Bullhead, Redbreast Sunfish, and Green Sunfish; large specimens of Redbreast Sunfish and Largemouth Bass; sampled as part of a NCSU Urban Fish Study.

Benthic Macroinvertebrate Sample

Waterbody	Location	Date	Bioclassification
LONG CR	SR 1917	08/23/06	Good

County	Subbasin	8 digit HUC	Index Number	Latitude	Longitude
STANLY	13	03040105	13-17-31	351326	801533

Level IV Ecoregion	Stream Classification	Drainage Area (mi2)	Stream Width (m)	Stream Depth (m)
Carolina Slate Belt	C	196	10	0.4

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	100	0	0	0

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
Oakboro WWTP	NC0043532	0.9 MGD
Long Creek WWTP	NC0024244	16.0 MGD

Water Quality Parameters

Temperature (°C)	28.2
Dissolved Oxygen (mg/L)	8.6
Specific Conductance (µS/cm)	270
pH (s.u.)	0
Water Clarity	colored (from dyes)

Site Photograph



Habitat Assessment Scores (max)

Channel Modification (5)	5
Instream Habitat (20)	16
Bottom Substrate (15)	12
Pool Variety (10)	6
Riffle Habitat (16)	7
Left Bank Stability (7)	6
Right Bank Stability (7)	6
Light Penetration (10)	7
Left Riparian Score (5)	5
Right Riparian Score (5)	5
Total Habitat Score (100)	75

Substrate Good mix of boulder, cobble, gravel and sand

Sample Date	Sample ID	ST	EPT	BI	EPT BI	Bioclassification
08/23/06	10065	72	22	5.8	5.1	Good
08/23/01	8606	71	20	5.8	4.9	Good-Fair
08/22/96	7177	64	14	5.7	5.3	Good-Fair
07/12/89	4976	76	22	6.1	5.2	Good-Fair
07/24/86	3859	88	12	6.8	5.6	Fair
09/02/83	3068	59	15	6.6	4.9	Fair

Taxonomic Analysis

Several EPT taxa were first collected at this site in 2006; *Heterocloeon curiosum*, *Stenonema lenati*, *Stenacron interpunctatum*, *Acroneuria arenosa*, *Ceraclea ancylus*, *Lepidostoma*, *Neophylax oligius*, and *Oecetis persimilis*. Common and abundant indicator taxa such as *Caenis*, *Argia*, *Helisoma*, *Physella* and two species of leeches suggest that low DO may be a stressor in this reach. Intolerant taxa found in 2006 include *Psephenus herricki* (TV=2.4), *Leucrocota* (TV=2.4), *Stenonema lenati* (TV= 2.3) and *Pyrallidae* (TV=2). Thousands of the snail, *Amnicola*, covered the rocks.

Data Analysis

Albemarle's WWTP is located above this site and its discharge makes up much of the flow. The water had a red tinge in 2006 as has been noted in prior sampling. The rating at this location has increased from Fair in 1983 to Good in 2006. However, over the past 10 years, the biotic Index has remained fairly stable, with changes in the number of EPT taxa making the slight increase in bioclassification from Good-Fair to Good.

FISH COMMUNITY SAMPLE

Waterbody	Location	Date	Bioclassification
Big Bear Cr	SR 1134	06/24/04	Good-Fair

County	Subbasin	8 digit HUC	Latitude	Longitude	Index Number	Level IV Ecoregion
Stanly	13	03040105	352001	802009	13-17-31-5	Carolina Slate Belt

Stream Classification	Drainage Area (mi2)	Elevation (ft)	Stream Width (m)	Average Depth (m)	Reference Site
C	55.6	--	6	0.3	No

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	25	0	50	25 (rural residential)

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
None	---	---

Water Quality Parameters

Temperature (°C)	23.0
Dissolved Oxygen (mg/L)	5.6
Specific Conductance (µS/cm)	112
pH (s.u.)	--

Water Clarity	Clear
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Habitat Assessment Scores (max)

Channel Modification (5)	5
Instream Habitat (20)	17
Bottom Substrate (15)	12
Pool Variety (10)	9
Riffle Habitat (16)	7
Left Bank Stability (7)	6
Right Bank Stability (7)	6
Light Penetration (10)	10
Left Riparian Score (5)	5
Right Riparian Score (5)	5
Total Habitat Score (100)	82

Site Photograph



Substrate	Cobble, slate, bedrock
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Sample Date	Sample ID	Species Total	NCIBI	Bioclassification
06/24/04	2004-105	16	46	Good-Fair

Most Abundant Species	Bluehead Chub	Exotic Species	Green Sunfish
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Species Change Since Last Cycle	N/A; new site in 2004.
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Data Analysis

Watershed -- drains rural west-central Stanly and northeastern Cabarrus counties; no municipalities in the watershed. **Habitat** -- a typical Carolina Slate Belt type stream; angular bedrock pools and riffles; shallow pools and riffles; slick rocks; good riparian zones along both banks. **2004** -- low flow; intolerant species absent; indications of nutrient enrichment (dominance by Bluehead Chub and an abundance of other omnivores such as White Sucker, Creek Chubsucker, and Yellow Bullhead); Pirate Perch represented only by young-of-year; sampled as part of a NCSU Urban Fish Study. Data collected in 1996 and 2001 were from a site at NC 73, ~ 4 miles upstream and with a drainage area of 19.1 square miles.

Benthic Macroinvertebrate Sample

Waterbody	Location	Date	Bioclassification
BIG BEAR CR	SR 1225	08/23/06	Good

County	Subbasin	8 digit HUC	Index Number	Latitude	Longitude
Stanly	13	03040105	13-17-31-5	351917	801944

Level IV Ecoregion	Stream Classification	Drainage Area (mi2)	Stream Width (m)	Stream Depth (m)
Carolina Slate Belt	C	58.1	6	0.3

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	90	0	0	10-Residential

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)

Water Quality Parameters

Temperature (°C)	27.8
Dissolved Oxygen (mg/L)	7.8
Specific Conductance (µS/cm)	97
pH (s.u.)	6.7
Water Clarity	slightly turbid

Site Photograph



Habitat Assessment Scores (max)

Channel Modification (5)	4
Instream Habitat (20)	14
Bottom Substrate (15)	12
Pool Variety (10)	10
Riffle Habitat (16)	9
Left Bank Stability (7)	6
Right Bank Stability (7)	6
Light Penetration (10)	9
Left Riparian Score (5)	5
Right Riparian Score (5)	5
Total Habitat Score (100)	80

Substrate	Bedrock, Boulder, Rubble
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Sample Date	Sample ID	ST	EPT	BI	EPT BI	Bioclassification
08/23/06	10084	NA	21	NA	5	Good
08/20/01	8595	NA	22	NA	4.5	Good

Taxonomic Analysis

EPT taxa collected for the first time (at this site) in 2006 included the mayflies *Baetis intercalaris*, *Eurylophella sp.*, *Stenonema vicarium*, and the caddisflies *Hydroptila sp.*, *Oecetis persimilis*, and *Triaenodes perna*. The slate-belt indicators (mayflies) *Stenonema vicarium* and *Stenonema femoratum* were both present at this site in 2006.

Data Analysis

The overall EPT community richness has remained stable along this reach of Big Bear Creek since 2001. In addition, the EPTN was remarkably similar from 2001 (90) to 2006 (91). The slight increase in the 2006 EPTBI value from the 2001 sample was partially the result of the addition of one pollution tolerant mayfly (*Baetis intercalaris*) and one facultative caddisfly (*Hydroptila sp.*). Overall, these data suggest generally stable and favorable water quality in Big Bear Creek.

FISH COMMUNITY SAMPLE

Waterbody	Location	Date	Bioclassification
Stony Run	SR 1970	04/13/06	Good-Fair

County	Subbasin	8 digit HUC	Latitude	Longitude	Index Number	Level IV Ecoregion
Stanly	13	03040105	351452	801734	13-17-31-5-5	Carolina Slate Belt

Stream Classification	Drainage Area (mi2)	Elevation (ft)	Stream Width (m)	Average Depth (m)	Reference Site
C	19.7	--	8	0.3	No

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	65	0	30	5 -- residential

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
None	---	---

Water Quality Parameters

Temperature (°C)	14.6
Dissolved Oxygen (mg/L)	9.8
Specific Conductance (µS/cm)	108
pH (s.u.)	6.3

Site Photograph



Water Clarity	Clear
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Habitat Assessment Scores (max)

Channel Modification (5)	5
Instream Habitat (20)	17
Bottom Substrate (15)	15
Pool Variety (10)	10
Riffle Habitat (16)	14
Left Bank Stability (7)	7
Right Bank Stability (7)	7
Light Penetration (10)	7
Left Riparian Score (5)	5
Right Riparian Score (5)	5
Total Habitat Score (100)	92

Substrate	Cobble, boulder, bedrock
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Sample Date	Sample ID	Species Total	NCIBI	Bioclassification
04/13/06	2006-18	12	46	Good-Fair

Most Abundant Species	Bluehead Chub	Exotic Species	Green Sunfish
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Species Change Since Last Cycle	N/A; new site in 2006.
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Data Analysis

Watershed -- drains southwestern Stanly County, including the Town of Oakboro; tributary to Big Bear Creek. **Habitat** -- high quality habitats; a typical Carolina Slate Belt type stream; angular bedrock slick with periphyton; low flow. **2006** -- dominance by the omnivorous Bluehead Chub and abundant periphyton indicative of nonpoint nutrient inputs; Green Sunfish was the most abundant sunfish and has displaced the Redbreast Sunfish; three species of darters and one intolerant species collected. Low flow-affected stream.

FISH COMMUNITY SAMPLE

Waterbody	Location	Date	Bioclassification
Richardson Cr	NC 207	07/19/06	Poor

County	Subbasin	8 digit HUC	Latitude	Longitude	Index Number	Level IV Ecoregion
Union	14	03040105	345715	803242	13-17-36-(3.5)	Carolina Slate Belt

Stream Classification	Drainage Area (mi2)	Elevation (ft)	Stream Width (m)	Average Depth (m)	Reference Site
WS-IV, CA	32.6	0	12	0.4	No

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	90	0	0	10 -- residential

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
None	---	---

Water Quality Parameters

Temperature (°C)	22.6
Dissolved Oxygen (mg/L)	1.8
Specific Conductance (µS/cm)	170
pH (s.u.)	5.8

Water Clarity	Clear
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Site Photograph



Habitat Assessment Scores (max)

Channel Modification (5)	4
Instream Habitat (20)	16
Bottom Substrate (15)	13
Pool Variety (10)	9
Riffle Habitat (16)	0
Left Bank Stability (7)	2
Right Bank Stability (7)	3
Light Penetration (10)	9
Left Riparian Score (5)	5
Right Riparian Score (5)	5
Total Habitat Score (100)	66

Substrate	Cobble, gravel, sand
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Sample Date	Sample ID	Species Total	NCIBI	Bioclassification
07/19/06	2006-103	12	30	Poor
04/11/01	2001-11	14	46	Good-Fair

Most Abundant Species	Green Sunfish	Exotic Species	Green Sunfish
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Species Change Since Last Cycle	<p>Losses -- Whitemouth Shiner, Highfin Shiner, Creek Chubsucker, Redbreast Sunfish, Carolina Darter, and Tessellated Darter. Gains -- White Catfish, Yellow Bullhead, Flat Bullhead, and Black Crappie.</p>
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Data Analysis

Watershed -- drains south-central Union County, including a portion of the City of Monroe; suburban/rural with poultry operations, no WWTPs upstream. **Habitat** -- a typical Carolina Slate Belt stream; primarily one long pool, no riffles; entrenched with eroded banks; good canopy; Chinese privet riparian zone on right; cattle excluded from stream; low flow; periphyton thick at beginning of reach in open canopy area. **2006** -- elevated specific conductance and 2nd lowest dissolved oxygen concentration and saturation (early morning) of any fish site in 2006, less than the water quality standard; very few fish and low diversity; 1 of 5 sites with no Redbreast Sunfish; no darters, suckers, or intolerant species; high percentage of tolerant fish; skewed trophic metrics; few species with multiple age classes, 8 of 12 species represented by only 1 or 2 fish per species. **2001 and 2006** -- Green Sunfish has displaced the Redbreast Sunfish; percentage of tolerant fish increased from 36 to 61%. Low flow-affected stream.

Benthic Macroinvertebrate Sample

Waterbody	Location	Date	Bioclassification
RICHARDSON CR	SR 1649	08/23/06	Good-Fair

County	Subbasin	8 digit HUC	Index Number	Latitude	Longitude
UNION	14	03040105	13-17-36-(5)	350420	802430

Level IV Ecoregion	Stream Classification	Drainage Area (mi2)	Stream Width (m)	Stream Depth (m)
Carolina Slate Belt	C	156	22	0.3

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	50	0	50	0

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
Monroe WWTP	NC0024333	10.4 MGD

Water Quality Parameters

Temperature (°C)	25.4
Dissolved Oxygen (mg/L)	6.6
Specific Conductance (µS/cm)	600
pH (s.u.)	0
Water Clarity	slightly turbid

Site Photograph



Habitat Assessment Scores (max)

Channel Modification (5)	5
Instream Habitat (20)	20
Bottom Substrate (15)	8
Pool Variety (10)	6
Riffle Habitat (16)	14
Left Bank Stability (7)	6
Right Bank Stability (7)	6
Light Penetration (10)	7
Left Riparian Score (5)	5
Right Riparian Score (5)	4
Total Habitat Score (100)	81

Substrate Good mix of boulder, cobble, gravel and sand

Sample Date	Sample ID	ST	EPT	BI	EPT BI	Bioclassification
08/23/06	10063	57	14	5.9	5.4	Good-Fair
08/23/01	8609	46	10	6.4	6.2	Fair
08/20/96	7172	46	12	6.2	5.6	Fair
07/24/90	5392	57	10	6.9	6.1	Fair
07/08/87	4132	57	10	6.9	5.9	Fair

Taxonomic Analysis

Baetis tricaudatus, *Chimarra* and *Leucotrichia pictipes* were collected for the first time at this site in 2006. No clear stressor was suggested from indicator taxa present in this reach. Intolerant taxa present were *Baetis tricaudatus* (TV=1.6) and *Pyralidae* (TV=2).

Data Analysis

This sampling site is located midway in the Richardson Creek watershed, and is located below the Town of Monroe and its WWTP. Substrate here was typical of Slate Belt streams. Richardson Creek at SR 1649 rated Fair in four samples since 1987. In 2006 the bioclassification increased to Good-Fair due to a decrease in Biotic Index and an increase in the number of EPT taxa found at the site. This suggests increasing water quality in the past 5 years.

Benthic Macroinvertebrate Sample

Waterbody	Location	Date	Bioclassification
RICHARDSON CR	SR 1600	08/23/06	Good

County	Subbasin	8 digit HUC	Index Number	Latitude	Longitude
ANSON	14	03040105	13-17-36-(5)	350929	801411

Level IV Ecoregion	Stream Classification	Drainage Area (mi2)	Stream Width (m)	Stream Depth (m)
Carolina Slate Belt	C	235	18	0.3

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	50	0	50	0

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
Monroe WWTP	NC0024333	10.4 MGD

Water Quality Parameters

Temperature (°C)	28
Dissolved Oxygen (mg/L)	7.6
Specific Conductance (µS/cm)	296
pH (s.u.)	0
Water Clarity	clear

Site Photograph



Habitat Assessment Scores (max)

Channel Modification (5)	5
Instream Habitat (20)	20
Bottom Substrate (15)	12
Pool Variety (10)	4
Riffle Habitat (16)	12
Left Bank Stability (7)	7
Right Bank Stability (7)	7
Light Penetration (10)	2
Left Riparian Score (5)	5
Right Riparian Score (5)	2
Total Habitat Score (100)	76

Substrate Good mix of boulder, cobble, gravel and sand

Sample Date	Sample ID	ST	EPT	BI	EPT BI	Bioclassification
08/23/06	10064	N/A	24	N/A	4.2	Good
08/23/01	8608	N/A	24	N/A	4.0	Good
08/21/96	7176	N/A	18	N/A	3.9	Good-Fair

Taxonomic Analysis

Although *Stenacron interpunctatum* and *Hydropsyche phalerata* were not collected in 2006 as in previous years, *Tricorythodes robacki*, *Triaenodes marginatus*, and *Leucotrichia pictipes* were present for the first time at this site. Intolerant taxa found in 2006 include *Leucrocota* (TV=2.4), *Stenacron pallidum* (TV=2.7), *Acroneuria abnormis* (TV=2.1), *Neoperla* (TV=1.5), *Lepidostoma* (TV=0.9), *Ceraclea ancylus* (TV=2.3), *Triaenodes injustus* (TV=2.5), and *Hydropsyche demora* (TV=2.1).

Data Analysis

This site in Anson County is located near the confluence with the Rocky River. Richardson Creek at SR 1600 received a Good bioclassification in 2006, the same rating given in 2001. The 1996 rating was Good-Fair. Increases in the number of EPT present account for the increase in 2001 and 2006. The Good rating at this site indicates recovery, as the upstream sampling location had a Good-Fair rating in 2006.

FISH COMMUNITY SAMPLE

Waterbody	Location	Date	Bioclassification
Bearskin Cr	NC 200	07/18/06	Fair

County	Subbasin	8 digit HUC	Latitude	Longitude	Index Number	Level IV Ecoregion
Union	14	03040105	345946	803123	13-17-36-6	Carolina Slate Belt

Stream Classification	Drainage Area (mi2)	Elevation (ft)	Stream Width (m)	Average Depth (m)	Reference Site
C	14.3	--	4	0.3	No

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	90	0	0	10 -- Union County gas facility

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
None	---	---

Water Quality Parameters

Temperature (°C)	26.9
Dissolved Oxygen (mg/L)	7.0
Specific Conductance (µS/cm)	273
pH (s.u.)	6.0

Water Clarity	Clear
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Site Photograph



Habitat Assessment Scores (max)

Channel Modification (5)	5
Instream Habitat (20)	19
Bottom Substrate (15)	14
Pool Variety (10)	9
Riffle Habitat (16)	14
Left Bank Stability (7)	6
Right Bank Stability (7)	6
Light Penetration (10)	10
Left Riparian Score (5)	5
Right Riparian Score (5)	5
Total Habitat Score (100)	93

Substrate	Cobble
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Sample Date	Sample ID	Species Total	NCIBI	Bioclassification
07/18/06	2006-102	9	36	Fair

Most Abundant Species	Bluehead Chub	Exotic Species	Green Sunfish
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Species Change Since Last Cycle	N/A; new site in 2006.
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Data Analysis

Watershed -- drains central Union County, including the City of Monroe and the US 74/601 corridor; tributary to Richardson Creek; no WWTPs.
Habitat -- very high quality habitats; a typical Carolina Slate Belt type stream; very rocky; runs, riffles, pools, root wads, undercuts, snags; very shallow (low flow). **2006** -- elevated specific conductance from upstream urban nonpoint sources; lower than expected total diversity; no suckers, no intolerant species; five species (Creek Chub, Spottail Shiner, Whitemouth Shiner, Creek Chubsucker, and Largemouth Bass) represented by only young-of-year and not counted in the analyses, would have increased the diversity metrics; high percentage of tolerant species (primarily Redbreast Sunfish and Flat Bullhead) and omnivores (Bluehead Chub). Low flow-affected stream.

FISH COMMUNITY SAMPLE

Waterbody	Location	Date	Bioclassification
Salem Cr	SR 1006	04/12/06	Good-Fair

County	Subbasin	8 digit HUC	Latitude	Longitude	Index Number	Level IV Ecoregion
Union	14	03040105	350430	802206	13-17-36-15	Carolina Slate Belt

Stream Classification	Drainage Area (mi2)	Elevation (ft)	Stream Width (m)	Average Depth (m)	Reference Site
C	23.6	--	11	0.3	No

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	100	0	0	0

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
None	---	---

Water Quality Parameters

Temperature (°C)	17.6
Dissolved Oxygen (mg/L)	11.2
Specific Conductance (µS/cm)	195
pH (s.u.)	6.4
Water Clarity	Clear

Site Photograph



Habitat Assessment Scores (max)

Channel Modification (5)	5
Instream Habitat (20)	18
Bottom Substrate (15)	11
Pool Variety (10)	9
Riffle Habitat (16)	5
Left Bank Stability (7)	5
Right Bank Stability (7)	5
Light Penetration (10)	8
Left Riparian Score (5)	4
Right Riparian Score (5)	5
Total Habitat Score (100)	81

Substrate	Cobble, boulder, gravel
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Sample Date	Sample ID	Species Total	NCIBI	Bioclassification
04/12/06	2006-16	17	46	Good-Fair
04/11/01	2001-12	18	48	Good
06/10/96	96-68	19	36	Fair

Most Abundant Species	Green Sunfish	Exotic Species	Green Sunfish
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Species Change Since Last Cycle	Losses -- Golden Shiner, Redlip Shiner, Spotted Sucker, Brown Bullhead, Margined Madtom, and Largemouth Bass. Gains -- Spottail Shiner, Eastern Mosquitofish, and Pumpkinseed.
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Data Analysis

Watershed -- drains eastern Union County, including the north side of the Town of Marshville; tributary to Richardson Creek. **Habitat** -- a typical Carolina Slate Belt type stream; pools, two good riffles, but almost dry; thick filamentous algae; very low flow; left riparian zones logged within last 5 years, but a narrow buffer remains. **2006** -- supersaturation of dissolved oxygen; elevated and slight increase in specific conductance, regional office reports of sanitary sewer overflows in headwaters; decrease in the number of fish collected; increase in the percentage of Green Sunfish and tolerant fish; no Redlip Shiners. **1996 - 2006** -- consistently good total habitat scores (~80); a species-rich site (n = 27), but no intolerant species; dominant species include Highfin Shiner, Whitemouth Shiner, Redbreast Sunfish, Green Sunfish, and Tessellated Darter; Redlip Shiner rare at the site; increase in the percentage of Green Sunfish since 1996; slight change in NCIBI score and rating between 2001 and 2006. A low flow-affected stream.

FISH COMMUNITY SAMPLE

Waterbody	Location	Date	Bioclassification
Cribs Cr	SR 1610	04/12/06	Poor

County	Subbasin	8 digit HUC	Latitude	Longitude	Index Number	Level IV Ecoregion
Anson	14	03040105	350834	801234	13-17-37	Carolina Slate Belt

Stream Classification	Drainage Area (mi2)	Elevation (ft)	Stream Width (m)	Average Depth (m)	Reference Site
C	7.1	--	7	0.2	No

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	50	0	45	5 -- residential

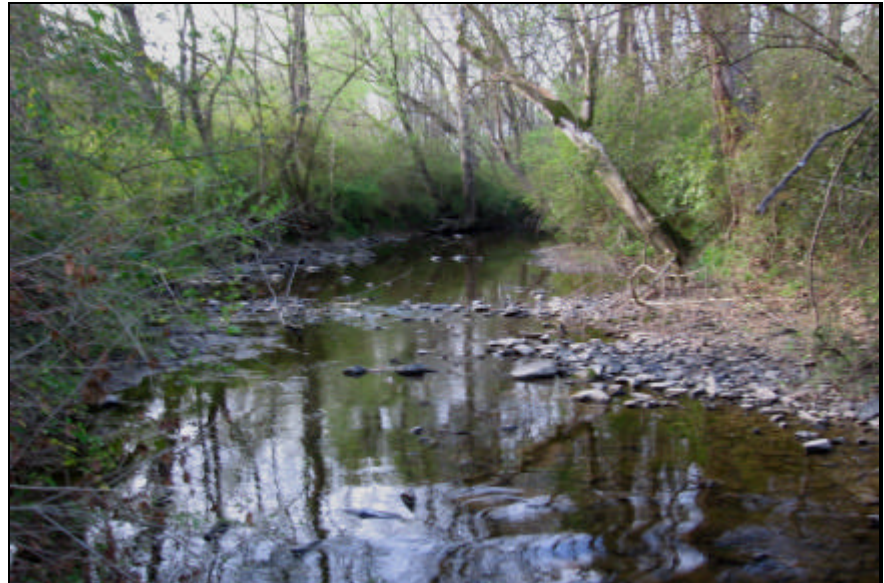
Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
None	---	---

Water Quality Parameters

Temperature (°C)	11.8
Dissolved Oxygen (mg/L)	7.8
Specific Conductance (µS/cm)	144
pH (s.u.)	6.3

Water Clarity	Clear
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Site Photograph



Habitat Assessment Scores (max)

Channel Modification (5)	5
Instream Habitat (20)	16
Bottom Substrate (15)	13
Pool Variety (10)	6
Riffle Habitat (16)	7
Left Bank Stability (7)	6
Right Bank Stability (7)	5
Light Penetration (10)	9
Left Riparian Score (5)	4
Right Riparian Score (5)	5
Total Habitat Score (100)	75

Substrate	Flat cobble
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Sample Date	Sample ID	Species Total	NCIBI	Bioclassification
04/12/06	2006-13	5	26	Poor

Most Abundant Species	Tessellated Darter	Exotic Species	Green Sunfish
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Species Change Since Last Cycle	N/A; new site in 2006.
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Data Analysis

Watershed -- small, rural watershed draining northwest Anson County; no municipalities; site is ~ 1 mile upstream of the confluence with the Rocky River. **Habitat** -- a typical Carolina Slate Belt type stream; very low flow which affected the habitat; short and shallow riffles; shallow pools; thick filamentous algae/periphyton; easily silted with flocculent material. **2006** -- lower than expected total diversity (fewest species at any fish site in 2006); few fish (n = 52); no Redlip Shiner or Redbreast Sunfish; Green Sunfish was the dominant sunfish; no suckers or intolerant species. Low flow-affected stream.

FISH COMMUNITY SAMPLE

Waterbody	Location	Date	Bioclassification
Lanes Cr	SR 1929	04/12/06	Fair

County	Subbasin	8 digit HUC	Latitude	Longitude	Index Number	Level IV Ecoregion
Union	14	03040105	345442	802148	13-17-40-(1)	Carolina Slate Belt

Stream Classification	Drainage Area (mi2)	Elevation (ft)	Stream Width (m)	Average Depth (m)	Reference Site
WS-V	47.8	--	9	0.3	No

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	100	0	0	0

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
None	---	---

Water Quality Parameters

Temperature (°C)	15.2
Dissolved Oxygen (mg/L)	11.5
Specific Conductance (µS/cm)	158
pH (s.u.)	6.2

Water Clarity	Slightly turbid
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Habitat Assessment Scores (max)

Channel Modification (5)	5
Instream Habitat (20)	18
Bottom Substrate (15)	12
Pool Variety (10)	10
Riffle Habitat (16)	7
Left Bank Stability (7)	4
Right Bank Stability (7)	4
Light Penetration (10)	9
Left Riparian Score (5)	5
Right Riparian Score (5)	5
Total Habitat Score (100)	78

Site Photograph



Substrate	Cobble, boulder, bedrock
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Sample Date	Sample ID	Species Total	NCIBI	Bioclassification
04/12/06	2006-15	10	36	Fair
04/11/01	2001-10	14	40	Fair

Most Abundant Species	Green Sunfish	Exotic Species	Green Sunfish
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Species Change Since Last Cycle	Losses -- Golden Shiner, Highfin Shiner, White Sucker, Eastern Mosquitofish, Margined Madtom, and Pumpkinseed. Gains -- Bluegill and Carolina Darter.
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Data Analysis

Watershed -- originates in northern Chesterfield County, SC and drains primarily rural southeastern Union and northwestern Anson counties; no municipalities in watershed. **Habitat** -- a typical Carolina Slate Belt type stream; very rocky; abundant filamentous algae and flocculent periphyton; low flow. **2006** -- supersaturation of dissolved oxygen and specific conductance elevated; decrease in the number and diversity of fish; no intolerant species; increase in the percentage of tolerant fish; decrease in the percentage of species with multiple age classes; Green Sunfish displaced the Redbreast Sunfish (from 23 to 61% for Green Sunfish and from 14 to 1% for Redbreast Sunfish); Carolina Darter, a species of Special Concern, collected. **2001 and 2006** -- for its size, but due to flow conditions, not a particular species-rich site, only 16 species known from the site; no intolerant species nor the Redlip Shiner are known from the site. A low flow-affected stream.

FISH COMMUNITY SAMPLE

Waterbody	Location	Date	Bioclassification
Beaverdam Cr	SR 1005	07/19/06	Poor

County	Subbasin	8 digit HUC	Latitude	Longitude	Index Number	Level IV Ecoregion
Union	14	03040105	345716	802105	13-17-40-11	Carolina Slate Belt

Stream Classification	Drainage Area (mi ²)	Elevation (ft)	Stream Width (m)	Average Depth (m)	Reference Site
WS-V	14.9	--	7	0.4	No

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	100	0	0	0

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
None	---	---

Water Quality Parameters

Temperature (°C)	23.8
Dissolved Oxygen (mg/L)	1.1
Specific Conductance (µS/cm)	161
pH (s.u.)	5.8

Water Clarity	Slightly turbid, tannin stained
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Habitat Assessment Scores (max)

Channel Modification (5)	5
Instream Habitat (20)	16
Bottom Substrate (15)	10
Pool Variety (10)	9
Riffle Habitat (16)	2
Left Bank Stability (7)	3
Right Bank Stability (7)	3
Light Penetration (10)	10
Left Riparian Score (5)	5
Right Riparian Score (5)	5
Total Habitat Score (100)	68

Site Photograph



Substrate	Cobble, bedrock, gravel, sand
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Sample Date	Sample ID	Species Total	NCIBI	Bioclassification
07/19/06	2006-104	9	30	Poor

Most Abundant Species	Bluegill and Green Sunfish	Exotic Species	Green Sunfish
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Species Change Since Last Cycle	N/A; new site in 2006.
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Data Analysis

Watershed -- drains eastern Union County; no municipalities; poultry operations in rural watershed; tributary to Lanes Creek. **Habitat** -- a typical Carolina Slate Belt type stream; very low flow; pools; dry riffles; eroded banks; entrenched; good canopy; Chinese privet riparian zone on left. **2006** -- lowest dissolved oxygen concentration and saturation of any fish site in 2006; less than the water quality standard; lower than expected total diversity; only 1 of 3 sites in the Piedmont and Mountains with no species of darters; no intolerant species; no Bluehead Chub or Redlip Shiner, no Redbreast Sunfish (displaced by Green Sunfish); high percentage of tolerant species (primarily Green Sunfish and Eastern Mosquitofish). Low flow-affected stream.

FISH COMMUNITY SAMPLE

Waterbody	Location	Date	Bioclassification
Hardy Cr	SR 1934	04/13/06	Good

County	Subbasin	8 digit HUC	Latitude	Longitude	Index Number	Level IV Ecoregion
Stanly	14	03040105	351049	801004	13-17-42	Carolina Slate Belt

Stream Classification	Drainage Area (mi2)	Elevation (ft)	Stream Width (m)	Average Depth (m)	Reference Site
C	14.7	--	8	0.3	No

Visible Landuse (%)	Forested/Wetland	Urban	Agriculture	Other (describe)
	85	0	10	5 -- residential

Upstream NPDES Dischargers (>1MGD or <1MGD and within 1 mile)	NPDES Number	Volume (MGD)
None	---	---

Water Quality Parameters

Temperature (°C)	18.9
Dissolved Oxygen (mg/L)	11.0
Specific Conductance (µS/cm)	109
pH (s.u.)	6.2

Water Clarity	Clear
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Site Photograph



Habitat Assessment Scores (max)

Channel Modification (5)	5
Instream Habitat (20)	17
Bottom Substrate (15)	15
Pool Variety (10)	9
Riffle Habitat (16)	14
Left Bank Stability (7)	7
Right Bank Stability (7)	7
Light Penetration (10)	8
Left Riparian Score (5)	5
Right Riparian Score (5)	5
Total Habitat Score (100)	92

Substrate	Cobble, boulder, bedrock, gravel
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Sample Date	Sample ID	Species Total	NCIBI	Bioclassification
04/13/06	2006-19	14	50	Good

Most Abundant Species	Green Sunfish	Exotic Species	Green Sunfish
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Species Change Since Last Cycle	N/A; new site in 2006.
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Data Analysis

Watershed -- drains southeastern Stanly County, including the small town of Aquadale in its headwaters; rural.; site is 1.6 miles upstream of confluence with Rocky River. **Habitat** -- very high quality habitats; a typical Carolina Slate Belt type stream; very rocky; low flow; pools, short riffles; abundant filamentous algae and periphyton. **2006** -- supersaturation of dissolved oxygen; good species diversity and abundance; 3 species of darters and sunfish, 2 species of suckers, and 1 intolerant species; very high percentage of tolerant fish, the Green Sunfish has displaced the Redbreast Sunfish; no Redlip Shiner. Low flow-affected stream, but not to the extent as observed at other sites.