

## **Appendix IV**

# **DWQ Water Quality Monitoring Programs in the New River Basin**

## DWQ Water Quality Monitoring Programs in the New River Basin

Staff in the Environmental Sciences Section (ESS) and Regional Offices of DWQ collect a variety of biological, chemical and physical data. The following discussion contains a brief introduction to each program, followed by a summary of water quality data in the New River basin for that program. For more detailed information on sampling and assessment of streams in this basin, refer to the *Basinwide Assessment Report* for the New River basin, available on the ESS website at <http://www.esb.enr.state.nc.us/bar.html> or by calling (919) 733-9960.

### *DWQ monitoring programs for the New River Basin include:*

- Benthic Macroinvertebrates
- Aquatic Toxicity Monitoring
- Lake Assessment
- Ambient Monitoring System

### **Benthic Macroinvertebrate Monitoring**

Benthic macroinvertebrates, or benthos, are organisms that live in and on the bottom substrates of rivers and streams. These organisms are primarily aquatic insect larvae. The use of benthos data has proven to be a reliable monitoring tool, as benthic macroinvertebrates are sensitive to subtle changes in water quality. Since macroinvertebrates have life cycles of six months to over one year, the effects of short-term pollution (i.e., chemical spill) will generally not be overcome until the following generation appears. The benthic community also integrates the effects of a wide array of potential pollutant mixtures.

Criteria have been developed to assign a bioclassification to each benthic sample based on the number of different species present in the pollution intolerant groups of Ephemeroptera (Mayflies), Plecoptera (Stoneflies) and Trichoptera (Caddisflies), commonly referred to as EPT. A Biotic Index (BI) value gives an indication of overall community pollution tolerance. Different benthic macroinvertebrate criteria have been developed for different ecoregions (i.e., mountains, piedmont, coastal plain and swamp) within North Carolina and bioclassifications fall into five categories: Excellent, Good, Good-Fair, Fair and Poor.

### *Overview of Benthic Macroinvertebrate Data*

There were 42 benthic samples collected during this assessment period. The following table lists the total bioclassifications (by subbasin) for all benthos sites in the New River basin. Benthos sampling may slightly overestimate the proportion of Fair, Poor and Severe stress sites, as DWQ special studies often have the greatest sampling intensity (number of sites/stream) in areas where it is believed that water quality problems exist. Many streams also ceased flowing during the drought of 2001 and 2002. For detailed information regarding the samples collected during this assessment period, refer to the tables at the end of this appendix.

Summary of Bioclassifications for All Freshwater Benthic Macroinvertebrate Sites (using the most recent rating for each site) in the New River Basin

Subbasin	Excellent	Good	Good-Fair	Fair	Poor	Not Rated	Total
05-07-01	8	8	4	0	2	0	22
05-07-02	8	2	0	0	1	0	11
05-07-03	4	4	1	0	0	0	9
<b>Total (#)</b>	<b>20</b>	<b>14</b>	<b>5</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>42</b>
<b>Total (%)</b>	<b>48</b>	<b>33</b>	<b>12</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>100</b>

### Assessing Benthic Macroinvertebrate Communities in Small Streams

The benthic macroinvertebrate community of small streams is naturally less diverse than the streams used to develop the current criteria for flowing freshwater streams. The benthic macroinvertebrate database is being evaluated, and a study to systematically look at small reference streams in different ecoregions is being developed with the goal of finding a way to evaluate water quality conditions in such small streams.

Presently, a designation of Not Impaired may be used for flowing waters that are too small to be assigned a bioclassification (less than 4 meters in width) but meet the criteria for a Good-Fair or higher bioclassification using the standard qualitative and EPT criteria. This designation will translate into a use support rating of Supporting. However, DWQ will use the monitoring information from small streams to identify potential impacts to small streams even in cases when a use support rating cannot be assigned.

DWQ will use this monitoring information to identify potential impacts to these waters even though a use support rating is not assigned. DWQ will continue to develop criteria to assess water quality in small streams.

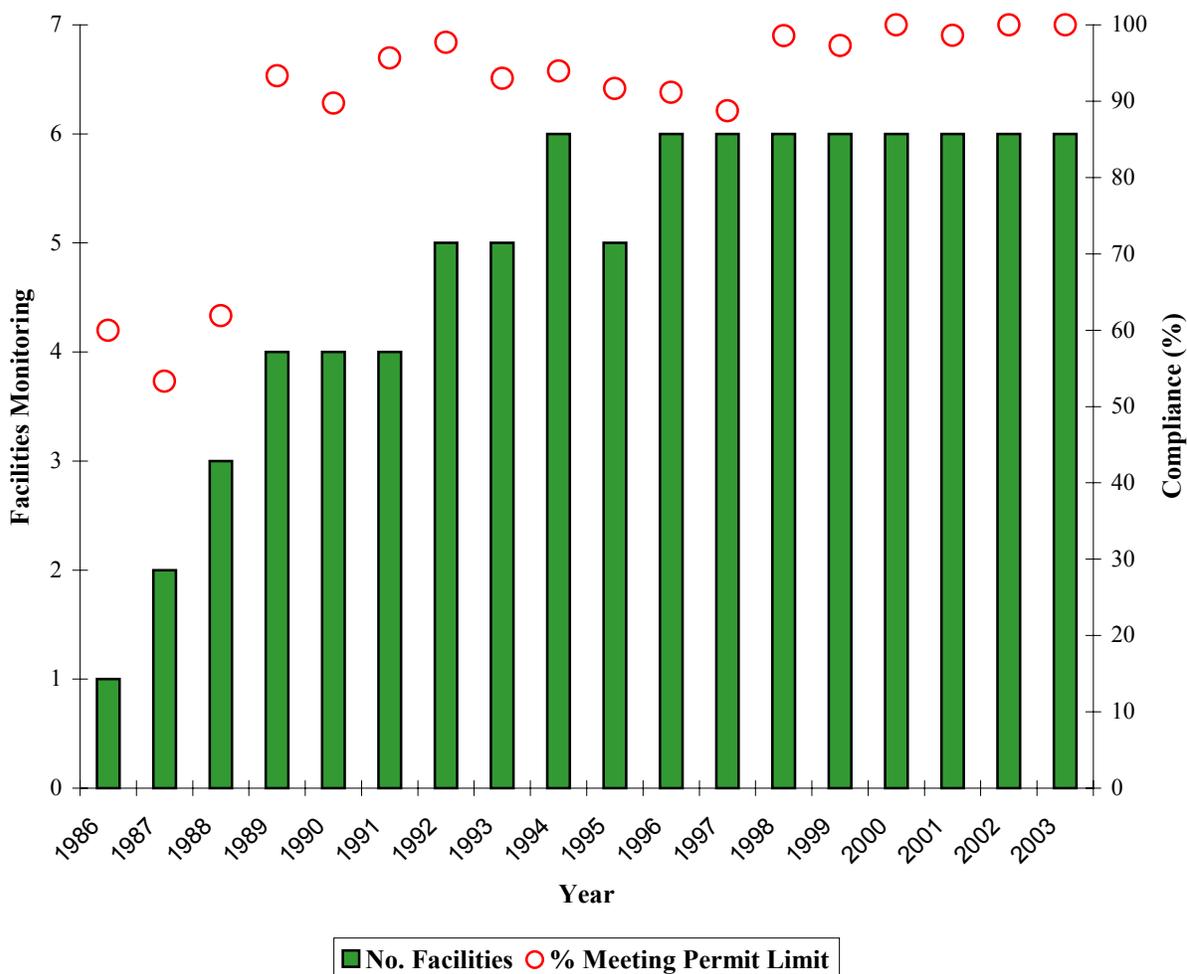
### **Aquatic Toxicity Monitoring**

Acute and/or chronic toxicity tests are used to determine toxicity of discharges to sensitive aquatic species (usually fathead minnows or the water flea, *Ceriodaphnia dubia*). Results of these tests have been shown by several researchers to be predictive of discharge effects on receiving stream populations. Many facilities are required to monitor whole effluent toxicity (WET) by their NPDES permit or by administrative letter. The Aquatic Toxicology Unit (ATU) may also test other facilities. Per Section 106 of the Clean Water Act, the ATU is required to test at least 10 percent of the major discharging facilities over the course of the federal fiscal year (FFY). However, it is ATU's target to test 20 percent of the major dischargers in the FFY. This means that each major facility would get evaluated over the course of their five-year permit. There are no requirements or targets for minor dischargers.

In addition, the ATU maintains a compliance summary for all facilities required to perform tests and provides monthly updates of this information to regional offices and DWQ administration.

Ambient toxicity tests can be used to evaluate stream water quality relative to other stream sites and/or a point source discharge.

Six NPDES permits in the New River basin currently require WET testing. All six permits have a WET limit. The number of facilities required to monitor WET has increased steadily since 1987, the first year that WET limits were written into permits in North Carolina. The compliance rate has risen as well. Since 1996, the compliance rate has stabilized at approximately 90 percent. The following graph summarizes WET monitoring compliance in the New River basin from 1986 to 2003. Facilities with toxicity problems during the most recent two-year review period are discussed in subbasin chapters.



NPDES facility WET compliance in the New River basin, 1986-2003. The compliance values were calculated by determining whether facilities with WET limits were meeting their ultimate permit limits during the given time period, regardless of any SOCs in force.

### Lakes Assessment Program

One lake (Appalachian State University Lake) was sampled as part of the Lakes Assessment Program. In 2003, ASU Lake was sampled three times during the summer months (June, July

and August). Surface physical data and photic zone chemistry data collected from 1998 to 2003 indicate that the lake remains oligotrophic, and no parameters were elevated.

### Ambient Monitoring System

The Ambient Monitoring System (AMS) is a network of stream, lake and estuarine stations strategically located for the collection of physical and chemical water quality data. North Carolina has more than 378 water chemistry monitoring stations statewide, including 7 stations in the New River basin. Between 23 and 32 parameters are collected monthly at each station. The locations of these stations are listed in the following table and shown on individual subbasin maps. Notable ambient water quality parameters are discussed in the subbasin chapters. Refer to the *2003 New River Basinwide Assessment Report* at <http://www.esb.enr.state.nc.us/bar.html> for more detailed analysis of ambient water quality monitoring data.

Locations of Ambient Monitoring Stations in the New River Basin by Subbasin

Subbasin/ Map Code	Station Number	Waterbody/ Location	County	Class
<b><i>05-07-01</i></b>				
	K2100000	S Fork New R. at US 221 and 421 at Perkinsville	Ashe	C +
	K3250000	S Fork New R. at NC 16 and 88 near Jefferson	Ashe	WS-IV HQW
	K4500000	S Fork New R. at NC 221 near Scottville	Ashe	B ORW
<b><i>05-07-02</i></b>				
	K7500000	N Fork New R. at SR 1573 at Crumpler	Ashe	C +
<b><i>05-07-03</i></b>				
	K7900000	New R. at SR 1345 at Amelia	Alleghany	C ORW
	K9700000	Little R. at SR 1433 Hooker Rd -- Edwards Crossroads	Alleghany	C
	K9900000	Little R. at NC18 near Blevins Crossroads	Alleghany	C ORW

## Benthic Macroinvertebrate Data Collected in the New River Basin, 1983 – 2003

Waterbody	Location	County	Index No.	Date	ST	EPT	BI	EPT BI	Rating
<i>5-07-01</i>									
M Fk S Fk New R	US 321 & Blue Ridge Pkwy	Watauga	10-1-2-(6)	11/8/89	---	18	---	3.54	Fair
M Fk S Fk New R	US 321 & Gold Mine Cr	Watauga	10-1-2-(6)	11/8/89	---	32	---	3.39	Good
M Fk S Fk New R	SR 1522	Watauga	10-1-2-(15)	8/20/03	---	24	---	3.25	Good-Fair
				8/17/98	---	31	---	3.13	Good
				7/12/93	---	37	---	3.10	Excellent
E Fk S Fk New R	SR 1522	Watauga	10-1-3-(8)	8/20/03	---	31	---	3.07	Good
				8/17/98	---	32	---	3.46	Good
				7/12/93	---	37	---	3.49	Excellent
				7/12/93	---	37	---	3.10	Excellent
S Fk New R	Hunting Ln	Watauga	10-1-(3.5)	7/26/88	---	27	---	4.04	Good-Fair
S Fk New R	US 421/221	Watauga	10-1-(3.5)	8/20/03	67	24	5.45	4.80	Good-Fair
				8/17/98	71	22	5.70	4.17	Good-Fair
				7/21/93	69	18	6.22	3.89	Fair
				7/26/88	72	26	6.30	4.55	Good-Fair
				7/24/86	70	18	6.92	5.09	Fair
				8/8/84	49	16	6.27	4.08	Fair
S Fk New R	SR 1355	Watauga	10-1-(3.5)	7/26/88	---	33	---	4.46	Good
S Fk New R	SR 1352	Watauga	10-1-(3.5)	7/26/88	98	41	5.28	4.03	Good
Winkler Creek	SR 1549	Watauga	10-1-4-(3.5)	8/21/03	---	39	---	2.35	Excellent
				8/17/98	---	34	---	2.96	Good
				7/12/93	---	37	---	2.19	Excellent
Howard Cr	SR 1306	Watauga	10-1-9-(6)	3/6/90	---	36	---	2.15	Good
Howard Cr	SR 1328	Watauga	10-1-9-(6)	8/20/03	---	35	---	2.35	Good
				8/17/98	---	40	---	2.77	Excellent
				7/13/93	102	52	3.91	2.90	Excellent
				7/26/88	---	38	---	3.34	Excellent
Meat Camp Cr	SR 1340	Watauga	10-1-10	8/21/03	---	32	---	1.85	Good
Meat Camp Cr	SR 1335	Watauga	10-1-10	3/9/90	---	42	---	2.39	Good
Meat Camp Cr	SR 1333	Watauga	10-1-10	8/20/03	---	35	---	2.81	Good
				8/17/98	---	39	---	2.79	Excellent
				7/13/93	---	31	---	2.68	Good
				3/5/90	---	37	---	2.63	Good
Norris Fk	SR 1337	Watauga	10-1-10-2	8/20/03	---	45	---	1.56	Excellent
Grassy Cr	SR 1351	Ashe	10-1-14	3/6/90	---	40	---	2.85	Good
Elk Cr	NC 194	Ashe	10-1-15	4/9/96	---	39	---	3.49	Excellent
Pine Orchard Cr	SR 1369	Watauga	10-1-15-1	8/21/03	---	41	---	1.63	Excellent
S Fk New R	US 221	Ashe	10-1-(20.5)	7/14/93	116	49	4.72	3.60	Excellent
S Fk New R	SR 1169	Ashe	10-1-(20.5)	8/21/03	98	45	4.19	3.33	Excellent
				8/18/98	101	48	4.68	3.57	Excellent
Mill Cr	SR 1109	Ashe	10-1-18	3/6/90	---	33	---	2.69	Good-Fair
S Fk New R	NC 16/88	Ashe	10-1-(20.5)	8/22/03	104	58	3.58	3.12	Excellent
				8/18/98	95	48	4.03	3.27	Excellent
				7/14/93	104	51	3.42	2.83	Excellent
				7/11/90	97	50	3.84	3.19	Excellent
				8/6/87	105	50	4.30	3.43	Excellent
Old Field Cr	SR 1106	Ashe	10-1-22	4/9/96	---	44	---	2.13	Excellent
				3/6/90	---	42	---	2.42	Excellent
W Pr Old Field Cr	SR 1112	Ashe	10-1-22-1	7/14/93	83	39	3.66	2.74	Excellent
				5/14/90	---	42	---	1.98	Excellent
Gap Cr	US 221	Ashe	10-1-23-(0.5)	4/8/96	---	29	---	2.98	Good-Fair
Pine Swamp Cr	SR 1179	Ashe	10-1-24	3/6/90	---	31	---	2.55	Good-Fair
Pine Swamp Cr	Off SR 1179	Ashe	10-1-24	8/19/03	---	30	---	3.14	Good
Beaver Cr	SR 1181	Ashe	10-1-25	3/6/90	---	37	---	2.87	Good
S Beaver Cr	SR 1147	Ashe	10-1-25-2	8/21/03	---	31	---	2.68	Good
Obids Cr	SR 1192	Ashe	10-1-27-(2)	8/19/03	---	32	---	3.16	Good
Bear Cr	NC 18	Ashe	10-1-28	3/7/90	---	35	---	2.12	Good
Roan Cr	SR 1588	Ashe	10-1-31-(2)	8/18/03	---	44	---	3.02	Excellent
				8/18/98	---	39	---	2.74	Excellent
				7/14/93	---	39	---	3.10	Excellent
Naked Cr	NC 16/88	Ashe	10-1-32	8/19/03	57	23	5.68	4.85	Good-Fair
				8/18/98	71	32	5.28	4.11	Good-Fair
				7/14/93	84	36	4.74	3.91	Good

Waterbody	Location	County	Index No.	Date	ST	EPT	BI	EPT BI	Rating
Naked Cr	Old SR 1585	Ashe	10-1-32	7/29/86	78	29	5.33	4.17	Good-Fair
				8/19/03	70	30	4.90	4.11	Good-Fair
				8/17/98	49	13	7.53	5.12	Poor
				7/15/93	54	18	6.79	5.33	Fair
				7/29/86	41	6	7.94	5.34	Poor
Dog Cr S Fk New R	SR 1592	Ashe	10-1-33	3/7/90	---	32	---	2.92	Good
				US 221	Ashe	10-1-(33.5)	8/23/03	112	47
	8/20/98	112	55	4.27			3.31	Excellent	
	7/15/93	103	46	4.07			2.96	Excellent	
	5/14/90	---	59	---			2.83	Excellent	
	3/7/90	84	48	3.83			2.78	Good	
	8/9/89	95	44	4.26			3.63	Excellent	
	8/5/87	101	45	4.71			3.44	Excellent	
	8/7/85	92	38	5.44			3.61	Good-Fair	
	5/29/85	133	63	3.96			3.15	Excellent	
	2/18/85	102	45	4.32			3.20	Good	
	12/11/84	110	47	4.24			3.12	Good	
	8/8/83	95	42	4.25	3.53	Good			
Peak Cr	Off SR 1599 (Ab Ore Knob)	Ashe	10-1-35	8/18/03	---	31	---	2.53	Good
				8/19/98	---	35	---	2.93	Good
				4/8/96	74	42	3.60	2.59	Excellent
				7/15/93	---	35	---	2.74	Good
				4/15/91	101	50	3.43	2.70	Excellent
Peak Cr	Off SR 1599 (Be Ore Knob)	Ashe	10-1-35	3/9/90	---	38	---	2.46	Good
				8/18/03	---	6	---	2.50	Poor
				1/13/99	---	6	---	1.98	Poor
				8/19/98	---	23	---	3.42	Good-Fair
				4/8/96	30	19	3.67	2.09	Fair
				7/15/93	---	4	---	3.75	Poor
				4/15/91	46	22	4.02	2.96	Fair
Peak Cr	SR 1599	Ashe	10-1-35	3/7/90	---	6	---	2.05	Poor
				1/13/99	---	9	---	3.53	Poor
				4/8/96	18	8	3.95	1.96	Poor
				4/15/91	39	17	3.79	2.07	Fair
Peak Cr	SR 1595	Ashe	10-1-35	4/8/96	16	8	4.17	2.55	Poor
				4/16/91	31	11	4.82	2.16	Fair
L Peak Cr	SR 1595	Ashe	10-1-35-4	8/19/03	---	6	---	1.94	Poor
				8/19/98	---	7	---	2.00	Poor
				4/8/96	---	7	---	3.11	Poor
				4/16/91	---	5	---	2.02	Poor
Nathans Cr	SR 1596	Ashe	10-1-36	3/7/90	---	24	---	2.72	Good-Fair
Nathans Cr	Off US 221	Ashe	10-1-36	8/19/98	---	29	---	3.10	Good-Fair
Cranberry Cr	SR 1609	Ashe	10-1-37	5/11/98	---	38	---	3.87	Good
				5/13/98	81	43	4.40	3.21	Good
				8/18/03	106	52	3.94	3.07	Excellent
Cranberry Cr	SR 1603	Ashe	10-1-37	8/19/98	79	42	3.90	3.13	Excellent
				7/15/93	---	46	---	3.16	Excellent
Cranberry Cr	SR 1600	Ashe	10-1-37	3/7/90	---	37	---	2.89	Good
				5/12/98	91	56	2.77	1.68	Excellent
Meadow Fk	Off SR 1193	Ashe	10-1-37-2	8/20/98	64	41	2.57	1.42	Excellent
Meadow Fk	SR 1145	Ashe	10-1-37-2	5/13/98	88	50	3.48	2.44	Excellent
Piney Fk	SR 1149/NC 18	Ashe	10-1-37-3	5/12/98	72	35	3.47	1.99	Good
Reeves Br	NC 18/13	Ashe	10-1-37-3-2	8/19/98	85	40	3.66	2.97	Excellent
Prathers Cr	SR 1300	Alleghany	10-1-38	5/12/98	94	54	3.64	2.96	Excellent
				3/7/90	---	33	---	3.07	Good-Fair
<b>05-07-02</b>									
N Fk New R	SR 1100	Ashe	10-2-(1)	8/19/03	80	44	4.0	3.50	Excellent
				08/17/98	96	52	4.11	3.33	Excellent
				7/29/93	102	50	3.94	3.01	Excellent
Hoskin Fk	NC 88/SR 1119	Ashe	10-2-7	3/14/89	---	43	---	2.9	Good
				8/19/03	---	37	---	2.91	Excellent
				8/17/98	---	35	---	3.7	Good
				7/23/93	---	31	---	3.85	Good
N Fk New R	SR 1340	Ashe	10-2-(12)	9/14/89	99	48	4.23	3.01	Good
N Fk New R	SR 1644	Ashe	10-2-(12)	8/21/03	72	45	3.67	3.3	Excellent
				8/19/98	87	50	3.83	2.95	Excellent
				7/28/93	93	46	3.99	2.94	Excellent

Waterbody	Location	County	Index No.	Date	ST	EPT	BI	EPT BI	Rating
N Fk New R	NC 16	Ashe	10-2-(12)	3/8/90	89	53	3.39	2.81	Excellent
				3/14/89	---	34	---	2.64	Good
				8/21/03	80	48	3.76	3.43	Excellent
				8/19/98	87	47	4	3.04	Excellent
				7/28/93	116	57	3.93	2.56	Excellent
				3/14/89	90	47	3.96	2.63	Good
				8/9/89	101	45	4.38	3.68	Excellent
				8/5/87	99	45	4.48	3.33	Excellent
				8/7/85	87	33	4.89	3.29	Good
				8/8/83	88	41	3.78	2.97	Excellent
Three Top Cr	SR 1100	Ashe	10-2-13	8/19/03	---	35	---	2.9	Good
				8/17/98	77	41	4.35	3.55	Good
				7/29/93	95	48	3.81	2.95	Excellent
				3/14/89	---	38	---	2.57	Good
				3/8/90	---	32	---	1.64	Good
Long Hope Cr	SR 1100	Ashe	10-2-13-3	3/8/90	---	32	---	1.64	Good
				3/8/90	---	32	---	2.43	Good
Big Laurel Cr	SR 1322	Ashe	10-2-14	3/8/90	---	32	---	2.43	Good
Big Laurel Cr	SR 1315	Ashe	10-2-14	12/11/84	83	35	4.28	2.97	Good
Big Laurel Cr	NC 88	Ashe	10-2-14	8/19/03	---	38	---	2.92	Excellent
Rich Hill Cr	NC 88	Ashe	10-2-15	7/17/98	---	40	---	3.66	Excellent
				7/29/93	---	48	---	3.42	Excellent
				7/28/93	---	38	---	3.4	Excellent
				7/29/86	82	38	3.4	3.09	Good
				8/19/85	74	38	4.11	3.13	Good
Buffalo Cr	Ab L buffalo Cr	Ashe	10-2-20	5/30/85	87	38	4.59	2.9	Good
				8/19/03	---	36	2.13	2.81	Excellent
Buffalo Cr	NC 88/194	Ashe	10-2-20	8/18/98	---	26	---	3.99	Good-Fair
L Buffalo Cr	US 221	Ashe	10-2-20-1	7/13/93	---	38	---	3.24	Excellent
				5/29/85	24	4	7.65	3.9	Poor
				8/20/03	21	6	6.58	4.11	Poor
				8/18/98	39	14	7.11	5.38	Fair
				7/13/93	24	0	8.31	0	Poor
Little Buffalo Cr	Nr SR 1153	Ashe	10-2-20-1	2/19/85	22	5	8.36	2.12	Poor
				5/29/85	26	5	8.31	1.75	Poor
				2/19/85	44	16	6.7	4.73	Fair
				7/13/93	27	6	7.85	2.24	Poor
				2/18/85	22	4	8.18	2.14	Poor
L Buffalo Cr	2.6 mi be WWTP	Ashe	10-2-20-1	5/29/85	27	7	7.86	3.66	Poor
				2/19/85	44	16	6.7	4.73	Fair
				7/13/93	27	6	7.85	2.24	Poor
				2/18/85	22	4	8.18	2.14	Poor
				5/29/85	27	7	7.86	3.66	Poor
Big Horse Cr	SR 1362	Ashe	10-2-21-(4.5)	3/8/90	---	33	---	2.18	Good-Fair
				8/19/03	89	50	3.94	3.42	Excellent
Big Horse Cr	SR 1644/NC 194	Ashe	10-2-21-(7)	8/18/98	103	56	4.23	3.23	Excellent
				7/28/93	129	56	4.13	2.85	Excellent
				3/14/89	---	41	---	2.69	Good
				8/19/03	---	33	---	3.02	Good
				8/18/98	---	35	---	3.78	Good
L Phoenix Cr	Off SR 1573	Ashe	10-2-23	5/11/98	72	41	3.35	2.46	Good
				8/18/98	---	31	---	2.61	NR
Silas Cr	SR 1544	Ashe	10-2-24	5/11/98	73	40	3.37	2.15	Good
				7/28/93	---	39	---	2.76	NR
				05/98	77	36	3.60	2.31	Good
Old Field Cr	SR 1537	Ashe	10-2-26	8/18/03	---	40	---	3.12	Excellent
Helton Cr	SR 1536	Ashe	10-2-27	8/18/98	---	37	---	3.13	Excellent
Helton Cr	SR 1539	Ashe	10-2-27	3/14/89	---	34	---	2.67	Good
<b>05-07-03</b>									
New R	SR 1345	Alleghany	10	8/21/03	86	51	3.55	3.13	Excellent
				8/19/98	73	37	4.4	3.31	Good
				7/26/93	102	47	4.76	3.72	Excellent
				7/11/90	99	49	4.89	3.38	Good
				8/10/89	97	43	4.2	3.61	Good
				7/25/88	104	42	5.37	4.12	Good
				8/5/87	99	41	4.87	3.72	Good
				8/6/86	123	43	5.43	4.23	Good
				7/1/85	113	45	5.48	4.05	Good
				8/8/84	100	45	4.34	3.59	Excellent
Elk Cr	SR 1344	Alleghany	10-6-(2)	8/8/83	105	50	4.61	3.84	Excellent
				8/18/03	---	34	---	3.51	Good
				8/20/98	---	34	---	3.55	Good
Pine Swamp Cr	SR 1128	Alleghany	10-9-5	7/26/93	---	36	---	3.6	Excellent
				8/18/03	---	26	---	3.64	Good-Fair
				8/20/98	---	34	---	3.58	Good

Waterbody	Location	County	Index No.	Date	ST	EPT	BI	EPT BI	Rating
Little R	Be NC 18/SR 1141	Allegheny	10	7/27/93	---	33	---	3.64	Good
				5/13/98	71	40	2.46	1.74	Good
Little R	SR 1128	Allegheny	10-9-(6)	8/18/03	75	36	4.04	3.52	Good
				8/20/98	72	37	3.94	3.18	Good
				7/26/93	84	45	3.37	2.62	Excellent
				3/15/89	---	43	---	2.76	Good
Little R	SR 1424	Allegheny	10-9-(6)	8/21/03	104	49	4.12	3.23	Excellent
				8/20/98	80	41	3.93	2.95	Excellent
				7/26/93	98	48	3.97	2.92	Excellent
				3/15/89	---	19	---	3.26	Fair
Little R	NC 18	Allegheny	10-9-(6)	8/20/03	89	47	3.96	3.4	Excellent
				8/20/98	84	46	3.62	2.85	Excellent
				7/27/93	89	49	3.78	2.93	Excellent
				7/11/90	93	44	4.36	3.23	Excellent
				3/15/89	106	56	3.75	2.61	Excellent
				7/25/88	95	45	4.5	3.23	Excellent
				8/6/86	111	46	4.5	3.1	Good
				8/9/84	109	49	3.98	3.16	Excellent
Bledsoe Cr	SR 1172	Allegheny	10-9-7	8/20/03	---	30	---	3.39	Good
				8/19/98	---	21	---	4.68	Good-Fair
				7/26/93	---	33	---	3.43	Good
				8/20/03	82	42	4.39	4.0	Good
Glade Cr	SR 1422	Allegheny	10-9-9	11/5/03	---	35	---	2.84	Good
Glade Cr	SR 1422 farther dwnstrm	Allegheny	10-9-9						
Brush Cr	SR 1422	Allegheny	10-9-10	8/20/03	83	42	3.93	3.34	Excellent
				8/20/98	62	36	4.12	3.69	Good
				7/27/93	96	40	4.78	3.5	Good
Laurel Br	Off NC 21	Allegheny	10-9-10-2	9/3/92	---	5	---	6.39	Poor
				8/31/88	---	15	---	3.43	Fair
				8/31/88	---	8	---	2.77	Poor
Laurel Br	SR 1105	Allegheny	10-9-10-2	8/18/03	66	33	4.13	3.53	Good
				8/21/98	49	28	3.78	2.9	Good
				9/3/92	---	14	---	4.52	Fair
				8/16/89	---	11	---	4.0	Fair
				8/31/88	---	22	---	2.83	Good-Fair
				12/6/88	---	17	---	3.83	Fair
L Glade Br	At Parkway	Allegheny	10-9-10-3	9/2/92	99	46	3.4	2.43	Excellent
L Glade Br	Be NC 21	Allegheny	10-9-10-3	9/2/92	92	46	3.76	2.71	Excellent
Crab Cr	SR 1450	Allegheny	10-9-12	11/5/03	---	33	---	3.71	Good