Appendix II

Water Quality Data Collected by DWQ

- **Benthic Macroinvertebrate Assessment**
- **Fish Community Assessment**
- **Fish Tissue Assessment**
- **Listing of Physical/Chemical Monitoring Stations**
- **Lakes Assessment**

More detailed information on sampling and assessment of waters in the Yadkin-Pee Dee River basin is contained within the *Basinwide Assessment Report – Yadkin-Pee Dee River Basin* (NCDENR-DWQ, June 2002), available from the DWQ Environmental Sciences Branch at http://www.esb.enr.state.nc.us/bar.html or by calling (919) 733-9960.

Benthic Macroinvertebrate Sampling Methodology and Bioclassification Criteria

Benthic macroinvertebrates can be collected using two sampling procedures. DWQ's standard qualitative sampling procedure includes 10 composite samples: two kick-net samples, three bank sweeps, two rock or log washes, one sand sample, one leafpack sample, and visual collections from large rocks and logs. The purpose of these collections is to inventory the aquatic fauna and produce an indication of relative abundance for each taxon. Organisms are classified as Rare (1-2 specimens), Common (3-9 specimens) or Abundant (≥10 specimens).

Several data analysis summaries (metrics) can be produced from standard qualitative samples to detect water quality problems. These metrics are based on the idea that unimpaired streams and rivers have many invertebrate taxa and are dominated by intolerant species. Conversely, polluted streams have fewer numbers of invertebrate taxa and are dominated by tolerant species. The diversity of the invertebrate fauna is evaluated using taxa richness counts; the tolerance of the stream community is evaluated using a biotic index.

EPT taxa richness (EPT S) is used with DWQ criteria to assign water quality ratings (bioclassifications). "EPT" is an abbreviation for Ephemeroptera + Plecoptera + Trichoptera, insect groups that are generally intolerant of many kinds of pollution. Higher EPT taxa richness values usually indicate better water quality. Water quality ratings are also based on the relative tolerance of the macroinvertebrate community as summarized by the North Carolina Biotic Index (NCBI). Both tolerance values for individual species and the final biotic index values have a range of 0-10, with higher numbers indicating more tolerant species or more polluted conditions.

Water quality ratings assigned with the biotic index numbers are combined with EPT taxa richness ratings to produce a final bioclassification, using criteria for mountain/piedmont/coastal plain streams. EPT abundance (EPT N) and total taxa richness calculations also are used to help examine between-site differences in water quality. If the EPT taxa richness rating and the biotic index differ by one bioclassification, the EPT abundance value is used to determine the final site rating.

Benthic macroinvertebrates can also be collected using the DWQ's EPT sampling procedure. Four composite samples are taken at each site instead of the 10 taken for the qualitative sample: 1 kick, 1 sweep, 1 leafpack and visual collections. Only intolerant EPT groups are collected and identified, and only EPT criteria are used to assign a bioclassification.

The expected EPT taxa richness values are lower in small high quality mountain streams, <4 meters in width or with a drainage area <3.5 square miles. For these small mountain streams, an adjustment to the EPT taxa richness values is made prior to applying taxa richness criteria. Both EPT taxa richness and biotic index values also can be affected by seasonal changes. DWQ criteria for assigning bioclassification are based on summer sampling (June-September). For samples collected in other seasons, EPT taxa richness can be adjusted. The biotic index values can also be seasonally adjusted for samples collected outside the summer season.

Criteria have been developed to assign bioclassifications ranging from Poor to Excellent to each benthic sample. These bioclassifications primarily reflect the influence of chemical pollutants. The major physical pollutant, sediment, is not assessed as well by a taxa richness analysis.

Benthic macroinvertebrate studies in unimpacted mountain watersheds have shown naturally reduced EPT taxa richness in small streams (less than 4 meters width). However, similar studies have not been done in piedmont small streams or small streams that have disturbance in the watershed. For this reason, samples taken from sites with a width less than 4 meters are currently being described as Not Impaired for use support evaluations, if the bioclassification would be Good-Fair or better using standard EPT criteria. Because such bioclassifications are minimum bioclassifications (no stream size correction factor has yet been developed), small stream sites that would be at least Poor or Fair are listed as Not Rated to reflect the possibility that such sites might have higher bioclassifications if a size correction was used. In Table A-II-1, this Not Impaired or Not Rated terminology is applied to data that were currently used for use support determinations. The table has not been updated for all of the older data from small streams.

Flow Measurement

Changes in the benthic macroinvertebrate community are often used to help assess between-year changes in water quality. However, some between-year changes in the macroinvertebrate community may be due largely to changes in flow. High flow years magnify the potential effects of nonpoint source runoff, leading to scour, substrate instability and reduced periphyton. Low flow years may accentuate the effects of point source dischargers by providing less dilution of wastes.

For these reasons, all between-year changes in the biological communities are considered in light of flow conditions (high, low or normal) for one month prior to the sampling date. Daily flow information is obtained from the closest available USGS monitoring site and compared to the long-term mean flows. High flow is defined as a mean flow >140% of the long-term mean for that time period, usually July or August. Low flow is defined as a mean flow <60% of the long-term mean, while normal flow is 60-140% of the mean. While broad scale regional patterns are often observed, there may be large geographical variation within the state and large variation within a single summer period.

Habitat Evaluation

DWQ has developed a habitat assessment form to better evaluate the physical habitat of a stream. The habitat score has a potential range of 1-100, based on evaluation of channel modification, amount of instream habitat, type of bottom substrate, pool variety, bank stability, light penetration and riparian zone width. Higher numbers suggest better habitat quality, but no criteria have been developed for assigning ratings indicating Excellent, Good, Fair or Poor habitat.

Table A-II-1 Benthic Macroinvertebrate Data Collected in the Yadkin-Pee Dee River Basin, 1983-2001

Waterbody	Location	County	Index No.	Date	ST	EPT	NCBI	EPTBI	BioClass[1]
03-07-01									
Yadkin R	US 321	Caldwell	12-(1)	9/19/88	95	35	4.49	3.66	Good
Yadkin R	NC 268	Caldwell	12-(1)	8/30/01	69	24	5.52	4.68	Good-Fair
				7/22/96	102	41	4.55	3.75	Good
				7/10/90	87	38	4.89	3.91	Good
				8/4/87	87	37	5.23	4.39	Good
				8/6/85	76	24	6.03	4.27	Good-Fair
Yadkin R	SR 1372	Caldwell	12-(1)	7/27/01	---	34	---	3.49	Good
				9/19/88	---	26	---	3.11	Good-Fair
Dennis Cr	SR 1372	Caldwell	12-7	7/22/96	---	32	---	2.71	Good
				9/19/88	---	21	---	2.99	Good-Fair
Jackson Camp Cr	SR 1372	Caldwell	12-10	9/19/88	---	23	---	3.14	Good-Fair
Preston Cr	US 321	Caldwell	12-12	9/19/88	---	29	---	3.45	Good
Buffalo Cr	be Buffalo Cove	Caldwell	12-19	9/29/88	---	31	---	3.25	Good
Buffalo Cr	SR 1504	Caldwell	12-19	8/30/01	---	43	---	3.87	Excellent
				7/22/96	---	40	---	3.65	Excellent
				9/20/88	83	32	4.63	3.46	Good
Old Field Br	SR 1502	Caldwell	12-19-9	9/20/88	---	26	---	3.24	Good-Fair
Joes Br	SR 1574	Caldwell	12-19-11	9/20/88	---	30	---	3.47	Good
Elk Cr	SR 1508	Wilkes	12-24-(1)	12/15/87	71	38	2.90	2.31	Good
				12/14/87	101	49	3.60	2.52	Excellent
Laurel Cr	SR 1508	Wilkes	12-24-8	12/14/87	---	45	---	2.20	Excellent
Elk Cr	SR 1175	Wilkes	12-24-(10)	8/29/01	100	43	4.60	3.66	Good
				7/22/96	85	42	4.68	3.90	Good
				7/29/88	96	47	4.52	3.51	Excellent
				12/14/87	100	49	3.51	2.21	Excellent
				8/6/85	107	44	4.72	3.73	Good
Dugger Cr	SR 1162	Wilkes	12-24-11	12/14/87	---	38	---	2.56	Excellent
UT Stoney Fk Cr	SR 1505	Watauga	12-26-(1)	7/23/96	---	29	---	2.31	Good
Stoney Fk Cr	SR 1500	Watauga	12-26-(1)	7/23/96	---	31	---	2.31	Good
Stoney Fk Cr	SR 1135	Wilkes	12-26-(7)	7/26/01	---	45	---	3.64	Excellent
				7/22/96	---	38	---	3.45	Excellent
Little Fk	Headwaters	Wilkes	12-31-1-2	6/13/01	69	41	2.54	1.90	Not Impaired
N Pr Lewis Fk	SR 1304	Wilkes	12-31-1-(7.5)	7/25/01	---	35	---	3.57	Good
				7/23/96	---	33	---	3.25	Good
Purlear Cr	above falls	Wilkes	12-31-8-(1)	6/12/01	50	31	2.41	1.95	Not Impaired
Purlear Cr	Headwaters	Wilkes	12-31-8-(1)	6/12/01	59	35	2.61	2.11	Not Impaired
S Pr Lewis Fk	off US 421	Wilkes	12-31-2-(1)	7/23/96	---	32	---	2.51	Good
Yadkin R	NC 18/268	Wilkes	12-(38)	7/25/01	94	32	5.30	4.41	Good-Fair
				7/24/96	72	39	5.03	4.01	Good
				6/7/93	73	34	5.50	4.47	Good-Fair
				8/10/89	75	35	4.75	4.21	Good
				8/6/87	67	26	5.41	4.60	Good-Fair
				7/12/87	---	20	---	4.70	Good-Fair
				8/5/86	67	27	5.49	4.25	Good-Fair
				9/9/85	66	21	5.69	4.87	Good-Fair
				8/28/84	58	29	4.78	4.36	Good-Fair
Yadkin R	above ABT	Wilkes	12-(38)	6/7/93	90	40	5.12	3.98	Good
Yadkin R	be ABT	Wilkes	12-(38)	6/7/93	70	26	5.59	4.63	Good-Fair

Waterbody	Location	County	Index No.	Date	ST	EPT	NCBI	EPTBI	BioClass[1]
Moravian Cr	NC 18	Wilkes	12-39	7/26/01	---	25	---	4.96	Good-Fair
				7/23/96	---	27	---	4.25	Good-Fair
Middle Fk Reddies R	SR 1559	Wilkes	12-40-2	7/26/01	---	42	---	3.98	Excellent
S Fk Reddies R	SR 1355	Wilkes	12-40-3	7/26/01	---	33	---	2.86	Good
N Fk Reddies R	SR 1567	Wilkes	12-40-4	7/26/01	---	34	---	3.57	Good
Mulberry Cr	NC 268	Wilkes	12-42	7/25/01	---	41	---	4.11	Excellent
				7/24/96	---	37	---	3.06	Excellent
UT Mulberry Cr	AB Gardner Mirror	Wilkes	12-42-9	9/12/90	39	17	4.65	3.40	Good-Fair
UT Mulberry Cr	Flint Hill Rd	Wilkes	12-42-9	7/25/01	50	13	5.84	4.60	Not Rated
				9/12/90	22	3	7.79	3.03	Poor
Roaring R	SR 1990	Wilkes	12-46	7/25/01	89	42	4.48	3.44	Good
				7/24/96	98	48	4.68	3.43	Excellent
				7/29/88	92	43	4.77	3.53	Good
				8/8/85	88	36	4.80	3.29	Good
				8/10/83	66	35	3.94	3.35	Good
03-07-02									
Yadkin R	US 321	Caldwell	12-(1)	9/19/88	95	35	4.49	3.66	Good
Yadkin R	NC 268	Caldwell	12-(1)	8/30/01	69	24	5.52	4.68	Good-Fair
				7/22/96	102	41	4.55	3.75	Good
				7/10/90	87	38	4.89	3.91	Good
				8/4/87	87	37	5.23	4.39	Good
				8/6/85	76	24	6.03	4.27	Good-Fair
Yadkin R	SR 1372	Caldwell	12-(1)	7/27/01	---	34	---	3.49	Good
				9/19/88	---	26	---	3.11	Good-Fair
Dennis Cr	SR 1372	Caldwell	12-7	7/22/96	---	32	---	2.71	Good
				9/19/88	---	21	---	2.99	Good-Fair
Jackson Camp Cr	SR 1372	Caldwell	12-10	9/19/88	---	23	---	3.14	Good-Fair
Preston Cr	US 321	Caldwell	12-12	9/19/88	---	29	---	3.45	Good
Buffalo Cr	be Buffalo Cove	Caldwell	12-19	9/29/88	---	31	---	3.25	Good
Buffalo Cr	SR 1504	Caldwell	12-19	8/30/01	---	43	---	3.87	Excellent
				7/22/96	---	40	---	3.65	Excellent
				9/20/88	83	32	4.63	3.46	Good
Old Field Br	SR 1502	Caldwell	12-19-9	9/20/88	---	26	---	3.24	Good-Fair
Joes Br	SR 1574	Caldwell	12-19-11	9/20/88	---	30	---	3.47	Good
Elk Cr	SR 1508	Wilkes	12-24-(1)	12/15/87	71	38	2.90	2.31	Good
				12/14/87	101	49	3.60	2.52	Excellent
Laurel Cr	SR 1508	Wilkes	12-24-8	12/14/87	---	45	---	2.20	Excellent
Elk Cr	SR 1175	Wilkes	12-24-(10)	8/29/01	100	43	4.60	3.66	Good
				7/22/96	85	42	4.68	3.90	Good
				7/29/88	96	47	4.52	3.51	Excellent
				12/14/87	100	49	3.51	2.21	Excellent
				8/6/85	107	44	4.72	3.73	Good
Dugger Cr	SR 1162	Wilkes	12-24-11	12/14/87	---	38	---	2.56	Excellent
UT Stoney Fk Cr	SR 1505	Watauga	12-26-(1)	7/23/96	---	29	---	2.31	Good
Stoney Fk Cr	SR 1500	Watauga	12-26-(1)	7/23/96	---	31	---	2.31	Good
Stoney Fk Cr	SR 1135	Wilkes	12-26-(7)	7/26/01	---	45	---	3.64	Excellent
				7/22/96	---	38	---	3.45	Excellent
Little Fk	Headwaters	Wilkes	12-31-1-2	6/13/01	69	41	2.54	1.90	Not Impaired
N Pr Lewis Fk	SR 1304	Wilkes	12-31-1-(7.5)	7/25/01	---	35	---	3.57	Good
				7/23/96	---	33	---	3.25	Good
Purlear Cr	above falls	Wilkes	12-31-8-(1)	6/12/01	50	31	2.41	1.95	Not Impaired
Purlear Cr	Headwaters	Wilkes	12-31-8-(1)	6/12/01	59	35	2.61	2.11	Not Impaired
S Pr Lewis Fk	off US 421	Wilkes	12-31-2-(1)	7/23/96	---	32	---	2.51	Good

Waterbody	Location	County	Index No.	Date	ST	EPT	NCBI	EPTBI	BioClass[1]
Yadkin R	NC 18/268	Wilkes	12-(38)	7/25/01	94	32	5.30	4.41	Good-Fair
				7/24/96	72	39	5.03	4.01	Good
				6/7/93	73	34	5.50	4.47	Good-Fair
				8/10/89	75	35	4.75	4.21	Good
				8/6/87	67	26	5.41	4.60	Good-Fair
				7/12/87	---	20	---	4.70	Good-Fair
				8/5/86	67	27	5.49	4.25	Good-Fair
				9/9/85	66	21	5.69	4.87	Good-Fair
				8/28/84	58	29	4.78	4.36	Good-Fair
Yadkin R	above ABT	Wilkes	12-(38)	6/7/93	90	40	5.12	3.98	Good
Yadkin R	be ABT	Wilkes	12-(38)	6/7/93	70	26	5.59	4.63	Good-Fair
Moravian Cr	NC 18	Wilkes	12-39	7/26/01	---	25	---	4.96	Good-Fair
				7/23/96	---	27	---	4.25	Good-Fair
Middle Fk Reddies R	SR 1559	Wilkes	12-40-2	7/26/01	---	42	---	3.98	Excellent
S Fk Reddies R	SR 1355	Wilkes	12-40-3	7/26/01	---	33	---	2.86	Good
N Fk Reddies R	SR 1567	Wilkes	12-40-4	7/26/01	---	34	---	3.57	Good
Mulberry Cr	NC 268	Wilkes	12-42	7/25/01	---	41	---	4.11	Excellent
				7/24/96	---	37	---	3.06	Excellent
UT Mulberry Cr	AB Gardner Mirror	Wilkes	12-42-9	9/12/90	39	17	4.65	3.40	Good-Fair
UT Mulberry Cr	Flint Hill Rd	Wilkes	12-42-9	7/25/01	50	13	5.84	4.60	Not Rated
				9/12/90	22	3	7.79	3.03	Poor
Roaring R	SR 1990	Wilkes	12-46	7/25/01	89	42	4.48	3.44	Good
				7/24/96	98	48	4.68	3.43	Excellent
				7/29/88	92	43	4.77	3.53	Good
				8/8/85	88	36	4.80	3.29	Good
				8/10/83	66	35	3.94	3.35	Good
Snow Cr	SR 1121	Surry	12-62-15	8/6/01	---	24	---	3.96	Good-Fair
				7/23/96	---	31	---	3.67	Good
				7/1/87	67	27	5.11	4.33	Good-Fair
Endicott Cr	off SR 1421	Surry	12-63-5-(1)	2/6/91	95	52	3.14	2.13	Excellent
L Endicott Cr	off SR 1421	Surry	12-63-5-2	2/6/91	86	48	3.13	1.91	Excellent
Endicott Cr	SR 1338	Surry	12-63-5-(3)	2/7/91	---	12	---	4.29	Fair
Fisher R	US 601	Surry	12-63-(9)	8/8/01	---	30	---	3.19	Good
				7/23/96	---	30	---	3.67	Good
Fisher R	NC 268	Surry	12-63-(9)	8/8/01	88	39	5.14	3.90	Good
				7/22/96	84	36	5.13	4.04	Good
L Fisher R	SR 1480	Surry	12-63-10-(2)	8/7/01	---	22	4.87	4.87	Good-Fair
				7/23/96	---	29	---	4.28	Good
L Beaver Cr	NC 268	Surry	12-63-13	7/6/89	63	20	5.32	4.62	Good-Fair
L Beaver Cr	off NC 268	Surry	12-63-13	7/24/01	67	27	3.95	3.05	Not Impaired
				7/6/89	23	2	6.76	4.21	Poor
N Pr S Fk Mitchell R	off SR 1515	Surry	12-62-13-1	6/12/90	32	32	3.18	3.18	Good
L Yadkin R	SR 1236	Stokes	12-77	8/8/01	89	25	5.29	4.41	Good-Fair
				7/22/96	54	24	5.05	4.64	Good-Fair
L Yadkin R	US 52	Stokes	12-77	7/26/88	---	16	---	4.91	Fair

Note: Streams that were sampled during 2001 (the most recent data used for this basin plan) are presented in **bold** type.

Waterbody	Location	County	Index No.	Date	ST	EPT	NCBI	EPTBI	BioClass[1]
L Yadkin R	SR 1104	Stokes	12-77	5/18/94	82	31	5.42	4.08	Good
				5/13/92	94	37	5.15	4.26	Good
				5/13/91	82	32	5.05	4.36	Good
				5/14/90	72	32	4.98	4.49	Good-Fair
				8/7/89	84	27	5.57	4.82	Good-Fair
				5/31/89	77	30	5.62	4.65	Good-Fair
				7/26/88	---	19	---	5.00	Good-Fair
				5/26/88	---	23	---	4.10	Good-Fair
				7/22/87	97	32	5.14	4.25	Good-Fair
				5/6/87	62	25	5.06	4.29	Good-Fair
L Yadkin R	SR 1604	Forsyth	12-77	5/26/88	---	28	---	3.68	Good-Fair
				5/5/87	61	26	4.75	4.21	Good-Fair
W Pr L Yadkin R	SR 1136	Stokes	12-77-1-(1)	5/14/90	69	35	4.18	3.31	Good
				5/30/89	85	35	4.94	3.62	Good
				5/25/88	---	37	---	3.60	Good
				5/6/87	83	39	4.13	3.29	Good
W Pr L Yadkin R	SR 1160	Stokes	12-77-1-(2)	5/14/91	72	27	4.70	3.84	Good-Fair
				5/25/88	---	26	---	4.22	Good-Fair
				6/6/87	70	30	4.77	3.99	Good
E Pr L Yadkin R	SR 1220	Stokes	12-77-2-(1)	5/17/94	60	25	5.38	4.10	Good-Fair
				5/12/92	72	28	5.16	3.99	Good-Fair
				5/14/91	72	28	4.79	4.19	Good
E Pr L Yadkin R	SR 1166	Stokes	12-77-2-(1)	5/13/91	60	25	5.27	4.56	Good-Fair
				5/13/90	59	27	5.34	4.97	Good-Fair
				5/30/89	68	21	5.28	4.51	Good-Fair
				5/25/88	66	25	4.81	4.06	Good-Fair
				5/6/87	57	28	4.40	3.53	Good-Fair
E Pr L Yadkin R	SR 1224	Stokes	12-77-2-(1)	5/17/94	66	30	5.28	4.54	Good-Fair
				5/13/91	81	30	5.01	4.48	Good-Fair
				5/13/90	62	26	5.27	4.35	Good-Fair
				5/31/89	84	29	5.35	4.15	Good-Fair
				5/25/88	88	29	5.41	4.31	Good-Fair
				5/6/87	60	29	4.49	4.03	Good
N UT E Pr L Yadkin R	NC 66	Stokes	12-77-2-(1)	5/17/94	72	36	3.89	2.98	Good
				5/12/92	72	35	3.66	3.02	Good
				5/14/91	70	30	4.08	3.09	Good
S UT E Pr L Yadkin R	NC 66	Stokes	12-77-2-(1)	5/17/94	60	27	4.37	3.71	Good
				5/12/92	70	27	4.70	3.82	Good-Fair
				5/14/91	64	24	4.98	3.80	Good-Fair
Crooked Run Cr	SR 1104	Stokes	12-77-4	5/25/88	---	21	---	4.80	Good-Fair
				5/6/87	60	25	4.43	3.91	Good-Fair
Yadkin R	R 1605	Forsyth	12-(71)	7/21/87	65	23	4.79	3.84	Good
Justice Reynolds Cr	off SR 1561	Yadkin	12-(71)	6/29/93	61	28	4.79	4.15	Good-Fair
				7/5/89	69	25	5.24	4.25	Good-Fair
Justice Reynolds Cr	off SR 1562	Yadkin	12-(71)	6/29/93	70	30	4.29	3.61	Good
				7/5/89	65	27	4.65	4.14	Good-Fair
Dill Cr	off SR 1563	Yadkin	12-(71)	6/29/93	71	26	5.19	4.95	Good-Fair
				7/5/89	78	25	5.37	4.61	Good-Fair
Forbush Cr	SR 1570	Yadkin	12-83-(1.5)	8/8/01	---	22	---	4.15	Good-Fair
				7/24/96	---	23	---	4.02	Good-Fair
Logan Cr	SR 1571	Yadkin	12-83-2-(0.7)	8/9/01	---	31	---	4.77	Good
				7/24/96	---	27	---	4.75	Good-Fair

Note: Streams that were sampled during 2001 (the most recent data used for this basin plan) are presented in **bold** type.

Waterbody	Location	County	Index No.	Date	ST	EPT	NCBI	EPTBI	BioClass[1]
N Deep Cr	SR 1503	Yadkin	12-84-1-(0.5)	4/12/93	62	26	5.21	4.67	Good-Fair
N Deep Cr	NC 601	Yadkin	12-84-1-(0.5)	4/12/93	58	27	5.10	4.38	Good-Fair
N Deep Cr	SR 1510	Yadkin	12-84-1-(0.5)	8/9/01	76	26	5.44	4.55	Good-Fair
				7/25/96	57	24	5.39	4.93	Good-Fair
				4/12/93	53	25	4.90	4.41	Good-Fair
S Deep Cr	SR 1710	Yadkin	12-84-2-(5)	8/9/01	65	19	5.31	4.43	Good-Fair
				7/26/96	56	26	4.88	4.41	Good-Fair
03-07-03									
Ararat R	NC 104	Surry	12-72-(1)	7/23/01	---	25	---	4.03	Good-Fair
				7/25/96	---	26	---	3.95	Good-Fair
				9/23/86	64	18	5.31	4.82	Good-Fair
Ararat R	US 52 Bus	Surry	12-72-(4.5)	9/23/86	63	20	5.70	4.52	Good-Fair
Ararat R	US 52,	Surry	12-72-(4.5)	11/15/94	72	27	5.21	3.90	Good-Fair
	above WWTP			3/20/85	82	24	5.55	4.38	Good-Fair
Ararat R	below WWTP	Surry	12-72-(4.5)	11/15/94	47	13	5.69	4.19	Fair
				9/23/86	32	1	7.56	4.28	Poor
				3/20/85	45	11	6.87	4.39	Poor
Ararat R	SR 2119	Surry	12-72-(4.5)	3/20/85	44	10	6.63	5.11	Poor
Ararat R	SR 2026	Surry	12-72-(4.5)	7/23/01	77	28	5.57	4.61	Good-Fair
				8/28/96	69	20	5.81	4.81	Fair
				7/12/90	59	17	6.16	5.43	Fair
				7/26/88	62	16	6.35	5.68	Fair
				9/24/86	50	11	6.55	5.45	Fair
				8/4/86	65	21	6.16	4.87	Fair
				8/15/84	66	24	5.94	4.68	Fair
Ararat R	SR 2080	Surry	12-72-(4.5)	7/12/01	82	35	4.94	3.85	Good
				8/28/96	42	19	5.27	4.67	Fair
				9/23/86	60	16	5.90	4.48	Fair
Lovills Cr	SR 1700	Surry	12-72-8-(1)	7/24/01	---	26	---	4.17	Good-Fair
				7/25/96	---	22	---	4.75	Good-Fair
				2/16/86	60	25	4.47	3.69	Good-Fair
Lovills Cr	SR 1371	Surry	12-72-8-(3)	7/24/01	67	14	6.38	4.70	Fair
				7/25/96	63	16	6.41	5.05	Fair
				2/19/86	39	12	5.55	4.12	Fair
Stewarts Cr	SR 1622	Surry	12-72-9-(1)	10/20/87	90	32	5.34	3.99	Good-Fair
				2/20/86	104	39	4.47	3.05	Good
Stewarts Cr	NC 89	Surry	12-72-9-(4)	7/24/01	---	18	---	4.63	Fair
				7/25/96	---	23	---	3.88	Good-Fair
Stewarts Cr	SR 2258	Surry	12-72-9-(8)	7/24/01	78	34	5.31	4.47	Good
				7/25/96	81	27	5.60	4.77	Good-Fair
Pauls Cr	SR 690		12-72-9-7	10/20/87	61	25	5.09	4.13	Good-Fair
	(Carroll, Va)								
Brushy Fk	SR 1625	Surry	12-72-9-7-1	10/20/87	---	17	---	4.30	Good-Fair
Flat Shoals Cr	SR 1827	Surry	12-72-13	7/23/01	---	20	---	3.46	Good-Fair
				8/28/96	---	27	---	3.54	Good-Fair
				1/22/87	86	37	4.40	3.52	Good
Toms Cr	NC 52	Surry	12-72-14-(3.5)	1/21/87	56	27	5.20	4.50	Good
Toms Cr	SR 1815	Surry	12-72-14-(4)	1/21/87	51	16	5.66	4.58	Fair
Heatherly Cr	above WWTP	Surry	12-72-14-5	11/15/94	48	18	6.12	4.98	Fair
				1/21/87	47	14	6.52	5.38	Fair
Heatherly Cr	NC 268	Surry	12-72-14-5	8/29/01	50	17	5.03	4.88	Good-Fair

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Waterbody	Location	County	Index No.	Date	ST	EPT	NCBI	EPTBI	BioClass[1]
Heatherly Cr	below WWTP	Surry	12-72-14-5	11/15/94	14	0	8.50	0.00	Poor
				1/21/87	25	2	8.44	7.00	Poor
Heatherly Cr	US 52	Surry	12-72-14-5	8/29/01	44	11	5.80	5.62	Not Rated
Heatherly Cr	below US 52	Surry	12-72-14-5	1/21/87	32	2	8.50	5.35	Poor
03-07-04									
Muddy Cr	SR 1620	Forsyth	12-94-(0.5)	1/14/85	90	29	5.40	4.64	Good
Muddy Cr	ab Westinghouse	Forsyth	12-94-(0.5)	1/24/89	-	22	-	4.49	Good-Fair
				10/13/88	-	18	-	5.46	Good-Fair
				1/15/85	75	22	5.73	4.99	Good-Fair
Muddy Cr	be Westinghouse	Forsyth	12-94-(0.5)	1/24/89	-	15	-	4.77	Fair
				10/13/88	-	11	-	5.81	Fair
				1/15/85	51	19	6.04	5.07	Fair
Muddy Cr	SR 1898	Forsyth	12-94-(0.5)	8/6/01	-	19	-	5.11	Good-Fair
				8/5/96	-	18	-	5.02	Good-Fair
				3/19/87	-	15	-	5.61	Fair
Muddy Cr	off SR 1632	Forsyth	12-94-(0.5)	1/15/85	71	19	6.73	5.70	Fair
Muddy Cr	SR 2995	Forsyth	12-94-(0.5)	8/7/01	50	14	6.47	5.82	Good-Fair
				8/6/96	51	18	6.37	5.56	Good-Fair
				7/31/85	53	17	6.58	5.23	Fair
				8/09/83	54	8	7.38	6.05	Fair
Barkers Cr	SR 1620	Forsyth	12-94-1	3/19/87	6	5	6.42	6.47	Poor
Barkers Cr	ab Parkers Cr	Forsyth	12-94-1	3/19/87	-	18	-	4.68	Good-Fair
Barkers Cr	SR 1898	Forsyth	12-94-1	3/19/87	-	20	-	4.73	Good-Fair
Parkers Cr	SR 1620	Forsyth	12-94-1-1	1/24/89	-	21	-	4.07	Good
				3/19/87	22	18	3.53	3.50	Good-Fair
				1/14/85	78	33	5.07	4.61	Good
Grassy Cr	SR 1669	Forsyth	12-94-7-3	10/17/84	54	11	7.12	5.77	Fair
Grassy Cr	SR 1672	Forsyth	12-94-7-3	10/17/84	65	13	6.95	5.65	Fair
Reynolds Cr	above Sequoia	Forsyth	12-94-9	10/23/00	36	11	5.84	5.32	Not Rated
				8/0/94	44	17	4.70	4.21	Good
Reynolds Cr	below Sequoia	Forsyth	12-94-9	10/23/00	36	6	7.91	7	Not Rated
				8/3/94	41	9	6.51	5.04	Fair
Salem Cr	SR 2657	Forsyth	12-94-12-(1)	8/6/01	13	13	5.07	5.07	Not Impaired
				8/5/96	-	15	-	4.97	Good-Fair
Salem Cr	NC 52	Forsyth	12-94-12-(4)	9/16/83	36	4	8.23	6.88	Poor
Salem Cr	below Bath Br	Forsyth	12-94-12-(4)	9/16/83	29	0	8.87		Poor
Salem Cr	SR 2902	Forsyth	12-94-12-(4)	8/6/01	45	9	6.85	6.31	Fair
				8/5/96	53	11	7.21	5.96	Fair
				9/27/82	31	4	7.94	7.11	Poor
Salem Cr	SR 2991	Forsyth	12-94-12-(4)	8/6/01	39	10	7.10	6.36	Fair
				8/5/96	43	8	7.16	5.85	Fair
				9/27/82	22	0	8.38		Poor
Bath Br	Stadium Dr	Forsyth	-	9/15/83	11	1	9.39	6.22	Poor
S Fk Muddy Cr	SR 2902	Forsyth	12-94-13	8/6/01	-	17	-	5.54	Good-Fair
				8/5/96	-	14	-	4.83	Good-Fair
Fryes Cr	NC 150	Davidson	12-94-15-(1)	9/28/82	53	16	5.82	5.17	Good-Fair
Yadkin R	SR 1447	Davidson	12-(97.5)	9/12/01	67	29	5.46	4.57	Good
				7/9/90	64	27	5.50	4.59	Good
				8/5/86	67	26	5.84	4.83	Good
				9/9/85	60	23	5.68	4.50	Good
				8/9/83	53	19	5.26	4.38	Good-Fair

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Waterbody	Location	County	Index No.	Date	ST	EPT	NCBI	EPTBI	BioClass[1]
Second Cr	SR 2335	Rowan	12-108-21	6/14/88	-	18	-	4.91	Good-Fair
				2/10/87	64	25	5.47	4.00	Good
				10/12/84	91	25	5.60	5.07	Good
Second Cr	SR 2337	Rowan	12-108-21	6/14/88	-	18	-	4.86	Good-Fair
				2/10/87	82	25	6.17	4.11	Good
				10/12/84	78	17	6.47	5.20	Good-Fair
Second Cr	SR 2338	Rowan	12-108-21	10/12/84	93	22	6.34	5.45	Good-Fair
UT Second Cr	SR 2235, ab WWTP	Rowan	12-108-21	6/14/88	-	18	-	5.29	Good-Fair
				2/10/87	-	17	-	4.75	Good-Fair
UT Second Cr	ocation unclear	Rowan	12-108-21	6/14/88	14	14	4.69	4.69	Good-Fair
Grants Cr	SR 1197	Rowan	12-110	7/1/83	20	3	7.57	5.67	Poor
Grants Cr	Patterson St	Rowan	12-110	7/1/83	24	1	8.52	6.22	Poor
Grants Cr	SR 1506	Rowan	12-110	7/1/83	51	10	6.42	5.34	Fair
Grants Cr	SR 1910	Rowan	12-110	8/7/01	72	13	6.57	6.26	Fair
				8/6/96	74	20	6.41	5.48	Good-Fair
				7/13/89	67	20	6.23	5.45	Good-Fair
UT Grants Cr	SR 1500	Rowan	12-110	8/28/01	34	14	5.33	4.63	Not Impaired
				9/10/90	26	0	8.33	-	Poor
Little Cr	SR 1535	Rowan	12-110-3	9/10/90	46	14	5.23	4.20	Good-Fair
N Potts Cr	ab UT	Davidson	12-112	10/20/88	-	14	-	5.26	Good-Fair
N Potts Cr	be UT	Davidson	12-112	10/20/88	-	18	-	4.54	Good-Fair
UT N Potts Cr	ab WWTP	Davidson	12-112	10/20/88	34	11	6.10	4.62	Fair
UT N Potts Cr	be WWTP	Davidson	12-112	10/20/88	26	6	6.57	4.60	Fair
Town Cr	above WWTP	Rowan	12-115-3	9/10/90	68	9	7.84	6.46	Poor
Town Cr	I-85	Rowan	12-115-3	8/7/01	50	8	6.93	6.76	Fair
				9/10/90	32	0	8.35	-	Poor
03-07-05									
Dutchmans Cr	US 158	Davie	12-102-(1)	8/7/01	72	20	6.34	5.46	Good-Fair
				7/24/96	69	24	5.63	4.80	Good
Dutchmans Cr	NC 801	Davie	12-102-(2)	8/7/01	77	17	6.54	5.20	Fair
				7/24/96	84	30	6.24	4.65	Good
Cedar Cr	NC 801	Davie	12-102-13-(1)	6/11/90	---	10	---	5.98	Fair
Cedar Cr	above quarry	Davie	12-102-13-(2)	6/13/90	63	13	6.62	6.22	Fair
Cedar Cr	I-40, be quarry	Davie	12-102-13-(2)	6/13/90	69	16	6.50	6.00	Good-Fair
Cedar Cr	US 158	Davie	12-102-13-(2)	7/24/96	---	15	---	6.00	Good-Fair
Elisha Cr	SR 1405	Davie	12-102-15	4/7/88	---	27	---	4.08	Good
03-07-06									
S Yadkin R	SR 1561	Iredell	12-108-(5.5)	9/11/01	68	21	5.80	4.92	Good-Fair
				7/24/01	77	25	5.83	5.07	Good
				8/5/96	70	30	4.97	4.25	Excellent
S Yadkin R	SR 1159	Davie	12-108-(14.5)	7/24/01	80	32	4.71	3.92	Excellent
				8/6/96	60	29	4.51	3.83	Good
				7/13/89	73	32	4.69	3.94	Excellent
				8/5/86	79	26	5.05	4.17	Good
				8/27/84	83	34	4.73	3.95	Excellent
Rocky Cr	SR 1862	Iredell	12-108-11	11/7/90	91	45	4.01	3.03	Excellent
Rocky Cr	SR 1884	Iredell	12-108-11	7/23/01	---	38	---	3.77	Excellent
				8/5/96	---	26	---	3.75	Good
Rocky Cr	SR 1890	Iredell	12-108-11	11/7/90	79	37	4.49	3.49	Excellent
Patterson Cr	SR 1892	Iredell	12-108-11-3	8/5/96	---	22	---	4.24	Good

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Waterbody	Location	County	Index No.	Date	ST	EPT	NCBI	EPTBI	BioClass[1]
Patterson Cr	SR 1890	Iredell	12-108-11-3	7/23/01	---	25	---	4.06	Good
				11/7/90	77	32	5.32	4.32	Excellent
Fifth Cr	SR 2158	Iredell	12-108-13	6/21/89	---	25	---	4.82	Good
Hunting Cr	SR 2428	Wilkes	12-108-16-(0.5)	4/13/93	89	46	3.57	2.62	Excellent
Hunting Cr	NC 115	Wilkes	12-108-16-(0.5)	7/30/01	---	37	---	3.67	Excellent
				6/16/92	84	43	3.96	3.51	Excellent
Hunting Cr	SR 2423	Wilkes	12-108-16-(0.5)	6/16/92	85	42	4.23	3.45	Good
Hunting Cr	SR 2115	Iredell	12-108-16-(0.5)	7/23/01	74	31	5.06	4.19	Excellent
				8/07/96	66	30	4.66	3.29	Excellent
				7/27/88	72	27	5.36	4.08	Good
				7/30/85	79	33	4.94	3.71	Excellent
				8/10/83	78	28	5.24	4.35	Good
Hunting Cr	SR 2120	Iredell	12-108-16-(0.5)	6/12/90	82	40	4.54	4.15	Excellent
Hunting Cr	SR 2127	Iredell	12-108-16-(0.5)	6/12/90	66	34	5.24	4.66	Excellent
Hunting Cr	US 64	Davie	12-108-16-(0.5)	6/12/90	---	28	---	3.79	Excellent
N Little Hunting Cr	SR 1829	Iredell	12-108-16-6	7/23/01	---	31	---	4.08	Excellent
				8/5/96	---	28	---	3.68	Excellent
Bear Cr	US 64	Davie	12-108-18-(1)	5/25/94	74	23	5.70	4.82	Good-Fair
Bear Cr	SR 1139	Davie	12-108-18-(3)	4/7/88	77	25	5.87	5.15	Good-Fair
Bear Cr	SR 1116	Davie	12-108-18-(3)	4/7/88	93	25	6.34	4.89	Good-Fair
Fourth Cr	SR 2321	Iredell	12-108-20	9/16/87	---	16	---	5.31	Good-Fair
Fourth Cr	SR 2322	Iredell	12-108-20	9/16/87	---	16	---	5.23	Good-Fair
Fourth Cr	SR 2316	Iredell	12-108-20	9/11/01	51	13	6.13	5.11	Fair
				6/22/89	59	18	5.96	5.62	Good-Fair
Fourth Cr	SR 2308	Iredell	12-108-20	9/12/01	57	12	6.89	6.00	Fair
				6/22/89	63	17	6.99	5.81	Fair
Fourth Cr	SR 1003	Rowan	12-108-20	9/11/01	---	23	---	5.21	Good
				7/24/01	---	20	---	5.30	Good-Fair
				8/6/96	---	23	---	5.00	Good
Third Cr	SR 2318	Iredell	12-108-20-4	9/11/90	69	22	5.69	5.17	Good
				6/2189	71	23	5.71	5.37	Good
Third Cr	SR 2359	Iredell	12-108-20-4	9/11/90	72	21	5.96	5.13	Good-Fair
				6/21/89	69	17	6.09	5.24	Good-Fair
Third Cr	SR 1970	Rowan	12-108-20-4	7/24/01	52	22	5.23	4.40	Good
				8/6/96	56	23	4.93	4.36	Good
				7/9/90	62	23	5.62	4.18	Good
				7/20/87	68	26	5.69	4.10	Good
North Second Cr	SR 1526	Rowan	12-108-21	7/24/01	---	10	---	5.95	Fair
				8/6/86	---	16	---	4.75	Good-Fair
North Second Cr	US 70	Rowan	12-108-21	7/24/01	66	16	6.83	6.07	Fair
				8/7/96	54	17	6.20	5.81	Good-Fair
Withrow Cr	SR 1547	Rowan	12-108-21-3	7/25/01	---	18	---	4.77	Good-Fair
				8/7/96	---	14	---	4.64	Good-Fair
03-07-07									
Swearing Cr	SR 1147	Davidson	12-113	11/13/87	62	20	6.23	5.44	Good-Fair
Swearing Cr	SR 1104	Davidson	12-113	11/13/87	63	18	6.27	5.48	Good-Fair
				10/30/85	46	9	6.91	4.48	Fair
Swearing Cr	above WWTP	Davidson	12-113	10/30/85	72	21	6.29	4.99	Good-Fair
Swearing Cr	SR 1272	Davidson	12-113	10/30/85	42	7	7.50	5.88	Poor
Swearing Cr	NC 47	Davidson	12-113	7/25/01	---	13	---	5.75	Fair
				8/7/96	---	16	---	5.15	Good-Fair

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Waterbody	Location	County	Index No.	Date	ST	EPT	NCBI	EPTBI	BioClass[1]
Abbots Cr	SR 1755	Davidson	12-119-(1)	9/28/01	---	15	---	5.42	Good-Fair
				8/8/96	---	16	---	4.84	Good-Fair
Brushy Fk	SR 1810	Davidson	12-119-5-(1)	7/30/01	53	20	5.40	4.40	Good
				8/8/96	---	13	---	4.65	Fair
Abbotts Cr	SR 1243	Davidson	12-119-(6)	7/25/01	61	15	6.80	6.22	Fair
				8/9/96	62	17	6.54	6.15	Fair
				11/13/85	49	12	7.42	6.17	Fair
Abbotts Cr	below WWTP	Davidson	12-119-(6)	11/15/85	47	13	7.17	5.73	Fair
Abbotts Cr	I-85	Davidson	12-119-(6)	11/12/87	46	10	7.50	5.72	Fair
				8/4/86	46	10	7.5	6.48	Fair
				11/15/85	58	17	7.01	5.9	Fair
				9/24/84	55	8	7.22	5.86	Fair
Abbotts Cr	US 29/70	Davidson	12-119-(6)	11/14/85	49	12	7.28	5.79	Fair
Rich Fk	SR 1784	Davidson	12-119-7	11/13/87	60	14	6.75	5.27	Fair
				11/12/85	62	19	6.2	5.3	Good-Fair
Rich Fk	NC 109	Davidson	12-119-7	11/12/85	56	10	7.83	5.35	Fair
Rich Fk	SR 1792	Davidson	12-119-7	11/12/87	53	10	6.86	5.98	Fair
				11/14/85	34	2	8.13	6.81	Poor
				9/29/83	18	0	8.80	0	Poor
Rich Fk	SR 2123	Davidson	12-119-7	9/29/83	35	2	8.39	5.39	Poor
Rich Fk	SR 2022	Davidson	12-119-7	11/14/85	50	11	7.41	5.92	Fair
Rich Fk	SR 2005	Davidson	12-119-7	7/25/01	65	15	6.98	6.5	Fair
				11/9/87	57	13	7.03	5.81	Fair
				11/15/85	57	12	7.36	5.62	Fair
				9/29/83	34	3	7.89	6.63	Poor
Hunts Fk	SR 1792	Davidson	12-119-7-3	11/12/87	49	13	6.84	5.57	Fair
				11/13/85	69	15	6.84	5.63	Fair
Hunts Fk	above SR 1787	Davidson	12-119-7-3	8/28/01	66	9	7.21	6.46	NR
				9/29/83	40	4	8.49	2.17	Poor
Hunts Fk	SR 1787	Davidson	12-119-7-3	9/83	42	0	8.5	0	Poor
Hamby Cr	SR 2031	Davidson	12-119-7-4	11/9/87	44	3	7.92	5.73	Poor
				11/13/85	35	4	7.96	6.44	Poor
Hamby Cr	SR 2025	Davidson	12-119-7-4	8/8/96	---	6	---	6.36	Poor
Hamby Cr	SR 2005	Davidson	12-119-7-4	11/13/85	57	12	7.18	5.85	Fair
Hamby Cr	near SR 2005, above confluence	Davidson	12-119-7-4	9/29/83	34	4	7.42	6.11	Poor
Hamby Cr	SR 2017	Davidson	12-119-7-4	7/30/01	58	12	6.55	6.12	Fair
N Hamby Cr	SR 2085	Davidson	12-119-7-4-1	11/9/87	48	6	8.07	7.74	Poor
				11/13/85	41	7	7.52	6.7	Poor
N Hamby Cr	SR 2031	Davidson	12-119-7-4-1	8/28/01	41	3	7.09	7.0	Poor
Jimmy's Cr	above quarry	Davidson	12-119-7-4-2	6/14/90	58	15	6.35	6.04	Not Rated
Jimmy's Cr	SR 2020	Davidson	12-119-7-4-2	6/14/90	58	14	6.34	5.75	Not Rated
Leonards Cr	Leonard Creek Farm Rd	Davidson	12-119-8-(3)	7/25/01	---	17	---	5.18	Good-Fair
Leonards Cr	SR 1844	Davidson	12-119-8-(3)	8/8/96	---	18	---	5.14	Good-Fair
03-07-08									
UT Lick Cr	NC 47	Davidson	12-126-(3)	5/14/86	53	4	8.24	6.39	Poor
				5/15/85	32	2	8.46	7.31	Poor
UT Lick Cr	SR 2505	Davidson	12-126-(3)	5/14/86	56	11	7.20	4.58	Fair
				5/15/85	23	1	8.90	4.72	Poor
Lick Cr	SR 2351	Davidson	12-126-(3)	5/15/85	84	18	6.22	5.46	Good-Fair

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Waterbody	Location	County	Index No.	Date	ST	EPT	NCBI	EPTBI	BioClass[1]
Lick Cr	NC 8	Davidson	12-126-(3)	8/7/01	-	11	-	6.52	Fair
				8/6/96	-	12	-	5.54	Fair
				5/20/85	76	22	6.16	4.97	Good-Fair
Cabin Cr	NC 8	Davidson	12-127-(2)	8/06/96	20	20	-	4.59	Good-Fair
				5/16/85	88	16	6.05	5.07	Good-Fair
Mountain Cr	SR 1720	Stanly	13-5-(0.7)	8/8/01	-	18	-	5.20	Good-Fair
				8/6/96	91	25	5.65	5.09	Good
L Mountain Cr	SR 1720	Stanly	13-5-1-(2)	8/8/01	54	12	5.92	5.82	Fair
				8/7/96	-	11	-	5.91	Fair
03-07-09									
Uwharrie R	SR 1406	Randolph	13-2-(0.5)	8/9/01	-	18	-	5.34	Good-Fair
				8/8/96		22	4.97	4.97	Good-Fair
L Uwharrie R	SR 1405	Randolph	13-2-1	8/9/01	-	18	-	4.72	Good-Fair
				8/8/96	-	14	4.37	4.37	Good-Fair
Uwharrie R	SR 1143	Randolph	13-2-1-(1.5)	8/9/01	84	27	5.67	4.90	Good
				8/8/96	72	19	5.22	4.67	Good
Jackson Cr	SR 1312	Randolph	13-2-2	8/8/96	-	19	-	4.00	Good-Fair
Caraway Cr	SR 1331	Randolph	13-2-3	8/9/01	-	18	-	4.39	Good-Fair
				8/8/96	-	17	-	4.73	Good-Fair
Back Cr	SR 1318	Randolph	13-2-3-3-(1.5)	8/8/96	-	15	-	4.44	Good-Fair
L Back Cr	SR 1327	Randolph	13-2-3-3-(1.5)	2/9/89	57	21	5.10	3.63	Good-Fair
UT Back Cr	off SR 1504	Randolph	13-2-3-3-(1.5)	2/21/90	82	21	5.60	4.74	Good-Fair
UT Back Cr	SR 1512	Randolph	13-2-3-3-(1.5)	2/21/90	61	17	6.53	5.24	Good-Fair
Betty McGees Cr	SR 1107	Randolph	13-2-5	10/25/89	-	27	-	3.31	Good
Uwharrie R	NC 109	Montgomery	13-2-(17.5)	8/8/01	89	33	4.97	3.85	Excellent
				8/8/96	80	27	5.27	4.12	Good
				7/23/90	81	30	5.22	4.23	Good
				7/15/88	101	30	5.29	3.90	Good
				7/25/86	100	27	5.48	3.98	Good
Barnes Cr	SR 1307	Montgomery	13-2-18-(0.5)	3/16/88	-	30	-	3.63	Excellent
UT Barnes Cr (Poison Br)	SR 1306	Montgomery	13-2-18-1	3/17/88	-	33	-	2.84	Excellent
Barnes Cr	SR 1303	Montgomery	13-2-18-(2.5)	9/28/01	79	38	4.16	3.02	Excellent
				8/9/01	108	40	4.21	3.54	Excellent
				8/7/96	99	36	4.46	3.40	Excellent
				7/11/89	83	24	4.88	3.79	Good
				7/20/87	-	28	-	4.04	Excellent
				7/8/87	90	27	4.92	3.78	Good
				8/1/85	87	29	4.85	4.01	Excellent
				5/20/85	100	36	4.88	3.99	Excellent
				10/31/84	97	37	4.57	3.49	Excellent
Cedar Cr	SR 1150	Montgomery	13-2-23	3/17/88	90	39	4.02	3.28	Excellent
Dutchmans Cr	SR 1150	Montgomery	13-2-24	8/8/01	-	26	-	3.04	Not Rated
				8/7/96	63	29	3.76	3.05	Excellent
				7/31/85	60	24	4.05	3.22	Not Rated
				8/20/96	59	18	6.24	5.46	Good-Fair
				7/12/89	74	23	5.95	5.17	Good-Fair
				7/24/86	78	12	6.68	5.29	Fair
03-07-10									
Clarks Cr	SR 1174	Montgomery	13-16	8/7/96	-	24	-	3.91	Good
Clarks Cr	SR 1110	Montgomery	13-16	8/8/01	-	18	-	4.95	Good-Fair
				8/7/96	82	26	5.89	5.20	Good-Fair

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Waterbody	Location	County	Index No.	Date	ST	EPT	NCBI	EPTBI	BioClass[1]
Brown Cr	SR 1627	Anson	13-20	8/21/96	70	8	7.04	6.07	Fair
Lick Cr	SR 1244	Anson	13-20-5	4/3/86	88	21	6.20	5.13	Good-Fair
Savannah Cr	SR 1742	Anson	13-26	9/22/83	33	4	6.87	5.96	Not Rated
Mountain Cr	SR 1150	Richmond	13-28-1-(0.5)	8/8/01	-	25	-	3.77	Good
				8/6/96	-	30	-	3.83	Excellent
03-07-11									
Rocky R	SR 2420	Mecklenburg	13-17	8/21/01	41	8	6.73	6.32	Fair
				8/19/96	---	7	---	5.84	Fair
				3/26/85	64	13	6.41	4.92	Fair
Rocky R	SR 1142	Iredell	13-17	6/6/85	59	18	6.1	5.15	Good-Fair
Rocky R	SR 1608	Cabarrus	13-17	6/6/85	57	16	6.13	5.31	Good-Fair
Rocky R	NC 29	Cabarrus	13-17	3/26/85	70	19	6.15	5.16	Fair
Rocky R	SR 1132	Cabarrus	13-17	3/27/85	81	27	6.18	5.37	Good-Fair
Dye Br	SR 1147	Iredell	13-17-2	9/11/01	44	9	6.34	6.29	Not Rated
				9/11/90	52	13	6.33	5.70	Fair
				6/6/85	53	14	6.53	5.63	Fair
Dye Br	SR 1142	Iredell	13-17-2	9/11/01	25	2	7.75	6.25	Poor
				9/11/90	27	4	7.95	6.77	Poor
				6/6/85	30	4	8.15	5.88	Poor
Mallard Cr	SR 1300	Cabarrus	13-17-5	3/27/85	82	22	6.16	5.0	Good-Fair
Coddle Cr	SR 1612	Cabarrus	13-17-6-(0.5)	6/6/85	66	21	5.80	5.03	Good-Fair
Coddle Cr	NC 49	Cabarrus	13-17-6-(5.5)	8/21/01	67	14	6.59	5.74	Fair
				8/19/96	---	13	---	5.40	Fair
Back Cr	SR 2827	Mecklenburg	13-17-7	10/16/84	64	19	6.18	5.03	Good-Fair
Fuda Cr	SR 1158	Cabarrus	13-17-7-1	3/27/85	74	18	6.6	5.84	Fair
UT Reedy Cr	below landfill	Mecklenburg	13-17-8	10/16/84	44	11	7.09	5.69	Not Rated
03-07-12									
Rocky R	US 601	Cabarrus	13-17	8/22/01	48	15	6.55	5.79	Fair
				8/20/96	56	19	6.15	5.5	Good-Fair
				7/12/89	66	19	6.36	5.40	Good-Fair
Rocky R	NC 24/27	Cabarrus	13-17	3/28/85	86	30	6.22	4.91	Good-Fair
Irish Buffalo Cr	SR 1132	Cabarrus	13-17-9-(2)	8/21/01	56	15	6.37	5.62	Good-Fair
				8/19/96	58	15	6.01	5.36	Good-Fair
Coldwater Cr	NC 49	Cabarrus	13-17-9-4-(1.5)	8/21/01	---	15	---	5.16	Good-Fair
				8/19/96	---	14	---	5.15	Good-Fair
Dutch Buffalo Cr	SR 1006	Cabarrus	13-17-11-(4.5)	3/27/85	92	24	5.78	4.72	Good-Fair
Dutch Buffalo Cr	NC 200	Cabarrus	13-17-11-5	8/22/01	79	18	6.66	5.75	Good-Fair
				8/20/96	59	18	6.24	5.46	Good-Fair
				7/12/89	74	23	5.95	5.17	Good-Fair
				7/24/86	78	12	6.68	5.29	Fair
Clear Cr	SR 3181	Mecklenburg	13-17-17	8/22/01	57	15	5.96	5.16	Good-Fair
				5/1/98	---	19	---	4.77	Good-Fair
Goose Cr	SR 1004	Mecklenburg	13-17-18	4/21/98	80	18	5.92	5.34	Good-Fair
Goose Cr	below Fairfield Plantation	Union	13-17-18	4/22/98	---	12	---	5.43	Fair
Goose Cr	Glamorgan Rd	Union	13-17-18	4/22/98	---	22	---	4.62	Good
Goose Cr	SR 1524	Union	13-17-18	4/22/98	---	16	---	4.65	Good-Fair
Goose Cr	SR 1525	Union	13-17-18	4/21/98	35	4	6.93	6.96	Poor
Goose Cr	SR 1533	Union	13-17-18	4/21/98	---	9	---	5.5	Fair

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Waterbody	Location	County	Index No.	Date	ST	EPT	NCBI	EPTBI	BioClass[1]
Goose Cr	US 601	Union	13-17-18	8/22/01	48	5	7.16	5.98	Poor
				7/21/98	47	10	7.37	5.87	Poor
				8/20/96	---	2	---	6.09	Poor
Goose Cr	SR 1547	Union	13-17-18	5/1/98	---	11	---	6.01	Fair
Stephens Cr	off Maple Hollow Road	Mecklenburg	13-17-18-1	4/21/98	87	26	5.29	4.09	Good
UT Stephens Cr	Thompson Rd	Mecklenburg	13-17-18-1	4/20/98	48	12	5.35	4.70	Not Impaired
Duck Cr	US 601	Union	13-17-18-3	4/21/98	65	14	6.43	5.41	Fair
Crooked Cr	SR 1547	Union	13-17-20	8/22/01	68	18	5.93	5.15	Good-Fair
				8/20/96	---	12	---	4.67	Fair
N Fk Crooked Cr	SR 1520	Union	13-17-20-1	6/27/00	57	6	7.23	6.50	Fair
				9/12/95	46	8	6.57	5.92	Fair
N Fk Crooked Cr	SR 1514	Union	13-17-20-1	6/27/00	53	7	6.98	6.79	Fair
				9/12/95	59	12	6.45	5.78	Good-Fair
N Fk Crooked Cr	SR 1004	Union	13-17-20-1	9/12/95	48	9	6.69	6.40	Fair
S Fk Crooked Cr	above SR 1515	Union	13-17-20-2	9/13/95	59	3	7.46	6.82	Poor
S Fk Crooked Cr	SR 1515	Union	13-17-20-2	9/13/95	54	5	6.89	6.83	Fair
S Fk Crooked Cr	SR 1367	Union	13-17-20-2	9/12/95	42	8	6.71	6.22	Fair
03-07-13									
Long Cr	SR 1401	Stanly	13-17-31	8/20/01	---	17	---	5.13	Good-Fair
Long Cr	above WWTP	Stanly	13-17-31	8/22/89	67	15	6.75	5.84	Fair
Long Cr	SR 1967	Stanly	13-17-31	8/22/89	56	10	6.49	6.22	Fair
Long Cr	SR 1917	Stanly	13-17-31	8/23/01	70	20	5.85	4.87	Good-Fair
				8/22/96	64	14	5.77	5.32	Good-Fair
				7/12/89	76	22	6.13	5.28	Good-Fair
				7/24/86	88	12	6.88	5.64	Fair
				9/2/83	59	15	6.63	4.92	Fair
Lower(Little) Long Br	SR 2001	Stanly	13-17-31-4	6/3/91	47	7	6.63	4.7	NR
Lower(Little) Long Br	below NC 138	Stanly	13-17-31-4	6/3/91	54	15	6.91	6.26	NR
Big Bear Cr	SR 1434	Stanly	13-17-31-5	8/22/89	---	10	---	5.39	Fair
Big Bear Cr	SR 1134	Stanly	13-17-31-5	8/22/96	---	24	---	3.83	Good
				7/24/90	88	31	5.71	4.89	Good
				7/20/87	97	28	5.90	4.92	Good
Big Bear Cr	SR 1225	Stanly	13-17-31-5	8/20/01	---	22	---	4.53	Good
Stony Run Cr	SR 1970	Stanly	13-17-31-5-5	8/20/01	---	12	---	5.55	Fair
				8/22/96	---	19	---	4.22	Good-Fair
03-07-14									
Rocky R	SR 1970	Stanly	13-17	6/3/91	---	16	---	3.43	Good-Fair
Rocky R	above Carolina Solite	Stanly	13-17	6/3/91	---	14	---	4.38	Good-Fair
Rocky R	below Carolina Solite	Stanly	13-17	6/3/91	---	16	---	4.55	Good-Fair
Rocky R	SR 1943	Stanly	13-17	8/23/01	62	24	5.07	4.24	Good
Rocky R	SR 1935	Stanly	13-17	8/21/96	68	22	5.41	4.66	Good
				7/24/90	80	28	5.45	4.29	Good
				7/14/88	80	25	5.38	4.23	Good
				7/24/86	93	22	6.24	5.06	Good-Fair
				7/31/85	76	25	5.31	4.57	Good
				3/28/85	99	27	5.29	3.96	Good
				9/24/84	79	25	5.81	4.05	Good
				8/2/83	73	23	6.05	4.61	Good-Fair

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Waterbody	Location	County	Index No.	Date	ST	EPT	NCBI	EPTBI	BioClass[1]
Richardson Cr	SR 1751	Union	13-17-36-(5)	9/14/90	57	6	7.67	7.32	Poor
				3/13/89	62	12	7.5	5.7	Fair
Richardson Cr	SR 1006	Union	13-17-36-(5)	8/24/01	48	8	6.74	6.88	Fair
				9/14/90	55	5	7.35	6.62	Poor
				3/13/89	52	14	7.64	5.51	Fair
Richardson Cr	SR 1649	Union	13-17-36-(5)	8/23/01	46	10	6.38	6.17	Fair
				8/21/96	46	12	6.22	5.63	Fair
				7/24/90	57	10	6.95	6.12	Fair
				7/8/87	57	10	6.96	5.98	Fair
Richardson Cr	SR 1600	Anson	13-17-36-(5)	8/23/01	---	24	---	3.98	Good
				8/21/96	---	18	---	3.91	Good-Fair
				8/1/83	69	20	6.28	5.34	Good-Fair
Lanes Cr	SR 2111	Union	13-17-40-(1)	5/16/89	52	9	6.5	4.4	Fair
Lanes Cr	SR 1937	Union	13-17-40-(1)	5/16/89	59	15	6.20	5.03	Fair
				5/11/88	58	13	6.53	4.84	Fair
Lanes Cr	SR 1929	Union	13-17-40-(1)	5/17/89	72	13	6.30	5.16	Fair
Lanes Cr	SR 1901	Union	13-17-40-(12)	8/21/96	---	6	---	6.21	Poor
Lanes Cr	SR 1612	Anson	13-17-40-(12)	8/21/96	---	11	---	4.93	Fair
Wicker Br	SR 1940	Union	13-17-40-4	5/16/89	60	10	6.54	5.45	NR
				5/11/88	62	11	6.41	4.55	NR
Waxhaw Br	SR 1937	Union	13-17-40-6	5/16/89	38	8	6.06	4.6	NR
				5/11/88	56	12	6.93	5.09	NR
03-07-15									
Little R	SR 1127	Randolph	13-25-(11.5)	10/24/89	-	22	-	4.12	Good-Fair
Little R	SR 1349	Montgomery	13-25-(11.5)	10/24/89	-	36	-	3.65	Excellent
Little R	above SR 1340	Montgomery	13-25-(11.5)	11/28/95	89	36	4.36	3.26	Excellent
Little R	SR 1340	Montgomery	13-25-(11.5)	8/13/01	92	30	4.72	3.54	Excellent
				8/22/96	98	39	5.11	3.94	Excellent
				11/28/95	90	36	4.48	3.54	Excellent
				10/25/89	-	40	-	3.38	Excellent
				7/15/88	106	40	4.88	3.72	Excellent
				7/31/85	104	40	4.37	3.67	Excellent
				8/2/83	80	23	5.28	4.34	Good
Little R	below SR 1340	Montgomery	13-25-(11.5)	11/28/95	93	34	4.68	3.52	Excellent
W Fk Little R	SR 1115	Randolph	13-25-15	2/22/94	88	30	4.85	3.51	Excellent
W Fk Little R	NC 134	Montgomery	13-25-15	2/22/94	93	32	5.15	3.50	Good
W Fk Little R	SR 1311	Montgomery	13-25-15	8/13/01	37	26	4.25	4.06	Excellent
				8/22/96	-	30	-	4.04	Excellent
				2/22/94	78	28	4.79	3.51	Good
				10/24/89	-	25	-	3.60	Good
Little R	SR 1565	Montgomery	13-25-(19)	10/25/89	-	21	-	3.52	Good-Fair
Little R	NC 731	Montgomery	13-25-(19)	8/15/01	72	29	5.01	4.33	Good
				8/21/96	76	29	5.37	4.22	Good
Densons Cr	NC 134	Montgomery	13-25-20-(1)	10/24/89	-	38	-	3.84	Excellent
Densons Cr	SR 1323	Montgomery	13-25-20-(9)	7/29/92	98	31	5.52	4.45	Good
Densons Cr	SR 1324	Montgomery	13-25-20-(9)	7/29/92	75	17	5.98	5.63	Good-Fair
Bridgers Cr	SR 1519	Montgomery	13-25-24	10/25/89	-	31	-	3.99	Excellent
Rocky Cr	SR 1134	Montgomery	13-25-30-(0.3)	3/16/88	-	21	-	4.46	Good-Fair
Rocky Cr	NC 24/27	Montgomery	13-25-30-(0.3)	8/22/96	-	19	-	3.25	Good-Fair
Rocky Cr	SR 1549	Montgomery	13-25-30-(0.5)	3/16/88	104	35	4.99	3.61	Excellent

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Waterbody	Location	County	Index No.	Date	ST	EPT	NCBI	EPTBI	BioClass[1]
Disons Cr	above SR 1543	Montgomery	13-25-32	6/6/97	59	20	5.67	4.78	Good
Disons Cr	SR 1543	Montgomery	13-25-32	6/6/97	73	26	5.31	4.82	Good
Cheek Cr	SR 1541	Montgomery	13-25-36	8/15/01	62	9	6.50	6.13	Fair
				8/21/96	66	15	6.33	5.20	Good-Fair
03-07-16									
Pee Dee R	US 74	Richmond	13-(34)	7/23/90	70	21	5.99	4.77	Good-Fair
				7/14/88	68	19	6.54	5.23	Good-Fair
				9/11/85	64	21	6.11	4.94	Good-Fair
				9/24/84	68	21	5.79	4.13	Good-Fair
				8/1/83	67	17	6.79	5.42	Fair
Cartledge Cr	SR 1142	Richmond	13-35	8/19/96	-	11	-	5.57	Fair
UT Hitchcock Cr	SR 1475	Richmond	13-39-(1)	10/24/90	61	20	5.39	3.39	Good-Fair
Hitchcock Cr	SR 1486	Richmond	13-39-(1)	8/15/01	-	23	-	3.24	Good
				8/19/96	-	21	-	21	Good
Bones Fork Cr	SR 1487	Richmond	13-39-5	11/7/84	72	27	4.67	2.82	Excellent
UT Bones Fork Cr	SR 1475	Richmond	13-39-5	10/24/90	76	25	5.87	3.74	Good
Beaverdam Cr	SR 1486	Richmond	13-39-8-7	8/14/01	-	24	-	2.39	Not Impaired
				8/19/96	-	27	-	3.21	Excellent
Hitchcock Cr	US 74	Richmond	13-39-(10)	8/14/01	72	21	5.67	4.53	Good
				10/18/88	-	11	-	4.72	Fair
Hitchcock Cr	above Fox Yarns	Richmond	13-39-(10)	10/18/88	-	12	-	4.38	Fair
Hitchcock Cr	below Fox Yarns	Richmond	13-39-(10)	10/18/88	-	10	-	4.69	Fair
Hitchcock Cr	SR 1109	Richmond	13-39-(10)	8/15/01	71	21	6.01	4.61	Good-Fair
				8/20/96	40	5	7.85	6.47	Poor
Marks Cr	SR 1812	Richmond	13-45-2	8/19/96	59	15	6.26	4.86	Good-Fair
				2/21/91	63	11	7.06	5.99	Fair
Marks Cr	NC 177	Richmond	13-45-2	2/21/91	59	22	6.96	4.82	Good Fair
Marks Cr	SR 1104	Richmond	13-45-2	2/21/91	-	12	-	5.70	Fair
03-07-17									
Jones Cr	SR 1812	Anson	13-42	12/8/92	55	17	6.02	5.25	Good-Fair
Jones Cr	NC 145,	Anson	13-42	8/14/01	74	18	5.95	4.49	Good-Fair
	near Pee Dee			8/20/96	63	17	5.84	4.86	Good-Fair
				7/23/90	73	16	5.93	5.04	Good Fair
				7/7/87	70	24	5.94	4.65	Good-Fair
N Fk Jones Cr	SR 1121	Anson	13-42-1-(0.5)	8/13/01	63	16	6.14	5.42	Good-Fair
				8/20/96	-	11	-	5.18	Fair
				12/8/92	51	15	5.87	4.52	Fair
Moss Br	McLaurin Rd	Anson	13-42-1-3-1	9/22/83	23	0	8.03	-	Not Rated
Moss Br	US 74	Anson	13-42-1-3-1	9/22/83	28	2	8.32	6.50	Not Rated
S Fk Jones Cr	SR 1821,	Anson	13-42-2	8/20/96	-	15	-	4.99	Good-Fair
	above WWTP								
				12/8/92	49	14	6.11	4.91	Good-Fair
S Fk Jones Cr	SR 1821,	Anson	13-42-2	12/8/92	41	11	6.08	5.29	Fair
	below WWTP								
Shaw Cr	SR 1421	Anson	13-42-2-4	4/3/86	70	26	5.69	4.83	Good-Fair

Note: Streams that were sampled during 2001 (the most recent data used for this basin plan) are presented in **bold** type.

Fish Community Sampling Methods and Bioclassification Criteria

At each sample site, a 600-foot section of stream was selected and measured. The fish in the delineated stretch of stream were then collected using two backpack electrofishing units and two persons netting the stunned fish. After collection, all readily identifiable fish were examined for sores, lesions, fin damage or skeletal anomalies, measured (total length to the nearest 1 mm), and then released. Those fish that were not readily identifiable were preserved and returned to the laboratory for identification, examination and total length measurement. Detailed descriptions of the sampling methods may be found at http://www.esb.enr.state.nc.us/BAU.html.

The NCIBI is a modification of the Index of Biotic Integrity initially proposed by Karr (1981) and Karr, et al. (1986). The IBI method was developed for assessing a stream's biological integrity by examining the structure and health of its fish community. The scores derived from this index are a measure of the ecological health of the waterbody and may not directly correlate to water quality. For example, a stream with excellent water quality, but with poor or fair fish habitat, would not be rated excellent with this index. However, in many instances, a stream which rated excellent on the NCIBI should be expected to have excellent water quality.

The Index of Biological Integrity incorporates information about species richness and composition, trophic composition, fish abundance and fish condition. The NCIBI summarizes the effects of all classes of factors influencing aquatic faunal communities (water quality, energy source, habitat quality, flow regime and biotic interactions). While any change in a fish community can be caused by many factors, certain aspects of the community are generally more responsive to specific influences. Species composition measurements reflect habitat quality effects. Information on trophic composition reflects the effect of biotic interactions and energy supply. Fish abundance and condition information indicate additional water quality effects. It should be noted; however, that these responses may overlap. For example, a change in fish abundance may be due to decreased energy supply or a decline in habitat quality, not necessarily a change in water quality.

Currently, the focus of using and applying the NCIBI has been restricted to wadeable streams that can be sampled by a crew of four persons. The bioclassifications and criteria have also been recalibrated against regional reference site data. Criteria and ratings applicable only to wadeable streams in the mountain and piedmont regions of the Yadkin River basin are the same as those for the Broad, Catawba and Savannah River basins. The definition of the mountain and piedmont for these four river basins is based on a map of North Carolina watersheds by Fels (1997). Metrics and ratings should not be applied to nonwadeable streams and trout streams in each of these basins. These streams, along with streams draining the Sandhills ecoregion in the southeast corner of the Yadkin River basin, are currently not rated.

Karr, J.R. 1981. *Assessment of Biotic Integrity Using Fish Communities*. Fisheries 6:21-27.

____. K.D. Fausch, P.L. Angermeier, P.R. Yant and I.J. Schlosser. 1986. *Assessing Biological Integrity in Running Water: A Method and its Rationale*. Ill. Nat. Hist. Surv. Spec. Publ. 5. 28 pp.

Table A-II-2 Fish Community Structure Data Collected in the Yadkin-Pee Dee River Basin, 1990-2001

Subbasin/ Waterbody	Station	County	Index No.	Date	NCIBI Score	NCIBI Rating
03-07-01						
Yadkin R	NC 268	Caldwell	12-1	06/18/01	48	Good
				05/23/96	48	Good
Buffalo Cr	SR 1594	Caldwell	12-19	06/08/99	56	Excellent
Laurel Cr	SR 1508	Watauga	12-24-8	05/05/99	52	Good
				10/01/98	54	Excellent
				05/23/96	54	Excellent
Beaver Cr	SR 1131	Wilkes	12-25	06/18/01	50	Good
				05/21/96	50	Good
North Prong Lewis Fk	SR 1304	Wilkes	12-31-1-(5.5)	06/19/01	56	Excellent
				05/21/96	48	Good
South Prong Lewis Fk	SR 1154	Wilkes	12-31-2-(7)	06/19/01	48	Good
				05/21/96	50	Good
Middle Fork Reddies R	SR 1562	Wilkes	12-40-2	05/06/99	58	Excellent
North Fork Reddies R	SR 1501	Wilkes	12-40-4	05/05/99	52	Good
				05/22/96	50	Good
North Fork Reddies R	SR 1567	Wilkes	12-40-4	06/19/01	56	Excellent
				05/05/99	58	Excellent
Cub Cr	SR 1001	Wilkes	12-41	06/18/01	50	Good
Middle Prong Roaring R	SR 1002	Wilkes	12-46-2-(6)	06/20/01	56	Excellent
				05/22/96	50	Good
Basin Cr	SR 1730	Wilkes	12-46-2-2	05/22/96	58	Excellent
East Prong Roaring R #1	SR 1739	Wilkes	12-46-4-(1)	10/21/98	52	Good
East Prong Roaring R #2	SR 1739	Wilkes	12-46-4-(5)	10/20/98	54	Excellent
East Prong Roaring R #3	SR 1739	Wilkes	12-46-4-(5)	10/20/98	58	Excellent
Garden Cr	SR 1739	Wilkes	12-46-4-6	05/22/96	54	Excellent
03-07-02						
Mitchell R	SR 1330	Surry	12-62-1	05/26/99	52	Good
				05/16/96	46	Good-Fair
Fisher R	SR 1331	Surry	12-63-(1)	06/20/01	60	Excellent
Little Fisher R	SR 1480	Surry	12-63-10-(2)	06/20/01	50	Good
				05/16/96	46	Good-Fair
Cody Cr	US 268	Surry	12-63-14	05/16/96	50	Good
Little Yadkin R	SR 1236	Stokes	12-77-(1)	06/21/01	54	Excellent
				05/17/96	54	Excellent
North Deep Cr	SR 1605	Yadkin	12-84-1	06/21/01	44	Good-Fair
				05/15/96	44	Good-Fair
South Deep Cr	SR 1152	Yadkin	12-84-2-(1)	06/22/01	52	Good
				05/15/96	48	Good
03-07-03						
Stewarts Cr	SR 1622	Surry	12-72-9-1	06/21/01	56	Excellent
				05/17/96	54	Excellent
Toms Cr	SR 2024	Surry	12-72-14-(4)	06/21/01	56	Excellent
03-07-04						
Muddy Cr	SR 1891	Forsyth	12-94-(0.5)	04/30/01	38	Fair
				05/14/96	34	Poor
Silas Cr	SR 1137	Forsyth	12-94-10	04/30/01	40	Fair
Salem Cr	off SR 1120	Forsyth	12-94-12-(4)	04/30/01	30	Poor
South Fork Muddy Cr	SR 2902	Forsyth	12-94-13	04/30/01	42	Good-Fair
Grants Cr	SR 2200	Rowan	12-110	05/02/01	42	Good-Fair
Town Cr	SR 1526	Rowan	12-115-3	04/25/96	40	Fair

Note: Streams that were sampled during 2001 (the most recent data used for this basin plan) are presented in **bold** type.

Subbasin/ Waterbody	Station	County	Index No.	Date	NCIBI Score	NCIBI Rating
03-07-05						
Dutchmans Cr	US 158	Davie	12-102-(2)	05/04/01	44	Good-Fair
				05/13/96	38	Fair
Cedar Cr	SR 1437	Davie	12-102-13-(2)	05/04/01	50	Good
				05/13/96	46	Good-Fair
03-07-06						
South Yadkin R	SR 1561	Iredell	12-108-(5.5)	05/03/01	46	Good-Fair
				05/14/96	40	Fair
Olin Cr	SR 1892	Iredell	12-108-11-3-3	05/14/96	36	Fair
Hunting Cr	NC 115	Wilkes	12-108-16-(0.5)	05/03/01	58	Excellent
				05/15/96	56	Excellent
				06/16/92	52	Good
Hunting Cr	SR 2423	Wilkes	12-108-16-(0.5)	06/16/92	46	Good-Fair
North Little Hunting Cr	SR 1829	Iredell	12-108-16-6	05/03/01	50	Good
				05/14/96	44	Good-Fair
Fourth Cr	SR 1985	Rowan	12-108-20-(3.5)	05/02/01	28	Poor
				04/26/96	32	Poor
Third Cr	SR 1970	Rowan	12-108-20-4-(7)	05/02/01	34	Poor
				04/25/96	40	Fair
North Second Cr	SR 1526	Rowan	12-108-21	05/02/01	42	Good-Fair
				04/25/96	40	Fair
03-07-07						
Abbotts Cr	SR 1800	Davidson	12-119-(4.5)	05/01/01	46	Good-Fair
				04/24/96	44	Good-Fair
Rich Fork Cr	NC 109	Davidson	12-119-7	05/01/01	34	Poor
				04/25/96	34	Poor
03-07-08						
Lick Cr	NC 8	Davidson	12-126-(3)	04/19/01	44	Good-Fair
				04/23/96	44	Good-Fair
Cabin Cr	SR 2536	Davidson	12-127-(2)	05/01/01	48	Good
				04/24/96	52	Good
Mountain Cr	SR 1720	Stanly	13-5-(0.7)	04/17/01	46	Good-Fair
				04/18/96	50	Good
03-07-09						
Uwharrie R	SR 1406	Randolph	13-2-(0.5)	10/26/99	44	Good-Fair
				06/15/99	54	Excellent
				04/14/99	58	Excellent
				04/24/96	52	Good
Betty McGees Cr	SR 1107	Randolph	13-2-5	04/16/01	52	Good
				04/18/96	54	Excellent
Barnes Cr	SR 1303	Montgomery	13-2-18-(0.5)	04/16/01	54	Excellent
				10/17/97		Not rated
				04/22/96	48	Good
Dutchmans Cr	SR 1150	Montgomery	13-2-24	04/22/96		Not rated
03-07-10						
Clarks Cr	SR 1188	Montgomery	13-16	04/12/01	54	Excellent
Brown Cr	SR 1230	Anson	13-20	04/10/01	52	Good
				04/16/96	48	Good
Cedar Cr	SR 1709	Anson	13-21	04/10/01	46	Good-Fair
				06/10/96		Not rated
Mountain Cr	SR 1150	Richmond	13-28-(0.5)	04/15/96	52	Good
Big Mountain Cr	SR 1319	Richmond	13-28-1-(0.5)	10/27/99	46	Good-Fair
				06/15/99	52	Good
				04/12/99	54	Excellent
				09/22/98	56	Excellent

Note: Streams that were sampled during 2001 (the most recent data used for this basin plan) are presented in **bold** type.

Subbasin/ Waterbody	Station	County	Index No.	Date	NCIBI Score	NCIBI Rating
Big Mountain Cr	NC 73	Richmond	13-28-1-(0.5)	04/12/99	52	Good
Big Mountain Cr	SR 1005	Richmond	13-28-1-(0.5)	04/12/99	54	Excellent
03-07-11						
Rocky R	SR 1608	Cabarrus	13-17	04/14/99	32	Poor
				04/17/96	34	Poor
Mallard Cr	SR 2467	Mecklenburg	13-17-5	04/19/01	56	Excellent
				06/10/96	50	Good
Reedy Cr	SR 1136	Cabarrus	13-17-8	04/18/01	46	Good-Fair
03-07-12						
Irish Buffalo Cr	SR 1132	Cabarrus	13-17-9-(2)	04/19/01	50	Good
				04/17/96	52	Good
Coldwater Cr	NC 73	Cabarrus	13-17-9-4-(1.5)	04/18/01	44	Good-Fair
				04/17/96	52	Good
Dutch Buffalo Cr	SR 2622	Cabarrus	13-17-11-(5)	04/18/01	52	Good
				04/17/96	44	Good-Fair
North Fork Crooked Cr # 1	SR 1514	Union	13-17-20-1	10/03/95	46	Good-Fair
North Fork Crooked Cr # 2	SR 1514	Union	13-17-20-1	10/03/95	50	Good
South Fork Crooked Cr # 1	SR 1515	Union	13-17-20-2	10/03/95	42	Good-Fair
South Fork Crooked Cr # 2	SR 1515	Union	13-17-20-2	10/03/95	38	Fair
03-07-13						
Big Bear Cr	NC 73	Stanly	13-17-31-5	04/18/01	48	Good
				04/18/96	52	Good
03-07-14						
Island Cr	SR 1118	Stanly	13-17-26	04/11/01	54	Excellent
Richardson Cr	NC 207	Union	13-17-36-(3.5)	04/11/01	46	Good-Fair
Salem Cr	SR 1006	Union	13-17-36-15	04/11/01	48	Good
				06/10/96	36	Fair
Lanes Cr	SR 1929	Union	13-17-40-(1)	04/11/01	40	Fair
Lanes Cr	SR 1415	Anson	13-17-40-(12)	04/16/96	40	Fair
03-07-15						
Little R	SR 1127	Randolph	13-25-(1)	04/14/99	52	Good
Little R	NC 134	Randolph	13-25-(1)	04/13/99	52	Good
Little R	SR 1135	Randolph	13-25-(1)	04/13/99	52	Good
West Fork Little R	SR 1311	Montgomery	13-25-15	04/17/01	52	Good
				04/23/96	56	Excellent
Dumas Cr	SR 1310	Montgomery	13-25-20-8	04/16/01	54	Excellent
Bridgers Cr	SR 1519	Montgomery	13-25-24	04/22/96	52	Good
Rocky Cr	NC 24/27	Montgomery	13-25-30-(0.3)	04/23/96		Not rated
Rocky Cr	SR 1549	Montgomery	13-25-30-(0.5)	04/17/01	54	Excellent
Cheek Cr	SR 1563	Montgomery	13-25-36	10/26/99	56	Excellent
				06/15/99	56	Excellent
				04/13/99	58	Excellent
				09/21/98	58	Excellent
Cheek Cr	SR 1541	Montgomery	13-25-36	04/23/96	54	Excellent
Hamer Cr	SR 1159	Richmond	13-25-37	04/05/01	36	Fair
03-07-16						
Cartledge Cr	SR 1142	Richmond	13-35	04/06/01	50	Good
Hitchcock Cr	SR 1486	Richmond	13-39-(1)	04/05/01		Not rated
Rocky Fork Cr	SR 1424	Richmond	13-39-8	04/05/01		Not rated
Rocky Fork Cr	SR 1487	Richmond	13-39-8	08/21/90		Not rated
Beaverdam Cr	SR 1486	Richmond	13-39-8-7	04/15/96		Not rated
Marks Cr	SR 1104	Richmond	13-45-(2)	04/06/01		Not rated
03-07-17						
Jones Cr	SR 1812	Anson	13-42	04/16/96	34	Poor
Bailey Cr	SR 1811	Anson	13-42-1-3	04/06/01	52	Good
				04/15/96	52	Good
South Fork Jones Cr	SR 1821	Anson	13-42-2	04/10/01	54	Excellent

Note: Streams that were sampled during 2001 (the most recent data used for this basin plan) are presented in **bold** type.

Fish Tissue Criteria

In evaluating fish tissue analysis results, several different types of criteria are used. Human health concerns related to fish consumption are screened by comparing results with:

- Federal Food and Drug Administration (FDA) action levels
- Environmental Protection Agency (EPA) recommended screening values
- Criteria adopted by the North Carolina State Health Director

Sample results which exceed these levels are a human health concern and are evaluated by the NC Division of Occupational and Environmental Epidemiology at DWQ's request. The FDA levels were developed to protect humans from the chronic effects of toxic substances consumed in foodstuffs, and thus, employ a "safe level" approach to fish tissue consumption. Presently, the FDA has only developed metals criteria for mercury.

The EPA has recommended screening values for target analytes which are formulated from a risk assessment procedure (EPA, 1995). These are the concentrations of analytes in edible fish tissue that are of potential public health concern. DWQ compares fish tissue results with EPA screening values to evaluate the need for further intensive site-specific monitoring.

Table A-II-3 Fish Tissue Criteria

Contaminant	FDA Action Levels	US EPA Screening Values	NC Health Director
Metals			
Cadmium	--	10.0	--
Mercury	1.0	0.3	0.4
Selenium	--	50.0	5.0
Organics			
Aldrin	0.3	--	--
Chlorpyrifos	--	30	--
Total chlordane [1]	--	0.08	--
Cis-chlordane	0.3	--	--
Trans-chlordane	0.3	--	--
Total DDT [2]	--	0.3	--
Dieldrin	--	0.007	--
Dioxins (total)	--	0.7	3.0
Endosulfan (I and II)	--	60.0	--
Endrin	0.3	3.0	--
Heptachlorepoxide	--	0.01	--
Hexachlorobenzene	--	0.07	--
Lindane	--	0.08	--
Mirex	--	2.0	--
Total PCBs	--	0.01	--
PCB-1254	2.0	--	--
Toxaphene	--	0.1	--

[1] Total chlordane includes the sum of cis- and trans- isomers as well as nonachlor and oxychlordane.

[2] Total DDT includes the sum of all its isomers and metabolites (i.e., p,p DDT; o,p DDT; DDE; and DDD).

Note: All wet weight concentrations are reported in parts per million (ppm, ug/g), except for dioxin which is in parts per trillion (ppt, pg/g).

The North Carolina State Health Director has adopted a selenium limit of 5 µg/g for issuing an advisory. Although the EPA has suggested a screening value of 0.7 ppt (pg/g) for dioxins, the State of North Carolina currently uses a value of 3.0 ppt in issuing an advisory.

Table A-II-4 Wet Weight Concentrations of Mercury (Hg), Arsenic (As), Copper (Cu) and Zinc (Zn) in Fish Tissue from the Pee Dee River, July 1999 and April 2000

Station	Species	Length (mm)	Weight (g)	Hg (µg/g)	As (µg/g)	Cu (µg/g)	Zn (µg/g)
Pee Dee R at US 74	*Largemouth bass*	500	2286	**0.53**			
		415	1108	0.28	ND		
		403	907	0.31	ND		
		351	610	0.31	ND		
		372	644	0.29	ND		
		403	740	0.14	ND		
		366	535	0.16	ND		
	Bluegill	177	125	0.09	ND		
		162	105	0.07	ND		
	Warmouth	167	105	0.12	ND		
	Blue catfish	560	2463	0.06	ND		
		597	2846	0.07	ND		
		530	1795	0.06	ND		
	Channel catfish	442	869	0.07	ND		
		425	940	0.06	ND		
		423	708	0.10	ND		
	Flathead catfish	375	519	0.10	ND		
Pee Dee R below Blewett Falls Dam	*Largemouth bass*	361	666	0.14	0.13	0.29	4.7
		328	577	0.13	0.11	0.33	4.7
		370	740	0.23	ND	0.17	3.2
		482	2137	0.35	ND	0.20	3.7
	Channel catfish	531	1934	0.07	ND	0.29	4.9
		572	2138	0.11	ND	0.27	3.7
		461	1119	0.08	0.12	0.26	4.0
		457	1012	0.08	ND	0.21	3.7
		522	1481	0.12	ND	0.23	3.7

Cadmium, chromium, nickel and lead were non-detectable in all samples.

ND = non detect; detection level for arsenic = 1.0 µg/g.

North Carolina Department of Environment and Natural Resources. DWQ. 2001. *Standard Operating Procedure: Biological Monitoring, Stream Fish Community Assessment and Fish Tissue.* Raleigh, NC.

Locations of DWQ Ambient Monitoring and YPDRBA Stations

Table A-II-5 Ambient Monitoring System Stations within the Yadkin-Pee Dee River Basin

Station	Location	Water Classification
03-07-01		
Q0060000	Yadkin River at NC 268 at Patterson	C Tr
Q0220000	Elk Creek at NC 268 at Elkville	B ORW
Q0390000	Yadkin River at Wilkesboro	C
Q0660000	Roaring River at SR 1990 near Roaring River	B
Q0690000	Yadkin River at SR 2327 at Roaring River	WS-V
Q0720000	Yadkin River at SR 2303 at Ronda	WS-IV
03-07-02		
Q0810000	Yadkin River at US 21 Bus at Elkin	C
Q2020000	Little Yadkin River at US52 at Dalton	WS-IV
Q2040000	Yadkin River at SR 1605 at Enon	WS-IV
03-07-03		
Q1780000	Ararat River at SR 2019 at Ararat	C
Q1950000	Ararat River at SR 2080 near Siloam	WS-IV
03-07-04		
Q2510000	Salem Creek at Elledge WWTP at Winston Salem	C
Q2600000	Muddy Creek at SR 2995 near Muddy Creek	C
Q2810000	Yadkin River at US 64 at Yadkin College	WS-IV CA
Q4600000	Grants Creek Below Salisbury and Spencer WWTP	C
Q4660000	Yadkin River at NC 150 near Spencer	WS-V
Q5360000	Town Creek at SR 2168 near Duke	WS-V
Q5970000	Abbotts Creek at NC 47 near Cotton Grove	WS-V & B
Q5990000	Abbotts Creek at SR 2294 near Southmont Duracell	WS-IV & B
03-07-06		
Q3460000	S Yadkin River at SR 1159 near Mocksville	WS-IV
Q3484000	Hunting Creek at SR 2115 near Harmony	WS-III
Q3735000	Fourth Creek at SR 2308 near Elmwood	C
Q3934500	Third Creek at SR 1970 near Woodleaf	WS-IV
Q4120000	Second Creek at US 70 near Barber	WS-IV
03-07-07		
Q5780000	Rich Fork at SR 1800 near Thomasville	C
Q5906000	Hamby Creek at SR 2790 near Holly Grove	C
Q5930000	Abbotts Creek at SR 1243 at Lexington	C
03-07-08		
Q6120000	Yadkin River at SR 1002 at High Rock	WS-IV & B CA
03-07-09		
Q6810000	Uwharrie River at NC 109 near Uwharrie	WS-IV
Q6820000	Dutchman Creek at SR1150 near Uwharrie	WS-IV CA
03-07-10		
Q7150000	Pee Dee River at NC 731 near Shankle	WS-V & B
Q9155000	Brown Creek at SR 1627 near Pinkston	C
Q9160000	Pee Dee River at NC 109 near Mangum	WS-V & B
03-07-11		
Q7330000	Rocky River at SR 2420 near Davidson	C
03-07-12		
Q8090000	Irish Buffalo Creek at SR 1132 near Faggarts	C
Q8210000	Rocky River at US 601 near Concord	C
Q8360000	Goose Creek at SR 1524 near Mint Hill	C
03-07-13		
Q8720000	Long Creek at SR 1954 near Rocky River Springs	C
03-07-14		
Q8917000	Richardson Creek at SR 1649 near Fairfield	C
Q9120000	Rocky River at SR 1935 near Norwood	C
03-07-15		
Q9200000	Little River at SR 1340 near Star	C HQW
03-07-16		
Q9400000	Pee Dee River at US 74 near Rockingham	C
Q9660000	Hitchcock Creek at SR 1109 at Cordova	C
Q9940000	Marks Creek at SR 1812 near Hamlet	C
Q9980000	Pee Dee River at SC Hwy 9 at Cheraw SC	C
03-07-17		
Q9777000	Jones Creek at NC 145 near Pee Dee	C

* An index for DWQ freshwater classifications can be found in Section A, Part 3.2.

Table A-II-6 Yadkin-Pee Dee River Basin Association Monitoring Stations within the Yadkin-Pee Dee River Basin, 1998-2001

Subbasin	Station	Location
03-07-01		
	Q0360000	Reddies River at SR 1517 at N Wilkesboro
	Q0450000	Yadkin River at Business 421
	Q0720000	Yadkin River at SR 2303 near Ronda
03-07-02		
	Q1065000	Mitchell River at SR 1001
	Q1215000	Fisher River at NC 268 near Fairview
	Q1350000	Yadkin River at SR 1003 near Siloam
	Q2090000	North Deep Creek at SR 1605 near Yadkinville
	Q2120000	North Deep Creek at SR 1510 near Yadkinville
	Q2135000	South Deep Creek at SR 1710 near Yadkinville
	Q2180000	Yadkin River at NC 158
03-07-03		
	Q1500000	Ararat River at US 52 near Mt. Airy
	Q1710000	Ararat River 1 mi. below Mt. Airy's WWTP
	Q1725000	Ararat River at SR 2119 near Mt. Airy
	Q1935000	Ararat River at SR 2044 near Mt. Airy
03-07-04		
	Q2291000	Muddy Creek at Interstate 40 near Jonesville
	Q2479455	Salem Creek at SR 2740 near Winston-Salem
	Q2540000	Salem Creek at SR 1120 in Winston-Salem
	Q2570000	Salem Creek at SR 2991 near Winston-Salem
	Q2720000	Muddy Creek at SR 1485 near Winston-Salem
	Q2810000	Yadkin River at US 64 or the Davidson County water intake
	Q4540000	Grants Creek at Third St. extension near Spencer
	Q4600000	Grants Creek below Salisbury & Spencer WWTP D6
	Q4660000	Yadkin River at US 150 near Spencer
	Q5240000	Town Creek at I- 85 near Spencer
	Q5980000	Abbotts Creek at NC 47 near Cotton Grove
03-07-05		
	Q3105000	Dutchman Creek at US 64 near Mocksville
03-07-06		
	Q3555000	Bear Creek at SR 1116 near Mocksville
	Q3720000	Fourth Creek at SR 2316 near Statesville
	Q3735000	Fourth Creek at SR 2308 near Elmwood
	Q3900000	Third Creek at SR 2342 near Statesville
	Q3932000	Third Creek at SR 2359 near Statesville
	Q3970000	South Yadkin River at US 601 near Salisbury
	Q4030000	Second Creek at SR 1526 near Salisbury
	Q4165000	Second Creek at US 601 near Salisbury
03-07-07		
	Q5135000	Swearing Creek at SR 1272 near Linwood
	Q5750000	Rich Fork Creek at SR 1755 near High Point
	Q5785000	Rich Fork Creek at SR 1787 near High Point
	Q5790000	Rich Fork Creek at SR 2123 near High Point
	Q5940000	Abbotts Creek at I 85 near Lexington

Subbasin	Station	Location
03-07-08		
	Q6360000	Yadkin River at NC 8/49 near Richfield
	Q6950000	Little Mountain Creek at SR 1798 near Badin
	Q6960000	Mountain Creek arm of Lake Tillery at boat ramp off SR 1730
	Q7030000	Pee Dee River at NC 24/27 near Albemarle
03-07-09		
	Q6180000	UT to Lick Creek at SR 2505 near Denton
	Q6705000	Uwharrie River at NC 49 near Farmer
03-07-10		
	Q7210000	Clarks Creek at SR 1187 near Mount Gilead
03-07-11		
	Q7330000	Rocky River at SR 2420 near Davidson
	Q7450000	Rocky River at NC 29 near Charlotte
	Q7600000	Rocky River at SR 1304 near Charlotte
	Q7780000	Rocky River at SR 1132 near Concord
03-07-12		
	Q8200000	Coldwater Creek at SR 1132 near Concord
	Q8210000	Rocky River at US 601 near Concord
	Q8340000	UT tributary to Clear Creek at SR 3104
	Q8342000	Clear Creek at US 601 near Brief
	Q8355000	Rocky River at SR 1114 near Midland
	Q8359000	Goose Creek at SR 4228 near Mint Hill
	Q8360000	Goose Creek at SR 1524 near Mint Hill
	Q8385000	Rocky River at SR 1606 near Monroe
	Q8386000	North Fork Crooked Creek at SR 1520 near Monroe
	Q8386200	North Fork Crooked Creek at SR 1514 near Monroe
	Q8388000	Crooked Creek at NC 218 near Monroe
	Q8388900	Crooked Creek at SR 1601
03-07-13		
	Q8715000	Long Creek at SR 1968 near Oakboro
	Q8720000	Long Creek at SR 1917 near Oakboro
03-07-14		
	Q8800000	Richardson Creek at SR 1751 near Monroe
	Q8820000	Richardson Creek at SR 1006 near Monroe
	Q8850000	Richardson Creek at SR 1630 near Monroe
	Q9021300	Lanes Creek at SR 1005 near Marshville
03-07-15		
	Q9320000	Little River at SR 1148 near Ellerbe
	Q9340000	Toms Branch at SR 1310 near Ellerbe
03-07-16		
	Q9400000	Pee Dee River at US 74 near Rockingham

[1] WWTP = wastewater treatment plant; sites recommended by DWQ-BAU = Division of Water Quality-Biological Assessment Unit; NRCS = Natural Resource Conservation Service.

Lakes Assessment

Lake monitoring stations are sited to provide representative samples of lake water quality based on morphology, size and site-specific considerations. Physical field measurements (dissolved oxygen, pH, water temperature and conductivity) are made with a calibrated Hydrolab™. Readings are taken at the surface of the lake (0.15 meters) and at one-meter increments to the bottom of the lake. Secchi depths are measured at each sampling station with a weighted Secchi disk attached to a rope marked off in centimeters. Surface water samples (0.15 meters) are collected for chloride, hardness, fecal coliform bacteria and metals.

A Labline™ sampler is used to composite water samples within the photic zone (a depth equal to twice the Secchi depth). Nutrients, chlorophyll *a*, solids, turbidity and phytoplankton are collected at this depth. Nutrients and chlorophyll *a* from the photic zone are used to calculate the North Carolina Trophic State Index score. The Labline™ sampler is also used to collect a grab water samples near the bottom of the lake for nutrients. Water samples are collected and preserved in accordance with protocols specified in the Standard Operating Procedures Manual, Physical and Chemical Monitoring (NCDEHNR, February 1996 and subsequent updates).

Data results collected from selected lakes in the Yadkin-Pee Dee River basin are presented in Table A-II-7.

Table A-II-7 Surface Physical Data and Photic Zone Chemistry Data Collected from Selected Lakes in the Yadkin-Pee Dee River Basin, 1994-2001

Subbasin/ Waterbody/ Date	Station	Dissolved Oxygen (mg/l)	Water Temperature (°C)	pH (s.u.)	Conductivity (µmhos/cm)	Secchi depth (m)	TP (mg/l)	TKN (mg/l)	NH_3 (mg/l)	NO_x (mg/l)	TN (mg/l)	TON (mg/l)	TIN (mg/l)	CHL *a* (µg/l)	Total Solids (mg/l)	Susp. Solids (mg/l)	Turbidity (NTU)
03-07-01 Kerr Scott Reservoir																	
08/10/2000	YAD007A	8.8	28.4	8.1	43	2.1	0.02	0.40	0.01	0.02	0.42	0.39	0.03		43	1	3.2
08/10/2000	YAD008	10.0	28.5	7.7	43	2.5	0.02	0.30	0.02	<0.01	0.31	0.28	0.03		38	3	2.6
08/10/2000	YAD008A	8.7	28.8	7.9	43	2.4	0.01	0.30	0.06	<0.01	0.31	0.24	0.07		42	1	2.2
07/19/2000	YAD007A	8.7	28.1	7.8	44	2.2	0.01	0.20	<0.01	<0.01	0.21	0.20	0.01		35	3	2.3
07/19/2000	YAD008	9.1	28.0	8.0	44	2.4	0.01	0.20	0.01	<0.01	0.21	0.19	0.02		37	4	2.1
07/19/2000	YAD008A	8.3	28.6	7.9	44	2.8	0.01	0.20	0.05	0.01	0.21	0.15	0.06		38	1	1.6
06/22/2000	YAD007A	8.7	27.0	8.3	45	1.8	0.01	0.30	<0.01	<0.01	0.31	0.30	0.01		34	4	3.3
06/22/2000	YAD008	8.6	27.5	8.2	45	2.0	<0.01	0.40	0.03	0.02	0.42	0.37	0.05		38	5	2.5
06/22/2000	YAD008A	8.3	27.9	8.2	43	2.4	0.01	0.20	<0.01	<0.01	0.21	0.20	0.01		38	2	1.6
08/12/1999	YAD007A	9.0	29.9	8.4	45	1.7	<0.01	0.30	<0.01	<0.01	0.31	0.30	0.01		58	2	3.4
08/12/1999	YAD008	8.4	29.4	8.3	45	1.6	<0.01	0.30	0.03	<0.01	0.31	0.27	0.04		43	1	2.6
08/12/1999	YAD008A	8.3	29.9	8.1	44	1.8	<0.01	0.40	0.33	<0.01	0.41	0.07	0.34		39	1	2.5
07/13/1999	YAD007A	7.5	24.9	7.8	42	1.0	0.02	0.20	0.08	0.08	0.28	0.12	0.16		58	5	8.2
07/13/1999	YAD008	7.8	24.7	6.9	41	1.2	0.02	0.20	0.01	0.06	0.26	0.19	0.07		54	5	6.0
07/13/1999	YAD008A	7.3	24.5	6.8	41	1.6	0.02	0.10	0.04	0.05	0.15	0.06	0.09		57	3	3.6
06/08/1999	YAD007A	8.5	27.5	8.0	49	1.3	0.04	0.40	<0.01	0.04	0.44	0.40	0.05		46	3	2.0
06/08/1999	YAD008	8.8	27.6	8.0	48	1.8	0.03	0.20	<0.01	0.04	0.24	0.20	0.05		41	2	3.0
06/08/1999	YAD008A	8.6	28.0	7.9	46	1.7	0.03	0.20	<0.01	0.06	0.26	0.20	0.07		34	21	3.4
08/11/1994	YAD007A	7.7	27.8	8.3	33	2.3	0.03	0.30	0.03	<0.01	0.31	0.27	0.04	3	53	4	1.8
08/11/1994	YAD008	7.6	28.5	8.1	33	2.3	0.02	0.20	0.04	0.01	0.21	0.16	0.05	6	49	3	2.0
08/11/1994	YAD008A	7.4	28.3	8.2	32	2.2	0.01	0.20	0.05	<0.01	0.21	0.15	0.06	1	55	1	1.6
Salem Lake																	
08/22/2001	YAD077A	7.4	27.4	7.4	95	0.7	0.03	0.4	<0.01	<0.01	0.40	0.39	0.01	15	72	8	7.1
08/22/2001	YAD077B	7.2	27.0	7.4	92	0.9	0.03	0.5	<0.01	<0.01	0.52	0.51	0.01	15	81	7	5.5
08/22/2001	YAD077C	8.0	27.6	7.8	95	1.3	0.02	0.5	<0.01	<0.01	0.47	0.46	0.01	14			2.4
07/16/2001	YAD077A	8.5	27.6	8.3	92	0.9	0.05	0.2	0.15	<0.01	0.23	0.07	0.16	20	97	18	15.0
07/16/2001	YAD077B	8.4	27.5	7.4	90	0.9	0.03	0.3	0.02	<0.01	0.32	0.29	0.03	19	77	6	6.9
07/16/2001	YAD077C	9.3	27.6	8.6	91	1.4	0.02	0.2	0.24	<0.01	0.25	0.00	0.25	12	75	3	2.8
08/02/2000	YAD077A	7.5	27.8	7.3	96	0.7	0.04	0.3	<0.01	<0.01	0.31	0.30	0.01		140	120	9.7
08/02/2000	YAD077B	5.5	27.7	7.2	93	0.6	0.04	0.4	0.10	0.01	0.41	0.30	0.11		68	13	8.7
08/02/2000	YAD077C	8.6	26.7	7.6	96	1.6	0.03	0.4	0.18	<0.01	0.41	0.22	0.19		60	13	2.8
07/24/2000	YAD077A	6.9	24.8	7.3	93	0.6	0.04	0.3	0.03	0.02	0.32	0.27	0.05		91	16	12.0
07/24/2000	YAD077B	8.1	20.0	6.5	100	0.7	0.07	0.6	0.17	0.08	0.68	0.43	0.25		110	32	18.0
07/24/2000	YAD077C	7.1	25.6	7.4	92	1.0	0.02	0.4	0.01	<0.01	0.41	0.39	0.02		82	5	3.5
06/12/2000	YAD077A	8.7	27.4	7.2	88	1.2	0.07	0.2	0.06	<0.01	0.21	0.14	0.07				8.9
06/12/2000	YAD077B	3.4	26.0	7.3	91	1.1	0.03	0.4	0.06	0.09	0.49	0.34	0.15		94	10	5.6
06/12/2000	YAD077C	8.4	27.0	7.2	86	1.8	0.02	0.3	0.07	<0.01	0.31	0.23	0.08		87	5	3.7
08/09/1999	YAD077A	7.3	29.8	8.1	91	0.6	0.04	0.6	<0.01	<0.01	0.61	0.60	0.01		85	16	13.0
08/09/1999	YAD077B	6.4	29.9	7.4	94	0.4	0.04	0.5	<0.01	<0.01	0.51	0.50	0.01		82	13	9.7
08/09/1999	YAD077C	8.1	29.2	7.8	88	1.5	0.01	0.5	<0.01	0.01	0.51	0.50	0.02		73	6	2.5

Subbasin/ Waterbody/ Date	Station	Dissolved Oxygen (mg/l)	Water Temperature (°C)	pH (s.u.)	Conductivity (µmhos/cm)	Secchi depth (m)	TP (mg/l)	TKN (mg/l)	NH_3 (mg/l)	NO_x (mg/l)	TN (mg/l)	TON (mg/l)	TIN (mg/l)	CHL *a* (µg/l)	Total Solids (mg/l)	Susp. Solids (mg/l)	Turbidity (NTU)
07/06/1999	YAD077A	9.4	31.5	8.4	84	1.2	0.03	0.3	<0.01	0.03	0.33	0.30	0.04		65	4	6.3
07/06/1999	YAD077B	8.6	31.8	8.3	83	1.1	0.03	0.4	<0.01	<0.01	0.41	0.40	0.01		73	7	5.6
07/06/1999	YAD077C	8.3	32.0	8.2	84	1.8	0.02	0.4	<0.01	<0.01	0.41	0.40	0.01		60	4	3.6
06/23/1999	YAD077A	7.8	22.3	7.2	85	0.7	0.02	0.3	<0.01	<0.01	0.31	0.30	0.01		71	8	10.0
06/23/1999	YAD077B	7.7	22.5	7.3	85	0.9	0.02	0.3	<0.01	<0.01	0.31	0.30	0.01		77	8	8.3
06/23/1999	YAD077C	7.8	22.9	7.2	80	1.1	0.01	0.3	<0.01	<0.01	0.31	0.30	0.01		66	5	3.3
09/01/1994	YAD077A	8.2	27.0	7.7	79	0.9	0.03	0.5	0.01	0.02	0.52	0.49	0.03	14	81	6	4.5
09/01/1994	YAD077B	8.0	26.8	7.5	78	1.2	0.04	0.3	0.25	0.02	0.32	0.05	0.27	16	86	5	3.0
09/01/1994	YAD077C	7.3	26.6	7.8	78	1.1	0.03	0.4	<0.01	0.02	0.42	0.40	0.03	15	87	10	3.1
High Rock Lake																	
08/16/2001	YAD152A	8.0	29.2	7.8	122	0.4	0.14	0.6	0.02	0.44	1.06	0.60	0.46	15	110	17	14.0
08/16/2001	YAD152C	9.3	29.5	8.7	125	0.8	0.1	0.9	0.01	0.14	1.01	0.86	0.15	40	110	10	6.9
08/16/2001	YAD156A	9.6	29.2	8.8	120	0.7	0.09	0.9	<0.01	<0.01	0.90	0.89	0.01	52	94	9	6.0
08/16/2001	YAD169A	9.1	29.1	8.7	127	0.7	0.06	0.7	0.01	<0.01	0.75	0.73	0.02	39	91	11	5.0
08/16/2001	YAD169B	8.2	28.9	8.8	119	0.8	0.07	0.8	<0.01	0.03	0.78	0.75	0.04	46	97	9	4.9
08/16/2001	YAD169E	8.3	28.9	8.7	123	0.8	0.05	0.7	0.01	<0.01	0.72	0.70	0.02	34	94	9	5.2
08/16/2001	YAD169F	7.9	28.6	8.6	121	0.8	0.06	0.9	<0.01	<0.01	0.87	0.86	0.01	42	98	9	4.9
07/31/2001	YAD1391A	7.0	25.6	7.7	105	0.4	0.22	0.3	0.22	0.87	1.14	0.05	1.09	3	140	40	50.0
07/31/2001	YAD152A	6.6	26.7	7.5	98	0.3	0.2	0.5	0.32	0.83	1.33	0.18	1.15	4	120	24	50.0
07/31/2001	YAD152C	10.6	27.2	8.7	142	0.7	0.11	0.8	0.03	0.35	1.12	0.74	0.38	46	110	13	9.3
07/31/2001	YAD156A	8.1	27.1	8.1	135	0.7	0.1	0.9	0.1	0.24	1.09	0.75	0.34	38	120	12	8.2
07/31/2001	YAD169A	8.8	27.6	8.5	150	0.9	0.07	0.9	0.05	0.04	0.91	0.82	0.09	40	120	12	9.4
07/31/2001	YAD169B	7.4	28.1	8.0	129	0.9	0.09	0.6	0.04	0.21	0.77	0.52	0.25	27	120	26	13.0
07/31/2001	YAD169E	7.4	26.7	7.9	127	0.9	0.05	0.7	0.04	0.09	0.76	0.63	0.13	32	110	9	6.5
07/31/2001	YAD169F	7.0	26.7	7.8	128	1.1	0.06	0.6	0.03	0.21	0.80	0.56	0.24	22	110	25	5.6
08/01/2000	YAD152A	9.0	28.1	8.9	129	0.4	0.15	0.5	0.02	0.01	0.51	0.48	0.03		120	33	23.0
08/01/2000	YAD152C	9.5	28.2	8.9	133	0.4	0.13	0.6	0.02	0.13	0.73	0.58	0.15		100	19	14.0
08/01/2000	YAD156A	8.7	27.3	8.7	128	0.8	0.09	0.4	0.02	0.02	0.42	0.38	0.04		110	14	9.0
08/01/2000	YAD169A	7.8	27.5	8.6	132	0.6	0.07	0.5	<0.01	<0.01	0.51	0.50	0.01		110	11	8.3
08/01/2000	YAD169B	8.2	27.1	8.7	127	0.6	0.08	0.5	<0.01	<0.01	0.51	0.50	0.01		94	10	7.9
08/01/2000	YAD169E	6.8	26.2	7.8	125	0.8	0.06	0.5	0.01	0.16	0.66	0.49	0.17		90	8	5.4
08/01/2000	YAD169F	7.2	26.2	8.1	125	0.8	0.06	0.4	0.07	0.16	0.56	0.33	0.23		100	9	5.4
07/05/2000	YAD1391A	6.6	29.4	7.4	119	0.4	0.20	0.4	0.27	1.00	1.40	0.13	1.27		110	18	24.0
07/05/2000	YAD152A	11.4	28.7	8.9	115	0.6	0.12	0.7	0.01	0.44	1.14	0.69	0.45		87	12	14.0
07/05/2000	YAD152C	12.1	28.8	9.1	123	0.6	0.10	0.6	0.03	0.21	0.81	0.57	0.24		97	10	10.0
07/05/2000	YAD156A	11.8	29.0	9.1	129	0.6	0.09	0.7	0.01	0.15	0.85	0.69	0.16		93	10	8.1
07/05/2000	YAD169A	8.2	28.4	8.2	131	0.6	0.06	1.4	0.03	<0.01	1.41	1.37	0.04		110	12	8.8
07/05/2000	YAD169B	11.7	28.6	9.1	130	0.8	0.09	0.8	<0.01	0.02	0.82	0.80	0.03		110	7	7.3
07/05/2000	YAD169E	11.2	29.0	9.1	127	0.7	0.06	0.8	0.02	<0.01	0.81	0.78	0.03		84	10	6.3
07/05/2000	YAD169F	12.0	29.0	9.1	128	0.7	0.06	0.6	0.03	<0.01	0.61	0.57	0.04		100	9	9.7
06/20/2000	YAD1391A	6.2	29.3	7.6	149	0.5	0.22	0.3	0.11	1.20	1.50	0.19	1.31		120	18	18.0
06/20/2000	YAD152A	6.2	28.1	7.5	137	0.3	0.21	0.4	0.19	0.86	1.26	0.21	1.05		130	30	28.0
06/20/2000	YAD152C	6.4	27.7	7.7	133	0.6	0.11	0.7	0.15	0.51	1.21	0.55	0.66		89	12	11.0
06/20/2000	YAD156A	7.1	27.6	7.9	128	0.8	0.09	0.4	0.07	0.36	0.76	0.33	0.43		99	7	7.1

Subbasin/ Waterbody/ Date	Station	Dissolved Oxygen (mg/l)	Water Temperature (°C)	pH (s.u.)	Conductivity (µmhos/cm)	Secchi depth (m)	TP (mg/l)	TKN (mg/l)	NH_3 (mg/l)	NO_x (mg/l)	TN (mg/l)	TON (mg/l)	TIN (mg/l)	CHL *a* (µg/l)	Total Solids (mg/l)	Susp. Solids (mg/l)	Turbidity (NTU)
06/20/2000	YAD169A	7.6	27.3	7.9	133	0.8	0.05	0.4	0.06	<0.01	0.41	0.34	0.07		89	7	5.5
06/20/2000	YAD169B	7.9	27.5	8.4	123	1.0	0.07	0.4	0.06	0.07	0.47	0.34	0.13		91	5	8.0
06/20/2000	YAD169E	8.5	27.4	8.5	117	1.0	0.05	0.3	0.13	<0.01	0.31	0.17	0.14		80	10	5.8
06/20/2000	YAD169F	8.6	27.6	8.7	120	1.0	0.06	0.4	0.06	0.06	0.46	0.34	0.12		94	5	6.3
08/26/1999	YAD1391A	5.7	26.8	7.1	189	0.3	0.33	0.4	0.13	1.20	1.60	0.27	1.33		190	54	49.0
08/26/1999	YAD152A	8.2	27.6	8.4	149	0.7	0.10	0.6	0.07	0.20	0.80	0.53	0.27		120	7	9.1
08/26/1999	YAD152C	8.8	27.7	8.3	143	0.7	0.10	0.6	0.13	0.21	0.81	0.47	0.34		120	8	9.2
08/26/1999	YAD156A	6.7	27.8	7.5	135	0.7	0.07	0.5	0.10	0.12	0.62	0.40	0.22		110	17	6.6
08/26/1999	YAD169A	6.2	28.4	8.0	134	0.6	0.05	0.5	0.31	0.02	0.52	0.19	0.33		100	9	6.8
08/26/1999	YAD169B	6.8	28.4	7.8	133	0.7	0.06	0.5	0.14	0.11	0.61	0.36	0.25		100	7	7.2
08/26/1999	YAD169E	5.6	28.3	7.2	126	0.9	0.04	0.4	0.06	0.17	0.57	0.34	0.23		99	6	4.8
08/26/1999	YAD169F	3.1	28.1	7.0	123	0.8	0.05	0.4	0.11	0.23	0.63	0.29	0.34		99	6	7.2
07/15/1999	YAD1391A	7.7	22.3	7.9	85	0.4	0.15	0.4	0.14	0.83	1.23	0.26	0.97		120	22	32.0
07/15/1999	YAD152A	9.5	22.1	6.3	103	0.7	0.09	0.4	0.27	0.46	0.86	0.13	0.73		100	7	12.0
07/15/1999	YAD152C	7.2	25.6	7.0	104	0.7	0.09	0.4	0.30	0.41	0.81	0.10	0.71		93	5	7.9
07/15/1999	YAD156A	7.0	25.8	7.1	110	0.8	0.06	0.4	0.30	0.26	0.66	0.10	0.56		99	4	7.6
07/15/1999	YAD169A	7.1	26.1	7.3	131	0.8	0.05	0.5	0.22	0.01	0.51	0.28	0.23		110	6	4.6
07/15/1999	YAD169B	7.3	25.9	7.0	119	0.9	0.05	0.5	0.32	0.15	0.65	0.18	0.47		100	1	5.2
07/15/1999	YAD169E	7.3	25.3	7.1	119	1.2	0.04	0.5	0.21	0.07	0.57	0.29	0.28		130	5	3.7
07/15/1999	YAD169F	5.7	25.6	7.3	116	1.0	0.05	0.4	0.29	0.11	0.51	0.11	0.40		110	<1	5.4
06/03/1999	YAD1391A	7.6	27.8	7.6	124	0.5	0.18	0.2	0.06	0.85	1.05	0.14	0.91		110	18	18.0
06/03/1999	YAD152A	10.3	27.1	8.6	109	0.6	0.09	0.4	0.03	0.34	0.74	0.37	0.37		98	9	9.2
06/03/1999	YAD152C	11.0	26.3	8.0	65	0.5	0.09	0.4	0.01	0.38	0.78	0.39	0.39		100	6	7.7
06/03/1999	YAD156A	10.5	26.7	8.5	109	0.7	0.07	0.4	0.04	0.36	0.76	0.36	0.40		88	4	8.4
06/03/1999	YAD169A	8.5	25.1	7.9	47	0.7	0.05	0.3	0.03	0.15	0.45	0.27	0.18		89	6	4.5
06/03/1999	YAD169B	9.1	24.9	8.1	107	0.9	0.04	0.3	0.01	0.35	0.65	0.29	0.36		79	7	4.7
06/03/1999	YAD169E	9.4	24.5	8.4	104	0.7	0.03	0.2	<0.01	0.27	0.47	0.20	0.28		74	3	4.1
06/03/1999	YAD169F	9.7	25.0	8.5	100	0.9	0.01	0.3	0.02	0.26	0.56	0.28	0.28		80	3	5.3
08/28/1997	YAD1391A	7.4	27.9	7.3	145	0.4	0.12	0.1	0.02	0.69	0.79	0.08	0.71	8	120	20	19.0
08/28/1997	YAD152A	11.1	28.0	8.8	123	0.5	0.04	0.3	<0.01	0.02	0.32	0.30	0.03	35	99	10	6.3
08/28/1997	YAD152C	11.0	28.1	8.8	123	0.5	0.05	0.4	0.01	0.02	0.42	0.39	0.03	49	99	11	6.8
08/28/1997	YAD156A	10.4	28.0	8.6	123	0.6	0.04	0.5	<0.01	0.03	0.53	0.50	0.04	36	99	8	5.9
08/28/1997	YAD169A	9.3	28.1	8.4	121	0.6	0.04	0.4	<0.01	0.02	0.42	0.40	0.03	31	97	9	5.5
08/28/1997	YAD169B	9.8	27.9	8.5	121	0.6	0.03	0.3	<0.01	0.02	0.32	0.30	0.03	33	97	9	5.7
08/28/1997	YAD169E	8.4	27.2	7.9	108	0.6	0.02	0.2	<0.01	0.02	0.22	0.20	0.03	18	82	8	5.6
08/28/1997	YAD169F	6.0	27.1	7.3	118	0.7	0.03	0.3	0.15	0.10	0.40	0.15	0.25	16	85	8	6.0
07/29/1997	YAD1391A	6.1	28.7	7.2	85	0.2	0.18	0.3	0.01	0.65	0.95	0.29	0.66	4	150	48	70.0
07/29/1997	YAD152A	8.0	29.5	7.5	91	0.2	0.13	0.6	<0.01	0.42	1.02	0.60	0.43	17	140	13	55.0
07/29/1997	YAD152C	9.3	30.0	8.3	99	0.4	0.11	0.4	<0.01	0.22	0.62	0.40	0.23	19	130	22	25.0
07/29/1997	YAD156A	10.8	30.5	8.8	102	0.5	0.11	0.4	<0.01	0.08	0.48	0.40	0.09	23	120	23	20.0
07/29/1997	YAD169A	8.1	30.2	8.5	114	0.6	0.06	0.4	<0.01	<0.01	0.41	0.40	0.01	14	100	6	5.4
07/29/1997	YAD169B	10.2	30.2	8.9	103	0.6	0.09	0.4	<0.01	<0.01	0.41	0.40	0.01	25	120	18	15.0
07/29/1997	YAD169E	10.9	30.9	9.0	103	0.6	0.08	0.4	<0.01	0.01	0.41	0.40	0.02	16	120	19	16.0
07/29/1997	YAD169F	11.3	31.1	9.1	106	0.6	0.07	0.4	<0.01	<0.01	0.41	0.40	0.01	22	110	12	8.7
06/25/1997	YAD1391A	6.7	28.1	7.6	94	0.2	0.15	0.3	0.04	0.84	1.14	0.26	0.88	2	100	29	50.0

Subbasin/ Waterbody/ Date	Station	Dissolved Oxygen (mg/l)	Water Temperature (°C)	pH (s.u.)	Conductivity (µmhos/cm)	Secchi depth (m)	TP (mg/l)	TKN (mg/l)	NH_3 (mg/l)	NO_x (mg/l)	TN (mg/l)	TON (mg/l)	TIN (mg/l)	CHL *a* (µg/l)	Total Solids (mg/l)	Susp. Solids (mg/l)	Turbidity (NTU)
06/25/1997	YAD152A	10.5	29.7	8.7	93	0.7	0.07	0.3	<0.01	0.36	0.66	0.30	0.37	14	75	6	11.0
06/25/1997	YAD152C	10.4	29.3	8.7	95	0.7	0.07	0.3	<0.01	0.39	0.69	0.30	0.40	14	75	5	9.6
06/25/1997	YAD156A	9.2	29.0	8.5	93	0.9	0.05	0.2	0.02	0.35	0.55	0.18	0.37	10	75	4	6.3
06/25/1997	YAD169A	9.4	30.2	8.8	95	1.0	0.04	0.3	<0.01	0.17	0.47	0.30	0.18	11	71	2	4.3
06/25/1997	YAD169B	10.1	29.8	8.9	93	1.1	0.05	0.3	<0.01	0.21	0.51	0.30	0.22	10	79	2	4.3
06/25/1997	YAD169E	10.1	28.3	8.9	90	0.8	0.05	0.2	<0.01	0.17	0.37	0.20	0.18	13	77	6	4.1
06/25/1997	YAD169F	10.0	28.6	8.9	93	0.9	0.05	0.2	<0.01	0.17	0.37	0.20	0.18	12	72	5	4.3
07/20/1994	YAD1391A	7.5	29.8	7.2	113	0.4	0.30	0.5	0.04	0.60	1.10	0.46	0.64	3	130	59	22.0
07/20/1994	YAD152A	10.7	29.8	9.0	106	0.7	0.14	0.3	0.04	0.17	0.47	0.26	0.21	17	86	12	7.6
07/20/1994	YAD152C	9.6	29.8	9.1	106	0.7	0.07	0.6	<0.01	<0.01	0.61	0.60	0.01	15	77	10	5.8
07/20/1994	YAD156A	8.1	29.2	8.6	103	0.7	0.10	0.4	0.02	0.88	1.28	0.38	0.90	16	75	10	6.0
07/20/1994	YAD169A	7.9	29.9	9.1	111	0.7	0.07	0.5	0.04	<0.01	0.51	0.46	0.05	13	75	10	5.1
07/20/1994	YAD169B	8.2	29.7	9.1	107	0.8	0.07	0.5	<0.01	<0.01	0.51	0.50	0.01	21	72	9	4.5
07/20/1994	YAD169E	8.2	29.9	9.2	108	0.7	0.05	0.5	0.01	<0.01	0.51	0.49	0.02	16	69	11	4.8
07/20/1994	YAD169F	8.1	29.7	9.2	108	0.8	0.05	0.6	0.02	<0.01	0.61	0.58	0.03	15	75	9	4.2
08/24/1994	YAD122B	8.9	26.3	6.4	62	0.9	0.11	0.5	0.03	0.01	0.51	0.47	0.04	26	83	10	7.2
08/24/1994	YAD122D	9.0	26.2	7.2	62	0.8	0.09	0.6	0.02	<0.01	0.61	0.58	0.03	17	70	5	5.2
03-07-07 Lake Thom-A-Lex																	
08/22/2001	YAD160B	8.8	28.6	8.3	109	0.5	0.06	0.8	<0.01	<0.01	0.85	0.84	0.01	31	110	14	11.0
08/22/2001	YAD1611A	8.7	29.5	8.3	109	0.8	0.04	0.7	<0.01	<0.01	0.66	0.65	0.01	24	110	8	4.8
07/18/2001	YAD160B	8.5	28.5	8.3	104	0.7	0.05	0.8	0.03	<0.01	0.85	0.81	0.04	28	100	9	10.0
07/18/2001	YAD1611A	8.7	28.7	8.2	103	1.0	0.04	0.6	0.04	<0.01	0.62	0.57	0.05	28	83	5	4.0
08/02/2000	YAD160B	7.9	27.7	8.0	106	0.7	0.05	0.4	0.01	<0.01	0.41	0.39	0.02		99	10	11.0
08/02/2000	YAD1611A	8.2	26.8	7.9	101	1.0	0.04	0.3	<0.01	<0.01	0.31	0.30	0.01		92	10	6.1
07/24/2000	YAD160B	5.8	25.0	7.3	111	0.5	0.06	0.7	0.06	0.01	0.71	0.64	0.07		110	15	16.0
07/24/2000	YAD1611A	7.0	26.1	7.4	104	0.9	0.03	0.4	0.12	<0.01	0.41	0.28	0.13		90	5	4.2
06/01/2000	YAD160B	10.7	26.6	8.3	110	1.0	0.07	0.5	0.10	<0.01	0.51	0.40	0.11		130	34	29.0
06/01/2000	YAD1611A	8.5	26.1	7.9	108	1.4	0.18	0.5	0.13	<0.01	0.51	0.37	0.14		300	2	120.0
08/09/1999	YAD160B	8.0	29.2	7.8	96	0.9	0.04	0.5	<0.01	<0.01	0.51	0.50	0.01		81	4	7.2
08/09/1999	YAD1611A	8.1	29.2	8.3	85	1.1	0.02	0.5	<0.01	<0.01	0.51	0.50	0.01		82	3	3.1
07/07/1999	YAD160B	9.9	30.9	8.5	88	0.5	0.03	0.4	<0.01	<0.01	0.41	0.40	0.01		83	11	15.0
07/07/1999	YAD1611A	9.1	30.2	8.3	83	0.7	0.05	0.4	<0.01	<0.01	0.41	0.40	0.01		76	10	9.9
06/21/1999	YAD160B	6.4	21.5	7.1	95	0.4	0.06	0.5	0.12	<0.01	0.51	0.38	0.13		110	16	20.0
06/21/1999	YAD1611A	7.0	22.5	7.1	88	0.8	0.03	0.4	0.09	<0.01	0.41	0.31	0.10		90	4	7.6
07/19/1994	YAD160B	8.3	29.7	8.4	85	0.6	0.05	0.4	0.03	0.01	0.41	0.37	0.04	15	89	10	9.4
07/19/1994	YAD1611A	7.8	29.5	7.7	79	1.1	0.01	0.4	0.03	0.01	0.41	0.37	0.04	8	78	6	4.4
03-07-08 Tuckertown Reservoir																	
08/03/1999	YAD172C	7.7	30.0	8.2	116	0.5	0.09	0.5	<0.01	<0.01	0.51	0.50	0.01		75	4	6.4
08/03/1999	YAD1780A	9.5	30.5	8.9	113	0.6	0.05	0.8	0.07	<0.01	0.81	0.73	0.08		84	4	3.6
07/08/1999	YAD172C	7.4	29.0	7.8	120	0.8	0.04	0.5	0.01	0.03	0.53	0.49	0.04		81	8	4.5
07/08/1999	YAD1780A	9.2	30.0	8.1	119	1.0	0.04	0.5	<0.01	<0.01	0.51	0.50	0.01		87	6	2.5
06/03/1999	YAD172C	8.0	25.2	7.8	96	0.7	0.06	0.3	0.07	0.33	0.63	0.23	0.40		90	6	8.8
06/03/1999	YAD1780A	9.1	26.0	8.6	95	1.1	0.04	0.2	0.02	0.24	0.44	0.18	0.26		82	6	3.9
07/19/1994	YAD172C	4.7	29.1	7.8	110	0.6	0.07	0.7	0.25	0.05	0.75	0.45	0.30	21	110	9	8.1
07/19/1994	YAD1780A	8.6	29.6	8.7	107	0.7	0.05	0.5	0.03	<0.01	0.51	0.47	0.04	24	94	7	4.1

Subbasin/ Waterbody/ Date	Station	Dissolved Oxygen (mg/l)	Water Temperature (°C)	pH (s.u.)	Conductivity (µmhos/cm)	Secchi depth (m)	TP (mg/l)	TKN (mg/l)	NH_3 (mg/l)	NO_x (mg/l)	TN (mg/l)	TON (mg/l)	TIN (mg/l)	CHL *a* (µg/l)	Total Solids (mg/l)	Susp. Solids (mg/l)	Turbidity (NTU)
Badin Lake																	
08/03/1999	YAD178B	8.6	30.1	8.5	108	0.9	0.02	0.4	<0.01	0.02	0.42	0.40	0.03		69	5	3.7
08/03/1999	YAD178E	7.6	30.3	7.9	98	1.6	0.01	0.4	0.01	0.02	0.42	0.39	0.03		65	1	1.6
08/03/1999	YAD178F	8.1	30.6	8.7	107	1.5	0.02	0.4	<0.01	<0.01	0.41	0.40	0.01		70	3	1.9
08/03/1999	YAD178F1	8.2	30.9	8.8	109	1.5	0.02	0.5	<0.01	0.01	0.51	0.50	0.02		74	2	2.1
07/08/1999	YAD178B	9.0	30.4	8.3	104	1.2	0.02	0.3	<0.01	0.09	0.39	0.30	0.10		77	3	2.6
07/08/1999	YAD178E	8.7	30.2	7.9	93	1.2	0.01	0.4	<0.01	0.05	0.45	0.40	0.06		76	3	1.9
07/08/1999	YAD178F	9.0	29.2	8.1	100	1.3	0.02	0.3	<0.01	0.07	0.37	0.30	0.08		110	3	1.8
07/08/1999	YAD178F1	8.7	29.2	7.9	101	1.4	0.01	0.3	<0.01	0.10	0.40	0.30	0.11		69	3	1.8
06/07/1999	YAD178B	10.3	27.4	8.9	97	1.0	0.04	0.3	0.03	0.15	0.45	0.27	0.18		81	9	3.5
06/07/1999	YAD178E	9.4	27.6	8.7	92	1.0	0.03	0.3	0.05	0.08	0.38	0.25	0.13		80	6	4.9
06/07/1999	YAD178F	10.4	26.7	9.1	96	1.0	0.03	0.3	0.04	0.10	0.40	0.26	0.14		86	6	3.8
06/07/1999	YAD178F1	8.7	26.7	8.6	94	0.8	0.03	0.3	0.04	0.17	0.47	0.26	0.21		87	18	4.8
07/28/1994	YAD178B	4.8	28.0	7.0	104	0.8	0.02	0.5	0.17	0.08	0.58	0.33	0.25	7	90	4	4.7
07/28/1994	YAD178E	6.4	28.2	7.2	94	1.4	0.01	0.3	0.07	0.07	0.37	0.23	0.14	6	72	1	2.0
07/28/1994	YAD178F	4.2	27.7	6.9	104	1.2	0.03	0.5	0.18	0.08	0.58	0.32	0.26	7	86	3	2.8
07/28/1994	YAD178F1	4.1	27.5	6.9	101	1.4	0.01	0.4	0.11	0.14	0.54	0.29	0.25	6	87	1	1.8
Lake Tillery																	
08/03/1999	YAD185A	4.8	27.6	6.8	104	1.1	0.02	0.3	0.01	0.20	0.50	0.29	0.21		81	2	2.4
08/03/1999	YAD189	6.2	28.4	7.1	102	1.5	0.01	0.3	<0.01	0.12	0.42	0.30	0.13		75	1	2.1
08/03/1999	YAD189B	8.0	29.7	8.2	97	1.4	0.01	0.3	<0.01	<0.01	0.31	0.30	0.01		82	2	3.1
08/03/1999	YAD189C	8.6	30.5	8.7	96	1.5	0.01	0.4	<0.01	<0.01	0.41	0.40	0.01		78	2	1.8
07/08/1999	YAD185A	9.5	30.9	8.4	94	1.5	<0.01	0.4	<0.01	0.10	0.50	0.40	0.11		74	3	2.6
07/08/1999	YAD189	9.2	31.0	8.7	93	1.5	0.01	0.3	<0.01	0.13	0.43	0.30	0.14		74	2	2.0
07/08/1999	YAD189B	9.2	31.4	8.6	94	1.5	<0.01	0.3	<0.01	0.14	0.44	0.30	0.15		75	2	1.8
07/08/1999	YAD189C	8.9	31.2	8.4	94	1.7	<0.01	0.4	<0.01	0.15	0.55	0.40	0.16		76	3	2.1
06/02/1999	YAD185A	9.8	25.1	7.8	93	1.5	0.02	0.2	<0.01	0.28	0.48	0.20	0.29		72	2	4.6
06/02/1999	YAD189	9.2	25.4	7.8	94	1.7	0.02	0.2	0.01	0.30	0.50	0.19	0.31		74	3	3.3
06/02/1999	YAD189B	9.5	24.9	7.6	92	1.6	0.02	0.2	<0.01	0.31	0.51	0.20	0.32		75	2	2.7
06/02/1999	YAD189C	9.1	24.5	6.9	91	2.0	0.01	0.3	<0.01	0.36	0.66	0.30	0.37		72	1	1.8
07/26/1994	YAD185A	7.0	28.3	7.4	88	1.4	0.02	0.4	0.02	0.21	0.61	0.38	0.23	7	67	2	2.0
07/26/1994	YAD189	8.1	29.6	7.9	80	1.4	0.02	0.4	0.03	0.11	0.51	0.37	0.14	3	65	3	2.4
07/26/1994	YAD189B	8.2	28.9	7.8	80	1.5	0.02	0.4	0.01	0.12	0.52	0.39	0.13	6	64	2	1.9
07/26/1994	YAD189C	8.4	29.1	7.9	80	1.5	0.02	0.3	0.01	0.12	0.42	0.29	0.13	4	70	1	2.0
Back Creek Lake																	
08/29/2001	YAD181J	8.2	28.5	7.5	97	0.8	0.06	0.7	<0.01	<0.01	0.74	0.73	0.01	27	92	7	<1
08/29/2001	YAD181K	8.2	28.5	7.6	97	1.2	0.04	0.7	<0.01	<0.01	0.69	0.68	0.01	6	84	5	<1
08/29/2001	YAD181L	9.0	28.1	7.9	98	1.2	0.04	0.7	0.02	<0.01	0.67	0.64	0.03	19	87	5	<1
07/19/2001	YAD181J	8.0	28.1	7.6	94	1.0	0.05	0.8	0.04	<0.01	0.78	0.73	0.05	27	71	7	7.2
07/19/2001	YAD181K	8.7	28.0	8.0	93	1.1	0.04	0.7	0.03	<0.01	0.73	0.69	0.04	19	77	4	3.3
07/19/2001	YAD181L	8.4	27.6	7.9	92	1.2	0.03	0.9	0.21	<0.01	0.89	0.67	0.22	14	71	12	6.4
07/07/1999	YAD181J	8.4	30.8	8.2	100	0.7	0.07	0.5	0.02	<0.01	0.51	0.48	0.03		71	12	6.4
07/07/1999	YAD181K	9.0	29.7	8.6	99	1.0	0.04	0.4	0.02	<0.01	0.41	0.38	0.03		80	9	3.8
07/07/1999	YAD181L	8.0	29.2	7.9	98	0.9	0.04	0.4	0.04	<0.01	0.41	0.36	0.05		70	8	4.5
06/03/1999	YAD181J	10.4	26.8	10.1	95	0.5	0.08	0.4	0.01	<0.01	0.41	0.39	0.02		110	11	8.1

Subbasin/ Waterbody/ Date	Station	Dissolved Oxygen (mg/l)	Water Temperature (°C)	pH (s.u.)	Conductivity (µmhos/cm)	Secchi depth (m)	TP (mg/l)	TKN (mg/l)	NH_3 (mg/l)	NO_x (mg/l)	TN (mg/l)	TON (mg/l)	TIN (mg/l)	CHL *a* (µg/l)	Total Solids (mg/l)	Susp. Solids (mg/l)	Turbidity (NTU)
06/03/1999	YAD181K	9.2	26.6	8.4	94	0.9	0.05	0.3	0.02	<0.01	0.31	0.28	0.03		100	6	5.2
06/03/1999	YAD181L	9.0	26.6	8.1	95	0.8	0.07	0.4	0.02	<0.01	0.41	0.38	0.03		120	9	6.6
08/23/1994	YAD181J	7.8	28.9	7.0	79	0.6	0.06	0.6	0.01	<0.01	0.61	0.59	0.02	6	110	8	6.6
08/23/1994	YAD181K	8.1	28.7	7.1	77	0.7	0.06	0.5	<0.01	<0.01	0.51	0.50	0.01	15	97	6	4.2
08/23/1994	YAD181L	6.7	28.1	7.1	78	0.7	0.08	0.5	0.01	<0.01	0.51	0.49	0.02	22	120	7	6.0
Lake Reese																	
08/29/2001	YAD179B	8.4	28.9	7.7	97	0.6	0.03	0.7	0.04	<0.01	0.68	0.63	0.05	20	90	7	1.1
08/29/2001	YAD179D	8.8	28.6	8.1	95	0.8	0.03	0.8	<0.01	<0.01	0.83	0.82	0.01	5	94	7	1.0
08/29/2001	YAD179F	9.3	28.1	8.3	93	0.8	0.02	0.7	0.01	<0.01	0.70	0.68	0.02	16	100	5	1.1
07/19/2001	YAD179B	7.8	29.6	7.8	99	0.8	0.05	0.6	0.11	<0.01	0.63	0.51	0.12	18	72	10	8.7
07/19/2001	YAD179D	8.9	28.9	8.4	96	1.1	0.04	0.6	0.34	<0.01	0.59	0.24	0.35	21	80	5	3.7
07/19/2001	YAD179F	8.4	28.3	8.1	96	1.2	0.02	0.6	0.03	<0.01	0.60	0.56	0.04	9	53	4	4.2
08/09/2000	YAD179B	8.6	29.5	7.9	112	1.2	0.02	0.4	0.05	0.05	0.45	0.35	0.10	29	90	5	5.5
08/09/2000	YAD179D	8.7	29.8	8.1	113	1.5	0.01	0.4	0.40	0.05	0.45	0.00	0.45	63	89	4	4.3
08/09/2000	YAD179F	8.5	30.4	8.1	110	2.3	0.01	0.4	<0.01	0.01	0.41	0.40	0.02		88	1	2.6
07/06/2000	YAD179B	8.3	28.2	7.5	110	1.1	0.02	0.5	0.03	<0.01	0.51	0.47	0.04		96	6	4.5
07/06/2000	YAD179D	8.2	28.6	8.1	118	1.4	0.02	0.3	0.08	<0.01	0.31	0.22	0.09		89	5	4.2
07/06/2000	YAD179F	8.1	28.9	8.0	116	2.0	0.01	0.4	0.13	<0.01	0.41	0.27	0.14			5	3.6
06/05/2000	YAD179B	7.4	25.4	7.7	115	1.0	0.03	0.4	0.03	<0.01	0.41	0.37	0.04		100	9	7.3
06/05/2000	YAD179D	7.8	25.4	7.6	109	1.4	0.02	0.3	0.02	<0.01	0.31	0.28	0.03		100	19	8.5
06/05/2000	YAD179F	7.5	25.8	7.6	107	1.6	0.04	0.3	0.03	<0.01	0.31	0.27	0.04		130	39	2.5
08/24/1999	YAD179B	6.0	27.9	7.1	117	0.8	0.03	0.5	0.04	<0.01	0.51	0.46	0.05		110	12	9.6
08/24/1999	YAD179D	7.6	26.6	7.4	117	1.1	0.01	0.4	0.05	0.03	0.43	0.35	0.08		95	4	4.8
08/24/1999	YAD179F	7.0	27.5	7.9	111	1.1	0.01	0.5	<0.01	0.01	0.51	0.50	0.02		100	4	3.8
07/21/1999	YAD179B	7.9	28.9	7.5	42	1.1	<0.01	0.4	0.01	0.01	0.41	0.39	0.02		95	6	4.9
07/21/1999	YAD179D	8.3	29.1	7.6	113	1.7	0.02	0.3	0.03	<0.01	0.31	0.27	0.04		93	1	3.5
07/21/1999	YAD179F	8.2	29.3	7.6	113	2.0	0.03	0.4	0.01	<0.01	0.41	0.39	0.02		89	4	2.9
06/16/1999	YAD179B	5.4	25.9	7.3	115	0.7	0.02	0.3	<0.01	<0.01	0.31	0.30	0.01		98	6	7.0
06/16/1999	YAD179D	7.3	25.8	7.3	115	0.9	0.01	0.2	<0.01	<0.01	0.21	0.20	0.01		99	2	4.5
06/16/1999	YAD179F	7.3	28.0	7.4	68	1.1	0.01	0.2	<0.01	<0.01	0.21	0.20	0.01		100	1	4.1
08/25/1994	YAD179B	8.6	26.8	7.8	87	1.1	0.04	0.4	<0.01	<0.01	0.41	0.40	0.01	3	74	6	5.6
08/25/1994	YAD179D	8.6	26.5	8.0	86	1.0	0.05	0.4	<0.01	<0.01	0.41	0.40	0.01	4	73	7	3.9
08/25/1994	YAD179F	8.2	26.2	7.9	85	1.2	0.04	0.4	<0.01	<0.01	0.41	0.40	0.01	5	67	4	3.1
03-07-10 Blewett Falls Reservoir																	
08/03/1999	YAD260B	7.6	30.1	8.4	128	1.1	0.04	0.8	<0.01	<0.01	0.81	0.80	0.01		76	6	3.4
07/08/1999	YAD260B	10.5	31.4	8.9	135	1.0	0.03	0.4	<0.01	0.08	0.48	0.40	0.09		97	4	2.6
06/02/1999	YAD260B	10.6	26.0	9.2	130	1.0	0.05	0.2	<0.01	0.17	0.37	0.20	0.18		85	5	4.9
07/26/1994	YAD260B	8.8	28.7	8.1	103	0.7	0.06	0.4	0.02	0.48	0.88	0.38	0.50	7	94	6	6.5
06/21/2000	YAD216A	8.5	28.1	8.5	139	0.8	0.02	0.4	<0.01	<0.01	0.41	0.40	0.01		100	5	9.2
08/02/1995	YAD215R	8.0	30.6	6.9	97	0.6	0.13	0.5	0.06	<0.01	0.51	0.44	0.07	<1	140	43	25.0
08/02/1995	YAD215T	9.2	30.5	8.1	90	1.0	0.06	0.4	0.02	<0.01	0.41	0.38	0.03	9	90	10	6.2
08/02/1995	YAD216A	8.9	30.5	8.1	87	0.8	0.06	0.4	0.02	<0.01	0.41	0.38	0.03	8	110	9	5.2

[1] Abbreviations are TP = total phosphorus, TKN = total Kjeldahl nitrogen, NH_3 = ammonia nitrogen, NO_x = nitrate + nitrite nitrogen, TON = total organic nitrogen, TIN = total inorganic nitrogen, and Chl *a* = chlorophyll *a*.