DEVELOPMENT OF REGIONALLY-BASED pH CRITERIA FOR WADEABLE STREAMS

Tennessee Department of Environment and Conservation
Division of Water Pollution Control
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A Criteria Development Document Prepared for the Tennessee Water Quality Control Board

by

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Cover photo of Mike Robins taking pH readings was provided by Dan Murray, Mining Section, KEAC, TDEC.

EXECUTIVE SUMMARY

The purpose of this study was to develop regional pH criteria for wadeable streams and rivers based on reference data collected in least impaired, yet representative, streams in each of 25 ecological subregions across the state. An ecoregion is a relatively homogenous area defined by similarity of climate, landform, soil, potential natural vegetation, hydrology and other ecological relevant variables. Ninety-eight reference streams were monitored seasonally between 1995 and 2002, resulting in 1,054 pH readings. These data provided a scientifically defensible method for development of regional pH criteria. The Division is recommending these regional criteria be formalized in the General Water Quality Criteria. These criteria will only be applicable to wadeable streams and rivers. The existing statewide pH criteria of 6.5 to 9.0 will still be used for wetlands, non-wadeable streams and rivers, as well as lakes and reservoirs.

Tennessee's existing statewide pH criterion is 6.5 to 9.0 standard units. Reference stream data generated as part of the ecoregion project indicated this did not reflect background water quality conditions in many areas and did not allow for obvious regional differences. The majority of reference stream data fell between 6.0 and 8.5. At test sites in most ecological subregions, pH values above reference condition (between 8.5 and 9.0) also supported a healthy benthic community. Therefore, a range of 6.0 to 9.0 is recommended as being protective, yet not overly restrictive in the majority of Tennessee's ecoregions. A survey of pH criteria in seven other states, demonstrated this was reflective of the southeast. Six of these states use 6.0 as their lower pH limit. Only Mississippi uses 6.5.

There was some regional variation in Tennessee's background pH levels. According to reference stream data, pH values below 6.0 support healthy biological communities in three subregions. The aquatic community in these regions appear adapted to the naturally acidic conditions. However, due to the relationship between pH and metals toxicity establishing the lower range of the criterion below 5.5 was not considered appropriate. On the other hand, pH levels at the upper criteria limit of 9.0 could also be detrimental to the aquatic life in these naturally acidic streams. Therefore, the Division is proposing that pH criteria in these three regions be based on the 10^{th} and 90^{th} percentile of reference data with some adjustments based on test data.

Stream size has the potential to affect background pH levels. Therefore, streams of various sizes were statistically compared for similarity in pH in the three regions where reference data indicated pH values below 6.0 were supportive of aquatic life. Stream size was found to make a significant difference in pH values in two regions. Larger streams tended to fall within the 6.0 to 9.0 range, while small streams were more acidic. Therefore, pH criteria dependent on stream size were proposed in these regions.

Existing reference sites will be monitored in the future on a five-year rotation in conjunction with watershed monitoring. Should future watershed monitoring activities or ecoregion efforts in nearby states uncover additional reference quality streams, these data will be used to augment the existing databases. As appropriate, pH criteria can be adjusted in future triennial reviews as more data become available.

1. INTRODUCTION

1.0 Study Purpose

Tennessee currently has a statewide pH criterion of 6.5 to 9.0 standard units. The purpose of this study was to develop regional pH criteria for wadeable streams and rivers based on reference data collected in least impaired, yet representative, streams in each of 25 ecological subregions across the state. An ecoregion is a relatively homogenous area defined by similarity of climate, landform, soil, potential natural vegetation, hydrology and other ecological relevant variables.

As part of the ecoregion project, ninety-eight reference streams were monitored seasonally between 1995 and 2002, resulting in 1,054 pH readings. These data indicated that the existing statewide pH criterion did not adequately reflect background water quality conditions for streams in many areas and did not allow for obvious regional differences. The reference data provided a scientifically defensible method for development of regional pH criteria. The Division is recommending these regional criteria be formalized in the General Water Quality Criteria.

Recently, a 26th ecological subregion has been identified in Tennessee called the Broad Basins (66j). Also occurring in North Carolina and Georgia, this region includes the Copper Basin in Tennessee, an area where historical mining activities have led to the release of a considerable amount of acidity. As reference streams have not yet been located or monitored in this region, the basis for a pH criterion specific to this region cannot yet be established.

The proposed regional criteria will only be applicable to wadeable streams and rivers. The existing statewide pH criterion of 6.5 to 9.0 will still be used for wetlands, non-wadeable streams and rivers, as well as lakes and reservoirs until further studies can be conducted.

1.1 Background

A common cause of acidity in Tennessee streams is resource extraction, particularly surface and underground coal mining activities. Additionally, rock formations containing sulfur can release acidity when disturbed by construction activities. Acid precipitation is another factor affecting stream pH.

Alkalinity is generally a problem more common in lakes and reservoirs than streams. The most common cause of alkalinity in surface waters in Tennessee is eutrophication that, although a natural process, is accelerated by nutrient pollution and organic enrichment.

1.2 Definition of pH

pH is a way of expressing both acidity and alkalinity on a scale whose values run from 0 to 14. A pH of 7 represents neutrality, numbers less than seven measure increasing acidity and numbers greater than seven indicate increasing alkalinity (Figure 1).

The concentration of the hydrogen ion [H+] activity in a solution determines the pH. Mathematically this is expressed as:

$$pH = - \log [H+]$$

The pH value is the negative power to which 10 must be raised to equal the hydrogen ion concentration. Because these are logarithmic values, each integer represents a H+ concentration ten times greater than the next highest number. Therefore, pH 8 is ten times more alkaline than pH 7 (neutral) and pH 5 is 100 times more acidic than pH 7.

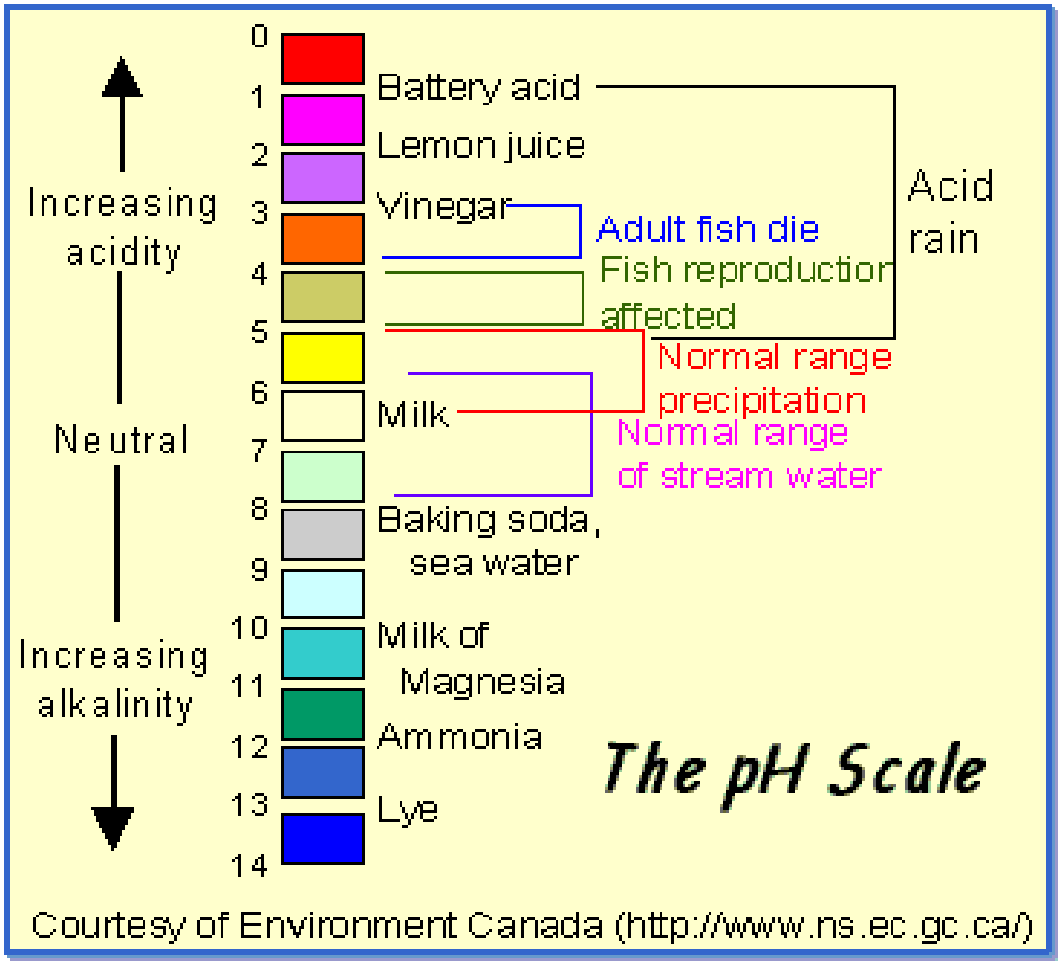


Figure 1: Illustration of pH scale.

2. EFFECTS OF pH ON AQUATIC LIFE

When streams become excessively acidic or alkaline, the change can adversely impact the biota. As those fish and macroinvertebrates unable to tolerate the altered conditions decline, tolerant organisms increase in numbers due to a lack of competition for food and habitat. This results in an unhealthy biological community dominated by a few tolerant taxa. pH can affect aquatic life in the following ways.

a. pH can have a direct affect on the physiology of an organism. Low pH causes a disturbance of the balance of sodium and chloride ions in the blood of aquatic animals. If the pH falls below an animal's tolerance range, death will occur due to respiratory or osmoregulatory failure (Kimmel, 1983).

   Mayflies are one of the most sensitive groups of aquatic insects to low pH. Stoneflies and caddisflies are generally less sensitive. Mayflies and other insects that normally live in neutral water experience a greater loss of sodium in their blood when exposed to low pH than do acid tolerant species (Sutcliffe and Hildrew, 1989). Fish have also been shown to be affected by a loss of sodium ions and experience altered gill function at low pH (Brown and Sadler, 1989).

b. pH can have an affect on the development, molting and emergence of macroinvertebrates. Many macroinvertebrates such as crustaceans and mollusks have exoskeletons or shells made of calcium that is extracted from the water. Acidic conditions inhibit calcium uptake by the organism while at the same time increasing dissolution rates. The shell or exoskeleton is thus weakened or softened. The animal becomes vulnerable without the hardened exoskeleton or shell for protection usually resulting in death of the organism. Growth is also inhibited since the shell or exoskeleton cannot develop properly after molting.

c. pH can increase the toxicity of other pollutants in the water. The pH of water determines the solubility and biological availability of heavy metals. Metals tend to be more toxic at lower pH because they are more soluble. Runoff from mines, agricultural, domestic, and industrial areas may contain iron, aluminum, ammonia, mercury or other elements. The pH of the water determines the toxic effects, if any, of these substances.

   For example, aluminum can occur in high concentrations as a result of drainage from coal mines, acid precipitation and breakdown of clays. Stream surveys conducted in Pennsylvania have indicated that a combination of pH less than 5.5 and dissolved aluminum concentrations greater than 0.5 mg/L will generally eliminate all fish and many macroinvertebrates (Earle and Callaghan, 1998).

Elevated pH can also cause the toxicity of other pollutants. For example, at lower pH levels ammonia is ionized and not toxic to aquatic life. Above a pH of 9 (depending on temperature), ammonia becomes un-ionized and therefore toxic. An increase of one pH unit will generally increase ammonia toxicity by a factor of ten.

One of the most significant environmental impacts of pH involves synergistic effects. Synergy involves the combination of two or more substances that produce effects greater than their sum, a process important in surface waters. For example at lower pH levels, the toxicity of copper increases in the presence of zinc.

d. pH can also affect the physical habitat in the stream. Benthic organisms are dependent on clean substrates. Iron is a common pollutant associated with coalmines. The iron stays in solution at a pH below 3.5 (occurring in some mine outfalls). When the pH rises above 3.5, iron precipitates out of the water and does not reenter solution at higher pH (Earle and Callaghan, 1998). Precipitation of ferric hydroxide may result in a complete blanketing of the stream bottom. This makes the substrate uninhabitable for benthic fish such as darters and benthic macroinvertebrates such as mayflies.

3. DATA COLLECTION

A method was needed for comparing the existing conditions found in a stream to relatively unimpaired streams. This "reference condition" needed to be established within a similar area to avoid inappropriate comparisons. Ecoregions appeared to be the best geographic basis upon which to make this assessment. An ecoregion is a relatively homogenous area defined by similarity of climate, landform, soil, potential natural vegetation, hydrology and other ecologically relevant variables.

In order to delineate ecoregions and isolate reference streams, the Division of Water Pollution Control initiated the Tennessee ecoregion project that began in 1993 and concluded in 1999. Details of that project, including delineation of ecoregion boundaries, descriptions of subregions, reference stream selection and monitoring protocols as well as data summaries can be found in the *Tennessee Ecoregion Project* (Arnwine et al, 2000). The data generated from the reference streams identified as part of this project were used to develop this proposal for regionally based pH criteria.

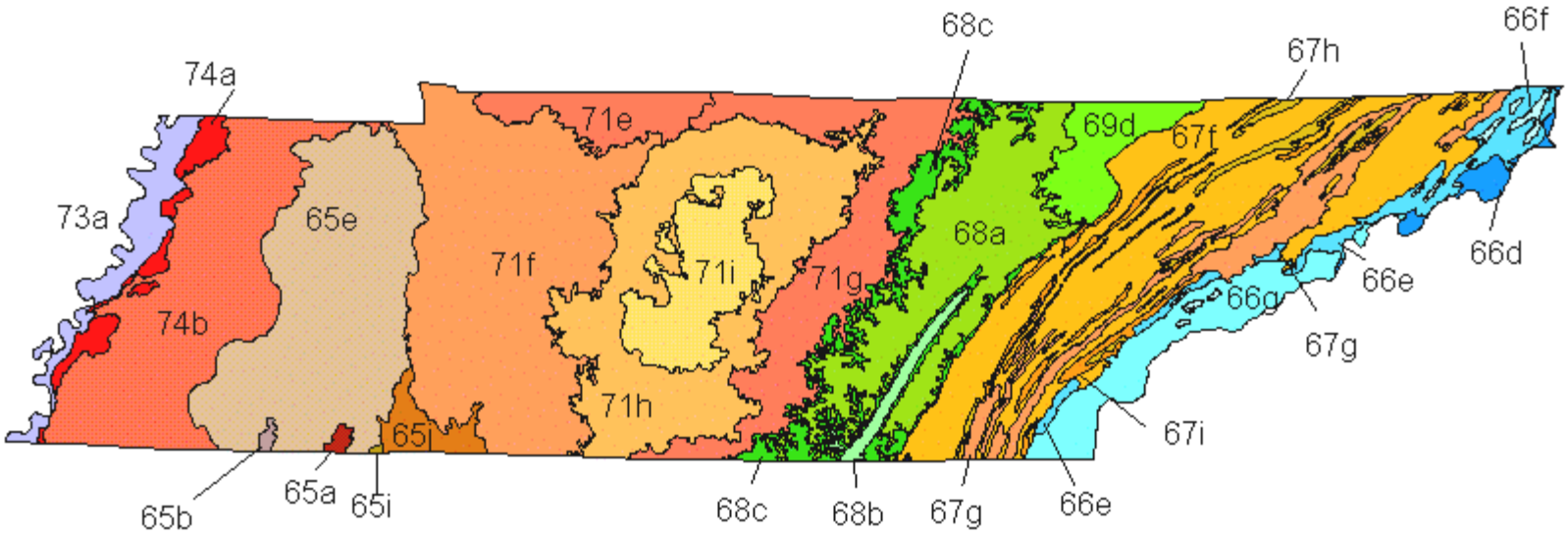
3.0 Delineation of Ecological Subregions

The "Ecoregions of the United States" map (Level III) developed in 1986 by James Omernik of EPA's Corvalis Laboratory delineated eight major ecoregions in Tennessee. Due to the high diversity and complexity of these ecoregions, it was necessary to refine and subdivide the ecoregions into smaller subregions before reference streams could be selected. Beginning in 1993, the Division arranged for James Omernik and Glenn Griffith to subregionalize and update the ecoregions.

During the delineation process, maps containing information on bedrock and surface geology, soil, hydrology, physiography, topography, precipitation, land use and vegetation were reviewed. Much of this information was digitized to produce draft maps of ecoregion and subregion boundaries.

Multiple agencies were represented at three ecoregion meetings held during 1994-95. Attendees included aquatic biologists, ecologists, foresters, chemists, geographers, engineers, university professors and regulatory personnel from 27 state and federal agencies as well as universities and private organizations. The judgment of these experts was applied throughout the selection, analysis and classification of data to determine the final ecoregion and subregion boundaries in Tennessee. A detailed description of the delineation process and of all Level III and Level IV ecoregions can be found in *Ecoregions of Tennessee* (Griffith, 1997). A map illustrating ecological subregion boundaries in Tennessee is presented in Figure 2.

Reference streams in 25 ecological subregions have been monitored seasonally since 1995 to establish a reference pH database. pH was measured with calibrated multi-probe water quality probes for accurate readings.



65a Blackland Prairie
65b Flatwoods/Alluvial Prairie Margins
65e Southeastern Plains and Hills
65i Fall Line Hills
65j Transition Hills
66d Southern Igneous Ridges and Mtns
66e Southern Sedimentary Ridges
66f Limestone Valleys and Coves
66g Southern Metasedimentary Mtns.
67f Southern Limestone/Dolomite Valleys and Low Rolling Hills
67g Southern Shale Valleys
67h Southern Sandstone Ridges
67i Southern Dissected Ridges & Knobs
68a Cumberland Plateau
68b Sequatchie Valley
68c Plateau Escarpment
69d Cumberland Mountains
71e Western Pennyroyal Karst
71f Western Highland Rim
71g Eastern Highland Rim
71h Outer Nashville Basin
71i Inner Nashville Basin
73a Northern Mississippi Alluvial Plain
74a Bluff Hills
74b Loess Plains

Figure 2: Level IV Ecoregions of Tennessee

3.1 Reference Stream Selection

Three hundred and fifty-three potential reference sites were evaluated as part of the ecoregion project. The reference sites were chosen to represent the best attainable conditions for all streams with similar characteristics in a given subregion. Reference condition represented a set of expectations for physical habitat, general water quality and the health of the biological communities in the absence of human disturbance and pollution. Selection criteria for reference sites included minimal impairment and representativeness. Streams that did not flow across subregions were targeted so the distinctive characteristics of each subregion could be identified.

Experienced water quality staff screened each candidate reference stream. Potential sites were rated as how well they met the following criteria:

a. The entire upstream watershed was contained within the ecological subregion.
b. The upstream watershed was mostly or completely forested (if forest was the natural vegetation type) or had a typical land use for the subregion.
c. The geologic structure and soil pattern was typical of the region.
d. The upstream watershed did not contain a municipality, mining area, permitted discharger or any other obvious potential sources of pollutants, including non-regulated sources.
e. The upstream watershed was not heavily impacted by nonpoint source pollution.
f. The stream flowed in its natural channel and had not been recently channelized. There were no flow or water level modification structures such as dams, irrigation canals or field drains.
g. No power or pipelines crossed upstream of the site.
h. The upstream watershed contained few roads.

By the end of the project, ninety-eight reference streams were selected for monitoring. Each subregion had between one and eight reference streams with most having at least three. The final number of reference streams per subregion depended on the size of the region and the availability of relatively non-impaired streams.

3.2 pH Monitoring

Initial pH readings were taken at the majority of reference sites in 1995 as part of the screening process. These readings were included in the ecoregion reference database. Seasonal monitoring of the reference sites began in fall 1996 and ended in summer 1999. The pH was measured for three consecutive days each season during the initial year of monitoring. Geometric means were used to represent each site during this period. Single readings were taken each season after fall 1997.

Since fall 1999, reference stream monitoring has followed the five-year watershed cycle. The reference pH database used in developing this proposal included 1,054 readings taken seasonally from 98 reference streams between 1995 and 2002 (Appendix A).

3.3 Quality Assurance

The pH was measured by trained staff with calibrated multi-probe water quality meters. Resolution was 0.01 standard units with an accuracy of +/- 0.2 units. Duplicate readings were taken at a minimum of 10% of the sites.

4. RESULTS

4.0 Ecoregional Distribution of pH Values

Summary statistics of reference data including the number of sites and number of readings by ecological subregion are presented in Table 1. These data are illustrated by box and whisker plots in Figure 3. The length of the box represents the middle half of the values in the distribution. The line through the box is the median value. The lower and upper hinges of the box mark the 25th and 75th percentiles. The whiskers represent the 10th and 90th percentiles.

Table 1: Summary statistics of reference stream pH data.

Subregion	# Sites	# pH Readings	Mean	SD	Min	Max	Median	10th Percentile	90th Percentile
65a	2	5	6.8	0.2	6.6	7.1	6.9	6.6	7.1
65b	1	12	7.0	0.3	6.5	7.4	7.0	6.6	7.3
65e	5	81	6.8	0.5	5.6	7.7	6.7	6.2	7.4
65i	1	5	6.9	0.3	6.5	7.3	6.8	6.5	7.3
65j	4	67	6.7	0.6	5.1	7.9	6.8	5.7	7.6
66d	5	33	7.4	0.5	6.6	8.6	7.3	6.8	8.1
66e	5	37	7.2	0.8	6.2	9.2	7.0	6.3	8.3
66f	3	27	7.5	0.5	6.5	8.6	7.5	7.0	8.0
66g	5	61	7.1	0.7	5.9	10.1	7.2	6.2	7.8
67f	7	64	8.1	0.3	7.3	8.8	8.1	7.8	8.4
67g	4	27	7.9	0.4	6.7	8.8	8.0	7.4	8.4
67h	3	12	7.7	0.2	7.3	8.1	7.7	7.4	8.1
67i	1	3	7.9	0.1	7.8	8.0	7.9	7.8	7.9
68a	8	98	6.9	0.8	4.8	8.2	7.1	5.5	7.7
68b	3	34	7.7	0.4	6.8	8.5	7.8	7.2	8.2
68c	4	31	7.8	0.4	7.2	8.8	7.8	7.3	8.1
69d	5	70	7.0	0.6	5.3	8.2	7.0	6.2	7.8
71e	2	39	7.9	0.2	7.2	8.6	7.9	7.5	8.1
71f	5	68	7.7	0.6	6.0	8.9	7.7	6.9	8.4
71g	3	41	8.0	0.4	7.3	8.6	8.0	7.5	8.4
71h	3	43	8.1	0.3	7.3	8.8	8.1	7.8	8.5
71i	7	75	7.6	0.5	5.6	8.4	7.6	7.1	8.1
73a	4	29	7.1	0.6	4.8	8.6	7.0	6.8	7.8
74a	2	35	7.8	0.4	6.3	8.3	7.8	7.4	8.1
74b	3	51	6.6	0.5	5.8	7.9	6.6	5.9	7.4

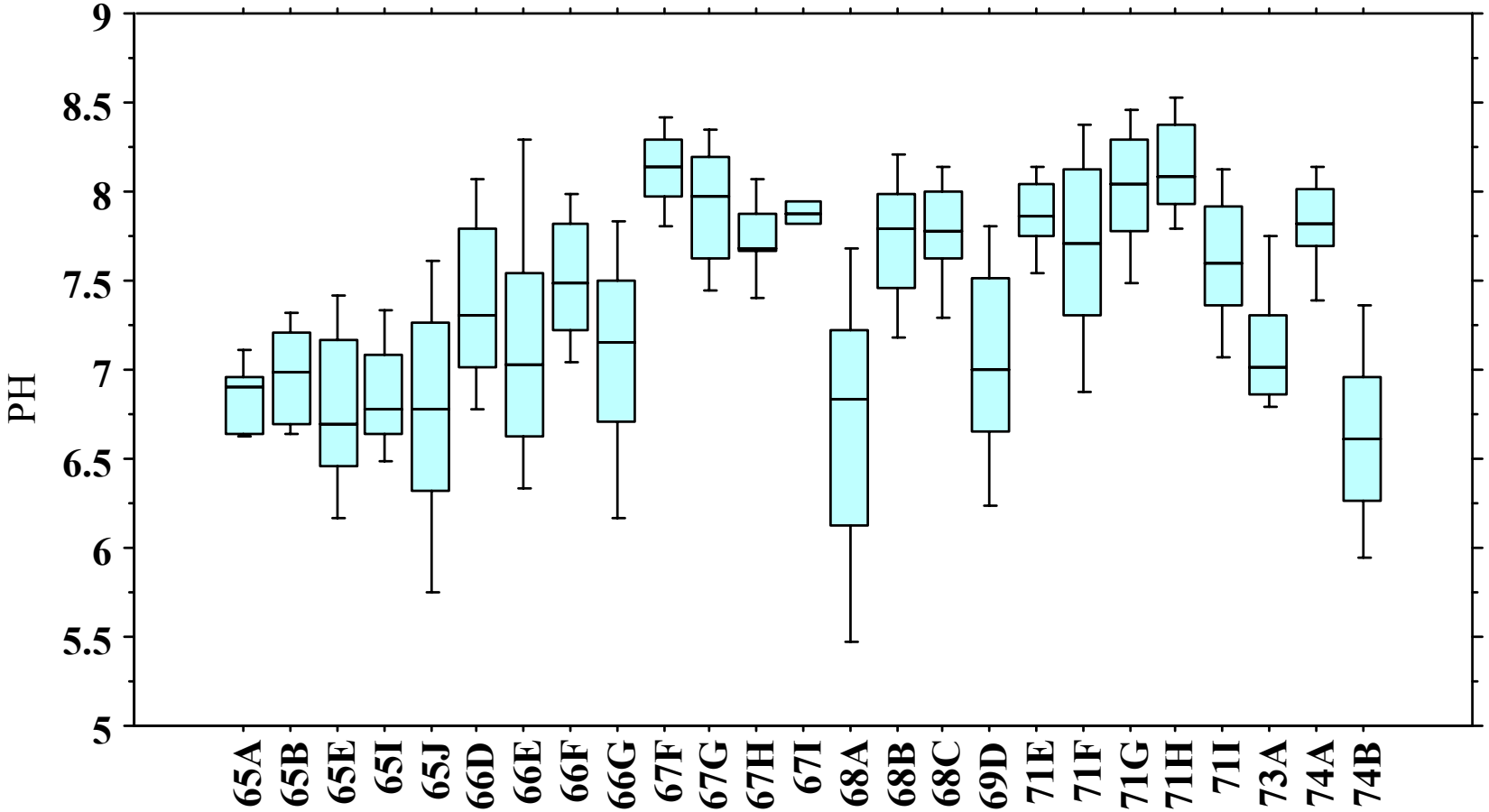


Figure 3: Distribution of reference stream pH values by ecological subregion. Descriptive statistics including number of sites and number of readings are presented in Table 1.

Based on the 10th percentile of reference data, it is clear that the current statewide pH criterion of 6.5–9.0 is not reflective of natural background conditions in the following seven ecological subregions:

65e – Southeastern Plains and Hills
65j – Transition Hills
66e – Southern Sedimentary Ridges
66g – Southern Metasedimentary Mountains
68a – Cumberland Plateau
69d – Cumberland Mountains
74b – Loess Plains

Four of these regions (65e, 66e, 66g, and 69d) would be better represented if the lower limit of the pH criteria were reduced from 6.5 to 6.0. All other states in the southeast, except Mississippi, are using 6.0 as their lower pH criterion (Table 2). Tennessee reference data indicates that changing the lower pH limit to this level would generate a criterion applicable to the majority of Tennessee's subregions.

Table 2: pH criteria for eight states in the southeast (based on each state's most recently published Water Quality Standards).

State	Lower pH Criteria	Upper pH Criteria
Alabama	6.0	8.5
Florida	6.0	8.5
Georgia	6.0	8.5
Kentucky	6.0	9.0
Mississippi	6.5	9.0
North Carolina	6.0	9.0
South Carolina	6.0	8.5
Tennessee	6.5	9.0

4.1 Naturally Acidic Subregions

Three ecoregions had reference pH levels below 6.0 at the 10th percentile while the 90th percentile did not approach 8.5. Aquatic communities in these naturally acidic systems are adapted to the environment in which they live. pH levels as high as 9.0 could be detrimental to the biological community in these streams while pH levels below 6.0 are fully supportive. Criteria in these regions should be adjusted to allow full protection of aquatic life.

The three subregions with reference pH values below 6.0 are:

65j – Transition Hills
68a – Cumberland Plateau
74b – Loess Plains

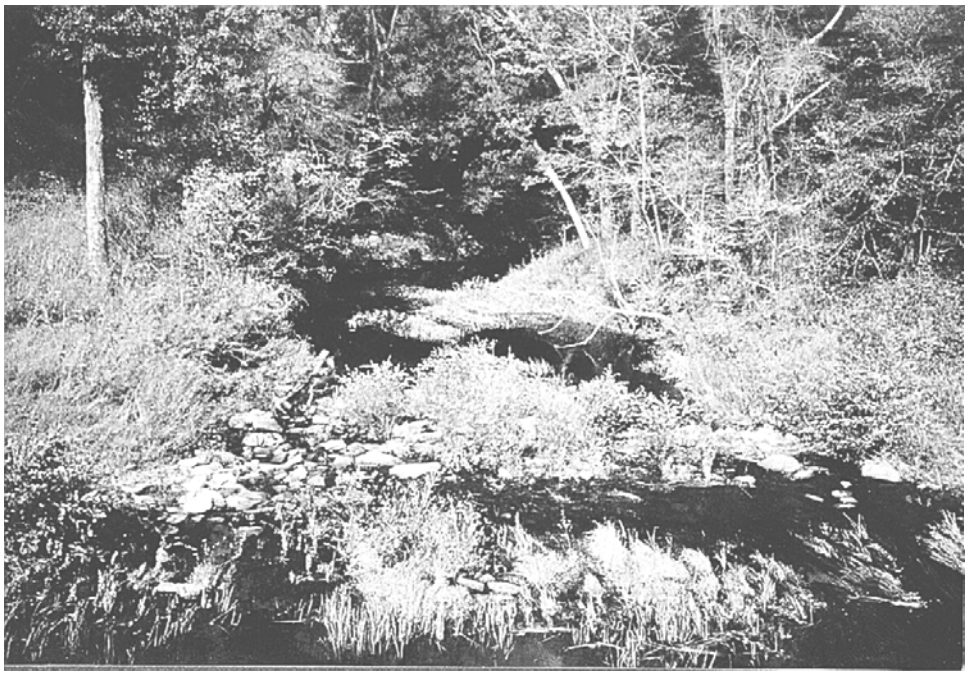
4.2 Stream Size Considerations

There was some concern that stream size would make a difference in pH values especially in the naturally acidic regions. In these regions, headwater streams appear to have naturally lower pH levels. Therefore, reference streams of various sizes were statistically compared for similarity in pH in the three regions where reference data indicated that pH values below 6.0 were supportive of aquatic life. Fishers Protected Least Significant Difference (Fisher's PLSD) at a significance level of 5% was used to determine significant difference.

Stream size was found to make a significant difference in pH values in two regions, 65j and 68a (Figure 4). Therefore, reference data were regrouped by stream size and the 10th and 90th percentiles were recalculated for these regions (Table 3).

Table 3: Summary statistics for reference pH data by stream size in three ecological subregions.

Sub-region	Order	# Sites	# pH Readings	Mean	SD	Min	Max	Median	10th Per-centile	90th Per-centile
65j	2	3	39	6.7	0.7	5.1	7.7	6.7	5.6	7.6
65j	3	1	15	7.1	0.5	6.2	7.9	7.0	6.3	7.8
68a	2, 3	5	48	6.3	0.7	4.8	8.0	6.4	5.2	7.0
68a	4, 5	3	32	7.4	0.4	6.5	8.2	7.3	7.0	7.9
69d	2	3	43	6.8	0.6	5.3	7.8	6.8	6.2	7.6
69d	3	2	27	7.3	0.1	5.9	8.2	7.3	6.7	8.1



Small and medium size streams on the Cumberland Plateau are naturally acidic. The headwaters of Daddy's Creek (pictured) has a pH of 6.2, while 20 miles downstream at the 4th order reference site, the pH never fell below 7.1.

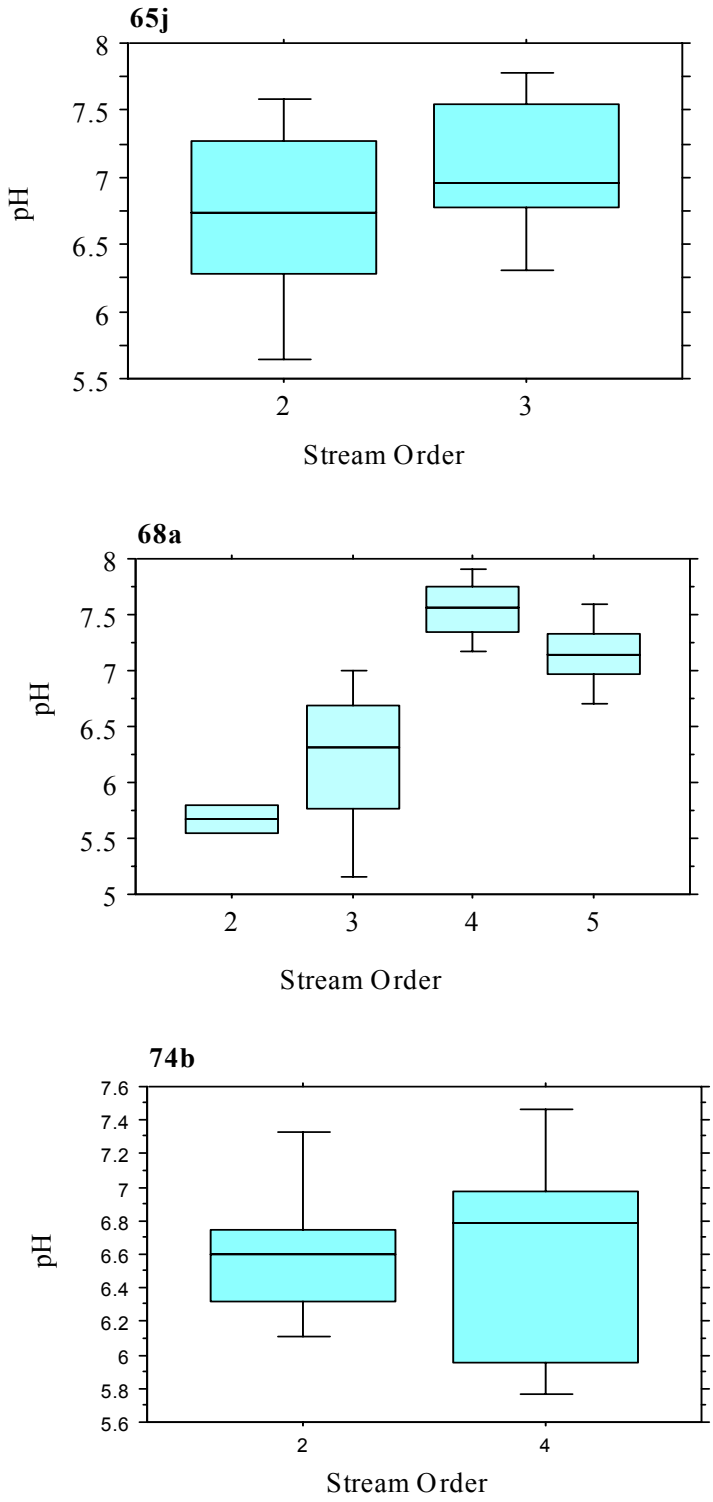


Figure 4: Distribution of reference pH data by stream size in three ecological subregions; 65j (Transition Hills), 68a (Cumberland Plateau) and 74b (Loess Plains).

5. COMPARISON OF REFERENCE pH RANGES TO TEST DATA

Based on the ecoregion reference stream data, pH values from 6.0 to 8.5 appeared to be reflective of background conditions of wadeable streams in the majority of ecoregions (Table 4). Exceptions were 1st, 2nd and 3rd order streams in 68a (5.0-7.5), 1st and 2nd order streams in 65j (5.5 – 8.0), and all streams in 74b (5.5-8.0).

Table 4: Possible pH criteria grouping of ecological subregions based only on 10th and 90th percentile of reference pH data.

Ecological Subregion	Minimum pH	Maximum pH
68a (1st, 2nd, and 3rd order only)	5.0	7.5
65j (1st and 2nd order only) 74b	5.5	8.0
All other regions (including 4th order or larger streams in 68a and 3rd order or larger streams in 65j)	6.0	8.5

Before finalizing these possible ranges into a proposed revision to the existing pH criterion for wadeable streams, test data were analyzed to ensure the proposed ranges would be protective of fish and aquatic life without being overly restrictive. Of additional concern is the possibility that a lowered pH criterion would cause metals to become more of a problem in disturbed watersheds.

pH and biological data from 964 test sites were compared to the ranges outlined in Table 4 to determine if adjustments needed to be made to adequately reflect actual stream conditions. The objectives of comparing the results of the proposed criteria limits to the existing criterion were:

1. To determine if the reduced lower limits were protective of aquatic life in non-reference streams. (Did a reduced pH cause toxicity in the presence of other stressors?)

2. To determine if the reduced upper limits were overly restrictive. (Could a higher pH level support aquatic life?)

5.0 Comparison of Test Data in Small to Medium Size Streams in Subregion 68a With Reference Data Range 5.0 to 7.5

Based on reference stream data, a pH of 5.0-7.5 would be expected in unimpaired small to medium size streams (1st, 2nd and 3rd order) in subregion 68a (Cumberland Plateau). Ninety-three percent of the reference data fell within this range. Sixty-three percent of pH readings in 68a reference streams of this size would not meet the current statewide criterion of 6.5 to 9.0 (Figure 5).

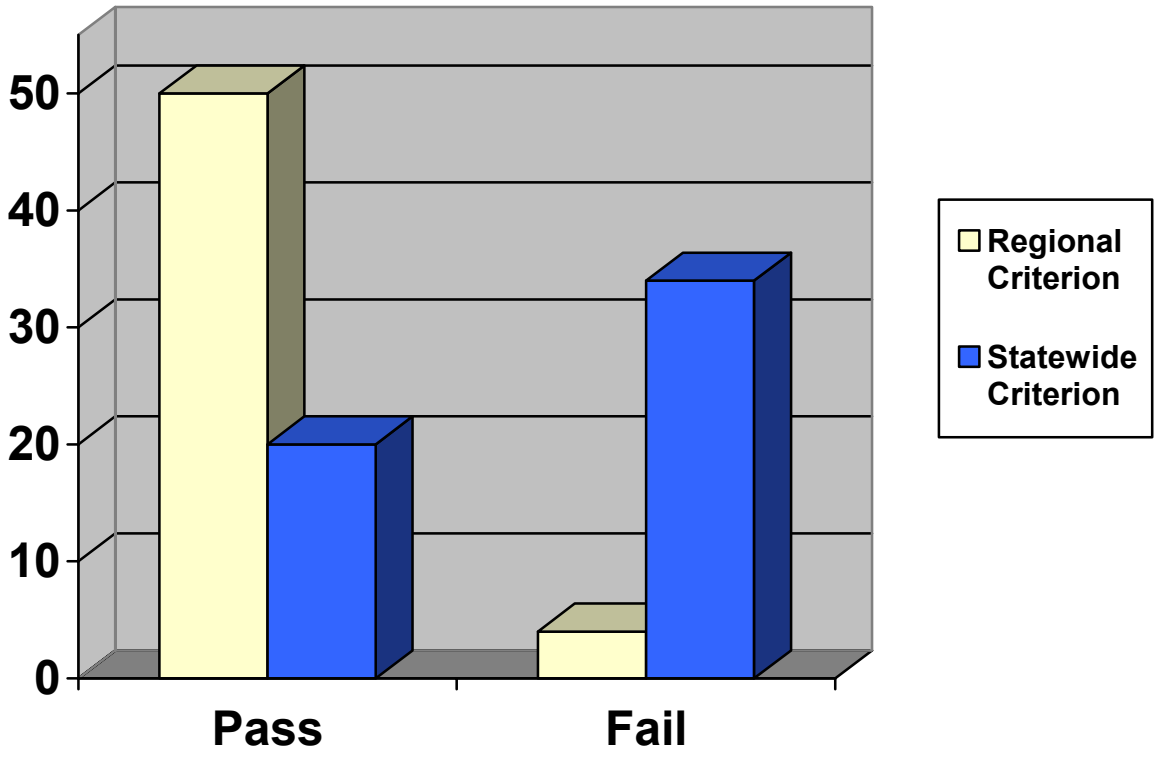
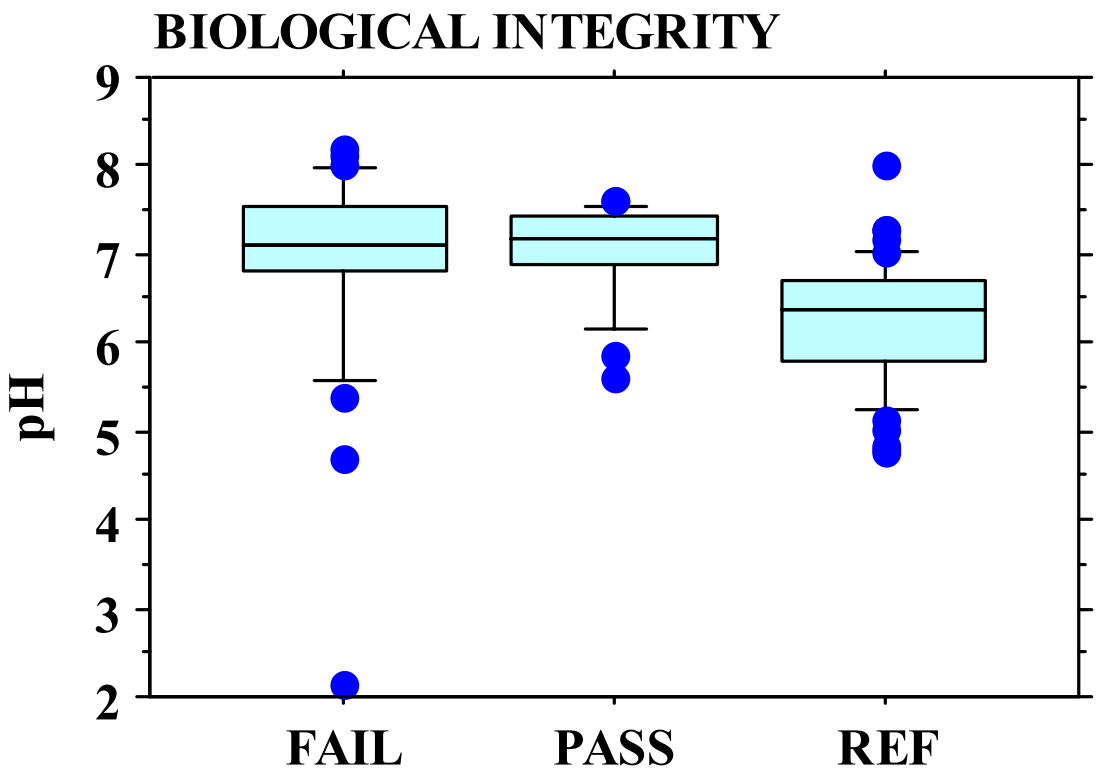


Figure 5: Comparison of 54 pH readings from five ecoregional reference streams in subregion 68a to a potential regional criteria (5.0-7.5) and the current statewide criteria (6.5-9.0). All reference streams used for comparison were second or third order.

As described in Section 2, pH levels have an affect on the toxicity of heavy metals. In order to test this range on non-reference streams where higher metal levels occur, the proposed 5.0 to 7.5 regional criteria were applied to 1st, 2nd and 3rd order test streams in the Cumberland Plateau (68a). Biorecon and pH data were compared from 41 test sites (Figure 6). This allowed for an evaluation of biological integrity in the presence of elevated metals at the reference pH ranges. The majority of these test sites drained recovering or active coal mining areas.



Sample	# Sites	# Readings	Median pH	Minimum pH	Maximum pH
Fail Biological Integrity	26	27	7.1	2.2	8.2
Pass Biological Integrity	15	22	7.2	5.6	7.6
Reference Site	5	54	6.4	4.8	8.0

Figure 6: Comparison of pH ranges and biological integrity at test sites and reference sites in 1st, 2nd and 3rd order streams in ecological subregion 68a. FAIL indicates test sites failing to support a healthy biological community, PASS indicates test sites that support a healthy biological community and REF indicates ecoregion reference sites.

Eight of the test sites had pH values below the current statewide criterion of 6.5. (Table 5). Only one test site fell between pH 5.0 and 5.5. This site did not support a healthy macroinvertebrate community based on biorecon guidelines (TDEC, 2002). Even though reference data indicated that unimpaired streams with a pH of 5.0 could support a healthy benthic community, insufficient data exists to verify that pH between 5.0 and 5.4 is safe in the presence of heavy metals. The only test site with pH in this range did not pass biorecon guidelines even though habitat was adequate. Studies conducted by the State of Pennsylvania also demonstrated that in the presence of other pollutants, pH below 5.5 were toxic to fish and benthic macroinvertebrates (Section 2).

Of the five test sites with pH between 5.5 and 6.5, three passed biorecon guidelines. One of the two that did not (Bee Creek) had inadequate habitat available (Arnwine and Denton, 2001). The other site that failed (Millstone Branch) had good habitat. Field staff indicated this site is impacted by sediment from road runoff as well as elevated metals. Therefore, it is unclear if the elevated metals were impacting the macroinvertebrate community. Another location one-tenth of a mile upstream on this same branch with a pH of 7.1 also failed to support a healthy biological community according to biorecon guidelines. This site was also impacted by road runoff. Both sites had similar number of EPT and intolerant taxa, while the upstream site had lower taxa richness. Millstone Branch is a first order stream. Biorecon guidelines were developed to measure 2nd order or larger streams. Therefore, they may not be directly applicable to this stream. Since the macroinvertebrate community at the upstream and downstream site were similar, it does not appear that the lower pH affected the biota.

Millstone Branch upstream of a mining discharge. This site had a pH of 7.1 with good habitat. However, the site did not pass biorecon guidelines, possibly due to small stream size.

Millstone Branch, downstream of mine runoff with a pH of 6.2. The habitat and biological community at this site were similar to the upstream site.

Both photos provided by Dan Murray, TDEC.

Based on the test data and a review of studies conducted by other states, it does not appear that pH criteria with a minimum value of 5.0 would be protective in the presence of other pollutants. A pH of 5.5 does appear to be protective of the macroinvertebrate community. Therefore, it is recommended that the lower pH limit be set at 5.5 in this region to be fully protective of fish and aquatic life.

Since elevated pH levels can also pose a threat to aquatic life in this naturally acidic subregion, it was important to test the upper pH limit. The 90th percentile of reference data indicated a pH of 7.5 is the highest level naturally occurring in small to medium size streams in this region. However, test data indicated that a higher pH level is also supportive.

Two test sites, Black Wolf Creek (7.6) and White Oak Creek (7.6) having pH levels above 7.5 supported a healthy benthic community. None of the streams tested maintained a healthy macroinvertebrate population above pH 8.0 even though the majority of them passed habitat guidelines. As a result of test data and the fact that some of the reference sites occasionally have a pH reading between 7.5 and 8.0, it is recommended that the upper range of the criterion be established at 8.0 instead of 7.5 as was indicated by the 90th percentile of the reference data in this region. This would appear to be protective of aquatic life without being overly restrictive.

Table 5: pH values, biorecon scores, and habitat scores for 41 test sites in 1st, 2nd and 3rd order streams in ecological subregion 68a. P represents a passing score, F represents a failing score.

STATION	STREAM	BR	HAB	PH
LLAUR000.4FE	LITTLE LAUREL CREEK	F	P	2.16
LMEAD001.0CU	LITTLE MEADOW BRANCH	F	P	4.70
LCOVE1T1.0FE	LINTS COVE UT	F	P	5.40
LMEAD1T0.5CU	LITTLE MEADOW BR. UT	P	P	5.60
JAKESGY	JAKES CREEK	P	P	5.85
MILLS000.3CU	MILLSTONE BRANCH	F	P	6.20-6.50
GLADY002.0SE	GLADY FORK	P	P	6.30
BEE015.1BL	BEE CREEK	F	F	6.38
GRAY1T0.1MI	GRAY'S CREEK UT	F	F	6.50
CROOK009.7FE	CROOKED CREEK	P	F	6.72
GLADE001.2BL	GLADE CREEK	P	P	6.72
BYRDSCU	BYRDS CREEK	F	F	6.80
EFOBE1TFE	UT EAST FORK OBEY R	F	F	6.80
SANDE1TCU	UT SANDERS BRANCH	F	P	6.80
BCAMP002.2MG	BONE CAMP CREEK	P	P	6.89-7.45
LONGCU	LONG BRANCH	F	F	6.90
WOAK015.7MG	WHITE OAK CREEK	P	P	6.90-7.62
THOMP004.8PI	THOMPSON CREEK	P	F	6.95
BBRUS016.2SE	BIG BRUSH CREEK	F	P	7.00
BBRUS017.0SE	BIG BRUSH CREEK	F	F	7.00
NWOAK014.7FE	N WHITE OAK CR	P	P	7.02
LHURR001.2OV	LITTLE HURRICANE	P	F	7.08
MILLS000.4CU	MILLSTONE BRANCH	F	P	7.10
ONEMICU	ONE-MILE CREEK	F	F	7.10
KELLE002.2SE	KELLEY CREEK	F	P	7.18
MILL002.7FE	MILL CREEK	P	P	7.24
BWOLF000.1MG	BLACK WOLF CREEK	P	P	7.37-7.61
BBRUS018.1SE	BIG BRUSH CREEK	F	F	7.40
MSPRIOV	MINERAL SPRINGS BRANCH	F	P	7.40
SCOAL1TSE	UT STONE COAL BRANCH	P	P	7.40
UBBRUBESE	UPPER BIG BRUSH CR	F	F	7.40
BRIMS009.2SC	BRIMSTONE CREEK	P	P	7.45
GLADY000.2SE	GLADY CREEK	F	F	7.50

Table 5 cont.

STATION	STREAM	BR	HAB	PH
LAURE008.7CU	LAUREL CREEK	F	P	7.50
HURRI003.1FE	HURRICANE CREEK	P	P	7.53
LONG000.1SE	LONG FORK	F	F	7.54
ROCKY009.2VA	ROCKY RIVER	F	P	7.68-7.83
GLADY001.3SE	GLADY CREEK	F	P	7.90
BBRUS018.0SE	BIG BRUSH CREEK	F	P	8.00
ROCKC004.7FE	ROCKCASTLE CREEK	F	P	8.14
BBRUS012.3SE	BIG BRUSH CREEK	F	P	8.20

Dan Murray, Mining Section, WPC, checks for the presence of aquatic life in an acidic stream on the Cumberland Plateau. Photo provided by the Mining Section, Knoxville Environmental Assistance Center.

5.1 Comparison of Test Data in Subregion 74b and Small Streams in 65j With Reference Data Range 5.5 to 8.0

Reference stream data indicated a pH of 5.5-8.0 would be representative of natural conditions of wadeable streams in subregion 74b (Loess Plains) and small streams (1st and 2nd order) in subregion 65j (Transition Hills). Thirty-six percent of reference pH readings in subregion 74b and 26 percent of reference pH readings in 65j (1st and 2nd order streams) would not meet the current statewide criterion of 6.5 to 9.0 (Figure 7). All reference readings would fall within a regional criterion of 5.5 to 8.0.

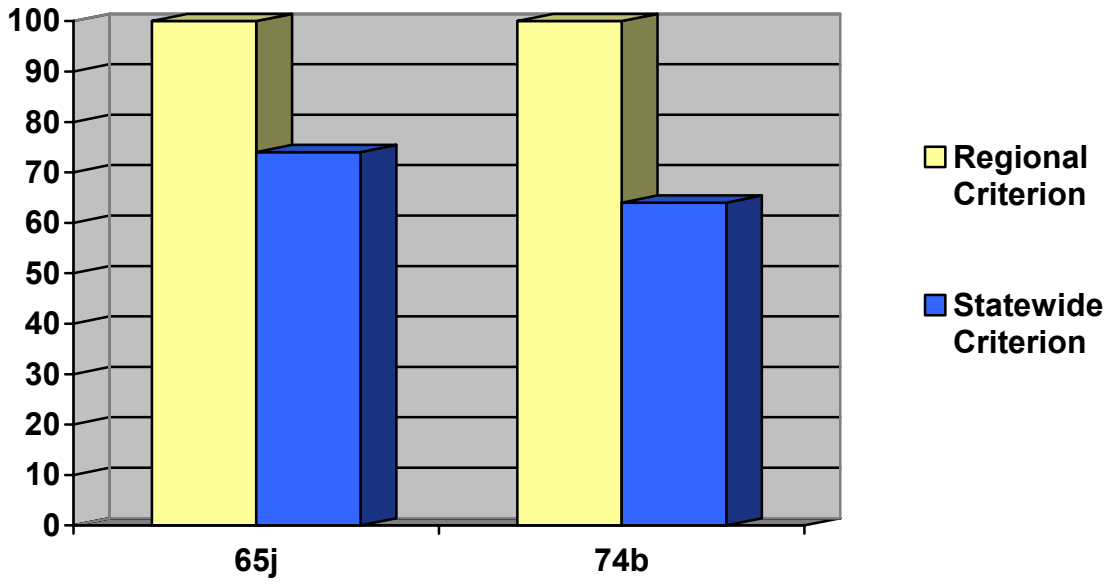
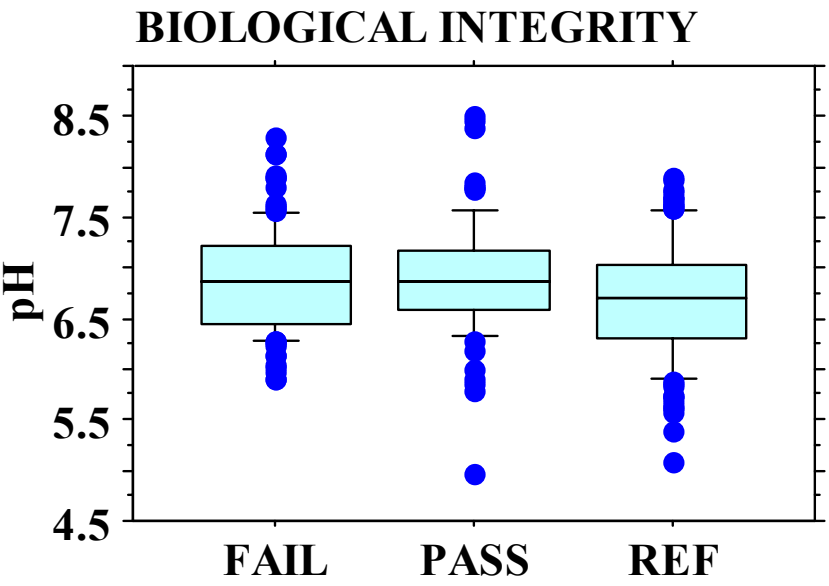


Figure 7: Percent of reference site pH readings passing possible regional criterion and current statewide criterion in subregions 65j and 74b. Based on four first and second order reference streams in 65j (65 readings) and four reference streams in 74b (55 readings).

Multiple pH readings from 71 test sites in ecological subregion 74b were compared to the proposed pH criterion range of 5.5-8.0. In order to be able to measure impacts to aquatic life, only sites where biological data were available were used. There was not an observable difference in pH values between test sites that supported a healthy biological community and those that had stressed populations (Figure 8). Reference sites had a tendency toward slightly lower pH values.



Sample	# Sites	# Readings	Median pH	Minimum pH	Maximum pH
Fail Biological Integrity	46	106	6.9	5.9	8.3
Pass Biological Integrity	25	72	6.9	5.0	8.5
Reference Site	8	122	6.7	5.1	7.9

Figure 8: Comparison of pH and biological integrity at test and reference sites in 1st and 2nd order streams in 65j and all stream classes in 74b.

Only one test site, Grays Creek, (pH 4.96) fell below the proposed regional pH limit of 5.5 (Table 6). This site did support a healthy biological community. However, only one pH reading was made at this site, so this may be an atypical value. Also, it has already been shown that this would not be a safe pH level if elevated metals were present.

Twenty-six test sites in ecological subregion 74b would fall between the proposed lower pH limit of 5.5 and the current lower limit of 6.5. These sites had pH readings of 5.8 to 6.4. Eight of the 26 sites passed biorecon guidelines. Of the 18 that did not have a healthy macroinvertebrate community, factors not related to pH appeared to be the cause. Nine sites did not pass habitat guidelines for the region, six sites had dissolved oxygen levels below that necessary to support most aquatic life (1.5 to 3.5 mg/l) and the remaining three sites were on the 303(d) list for siltation. Therefore, pH did not appear to be a factor in the depressed biological communities at any of these test sites.

Four test sites had pH values slightly above (8.1 to 8.5) the proposed upper limit of 8.0. Three sites failed to support a healthy biological community based on biorecon guidelines. All three sites also had inadequate habitat to support a healthy benthic community, therefore it cannot be determined if pH was a factor. One site (Spring Creek) had pH levels that varied between 7.4 and 8.5. This site passed biorecon guidelines. Therefore, it is probable that an upper limit of 8.5 would be protective of aquatic life even though reference pH never exceeded 7.9.

Test data support a pH criterion of 5.5 to 8.5 in subregion 74b. Biological data were limited to two sites for small streams in 65j, therefore inclusion of small streams in this subregion is based primarily on reference data. However, one of the two test sites in 65j fell below the current pH limit with a reading of 5.8. This site supported a healthy benthic community.

Table 6: pH scores, biorecon guidelines, and habitat guidelines for 71 test sites in 1st and 2nd order streams in ecological subregion 65j and all stream sizes in ecoregion 74b. P represents a passing score, F represents a failing score. A blank indicates habitat was not scored as part of the survey.

STATION ID	STREAM	ECO	BR	HAB	pH
GRAYS010.0SH	GRAYS CREEK	74B	P	P	4.96-6.87
HOLLA000.3HD	HOLLAND CREEK	65J	P	P	5.79
NFOBI040.6HN	N FK OBION R	74B	P	P	5.86-7.06
BEAR008.0HY	BEAR CREEK	74B	P	P	5.90
GRISS004.7FA	GRISSUM CREEK	74B	F	P	5.9-6.32
HICKS000.9MN	HICKS CREEK	74B	F		5.91
HICKS000.1MN	HICKS CREEK	74B	F		5.97
NFOBI026.5WY	N FK OBION R	74B	P	F	6.01-6.74
SFOBI006.0OB	S FK OBION R	74B	F	F	6.03-7.40
SFOBI009.7WY	S FK OBION R	74B	F	P	6.04-7.08
CYPRE002.2CR	CYPRESS CREEK	74B	F	F	6.14
CYPRE002.7OB	CYPRESS CREEK	74B	F	P	6.15-6.98
CYPRE000.6WY	CYPRESS CREEK	74B	P	P	6.18
MARYS001.0SH	MARYS CREEK	74B	F	P	6.23-7.63
MFOBI014.6WY	MID FK OBION R	74B	F	F	6.27-7.14
CANE001.5OB	CANE CREEK	74B	F	F	6.29
EDMUN002.1GI	EDMUNSON CREEK	74B	F	F	6.29
HICKS000.8MN	HICKS CREEK	74B	F		6.29
MATHI1T	UT MATHIS CR	74B	F	F	6.30
NFOBI005.9OB	N FK OBION R	74B	F	F	6.33-7.00
BMUDD007.0HY	BIG MUDDY CREEK	74B	P	P	6.36-6.65
NFOBI005.9OB	N FK OBION R	74B	F	F	6.39-7.56
CANE001.8WY	CANE CREEK	74B	P	F	6.41
MFOBI1C22.5WY	M FK OBION R C	74B	P		6.41-6.95

Table 6 cont.

STATION ID	STREAM	ECO	BR	HAB	pH
TEAGU001.4FA	TEAGUE BRANCH	74B	F	F	6.41
MFOBI1C4.5WY	MID FK OBION CANAL	74B	P	P	6.42-7.49
STOUT000.4FA	STOUT CREEK	74B	F	P	6.43-7.60
POPLA006.9HY	POPLAR CREEK	74B	F	P	6.44-6.65
BIFFL002.7DY	BIFFLE CREEK	74B	F	F	6.49
BIFFL003.0DY	BIFFLE CREEK	74B	F	F	6.49
NFOBI018.0WY	N FK OBION R	74B	P	P	6.51-7.12
LICK001.1GI	LICK CREEK	74B	F	F	6.53
BLACKM001.8WY	BLACKMORE CREEK	74B	P	F	6.56
HURRI000.3WY	HURRICANE CREEK	74B	F	F	6.62-6.63
CYPRE004.3HY	CYPRESS CREEK	74B	F	P	6.63-7.32
RICHL001.5HY	RICHLAND CREEK	74B	P	F	6.63
SPRIN002.3WY	SPRING CREEK	74B	P	F	6.63-7.18
HFORK006.8OB	HARRIS FORK CREEK	74B	F	F	6.76
HFORK003.6OB	HARRIS FORK CREEK	74B	P	F	6.78-7.10
GRAYS005.8SH	GRAYS CREEK	74B	F	P	6.8-7.90
HURRI002.6WY	HURRICANE CREEK	74B	F	F	6.80
PARKE000.8GI	PARKER BRANCH	74B	F	F	6.8-7.28
MUD002.2OB	MUD CREEK	74B	F	P	6.84-7.18
LAGOO003.0HY	LAGOON CREEK	74B	F	P	6.87
BUCKN000.6WY	BUCKNOR DITCH	74B	F	F	6.90
OBION044.3DY	OBION RIVER	74B	F	P	6.9-7.28
TERRE000.6WY	TERREL BRANCH	74B	F	F	6.90
REEDS001.6DY	REEDS CREEK	74B	F	F	6.91-7.24
OBION071.2OB	OBION RIVER	74B	F	P	6.93-7.23
BMUDD003.8HY	BIG MUDDY CREEK	74B	F	F	6.95
CANE001.0WY	CANE CREEK	74B	P	P	6.97
RICHL002.1OB	RICHLAND CREEK	74B	P	F	6.98
PRAIR001.3HY	PRAIRIE CREEK	74B	P	F	7.03-7.34
DRY002.0HD	DRY CREEK	65J	P	P	7.04
TOMMY001.8WY	TOMMY CREEK	74B	F	F	7.07
HOOSI000.5OB	HOOSIER CREEK	74B	F	F	7.09
RFOBI005.0OB	RU FORK OBION R	74B	P	F	7.15
STEPH001.5WY	STEPHENS CREEK	74B	F	F	7.21
MUD013.0WY	MUD CREEK	74B	P	F	7.22
BMHOL002.2OB	BURNT MILL HOL CR	74B	P	P	7.24
MURRA001.1DY	MURRAY CREEK	74B	F	F	7.28
DRY000.7GI	DRY CREEK	74B	P	F	7.29
SPRIN003.2ML	SPRING CREEK	74B	P	F	7.35-8.51
CANE008.5WY	CANE CREEK	74B	F	F	7.41
CGROU001.2WY	CAMP GROUND CR	74B	F	F	7.49
DRY000.9OB	DRY CREEK	74B	F	F	7.49

Table 6 cont.

CLOVE001.4OB	CLOVER CREEK	74B	F	P	7.62
DAVID002.6OB	DAVIDSON (TROY) CR	74B	F	F	7.81
CARTE002.8HY	CARTER CREEK	74B	F	F	7.91
MILL004.0OB	MILL CREEK	74B	F	F	7.93
RICHL002.0OB	RICHLAND CREEK	74B	F	F	8.13
RICHL002.2OB	RICHLAND CREEK	74B	F	F	8.13
ZION002.0OB	ZION CREEK	74B	F	F	8.29

Stream characteristics are often different between ecological subregions. Reference streams were chosen that reflected natural conditions with minimal impairment. Reference streams in the Transition Hills (65j) were found to be naturally lower in pH than is typical of most of the other subregions in the state. Photo provided by the Jackson Environmental Assistance Center.

5.2 Comparison of Test Data in 19 Ecological Subregions With Reference Data Range 6.0 to 8.5

According to reference data, a pH criterion between 6.0 and 8.5 would be appropriate in the majority of ecological subregions in the state. This would require lowering both the upper and lower limits of the current statewide criteria by 0.5. In order to verify that this would be appropriate, biological and pH data from 852 test sites in 19 ecological subregions were reviewed (Figure 9)

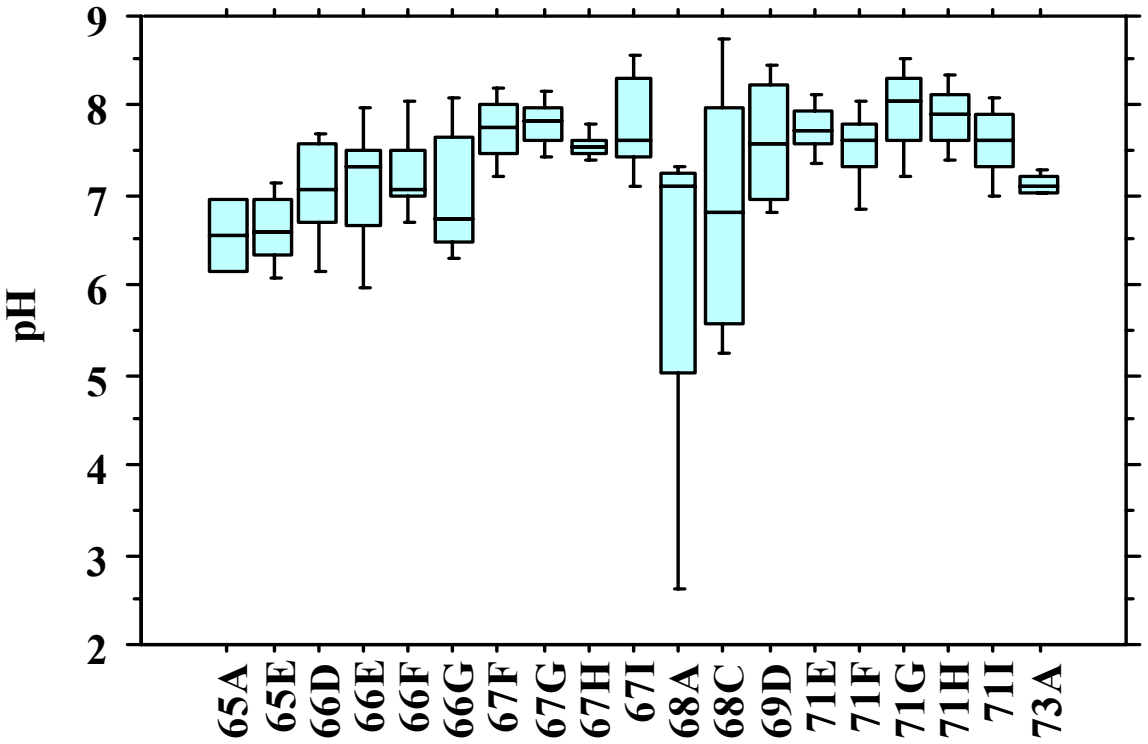


Figure 9: Distribution of pH readings at 852 test sites in 19 ecological subregions with proposed pH criterion 6.0-8.5. (Note 68a data represents only streams that are 4th order or larger).

The number of sites that fell inside or outside of the proposed pH criterion is presented in Table 7. The number of sites in the 6.0 to 8.5 range represents those that would pass the proposed regional criterion. The number of sites in the 6.5 to 9.0 range represents the number of sites that would pass the current statewide pH criterion. The number of sites in the 6.0 to 6.5 column represent those that would fail the current criterion but pass the proposed criterion. The last column (8.5-9.0) represents those sites that would pass the current criterion but fail the proposed criterion.

Table 7: Number of biological monitoring sites passing proposed and current pH criteria in 17 ecological subregions with proposed pH criterion of 6.0-8.5.

Ecological Subregion	Total Sites	# of pH Readings	# Sites pH 6.0-8.5 (Pass proposed criteria)	# Sites pH 6.5-9.0 (Pass current criteria)	# Sites pH 6.0–6.5 (Pass proposed, fail current)	# Sites pH 8.5–9.0 (Fail proposed, pass current)
65a	1	2	1	0	1	0
65e	121	281	117	70	47	0
66d	20	27	19	16	3	0
66e	10	29	7	6	1	0
66f	9	9	9	9	0	0
66g	10	22	10	5	5	0
67f	157	441	153	152	3	4
67g	75	229	74	74	1	1
67h	2	5	2	2	0	0
67i	2	14	1	2	0	1
68a ($\geq 4^{th}$ order)	3	5	3	3	0	0
68c	10	11	5	6	1	2
69d	12	12	11	12	0	1
71e	65	105	65	65	0	0
71f	105	141	102	99	3	0
71g	61	129	53	61	0	7
71h	127	228	122	127	0	5
71i	50	214	48	47	2	1
73a	1	6	1	1	0	0

Sixty-seven test sites in 10 ecological subregions had a pH that fell between 6.0 and 6.5 (passing the proposed regional pH criterion but failing the current statewide criterion). Of these, 38 (57%) supported a healthy macroinvertebrate community. All but two of the sites that had a stressed biological community could be attributed to other factors such as poor habitat, low dissolved oxygen, siltation or nutrients. Based on this information, the current pH limit of 6.5 appears to be overly-protective, while a pH of 6.0 is supportive of aquatic life in these regions.

Twenty-two test sites in eight ecological subregions had pH between 8.5 and 9.0. These sites would not pass pH criterion if the upper limit were lowered to 8.5 as proposed based on reference data alone. The majority of these sites supported a healthy macroinvertebrate community. Of those with a stressed benthic population, degradation could be contributed to another factor such as habit in all but one case. Based on this information, it would probably be overly-protective to lower the upper pH limit to 8.5 in these regions. Therefore, the upper limit should remain 9.0 in this group.

6 Conclusions

Tennessee currently has a statewide pH criterion of 6.5 to 9.0 standard units. A review of reference stream data generated as part of the ecoregion project indicated that this did not always reflect background water quality conditions and did not allow for obvious regional differences. The majority of reference stream data fell between 6.0 and 8.5.

Upon comparison to test sites, it was found that although reference streams stayed below 8.5 in the majority of subregions, pH values between 8.5 and 9.0 supported a healthy benthic community. Therefore, a pH range of 6.0 to 9.0 would be protective, yet not overly restrictive, to biological communities in the majority of Tennessee's ecoregions.

There was some regional variation in Tennessee's background pH levels. Reference stream monitoring in three subregions; the Cumberland Plateau (68a), the Transition Hills (65j) and the Loess Plains (74b) has shown that pH values below 6.0 supported healthy biological communities. The aquatic community in these regions appear adapted to the naturally acidic conditions. pH levels as high as 9.0 su could be detrimental to the biological community in these streams. Therefore, the Division is proposing that pH criteria for wadeable streams in these three regions be based on the 10^{th} and 90^{th} percentile of reference data with some adjustments for test streams above the 90^{th} percentile that supported aquatic life based on biorecon guidelines. The criteria would also not be based on the 10^{th} percentile of the reference data in those regions where test data indicated the toxicity of heavy metals could be affected by the lower pH limit.

Stream size has the potential to affect background pH levels. Therefore, streams of various sizes were statistically compared for similarity in pH in the three regions where reference data indicated that pH values below 6.0 were supportive of aquatic life. Stream size was found to make a significant difference in pH values in two regions. Larger streams tended to fall within the 6.0 to 9.0 range, while small streams were more acidic. Therefore, pH criteria dependent on stream size were proposed in these regions.

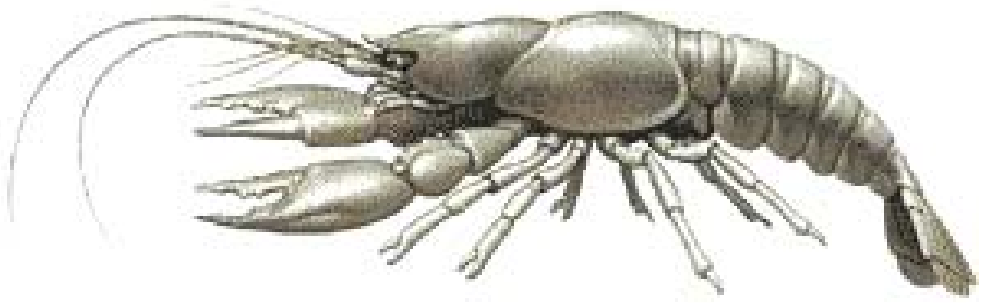
Based on a combination of reference and test data, the pH ranges presented in Table 8 appear to best represent natural conditions in the 25 ecological subregions found in Tennessee. This guidance will only be applicable to wadeable streams and rivers. The existing statewide pH criteria of 6.5 to 9.0 will still be used for wetlands, non-wadeable streams and rivers as well as lakes and reservoirs until additional studies can be conducted.

Existing reference sites will continue to be monitored in the future on a five-year rotation in conjunction with watershed monitoring. Should future watershed monitoring activities or ecoregion efforts in nearby states uncover additional reference quality streams, these data will be used to augment the existing databases. As appropriate, pH criteria can be adjusted in future triennial reviews as more data becomes available

Table 8: Recommendations for regionally based pH criteria for wadeable streams and rivers*

Ecological Subregion	Minimum pH	Maximum pH
68a (1st, 2nd, and 3rd order only)	5.5	8.0
65j (1st and 2nd order only) 74b	5.5	8.5
65a, 65b, 65e, 65i 65j (3rd order and larger) 66d, 66e, 66f, 66g 67f, 67g, 67h, 67i 68a (4th order and larger) 68b, 68c 69d 71e, 71f, 71g, 71h, 71i 73a 74a	6.0	9.0

* The existing statewide pH criteria of 6.5 – 9.0 would be retained as applicable to lake and reservoirs, wetlands and non-wadeable streams and rivers.



Benthic macroinvertebrates are animals without backbones that live on the bottom of the stream. Many macroinvertebrates such as the crayfish are susceptible to changes in water chemistry resulting from an increase or decrease of pH.

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APPENDIX

REFERENCE STREAM pH READINGS

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO65A01	5/2/96	7.11	MUDDY CREEK TRIB	2	MCNAIRY	8010207
ECO65A01	9/17/96	6.62	MUDDY CREEK TRIB	2	MCNAIRY	8010207
ECO65A01	12/2/96	6.91	MUDDY CREEK TRIB	2	MCNAIRY	8010207
ECO65A03	4/18/96	6.9	WARDLOW CREEK	2	MCNAIRY	6040001
ECO65A03	9/9/97	6.65	WARDLOW CREEK	2	MCNAIRY	6040001
ECO65B04	9/10/96	6.69	CYPRESS CREEK	3	HARDEMAN	8010207
ECO65B04	9/17/96	6.69	CYPRESS CREEK	3	HARDEMAN	8010207
ECO65B04	12/2/96	6.68	CYPRESS CREEK	3	HARDEMAN	8010207
ECO65B04	4/14/97	6.81	CYPRESS CREEK	3	HARDEMAN	8010207
ECO65B04	9/8/97	7.07	CYPRESS CREEK	3	HARDEMAN	8010207
ECO65B04	4/23/98	7.29	CYPRESS CREEK	3	HARDEMAN	8010207
ECO65B04	6/10/98	7.39	CYPRESS CREEK	3	HARDEMAN	8010207
ECO65B04	9/2/98	7.14	CYPRESS CREEK	3	HARDEMAN	8010207
ECO65B04	11/18/98	7.27	CYPRESS CREEK	3	HARDEMAN	8010207
ECO65B04	4/7/99	6.9	CYPRESS CREEK	3	HARDEMAN	8010207
ECO65B04	6/8/99	7.09	CYPRESS CREEK	3	HARDEMAN	8010207
ECO65B04	5/31/00	6.52	CYPRESS CREEK	3	HARDEMAN	8010207
ECO65E04	4/9/96	6.39	BLUNT CREEK	3	CARROLL	6040005
ECO65E04	4/17/97	6.54	BLUNT CREEK	3	CARROLL	6040005
ECO65E04	10/7/97	6.49	BLUNT CREEK	3	CARROLL	6040005
ECO65E04	4/22/98	6.22	BLUNT CREEK	3	CARROLL	6040005
ECO65E04	6/9/98	6.8	BLUNT CREEK	3	CARROLL	6040005
ECO65E04	8/18/98	6.95	BLUNT CREEK	3	CARROLL	6040005
ECO65E04	9/5/98	7.2	BLUNT CREEK	3	CARROLL	6040005
ECO65E04	3/10/99	7.73	BLUNT CREEK	3	CARROLL	6040005
ECO65E04	4/19/99	6.68	BLUNT CREEK	3	CARROLL	6040005
ECO65E04	6/9/99	6.45	BLUNT CREEK	3	CARROLL	6040005
ECO65E04	11/16/99	7.14	BLUNT CREEK	3	CARROLL	6040005

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO65E04	5/31/00	6.52	BLUNT CREEK	3	CARROLL	6040005
ECO65E06	4/16/97	6.37	GRIFFIN CREEK	3	HENDERSON	8010204
ECO65E06	9/10/97	6.39	GRIFFIN CREEK	3	HENDERSON	8010204
ECO65E06	4/22/98	7.34	GRIFFIN CREEK	3	HENDERSON	8010204
ECO65E06	6/9/98	7.45	GRIFFIN CREEK	3	HENDERSON	8010204
ECO65E06	8/18/98	7.16	GRIFFIN CREEK	3	HENDERSON	8010204
ECO65E06	9/9/98	7.12	GRIFFIN CREEK	3	HENDERSON	8010204
ECO65E06	3/10/99	7.7	GRIFFIN CREEK	3	HENDERSON	8010204
ECO65E06	4/19/99	6.6	GRIFFIN CREEK	3	HENDERSON	8010204
ECO65E06	6/9/99	7.01	GRIFFIN CREEK	3	HENDERSON	8010204
ECO65E08	8/19/96	7.14	HARRIS CREEK	3	MADISON	8010205
ECO65E08	9/10/96	6.78	HARRIS CREEK	3	MADISON	8010205
ECO65E08	9/20/96	6.78	HARRIS CREEK	3	MADISON	8010205
ECO65E08	11/12/96	7.66	HARRIS CREEK	3	MADISON	8010205
ECO65E08	2/5/97	6.4	HARRIS CREEK	3	MADISON	8010205
ECO65E08	4/17/97	6.93	HARRIS CREEK	3	MADISON	8010205
ECO65E08	5/5/97	6.64	HARRIS CREEK	3	MADISON	8010205
ECO65E08	8/15/97	6.13	HARRIS CREEK	3	MADISON	8010205
ECO65E08	8/26/97	6.76	HARRIS CREEK	3	MADISON	8010205
ECO65E08	11/20/97	7.42	HARRIS CREEK	3	MADISON	8010205
ECO65E08	3/12/98	7.02	HARRIS CREEK	3	MADISON	8010205
ECO65E08	6/2/98	6.24	HARRIS CREEK	3	MADISON	8010205
ECO65E08	6/9/98	7.42	HARRIS CREEK	3	MADISON	8010205
ECO65E08	8/18/98	7.16	HARRIS CREEK	3	MADISON	8010205
ECO65E08	9/10/98	7.15	HARRIS CREEK	3	MADISON	8010205
ECO65E08	3/10/99	7.59	HARRIS CREEK	3	MADISON	8010205
ECO65E08	3/24/99	6.77	HARRIS CREEK	3	MADISON	8010205
ECO65E08	6/9/99	7.15	HARRIS CREEK	3	MADISON	8010205

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO65E10	4/10/96	6.62	MARSHALL CREEK	3	HARDEMAN	8010208
ECO65E10	8/9/96	6.5	MARSHALL CREEK	3	HARDEMAN	8010208
ECO65E10	8/12/96	6.8	MARSHALL CREEK	3	HARDEMAN	8010208
ECO65E10	9/16/96	5.99	MARSHALL CREEK	3	HARDEMAN	8010208
ECO65E10	11/5/96	6.66	MARSHALL CREEK	3	HARDEMAN	8010208
ECO65E10	2/20/97	6.65	MARSHALL CREEK	3	HARDEMAN	8010208
ECO65E10	4/16/97	6.55	MARSHALL CREEK	3	HARDEMAN	8010208
ECO65E10	8/4/97	6.18	MARSHALL CREEK	3	HARDEMAN	8010208
ECO65E10	8/14/97	6.02	MARSHALL CREEK	3	HARDEMAN	8010208
ECO65E10	11/12/97	6.07	MARSHALL CREEK	3	HARDEMAN	8010208
ECO65E10	3/3/98	7.33	MARSHALL CREEK	3	HARDEMAN	8010208
ECO65E10	4/23/98	7.3	MARSHALL CREEK	3	HARDEMAN	8010208
ECO65E10	6/10/98	7.4	MARSHALL CREEK	3	HARDEMAN	8010208
ECO65E10	6/20/98	6.96	MARSHALL CREEK	3	HARDEMAN	8010208
ECO65E10	9/2/98	7.17	MARSHALL CREEK	3	HARDEMAN	8010208
ECO65E10	11/18/98	7.65	MARSHALL CREEK	3	HARDEMAN	8010208
ECO65E10	3/9/99	7.33	MARSHALL CREEK	3	HARDEMAN	8010208
ECO65E10	4/17/99	6	MARSHALL CREEK	3	HARDEMAN	8010208
ECO65E10	6/8/99	6.19	MARSHALL CREEK	3	HARDEMAN	8010208
ECO65E10	10/11/00	6.85	MARSHALL CREEK	3	HARDEMAN	8010208
ECO65E10	8/28/01	6.66	MARSHALL CREEK	3	HARDEMAN	8010208
ECO65E11	4/10/96	6.5	WEST FORK SPRING CREEK	3	HARDEMAN	8010208
ECO65E11	8/12/96	6.5	WEST FORK SPRING CREEK	3	HARDEMAN	8010208
ECO65E11	9/16/96	5.97	WEST FORK SPRING CREEK	3	HARDEMAN	8010208
ECO65E11	11/5/96	6.46	WEST FORK SPRING CREEK	3	HARDEMAN	8010208
ECO65E11	2/20/97	6.7	WEST FORK SPRING CREEK	3	HARDEMAN	8010208
ECO65E11	4/16/97	6.26	WEST FORK SPRING CREEK	3	HARDEMAN	8010208
ECO65E11	8/4/97	6.35	WEST FORK SPRING CREEK	3	HARDEMAN	8010208

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO65E11	8/14/97	5.67	WEST FORK SPRING CREEK	3	HARDEMAN	8010208
ECO65E11	11/12/97	5.56	WEST FORK SPRING CREEK	3	HARDEMAN	8010208
ECO65E11	3/3/98	7.28	WEST FORK SPRING CREEK	3	HARDEMAN	8010208
ECO65E11	4/23/98	7.2	WEST FORK SPRING CREEK	3	HARDEMAN	8010208
ECO65E11	6/10/98	7.13	WEST FORK SPRING CREEK	3	HARDEMAN	8010208
ECO65E11	8/20/98	6.61	WEST FORK SPRING CREEK	3	HARDEMAN	8010208
ECO65E11	9/2/98	7.04	WEST FORK SPRING CREEK	3	HARDEMAN	8010208
ECO65E11	11/18/98	7.48	WEST FORK SPRING CREEK	3	HARDEMAN	8010208
ECO65E11	3/9/99	7.3	WEST FORK SPRING CREEK	3	HARDEMAN	8010208
ECO65E11	4/7/99	6.4	WEST FORK SPRING CREEK	3	HARDEMAN	8010208
ECO65E11	6/8/99	6.46	WEST FORK SPRING CREEK	3	HARDEMAN	8010208
ECO65E11	4/25/00	6.59	WEST FORK SPRING CREEK	3	HARDEMAN	8010208
ECO65E11	10/11/00	6.61	WEST FORK SPRING CREEK	3	HARDEMAN	8010208
ECO65E11	6/28/01	6.57	WEST FORK SPRING CREEK	3	HARDEMAN	8010208
ECO65I02	5/20/96	7.01	BATTLES BRANCH	2	HARDIN	6040001
ECO65I02	9/17/96	7.33	BATTLES BRANCH	2	HARDIN	6040001
ECO65I02	12/2/96	6.49	BATTLES BRANCH	2	HARDIN	6040001
ECO65I02	4/15/97	6.69	BATTLES BRANCH	2	HARDIN	6040001
ECO65I02	10/7/97	6.78	BATTLES BRANCH	2	HARDIN	6040001
ECO65J04	5/2/96	6.34	POMPEYS BRANCH	2	HARDIN	6030005
ECO65J04	8/26/96	6.64	POMPEYS BRANCH	2	HARDIN	6030005
ECO65J04	11/19/96	6.44	POMPEYS BRANCH	2	HARDIN	6030005
ECO65J04	2/12/97	6.55	POMPEYS BRANCH	2	HARDIN	6030005
ECO65J04	4/23/97	6.85	POMPEYS BRANCH	2	HARDIN	6030005
ECO65J04	5/1/97	5.63	POMPEYS BRANCH	2	HARDIN	6030005
ECO65J04	8/11/97	6.3	POMPEYS BRANCH	2	HARDIN	6030005
ECO65J04	8/21/97	5.72	POMPEYS BRANCH	2	HARDIN	6030005
ECO65J04	11/18/97	6.04	POMPEYS BRANCH	2	HARDIN	6030005

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO65J04	3/10/98	7.69	POMPEYS BRANCH	2	HARDIN	6030005
ECO65J04	4/29/98	6.85	POMPEYS BRANCH	2	HARDIN	6030005
ECO65J04	6/11/98	7.51	POMPEYS BRANCH	2	HARDIN	6030005
ECO65J04	8/19/98	7.05	POMPEYS BRANCH	2	HARDIN	6030005
ECO65J04	9/7/98	6.75	POMPEYS BRANCH	2	HARDIN	6030005
ECO65J04	3/11/99	7.62	POMPEYS BRANCH	2	HARDIN	6030005
ECO65J04	4/20/99	7.69	POMPEYS BRANCH	2	HARDIN	6030005
ECO65J04	7/10/01	6.87	POMPEYS BRANCH	2	HARDIN	6030005
ECO65J05	5/2/96	6.76	DRY CREEK	3	HARDIN	6030005
ECO65J05	8/26/96	6.79	DRY CREEK	3	HARDIN	6030005
ECO65J05	11/19/96	6.93	DRY CREEK	3	HARDIN	6030005
ECO65J05	2/12/97	6.78	DRY CREEK	3	HARDIN	6030005
ECO65J05	4/23/97	6.87	DRY CREEK	3	HARDIN	6030005
ECO65J05	5/1/97	6.96	DRY CREEK	3	HARDIN	6030005
ECO65J05	8/21/97	6.16	DRY CREEK	3	HARDIN	6030005
ECO65J05	11/18/97	6.31	DRY CREEK	3	HARDIN	6030005
ECO65J05	3/10/98	7.78	DRY CREEK	3	HARDIN	6030005
ECO65J05	6/11/98	7.38	DRY CREEK	3	HARDIN	6030005
ECO65J05	8/19/98	7.6	DRY CREEK	3	HARDIN	6030005
ECO65J05	9/17/98	7.12	DRY CREEK	3	HARDIN	6030005
ECO65J05	3/11/99	7.64	DRY CREEK	3	HARDIN	6030005
ECO65J05	4/20/99	7.88	DRY CREEK	3	HARDIN	6030005
ECO65J05	7/10/01	7.04	DRY CREEK	3	HARDIN	6030005
ECO65J06	5/1/96	6.6	RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J06	8/26/96	6.68	RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J06	11/19/96	6.31	RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J06	2/13/97	6.76	RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J06	4/24/97	6.49	RIGHT FORK WHITES CREEK	2	HARDIN	6040001

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO65J06	5/2/97	5.88	RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J06	8/11/97	6.74	RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J06	8/22/97	6.07	RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J06	11/19/97	5.63	RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J06	3/11/98	7.6	RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J06	4/28/98	7.35	RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J06	6/11/98	7.57	RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J06	8/19/98	7.63	RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J06	9/17/98	7.25	RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J06	3/11/99	7.54	RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J06	4/29/99	6.63	RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J06	3/21/00	5.67	RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J06	5/24/00	7.11	RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J06	7/10/01	6.55	RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J11	2/13/97	5.97	TRIB RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J11	4/24/97	6.76	TRIB RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J11	5/2/97	5.86	TRIB RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J11	8/12/97	6.28	TRIB RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J11	8/22/97	5.09	TRIB RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J11	11/19/97	5.4	TRIB RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J11	3/11/98	6.82	TRIB RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J11	4/29/98	7.02	TRIB RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J11	6/11/98	7.39	TRIB RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J11	8/19/98	6.5	TRIB RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J11	9/17/98	6.67	TRIB RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J11	3/11/99	7.35	TRIB RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J11	4/29/99	6.81	TRIB RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J11	3/21/00	5.57	TRIB RIGHT FORK WHITES CREEK	2	HARDIN	6040001

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO65J11	5/24/00	7.27	TRIB RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO65J11	7/16/01	6.8	TRIB RIGHT FORK WHITES CREEK	2	HARDIN	6040001
ECO66D01	4/3/96	7.4	BLACK BRANCH	2	CARTER	6010103
ECO66D01	8/26/96	7.85	BLACK BRANCH	2	CARTER	6010103
ECO66D01	10/29/96	7.99	BLACK BRANCH	2	CARTER	6010103
ECO66D01	1/28/97	8.63	BLACK BRANCH	2	CARTER	6010103
ECO66D01	4/15/97	7.4	BLACK BRANCH	2	CARTER	6010103
ECO66D01	2/10/98	7.26	BLACK BRANCH	2	CARTER	6010103
ECO66D01	8/20/98	7.3	BLACK BRANCH	2	CARTER	6010103
ECO66D01	11/5/98	7.98	BLACK BRANCH	2	CARTER	6010103
ECO66D01	4/19/99	7.17	BLACK BRANCH	2	CARTER	6010103
ECO66D01	5/18/99	7.01	BLACK BRANCH	2	CARTER	6010103
ECO66D01	9/4/01	7.44	BLACK BRANCH	2	CARTER	6010103
ECO66D01	9/19/01	7.02	BLACK BRANCH	2	CARTER	6010103
ECO66D03	4/3/96	8.49	LAUREL FORK CREEK	4	CARTER	6010103
ECO66D03	8/26/96	7.78	LAUREL FORK CREEK	4	CARTER	6010103
ECO66D03	10/29/96	7.69	LAUREL FORK CREEK	4	CARTER	6010103
ECO66D03	1/28/97	8.42	LAUREL FORK CREEK	4	CARTER	6010103
ECO66D03	4/15/97	7.01	LAUREL FORK CREEK	4	CARTER	6010103
ECO66D03	2/10/98	6.78	LAUREL FORK CREEK	4	CARTER	6010103
ECO66D03	5/20/98	6.68	LAUREL FORK CREEK	4	CARTER	6010103
ECO66D03	8/20/98	6.78	LAUREL FORK CREEK	4	CARTER	6010103
ECO66D03	11/5/98	7.95	LAUREL FORK CREEK	4	CARTER	6010103
ECO66D03	3/8/99	7.58	LAUREL FORK CREEK	4	CARTER	6010103
ECO66D03	5/18/99	6.59	LAUREL FORK CREEK	4	CARTER	6010103
ECO66D03	9/19/01	7.27	LAUREL FORK CREEK	4	CARTER	6010103
ECO66D05	5/20/98	7.12	DOE RIVER	4	CARTER	6010103
ECO66D05	8/20/98	7.43	DOE RIVER	4	CARTER	6010103

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO66D05	11/5/98	7.95	DOE RIVER	4	CARTER	6010103
ECO66D05	3/18/99	7.75	DOE RIVER	4	CARTER	6010103
ECO66D05	5/20/99	6.84	DOE RIVER	4	CARTER	6010103
ECO66D05	9/11/01	7.3	DOE RIVER	4	CARTER	6010103
ECO66D05	9/20/01	7.27	DOE RIVER	4	CARTER	6010103
ECO66D06	8/2/00	6.91	TUMBLING CREEK	4	UNICOI	6010108
ECO66D07	9/19/01	7.3	LITTLE STONY CREEK	2	CARTER	6010103
ECO66E04	4/9/96	8.18	GENTRY CREEK	2	JOHNSON	6010102
ECO66E09	4/9/96	8.65	CLARK CREEK	4	UNICOI	6010108
ECO66E09	8/20/96	7.7	CLARK CREEK	4	UNICOI	6010108
ECO66E09	11/7/96	7.38	CLARK CREEK	4	UNICOI	6010108
ECO66E09	1/13/97	9	CLARK CREEK	4	UNICOI	6010108
ECO66E09	4/15/97	7.09	CLARK CREEK	4	UNICOI	6010108
ECO66E09	8/11/97	7.03	CLARK CREEK	4	UNICOI	6010108
ECO66E09	2/12/98	6.64	CLARK CREEK	4	UNICOI	6010108
ECO66E09	5/18/98	6.31	CLARK CREEK	4	UNICOI	6010108
ECO66E09	8/11/98	6.58	CLARK CREEK	4	UNICOI	6010108
ECO66E09	11/17/98	7.36	CLARK CREEK	4	UNICOI	6010108
ECO66E09	4/7/99	6.8	CLARK CREEK	4	UNICOI	6010108
ECO66E09	5/25/99	6.67	CLARK CREEK	4	UNICOI	6010108
ECO66E09	8/2/00	6.33	CLARK CREEK	4	UNICOI	6010108
ECO66E11	4/9/96	8.32	LOWER HIGGINS CREEK	3	UNICOI	6010108
ECO66E11	8/20/96	7.45	LOWER HIGGINS CREEK	3	UNICOI	6010108
ECO66E11	11/5/96	7.48	LOWER HIGGINS CREEK	3	UNICOI	6010108
ECO66E11	1/13/97	9.23	LOWER HIGGINS CREEK	3	UNICOI	6010108
ECO66E11	4/15/97	6.29	LOWER HIGGINS CREEK	3	UNICOI	6010108
ECO66E11	8/11/97	6.5	LOWER HIGGINS CREEK	3	UNICOI	6010108
ECO66E11	2/12/98	6.58	LOWER HIGGINS CREEK	3	UNICOI	6010108

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO66E11	5/18/98	6.92	LOWER HIGGINS CREEK	3	UNICOI	6010108
ECO66E11	8/11/98	6.92	LOWER HIGGINS CREEK	3	UNICOI	6010108
ECO66E11	11/17/98	7.4	LOWER HIGGINS CREEK	3	UNICOI	6010108
ECO66E11	5/25/99	6.45	LOWER HIGGINS CREEK	3	UNICOI	6010108
ECO66E11	8/2/00	6.33	LOWER HIGGINS CREEK	3	UNICOI	6010108
ECO66E17	9/27/95	6.77	DOUBLE BRANCH	2	BLOUNT	6010201
ECO66E17	4/9/96	6.85	DOUBLE BRANCH	2	BLOUNT	6010201
ECO66E17	9/30/97	7.1	DOUBLE BRANCH	2	BLOUNT	6010201
ECO66E18	4/9/96	7.72	GEE CREEK	2	POLK	6020002
ECO66E18	8/26/96	7.24	GEE CREEK	2	POLK	6020002
ECO66E18	9/10/96	7.06	GEE CREEK	2	POLK	6020002
ECO66E18	2/11/97	6.16	GEE CREEK	2	POLK	6020002
ECO66E18	4/14/97	6.8	GEE CREEK	2	POLK	6020002
ECO66E18	8/12/97	7.03	GEE CREEK	2	POLK	6020002
ECO66E18	11/18/97	7.81	GEE CREEK	2	POLK	6020002
ECO66E18	2/10/98	7.7	GEE CREEK	2	POLK	6020002
ECO66F06	9/27/95	6.65	ABRAMS CREEK	3	BLOUNT	6010204
ECO66F06	3/27/96	7.13	ABRAMS CREEK	3	BLOUNT	6010204
ECO66F06	9/3/96	7.6	ABRAMS CREEK	3	BLOUNT	6010204
ECO66F06	11/12/96	7.14	ABRAMS CREEK	3	BLOUNT	6010204
ECO66F06	1/27/97	7.06	ABRAMS CREEK	3	BLOUNT	6010204
ECO66F06	4/13/97	7.86	ABRAMS CREEK	3	BLOUNT	6010204
ECO66F06	4/29/97	6.53	ABRAMS CREEK	3	BLOUNT	6010204
ECO66F06	5/20/97	7.48	ABRAMS CREEK	3	BLOUNT	6010204
ECO66F06	9/30/97	7.9	ABRAMS CREEK	3	BLOUNT	6010204
ECO66F06	11/20/97	7.81	ABRAMS CREEK	3	BLOUNT	6010204
ECO66F06	2/12/98	7.04	ABRAMS CREEK	3	BLOUNT	6010204
ECO66F06	4/13/98	7.86	ABRAMS CREEK	3	BLOUNT	6010204

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO66F06	5/21/98	7.7	ABRAMS CREEK	3	BLOUNT	6010204
ECO66F06	8/28/98	7.82	ABRAMS CREEK	3	BLOUNT	6010204
ECO66F06	11/12/98	8	ABRAMS CREEK	3	BLOUNT	6010204
ECO66F06	2/3/99	7.48	ABRAMS CREEK	3	BLOUNT	6010204
ECO66F06	5/12/99	7.66	ABRAMS CREEK	3	BLOUNT	6010204
ECO66F06	10/21/99	7.63	ABRAMS CREEK	3	BLOUNT	6010204
ECO66F07	3/27/96	8.64	BEAVERDAM CREEK	4	JOHNSON	6010102
ECO66F07	9/10/96	7.34	BEAVERDAM CREEK	4	JOHNSON	6010102
ECO66F07	11/19/96	7.23	BEAVERDAM CREEK	4	JOHNSON	6010102
ECO66F07	1/21/97	8.54	BEAVERDAM CREEK	4	JOHNSON	6010102
ECO66F07	4/22/97	7.48	BEAVERDAM CREEK	4	JOHNSON	6010102
ECO66F07	8/18/97	7.74	BEAVERDAM CREEK	4	JOHNSON	6010102
ECO66F07	2/24/98	7.24	BEAVERDAM CREEK	4	JOHNSON	6010102
ECO66F08	9/20/01	7.22	STONY CREEK	3	CARTER	6010103
ECO66F08	11/6/01	7.24	STONY CREEK	3	CARTER	6010103
ECO66G04	8/23/95	6.81	MID PRONG LITTLE PIGEON RIVER	4	SEVIER	6010107
ECO66G04	4/22/96	7.26	MID PRONG LITTLE PIGEON RIVER	4	SEVIER	6010107
ECO66G04	8/27/96	6.97	MID PRONG LITTLE PIGEON RIVER	4	SEVIER	6010107
ECO66G04	9/4/96	6.88	MID PRONG LITTLE PIGEON RIVER	4	SEVIER	6010107
ECO66G04	11/4/96	6.96	MID PRONG LITTLE PIGEON RIVER	4	SEVIER	6010107
ECO66G04	1/29/97	6.13	MID PRONG LITTLE PIGEON RIVER	4	SEVIER	6010107
ECO66G04	4/29/97	6.21	MID PRONG LITTLE PIGEON RIVER	4	SEVIER	6010107
ECO66G04	8/12/97	7.18	MID PRONG LITTLE PIGEON RIVER	4	SEVIER	6010107
ECO66G04	10/2/97	6.67	MID PRONG LITTLE PIGEON RIVER	4	SEVIER	6010107
ECO66G04	11/20/97	6.82	MID PRONG LITTLE PIGEON RIVER	4	SEVIER	6010107
ECO66G04	2/11/98	6.61	MID PRONG LITTLE PIGEON RIVER	4	SEVIER	6010107
ECO66G05	4/22/96	7.48	LITTLE RIVER	4	SEVIER	6010201
ECO66G05	8/27/96	6.87	LITTLE RIVER	4	SEVIER	6010201

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO66G05	9/4/96	6.84	LITTLE RIVER	4	SEVIER	6010201
ECO66G05	11/4/96	6.96	LITTLE RIVER	4	SEVIER	6010201
ECO66G05	1/29/97	6.18	LITTLE RIVER	4	SEVIER	6010201
ECO66G05	4/26/97	6.23	LITTLE RIVER	4	SEVIER	6010201
ECO66G05	5/19/97	6.49	LITTLE RIVER	4	SEVIER	6010201
ECO66G05	8/12/97	6.93	LITTLE RIVER	4	SEVIER	6010201
ECO66G05	10/2/97	6.69	LITTLE RIVER	4	SEVIER	6010201
ECO66G05	11/20/97	6.95	LITTLE RIVER	4	SEVIER	6010201
ECO66G05	2/11/98	6.25	LITTLE RIVER	4	SEVIER	6010201
ECO66G05	4/13/98	7.36	LITTLE RIVER	4	SEVIER	6010201
ECO66G05	5/21/98	7.46	LITTLE RIVER	4	SEVIER	6010201
ECO66G05	9/11/98	10.09	LITTLE RIVER	4	SEVIER	6010201
ECO66G05	11/12/98	7.15	LITTLE RIVER	4	SEVIER	6010201
ECO66G05	2/3/99	7.25	LITTLE RIVER	4	SEVIER	6010201
ECO66G05	5/12/99	7.62	LITTLE RIVER	4	SEVIER	6010201
ECO66G07	11/13/95	6.73	CITICO CREEK	4	MONROE	6010204
ECO66G07	10/1/97	7.65	CITICO CREEK	4	MONROE	6010204
ECO66G07	4/16/98	7.4	CITICO CREEK	4	MONROE	6010204
ECO66G07	5/28/98	7.76	CITICO CREEK	4	MONROE	6010204
ECO66G07	8/11/98	7.96	CITICO CREEK	4	MONROE	6010204
ECO66G07	9/10/98	7.58	CITICO CREEK	4	MONROE	6010204
ECO66G07	11/17/98	7.27	CITICO CREEK	4	MONROE	6010204
ECO66G07	2/2/99	7.5	CITICO CREEK	4	MONROE	6010204
ECO66G07	5/19/99	6.89	CITICO CREEK	4	MONROE	6010204
ECO66G07	10/28/99	7.46	CITICO CREEK	4	MONROE	6010204
ECO66G09	4/24/96	8.3	NORTH RIVER	2	MONROE	6010204
ECO66G09	10/1/97	7.35	NORTH RIVER	2	MONROE	6010204
ECO66G09	5/18/98	7.11	NORTH RIVER	2	MONROE	6010204

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO66G09	8/11/98	7.66	NORTH RIVER	2	MONROE	6010204
ECO66G09	9/10/98	7.67	NORTH RIVER	2	MONROE	6010204
ECO66G09	11/17/98	7.22	NORTH RIVER	2	MONROE	6010204
ECO66G09	2/2/99	7.52	NORTH RIVER	2	MONROE	6010204
ECO66G09	5/19/99	6.71	NORTH RIVER	2	MONROE	6010204
ECO66G09	10/28/99	5.93	NORTH RIVER	2	MONROE	6010204
ECO66G12	4/24/96	8.13	SHEEDS CREEK	3	POLK	3150101
ECO66G12	8/26/96	7.16	SHEEDS CREEK	3	POLK	3150101
ECO66G12	2/10/97	6.84	SHEEDS CREEK	3	POLK	3150101
ECO66G12	4/15/97	6.16	SHEEDS CREEK	3	POLK	3150101
ECO66G12	8/13/97	7.5	SHEEDS CREEK	3	POLK	3150101
ECO66G12	12/2/97	7.5	SHEEDS CREEK	3	POLK	3150101
ECO66G12	3/3/98	8.29	SHEEDS CREEK	3	POLK	3150101
ECO66G12	5/13/98	7.36	SHEEDS CREEK	3	POLK	3150101
ECO66G12	7/31/98	5.9	SHEEDS CREEK	3	POLK	3150101
ECO66G12	8/31/98	5.88	SHEEDS CREEK	3	POLK	3150101
ECO66G12	2/22/99	6.38	SHEEDS CREEK	3	POLK	3150101
ECO66G12	4/26/99	6.04	SHEEDS CREEK	3	POLK	3150101
ECO66G12	7/18/01	7.3	SHEEDS CREEK	3	POLK	3150101
ECO66G12	10/16/01	8.4	SHEEDS CREEK	3	POLK	3150101
ECO67F06	10/10/95	7.29	CLEAR CREEK	2	ANDERSON	6010207
ECO67F06	5/5/98	7.29	CLEAR CREEK	2	ANDERSON	6010207
ECO67F06	5/19/98	8.04	CLEAR CREEK	2	ANDERSON	6010207
ECO67F06	8/20/98	7.93	CLEAR CREEK	2	ANDERSON	6010207
ECO67F06	8/31/98	7.81	CLEAR CREEK	2	ANDERSON	6010207
ECO67F06	11/16/98	7.9	CLEAR CREEK	2	ANDERSON	6010207
ECO67F06	2/9/99	8.3	CLEAR CREEK	2	ANDERSON	6010207
ECO67F06	5/17/99	8.03	CLEAR CREEK	2	ANDERSON	6010207

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO67F13	11/16/95	8.24	WHITE CREEK	3	UNION	6010205
ECO67F13	4/8/96	8.42	WHITE CREEK	3	UNION	6010205
ECO67F13	9/5/96	8.19	WHITE CREEK	3	UNION	6010205
ECO67F13	12/9/96	8.14	WHITE CREEK	3	UNION	6010205
ECO67F13	2/13/97	8.19	WHITE CREEK	3	UNION	6010205
ECO67F13	5/5/97	8.16	WHITE CREEK	3	UNION	6010205
ECO67F13	8/4/97	8.11	WHITE CREEK	3	UNION	6010205
ECO67F13	9/11/97	8.07	WHITE CREEK	3	UNION	6010205
ECO67F13	12/2/97	8.2	WHITE CREEK	3	UNION	6010205
ECO67F13	2/25/98	8.4	WHITE CREEK	3	UNION	6010205
ECO67F13	5/6/98	8.23	WHITE CREEK	3	UNION	6010205
ECO67F13	5/20/98	8.12	WHITE CREEK	3	UNION	6010205
ECO67F13	8/31/98	8.11	WHITE CREEK	3	UNION	6010205
ECO67F13	11/16/98	8.26	WHITE CREEK	3	UNION	6010205
ECO67F13	2/9/99	8.4	WHITE CREEK	3	UNION	6010205
ECO67F13	5/17/99	8.01	WHITE CREEK	3	UNION	6010205
ECO67F13	5/9/00	7.88	WHITE CREEK	3	UNION	6010205
ECO67F14	4/8/96	8.21	POWELL RIVER	5	HANCOCK	6010206
ECO67F14	6/1/98	7.99	POWELL RIVER	5	HANCOCK	6010206
ECO67F14	12/10/98	8.46	POWELL RIVER	5	HANCOCK	6010206
ECO67F14	3/11/99	8.22	POWELL RIVER	5	HANCOCK	6010206
ECO67F14	5/27/99	8.15	POWELL RIVER	5	HANCOCK	6010206
ECO67F14	3/23/00	7.95	POWELL RIVER	5	HANCOCK	6010206
ECO67F14	6/21/00	7.93	POWELL RIVER	5	HANCOCK	6010206
ECO67F14	9/28/00	7.83	POWELL RIVER	5	HANCOCK	6010206
ECO67F14	12/6/00	8.17	POWELL RIVER	5	HANCOCK	6010206
ECO67F16	6/1/98	8.09	HARDY CREEK	3	LEE, VA	6010206
ECO67F16	8/27/98	7.95	HARDY CREEK	3	LEE, VA	6010206

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO67F16	12/10/98	8.57	HARDY CREEK	3	LEE, VA	6010206
ECO67F16	3/11/99	8.1	HARDY CREEK	3	LEE, VA	6010206
ECO67F16	4/1/99	8.33	HARDY CREEK	3	LEE, VA	6010206
ECO67F16	5/27/99	7.44	HARDY CREEK	3	LEE, VA	6010206
ECO67F16	6/21/00	8.06	HARDY CREEK	3	LEE, VA	6010206
ECO67F16	12/6/00	7.99	HARDY CREEK	3	LEE, VA	6010206
ECO67F17	4/8/96	8.17	BIG WAR CREEK	4	HANCOCK	6010205
ECO67F17	12/3/96	7.94	BIG WAR CREEK	4	HANCOCK	6010205
ECO67F17	2/11/97	8.24	BIG WAR CREEK	4	HANCOCK	6010205
ECO67F17	4/23/97	8.65	BIG WAR CREEK	4	HANCOCK	6010205
ECO67F17	8/12/97	8.34	BIG WAR CREEK	4	HANCOCK	6010205
ECO67F17	1/20/98	8.21	BIG WAR CREEK	4	HANCOCK	6010205
ECO67F17	6/2/98	8.1	BIG WAR CREEK	4	HANCOCK	6010205
ECO67F17	8/25/98	7.54	BIG WAR CREEK	4	HANCOCK	6010205
ECO67F17	12/17/98	8.64	BIG WAR CREEK	4	HANCOCK	6010205
ECO67F17	3/18/99	7.79	BIG WAR CREEK	4	HANCOCK	6010205
ECO67F17	6/3/99	7.92	BIG WAR CREEK	4	HANCOCK	6010205
ECO67F17	6/8/00	8.17	BIG WAR CREEK	4	HANCOCK	6010205
ECO67F17	9/20/00	8.09	BIG WAR CREEK	4	HANCOCK	6010205
ECO67F17	12/13/00	8.42	BIG WAR CREEK	4	HANCOCK	6010205
ECO67F23	6/1/98	8.34	MARTIN CREEK	2	HANCOCK	6010206
ECO67F23	8/27/98	8.42	MARTIN CREEK	2	HANCOCK	6010206
ECO67F23	12/10/98	8.77	MARTIN CREEK	2	HANCOCK	6010206
ECO67F23	3/11/99	8.36	MARTIN CREEK	2	HANCOCK	6010206
ECO67F23	5/27/99	7.73	MARTIN CREEK	2	HANCOCK	6010206
ECO67F23	3/23/00	8.28	MARTIN CREEK	2	HANCOCK	6010206
ECO67F23	6/21/00	8.29	MARTIN CREEK	2	HANCOCK	6010206
ECO67F23	12/6/00	8.12	MARTIN CREEK	2	HANCOCK	6010206

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO67F25	12/9/96	7.98	POWELL RIVER	5	CLAIBORNE	6010206
ECO67F25	2/13/97	8.04	POWELL RIVER	5	CLAIBORNE	6010206
ECO67F25	5/6/97	8.07	POWELL RIVER	5	CLAIBORNE	6010206
ECO67F25	8/4/97	8.16	POWELL RIVER	5	CLAIBORNE	6010206
ECO67F25	12/2/97	8.09	POWELL RIVER	5	CLAIBORNE	6010206
ECO67F25	2/25/98	8.28	POWELL RIVER	5	CLAIBORNE	6010206
ECO67F25	1/19/00	8.07	POWELL RIVER	5	CLAIBORNE	6010206
ECO67G01	4/25/96	8.82	LITTLE CHUCKY CREEK	4	GREENE	6010108
ECO67G01	11/12/96	7.87	LITTLE CHUCKY CREEK	4	GREENE	6010108
ECO67G01	3/10/97	8.38	LITTLE CHUCKY CREEK	4	GREENE	6010108
ECO67G01	8/18/97	8.37	LITTLE CHUCKY CREEK	4	GREENE	6010108
ECO67G01	3/12/98	7.97	LITTLE CHUCKY CREEK	4	GREENE	6010108
ECO67G01	6/9/98	8.03	LITTLE CHUCKY CREEK	4	GREENE	6010108
ECO67G01	8/18/98	8	LITTLE CHUCKY CREEK	4	GREENE	6010108
ECO67G01	12/3/98	8.21	LITTLE CHUCKY CREEK	4	GREENE	6010108
ECO67G01	2/25/99	7.45	LITTLE CHUCKY CREEK	4	GREENE	6010108
ECO67G01	5/25/99	7.91	LITTLE CHUCKY CREEK	4	GREENE	6010108
ECO67G01	8/23/00	7.72	LITTLE CHUCKY CREEK	4	GREENE	6010108
ECO67G05	4/25/96	8.21	BENT CREEK	4	HAMBLEN	6010108
ECO67G05	9/9/96	8.04	BENT CREEK	4	HAMBLEN	6010108
ECO67G05	11/18/96	7.47	BENT CREEK	4	HAMBLEN	6010108
ECO67G05	2/19/97	8.27	BENT CREEK	4	HAMBLEN	6010108
ECO67G05	5/21/97	8.2	BENT CREEK	4	HAMBLEN	6010108
ECO67G05	8/6/97	8.2	BENT CREEK	4	HAMBLEN	6010108
ECO67G05	9/23/97	8.05	BENT CREEK	4	HAMBLEN	6010108
ECO67G05	11/25/97	7.9	BENT CREEK	4	HAMBLEN	6010108
ECO67G05	2/18/98	7.92	BENT CREEK	4	HAMBLEN	6010108
ECO67G05	6/10/99	6.72	BENT CREEK	4	HAMBLEN	6010108

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ECO67G05	8/21/00	7.57	BENT CREEK	4	HAMBLEN	6010108
ECO67G08	12/2/96	8.04	BRYMER CREEK	3	BRADLEY	6020002
ECO67G08	1/28/97	7.26	BRYMER CREEK	3	BRADLEY	6020002
ECO67G08	5/21/97	7.69	BRYMER CREEK	3	BRADLEY	6020002
ECO67G09	11/24/97	7.6	HARRIS CREEK	3	BRADLEY	6020002
ECO67G09	2/23/98	7.45	HARRIS CREEK	3	BRADLEY	6020002
ECO67H04	4/10/96	7.44	BLACKBURN CREEK	1	BRADLEY	6020002
ECO67H04	9/5/96	7.66	BLACKBURN CREEK	1	BRADLEY	6020002
ECO67H04	12/2/96	7.66	BLACKBURN CREEK	1	BRADLEY	6020002
ECO67H04	5/6/97	7.32	BLACKBURN CREEK	1	BRADLEY	6020002
ECO67H06	12/13/95	7.7	LAUREL CREEK	2	MONROE	6010204
ECO67H06	4/10/96	7.87	LAUREL CREEK	2	MONROE	6010204
ECO67H06	9/11/96	8.04	LAUREL CREEK	2	MONROE	6010204
ECO67H06	5/1/97	7.75	LAUREL CREEK	2	MONROE	6010204
ECO67H06	9/29/97	7.66	LAUREL CREEK	2	MONROE	6010204
ECO67H08	4/10/96	8.12	PARKER BRANCH	1	HAWKINS	6010104
ECO67H08	9/11/96	7.88	PARKER BRANCH	1	HAWKINS	6010104
ECO67H08	11/19/96	7.66	PARKER BRANCH	1	HAWKINS	6010104
ECO67I12	9/19/96	7.8	MILL CREEK	3	ANDERSON	6010207
ECO67I12	4/16/97	7.97	MILL CREEK	3	ANDERSON	6010207
ECO67I12	9/22/97	7.88	MILL CREEK	3	ANDERSON	6010207
ECO68A01	4/17/96	5.59	ROCK CREEK	3	PICKETT	5130104
ECO68A01	9/13/96	6.25	ROCK CREEK	3	PICKETT	5130104
ECO68A01	11/18/96	6.04	ROCK CREEK	3	PICKETT	5130104
ECO68A01	2/11/97	5.15	ROCK CREEK	3	PICKETT	5130104
ECO68A01	5/7/97	5.36	ROCK CREEK	3	PICKETT	5130104
ECO68A01	8/27/97	6.95	ROCK CREEK	3	PICKETT	5130104
ECO68A01	9/26/97	5.27	ROCK CREEK	3	PICKETT	5130104

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO68A01	11/16/97	5.49	ROCK CREEK	3	PICKETT	5130104
ECO68A01	2/19/98	4.82	ROCK CREEK	3	PICKETT	5130104
ECO68A01	5/13/98	5.15	ROCK CREEK	3	PICKETT	5130104
ECO68A01	8/19/98	4.77	ROCK CREEK	3	PICKETT	5130104
ECO68A01	9/17/98	5.77	ROCK CREEK	3	PICKETT	5130104
ECO68A01	11/19/98	5.02	ROCK CREEK	3	PICKETT	5130104
ECO68A01	2/4/99	4.83	ROCK CREEK	3	PICKETT	5130104
ECO68A01	5/19/99	5.5	ROCK CREEK	3	PICKETT	5130104
ECO68A01	5/10/00	6	ROCK CREEK	3	PICKETT	5130104
ECO68A03	10/16/95	7.28	LAUREL FORK STATION CAMP CREEK	3	SCOTT	5130104
ECO68A03	4/17/96	6.68	LAUREL FORK STATION CAMP CREEK	3	SCOTT	5130104
ECO68A03	9/13/96	6.98	LAUREL FORK STATION CAMP CREEK	3	SCOTT	5130104
ECO68A03	11/18/96	6.68	LAUREL FORK STATION CAMP CREEK	3	SCOTT	5130104
ECO68A03	2/11/97	6.94	LAUREL FORK STATION CAMP CREEK	3	SCOTT	5130104
ECO68A03	5/8/97	6.14	LAUREL FORK STATION CAMP CREEK	3	SCOTT	5130104
ECO68A03	5/14/97	6.29	LAUREL FORK STATION CAMP CREEK	3	SCOTT	5130104
ECO68A03	8/27/97	7.19	LAUREL FORK STATION CAMP CREEK	3	SCOTT	5130104
ECO68A03	9/26/97	6.38	LAUREL FORK STATION CAMP CREEK	3	SCOTT	5130104
ECO68A03	11/19/97	6.43	LAUREL FORK STATION CAMP CREEK	3	SCOTT	5130104
ECO68A03	5/13/98	6.43	LAUREL FORK STATION CAMP CREEK	3	SCOTT	5130104
ECO68A03	5/18/98	6.65	LAUREL FORK STATION CAMP CREEK	3	SCOTT	5130104
ECO68A03	8/19/98	5.92	LAUREL FORK STATION CAMP CREEK	3	SCOTT	5130104
ECO68A03	9/17/98	6.42	LAUREL FORK STATION CAMP CREEK	3	SCOTT	5130104
ECO68A03	11/19/98	6.14	LAUREL FORK STATION CAMP CREEK	3	SCOTT	5130104
ECO68A03	2/4/99	4	LAUREL FORK STATION CAMP CREEK	3	SCOTT	5130104
ECO68A03	5/19/99	6.6	LAUREL FORK STATION CAMP CREEK	3	SCOTT	5130104
ECO68A03	5/10/00	6.02	LAUREL FORK STATION CAMP CREEK	3	SCOTT	5130104
ECO68A08	4/17/96	6.96	CLEAR CREEK	5	MORGAN	6010208

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO68A08	9/12/96	7.19	CLEAR CREEK	5	MORGAN	6010208
ECO68A08	2/6/97	6.79	CLEAR CREEK	5	MORGAN	6010208
ECO68A08	5/19/97	7.03	CLEAR CREEK	5	MORGAN	6010208
ECO68A08	6/26/97	7.17	CLEAR CREEK	5	MORGAN	6010208
ECO68A08	8/28/97	7.1	CLEAR CREEK	5	MORGAN	6010208
ECO68A08	9/22/97	7.18	CLEAR CREEK	5	MORGAN	6010208
ECO68A08	11/19/97	7.12	CLEAR CREEK	5	MORGAN	6010208
ECO68A08	1/27/98	6.97	CLEAR CREEK	5	MORGAN	6010208
ECO68A08	5/22/98	7.33	CLEAR CREEK	5	MORGAN	6010208
ECO68A08	5/26/98	7.71	CLEAR CREEK	5	MORGAN	6010208
ECO68A08	8/18/98	7.2	CLEAR CREEK	5	MORGAN	6010208
ECO68A08	9/2/98	6.48	CLEAR CREEK	5	MORGAN	6010208
ECO68A08	11/24/98	7.43	CLEAR CREEK	5	MORGAN	6010208
ECO68A08	2/8/99	7.37	CLEAR CREEK	5	MORGAN	6010208
ECO68A08	5/13/99	8.19	CLEAR CREEK	5	MORGAN	6010208
ECO68A13	2/22/99	5.8	PINEY CREEK	2	RHEA	6010201
ECO68A13	5/4/99	5.55	PINEY CREEK	2	RHEA	6010201
ECO68A20	4/15/96	6.39	MULLENS CREEK	3	MARION	6020001
ECO68A20	9/11/96	7.04	MULLENS CREEK	3	MARION	6020001
ECO68A20	11/18/96	8	MULLENS CREEK	3	MARION	6020001
ECO68A20	2/12/97	6.54	MULLENS CREEK	3	MARION	6020001
ECO68A20	5/27/97	6.52	MULLENS CREEK	3	MARION	6020001
ECO68A20	8/6/97	6.96	MULLENS CREEK	3	MARION	6020001
ECO68A20	11/19/97	6.08	MULLENS CREEK	3	MARION	6020001
ECO68A20	3/4/98	6.85	MULLENS CREEK	3	MARION	6020001
ECO68A20	5/4/98	6.94	MULLENS CREEK	3	MARION	6020001
ECO68A20	11/30/98	5.84	MULLENS CREEK	3	MARION	6020001
ECO68A20	2/22/99	5.76	MULLENS CREEK	3	MARION	6020001

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO68A20	4/27/99	5.43	MULLENS CREEK	3	MARION	6020001
ECO68A26	10/17/96	7.5	DADDYS CREEK	4	CUMBERLAND	6010208
ECO68A26	12/18/96	7.25	DADDYS CREEK	4	CUMBERLAND	6010208
ECO68A26	2/25/97	7.1	DADDYS CREEK	4	CUMBERLAND	6010208
ECO68A26	4/28/97	7.35	DADDYS CREEK	4	CUMBERLAND	6010208
ECO68A26	7/3/97	7.86	DADDYS CREEK	4	CUMBERLAND	6010208
ECO68A26	8/7/97	7.77	DADDYS CREEK	4	CUMBERLAND	6010208
ECO68A26	9/5/97	7.56	DADDYS CREEK	4	CUMBERLAND	6010208
ECO68A26	10/6/97	7.73	DADDYS CREEK	4	CUMBERLAND	6010208
ECO68A26	12/4/97	7.91	DADDYS CREEK	4	CUMBERLAND	6010208
ECO68A26	5/22/98	7.58	DADDYS CREEK	4	CUMBERLAND	6010208
ECO68A26	5/26/98	7.72	DADDYS CREEK	4	CUMBERLAND	6010208
ECO68A26	8/18/98	7.66	DADDYS CREEK	4	CUMBERLAND	6010208
ECO68A26	9/2/98	7.16	DADDYS CREEK	4	CUMBERLAND	6010208
ECO68A26	11/24/98	7.45	DADDYS CREEK	4	CUMBERLAND	6010208
ECO68A26	3/11/99	8.04	DADDYS CREEK	4	CUMBERLAND	6010208
ECO68A26	5/13/99	7.33	DADDYS CREEK	4	CUMBERLAND	6010208
ECO68A27	3/30/98	6.1	ISLAND CREEK	3	MORGAN	6010208
ECO68A27	5/13/98	6.34	ISLAND CREEK	3	MORGAN	6010208
ECO68A27	8/5/98	7.28	ISLAND CREEK	3	MORGAN	6010208
ECO68A27	9/2/98	6.69	ISLAND CREEK	3	MORGAN	6010208
ECO68A27	12/1/98	6.97	ISLAND CREEK	3	MORGAN	6010208
ECO68A27	2/8/99	6.17	ISLAND CREEK	3	MORGAN	6010208
ECO68A27	5/13/99	6.67	ISLAND CREEK	3	MORGAN	6010208
ECO68A28	3/30/98	7.03	ROCK CREEK	5	MORGAN	6010208
ECO68A28	5/13/98	6.98	ROCK CREEK	5	MORGAN	6010208
ECO68A28	8/5/98	7.18	ROCK CREEK	5	MORGAN	6010208
ECO68A28	9/16/98	7.55	ROCK CREEK	5	MORGAN	6010208

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO68A28	12/1/98	6.47	ROCK CREEK	5	MORGAN	6010208
ECO68A28	3/9/99	6.82	ROCK CREEK	5	MORGAN	6010208
ECO68B01	4/16/96	8.53	CRYSTAL CREEK	2	BLEDSOE	6020004
ECO68B01	2/4/97	8.1	CRYSTAL CREEK	2	BLEDSOE	6020004
ECO68B01	5/7/97	7.8	CRYSTAL CREEK	2	BLEDSOE	6020004
ECO68B01	11/17/97	7.8	CRYSTAL CREEK	2	BLEDSOE	6020004
ECO68B01	2/2/98	7.85	CRYSTAL CREEK	2	BLEDSOE	6020004
ECO68B01	5/6/98	8.36	CRYSTAL CREEK	2	BLEDSOE	6020004
ECO68B01	2/22/99	7.98	CRYSTAL CREEK	2	BLEDSOE	6020004
ECO68B01	5/4/99	7.46	CRYSTAL CREEK	2	BLEDSOE	6020004
ECO68B01	4/24/01	8.3	CRYSTAL CREEK	2	BLEDSOE	6020004
ECO68B02	4/16/96	8.12	MCWILLIAMS CREEK	3	SEQUATCHIE	6020004
ECO68B02	9/4/96	7.77	MCWILLIAMS CREEK	3	SEQUATCHIE	6020004
ECO68B02	11/4/96	7.72	MCWILLIAMS CREEK	3	SEQUATCHIE	6020004
ECO68B02	2/3/97	7.93	MCWILLIAMS CREEK	3	SEQUATCHIE	6020004
ECO68B02	5/19/97	7.85	MCWILLIAMS CREEK	3	SEQUATCHIE	6020004
ECO68B02	8/5/97	7.75	MCWILLIAMS CREEK	3	SEQUATCHIE	6020004
ECO68B02	11/17/97	7.92	MCWILLIAMS CREEK	3	SEQUATCHIE	6020004
ECO68B02	2/9/98	7.99	MCWILLIAMS CREEK	3	SEQUATCHIE	6020004
ECO68B02	2/22/99	7.98	MCWILLIAMS CREEK	3	SEQUATCHIE	6020004
ECO68B02	5/4/99	7.37	MCWILLIAMS CREEK	3	SEQUATCHIE	6020004
ECO68B02	4/25/01	8.2	MCWILLIAMS CREEK	3	SEQUATCHIE	6020004
ECO68B09	9/19/96	7.63	MILL BRANCH	2	BLEDSOE	6020004
ECO68B09	10/28/96	7.45	MILL BRANCH	2	BLEDSOE	6020004
ECO68B09	2/5/97	7.73	MILL BRANCH	2	BLEDSOE	6020004
ECO68B09	4/16/97	7.61	MILL BRANCH	2	BLEDSOE	6020004
ECO68B09	7/29/97	7.41	MILL BRANCH	2	BLEDSOE	6020004
ECO68B09	11/17/97	6.86	MILL BRANCH	2	BLEDSOE	6020004

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO68B09	2/9/98	7.87	MILL BRANCH	2	BLEDSOE	6020004
ECO68B09	9/8/98	6.8	MILL BRANCH	2	BLEDSOE	6020004
ECO68B09	12/1/98	7.05	MILL BRANCH	2	BLEDSOE	6020004
ECO68B09	2/22/99	7.54	MILL BRANCH	2	BLEDSOE	6020004
ECO68B09	5/4/99	7.22	MILL BRANCH	2	BLEDSOE	6020004
ECO68B09	4/25/01	7.6	MILL BRANCH	2	BLEDSOE	6020004
ECO68B09	7/17/01	7.9	MILL BRANCH	2	BLEDSOE	6020004
ECO68B09	10/17/01	7.2	MILL BRANCH	2	BLEDSOE	6020004
ECO68C12	4/29/96	8.75	ELLIS GAP BRANCH	1	MARION	6020001
ECO68C12	1/29/97	7.22	ELLIS GAP BRANCH	1	MARION	6020001
ECO68C12	6/3/97	7.26	ELLIS GAP BRANCH	1	MARION	6020001
ECO68C12	3/10/98	7.38	ELLIS GAP BRANCH	1	MARION	6020001
ECO68C13	5/1/96	7.8	MUD CREEK	2	FRANKLIN	6030003
ECO68C13	8/21/96	7.76	MUD CREEK	2	FRANKLIN	6030003
ECO68C13	11/12/96	7.21	MUD CREEK	2	FRANKLIN	6030003
ECO68C13	1/27/97	7.31	MUD CREEK	2	FRANKLIN	6030003
ECO68C13	4/16/97	7.79	MUD CREEK	2	FRANKLIN	6030003
ECO68C13	9/3/97	7.63	MUD CREEK	2	FRANKLIN	6030003
ECO68C13	11/12/97	7.57	MUD CREEK	2	FRANKLIN	6030003
ECO68C13	2/10/98	7.62	MUD CREEK	2	FRANKLIN	6030003
ECO68C15	5/6/96	8.63	CROW CREEK	1	FRANKLIN	6030001
ECO68C15	8/20/96	7.94	CROW CREEK	1	FRANKLIN	6030001
ECO68C15	9/9/96	7.73	CROW CREEK	1	FRANKLIN	6030001
ECO68C15	11/12/96	7.88	CROW CREEK	1	FRANKLIN	6030001
ECO68C15	1/27/97	7.47	CROW CREEK	1	FRANKLIN	6030001
ECO68C15	4/16/97	8.21	CROW CREEK	1	FRANKLIN	6030001
ECO68C15	9/3/97	8.06	CROW CREEK	1	FRANKLIN	6030001
ECO68C15	11/12/97	7.78	CROW CREEK	1	FRANKLIN	6030001

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO68C15	2/10/98	7.65	CROW CREEK	1	FRANKLIN	6030001
ECO68C15	4/14/98	8.08	CROW CREEK	1	FRANKLIN	6030001
ECO68C15	8/31/98	8.04	CROW CREEK	1	FRANKLIN	6030001
ECO68C15	12/1/98	8.01	CROW CREEK	1	FRANKLIN	6030001
ECO68C15	2/8/99	7.96	CROW CREEK	1	FRANKLIN	6030001
ECO68C15	4/26/99	7.84	CROW CREEK	1	FRANKLIN	6030001
ECO68C20	4/14/98	7.94	CROW CREEK	1	FRANKLIN	6030001
ECO68C20	8/31/98	7.78	CROW CREEK	1	FRANKLIN	6030001
ECO68C20	12/1/98	8.1	CROW CREEK	1	FRANKLIN	6030001
ECO68C20	2/8/99	7.78	CROW CREEK	1	FRANKLIN	6030001
ECO68C20	4/28/99	7.76	CROW CREEK	1	FRANKLIN	6030001
ECO69D01	10/13/95	7.09	NO BUSINESS BRANCH	2	CAMPBELL	5130101
ECO69D01	4/29/96	7.01	NO BUSINESS BRANCH	2	CAMPBELL	5130101
ECO69D01	8/19/96	6.56	NO BUSINESS BRANCH	2	CAMPBELL	5130101
ECO69D01	9/10/96	6.89	NO BUSINESS BRANCH	2	CAMPBELL	5130101
ECO69D01	10/29/96	7.49	NO BUSINESS BRANCH	2	CAMPBELL	5130101
ECO69D01	2/12/97	6.21	NO BUSINESS BRANCH	2	CAMPBELL	5130101
ECO69D01	4/25/97	6.26	NO BUSINESS BRANCH	2	CAMPBELL	5130101
ECO69D01	5/7/97	6.05	NO BUSINESS BRANCH	2	CAMPBELL	5130101
ECO69D01	8/26/97	7.52	NO BUSINESS BRANCH	2	CAMPBELL	5130101
ECO69D01	10/3/97	6.66	NO BUSINESS BRANCH	2	CAMPBELL	5130101
ECO69D01	2/18/98	6.54	NO BUSINESS BRANCH	2	CAMPBELL	5130101
ECO69D01	4/2/98	6.52	NO BUSINESS BRANCH	2	CAMPBELL	5130101
ECO69D01	5/14/98	5.9	NO BUSINESS BRANCH	2	CAMPBELL	5130101
ECO69D01	8/18/98	6.67	NO BUSINESS BRANCH	2	CAMPBELL	5130101
ECO69D01	9/1/98	6.81	NO BUSINESS BRANCH	2	CAMPBELL	5130101
ECO69D01	11/12/98	7.14	NO BUSINESS BRANCH	2	CAMPBELL	5130101
ECO69D01	2/3/99	7.17	NO BUSINESS BRANCH	2	CAMPBELL	5130101

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO69D01	5/18/99	6.35	NO BUSINESS BRANCH	2	CAMPBELL	5130101
ECO69D01	5/9/00	6.21	NO BUSINESS BRANCH	2	CAMPBELL	5130101
ECO69D03	4/29/96	7.51	FLAT FORK	2	MORGAN	6010208
ECO69D03	9/12/96	6.68	FLAT FORK	2	MORGAN	6010208
ECO69D03	11/12/96	6.84	FLAT FORK	2	MORGAN	6010208
ECO69D03	2/6/97	6.76	FLAT FORK	2	MORGAN	6010208
ECO69D03	4/17/97	6.82	FLAT FORK	2	MORGAN	6010208
ECO69D03	5/19/97	5.26	FLAT FORK	2	MORGAN	6010208
ECO69D03	8/28/97	6.27	FLAT FORK	2	MORGAN	6010208
ECO69D03	11/19/97	6.62	FLAT FORK	2	MORGAN	6010208
ECO69D03	1/27/98	6.48	FLAT FORK	2	MORGAN	6010208
ECO69D03	3/20/98	6.61	FLAT FORK	2	MORGAN	6010208
ECO69D03	5/14/98	6.7	FLAT FORK	2	MORGAN	6010208
ECO69D03	8/19/98	6.99	FLAT FORK	2	MORGAN	6010208
ECO69D03	9/2/98	6.13	FLAT FORK	2	MORGAN	6010208
ECO69D03	11/18/98	7.59	FLAT FORK	2	MORGAN	6010208
ECO69D03	3/9/99	6.65	FLAT FORK	2	MORGAN	6010208
ECO69D04	11/6/95	7.81	STINKING CREEK	3	CAMPBELL	5130101
ECO69D04	4/29/96	7.54	STINKING CREEK	3	CAMPBELL	5130101
ECO69D04	8/19/96	6.84	STINKING CREEK	3	CAMPBELL	5130101
ECO69D04	9/10/96	7.52	STINKING CREEK	3	CAMPBELL	5130101
ECO69D04	10/28/96	6.46	STINKING CREEK	3	CAMPBELL	5130101
ECO69D04	2/12/97	7.05	STINKING CREEK	3	CAMPBELL	5130101
ECO69D04	5/7/97	6.94	STINKING CREEK	3	CAMPBELL	5130101
ECO69D04	5/16/97	7.41	STINKING CREEK	3	CAMPBELL	5130101
ECO69D04	8/26/97	7.75	STINKING CREEK	3	CAMPBELL	5130101
ECO69D04	10/3/97	7.27	STINKING CREEK	3	CAMPBELL	5130101
ECO69D04	2/18/98	7.09	STINKING CREEK	3	CAMPBELL	5130101

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO69D04	4/2/98	7.3	STINKING CREEK	3	CAMPBELL	5130101
ECO69D04	5/14/98	7.14	STINKING CREEK	3	CAMPBELL	5130101
ECO69D04	8/18/98	7.34	STINKING CREEK	3	CAMPBELL	5130101
ECO69D04	9/1/98	7.19	STINKING CREEK	3	CAMPBELL	5130101
ECO69D04	11/12/98	6.93	STINKING CREEK	3	CAMPBELL	5130101
ECO69D04	2/3/99	6.67	STINKING CREEK	3	CAMPBELL	5130101
ECO69D04	5/18/99	7	STINKING CREEK	3	CAMPBELL	5130101
ECO69D04	5/9/00	6.76	STINKING CREEK	3	CAMPBELL	5130101
ECO69D05	11/19/97	7.14	NEW RIVER	2	MORGAN	5130104
ECO69D05	1/27/98	7.78	NEW RIVER	2	MORGAN	5130104
ECO69D05	4/6/98	7.73	NEW RIVER	2	MORGAN	5130104
ECO69D05	5/14/98	7.59	NEW RIVER	2	MORGAN	5130104
ECO69D05	8/19/98	7.82	NEW RIVER	2	MORGAN	5130104
ECO69D05	9/16/98	7.1	NEW RIVER	2	MORGAN	5130104
ECO69D05	11/18/98	7.51	NEW RIVER	2	MORGAN	5130104
ECO69D05	3/9/99	7.06	NEW RIVER	2	MORGAN	5130104
ECO69D05	5/8/00	7.5	NEW RIVER	2	MORGAN	5130104
ECO69D06	4/6/98	7.87	ROUND ROCK CREEK	3	CAMPBELL	51130104
ECO69D06	5/19/98	8.23	ROUND ROCK CREEK	3	CAMPBELL	5130104
ECO69D06	8/20/98	8.1	ROUND ROCK CREEK	3	CAMPBELL	5130104
ECO69D06	9/16/98	7.8	ROUND ROCK CREEK	3	CAMPBELL	5130104
ECO69D06	11/18/98	8.12	ROUND ROCK CREEK	3	CAMPBELL	5130104
ECO69D06	2/3/99	6.76	ROUND ROCK CREEK	3	CAMPBELL	5130104
ECO69D06	5/18/99	8.12	ROUND ROCK CREEK	3	CAMPBELL	5130104
ECO69D06	5/10/00	5.93	ROUND ROCK CREEK	3	CAMPBELL	5130104
ECO71E09	4/30/96	7.48	BUZZARD CREEK	3	ROBERTSON	5130206
ECO71E09	8/19/96	7.4	BUZZARD CREEK	3	ROBERTSON	5130206
ECO71E09	11/12/96	8.05	BUZZARD CREEK	3	ROBERTSON	5130206

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO71E09	2/13/97	8.02	BUZZARD CREEK	3	ROBERTSON	5130206
ECO71E09	5/19/97	8.04	BUZZARD CREEK	3	ROBERTSON	5130206
ECO71E09	10/16/97	7.4	BUZZARD CREEK	3	ROBERTSON	5130206
ECO71E09	11/17/97	7.74	BUZZARD CREEK	3	ROBERTSON	5130206
ECO71E09	2/24/98	7.66	BUZZARD CREEK	3	ROBERTSON	5130206
ECO71E09	5/12/98	7.8	BUZZARD CREEK	3	ROBERTSON	5130206
ECO71E09	8/26/98	7.75	BUZZARD CREEK	3	ROBERTSON	5130206
ECO71E09	11/19/98	8	BUZZARD CREEK	3	ROBERTSON	5130206
ECO71E09	2/2/99	7.72	BUZZARD CREEK	3	ROBERTSON	5130206
ECO71E09	5/4/99	7.83	BUZZARD CREEK	3	ROBERTSON	5130206
ECO71E09	7/27/00	7.25	BUZZARD CREEK	3	ROBERTSON	5130206
ECO71E09	8/9/00	7.86	BUZZARD CREEK	3	ROBERTSON	5130206
ECO71E09	9/19/00	7.92	BUZZARD CREEK	3	ROBERTSON	5130206
ECO71E09	10/11/00	7.99	BUZZARD CREEK	3	ROBERTSON	5130206
ECO71E09	11/14/00	7.79	BUZZARD CREEK	3	ROBERTSON	5130206
ECO71E09	12/7/00	8.16	BUZZARD CREEK	3	ROBERTSON	5130206
ECO71E09	5/3/01	7.64	BUZZARD CREEK	3	ROBERTSON	5130206
ECO71E09	10/29/01	7.81	BUZZARD CREEK	3	ROBERTSON	5130206
ECO71E14	6/9/97	8.18	PASSENGER CREEK	3	MONTGOMERY	5130206
ECO71E14	9/4/97	8.1	PASSENGER CREEK	3	MONTGOMERY	5130206
ECO71E14	11/17/97	7.83	PASSENGER CREEK	3	MONTGOMERY	5130206
ECO71E14	2/24/98	7.76	PASSENGER CREEK	3	MONTGOMERY	5130206
ECO71E14	5/12/98	7.94	PASSENGER CREEK	3	MONTGOMERY	5130206
ECO71E14	8/26/98	7.77	PASSENGER CREEK	3	MONTGOMERY	5130206
ECO71E14	11/19/98	8.12	PASSENGER CREEK	3	MONTGOMERY	5130206
ECO71E14	12/17/98	7.94	PASSENGER CREEK	3	MONTGOMERY	5130206
ECO71E14	2/2/99	7.76	PASSENGER CREEK	3	MONTGOMERY	5130206
ECO71E14	5/4/99	7.82	PASSENGER CREEK	3	MONTGOMERY	5130206

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO71E14	7/25/00	7.69	PASSENGER CREEK	3	MONTGOMERY	5130206
ECO71E14	8/15/00	8.12	PASSENGER CREEK	3	MONTGOMERY	5130206
ECO71E14	9/6/00	8.07	PASSENGER CREEK	3	MONTGOMERY	5130206
ECO71E14	10/4/00	7.96	PASSENGER CREEK	3	MONTGOMERY	5130206
ECO71E14	11/8/00	7.88	PASSENGER CREEK	3	MONTGOMERY	5130206
ECO71E14	12/11/00	8.19	PASSENGER CREEK	3	MONTGOMERY	5130206
ECO71E14	1/16/01	8.55	PASSENGER CREEK	3	MONTGOMERY	5130206
ECO71E14	5/3/01	8.09	PASSENGER CREEK	3	MONTGOMERY	5130206
ECO71F12	4/29/96	7.83	SOUTH HARPETH RIVER	3	WILLIAMSON	5130204
ECO71F12	8/27/96	8.14	SOUTH HARPETH RIVER	3	WILLIAMSON	5130204
ECO71F12	11/19/96	8.02	SOUTH HARPETH RIVER	3	WILLIAMSON	5130204
ECO71F12	2/10/97	8.87	SOUTH HARPETH RIVER	3	WILLIAMSON	5130204
ECO71F12	4/22/97	8.12	SOUTH HARPETH RIVER	3	WILLIAMSON	5130204
ECO71F12	8/25/97	8.39	SOUTH HARPETH RIVER	3	WILLIAMSON	5130204
ECO71F12	12/1/97	8.57	SOUTH HARPETH RIVER	3	WILLIAMSON	5130204
ECO71F12	2/11/98	6.07	SOUTH HARPETH RIVER	3	WILLIAMSON	5130204
ECO71F12	4/22/98	8.86	SOUTH HARPETH RIVER	3	WILLIAMSON	5130204
ECO71F12	8/5/98	8.42	SOUTH HARPETH RIVER	3	WILLIAMSON	5130204
ECO71F12	9/11/98	8.13	SOUTH HARPETH RIVER	3	WILLIAMSON	5130204
ECO71F12	2/8/99	8.34	SOUTH HARPETH RIVER	3	WILLIAMSON	5130204
ECO71F12	5/10/99	7.81	SOUTH HARPETH RIVER	3	WILLIAMSON	5130204
ECO71F16	2/11/98	6.03	WOLF CREEK	3	HICKMAN	6040003
ECO71F16	5/29/98	7.47	WOLF CREEK	3	HICKMAN	6040003
ECO71F16	9/9/98	8.25	WOLF CREEK	3	HICKMAN	6040003
ECO71F16	11/9/98	7.39	WOLF CREEK	3	HICKMAN	6040003
ECO71F16	2/8/99	7.53	WOLF CREEK	3	HICKMAN	6040003
ECO71F16	5/10/99	7.6	WOLF CREEK	3	HICKMAN	6040003
ECO71F16	12/10/99	7.16	WOLF CREEK	3	HICKMAN	6040003

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO71F16	2/23/00	7.38	WOLF CREEK	3	HICKMAN	6040003
ECO71F16	5/2/00	7.69	WOLF CREEK	3	HICKMAN	6040003
ECO71F19	4/29/96	6.32	BRUSH CREEK	4	LEWIS	6040004
ECO71F19	8/26/96	7.49	BRUSH CREEK	4	LEWIS	6040004
ECO71F19	10/4/96	6.93	BRUSH CREEK	4	LEWIS	6040004
ECO71F19	11/18/96	7.55	BRUSH CREEK	4	LEWIS	6040004
ECO71F19	2/12/97	7.53	BRUSH CREEK	4	LEWIS	6040004
ECO71F19	5/14/97	7.66	BRUSH CREEK	4	LEWIS	6040004
ECO71F19	9/3/97	7.53	BRUSH CREEK	4	LEWIS	6040004
ECO71F19	11/19/97	8.05	BRUSH CREEK	4	LEWIS	6040004
ECO71F19	5/11/98	7.67	BRUSH CREEK	4	LEWIS	6040004
ECO71F19	9/21/98	7.59	BRUSH CREEK	4	LEWIS	6040004
ECO71F19	11/24/98	7.09	BRUSH CREEK	4	LEWIS	6040004
ECO71F19	2/22/99	7.78	BRUSH CREEK	4	LEWIS	6040004
ECO71F19	6/7/99	7.6	BRUSH CREEK	4	LEWIS	6040004
ECO71F19	8/24/99	8.06	BRUSH CREEK	4	LEWIS	6040004
ECO71F19	10/18/99	7.45	BRUSH CREEK	4	LEWIS	6040004
ECO71F19	1/26/00	8.2	BRUSH CREEK	4	LEWIS	6040004
ECO71F19	5/17/00	8.17	BRUSH CREEK	4	LEWIS	6040004
ECO71F19	6/5/00	8.15	BRUSH CREEK	4	LEWIS	6040004
ECO71F27	4/29/96	6.25	SWANEGAN BRANCH	2	WAYNE	6030005
ECO71F27	8/26/96	6.68	SWANEGAN BRANCH	2	WAYNE	6030005
ECO71F27	11/18/96	7.04	SWANEGAN BRANCH	2	WAYNE	6030005
ECO71F27	2/12/97	6.97	SWANEGAN BRANCH	2	WAYNE	6030005
ECO71F27	4/21/97	7.18	SWANEGAN BRANCH	2	WAYNE	6030005
ECO71F27	9/11/97	6.96	SWANEGAN BRANCH	2	WAYNE	6030005
ECO71F27	11/19/97	7.96	SWANEGAN BRANCH	2	WAYNE	6030005
ECO71F27	2/18/98	6.86	SWANEGAN BRANCH	2	WAYNE	6030005

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO71F27	5/5/98	7.72	SWANEGAN BRANCH	2	WAYNE	6030005
ECO71F27	9/21/98	7.87	SWANEGAN BRANCH	2	WAYNE	6030005
ECO71F27	11/24/98	7.2	SWANEGAN BRANCH	2	WAYNE	6030005
ECO71F27	2/22/99	7.23	SWANEGAN BRANCH	2	WAYNE	6030005
ECO71F27	6/7/99	6.72	SWANEGAN BRANCH	2	WAYNE	6030005
ECO71F28	4/29/96	7.39	LITTLE SWAN CREEK	4	LEWIS	6040003
ECO71F28	8/26/96	7.93	LITTLE SWAN CREEK	4	LEWIS	6040003
ECO71F28	11/18/96	7.86	LITTLE SWAN CREEK	4	LEWIS	6040003
ECO71F28	2/12/97	8.16	LITTLE SWAN CREEK	4	LEWIS	6040003
ECO71F28	5/14/97	8.1	LITTLE SWAN CREEK	4	LEWIS	6040003
ECO71F28	9/3/97	7.75	LITTLE SWAN CREEK	4	LEWIS	6040003
ECO71F28	11/19/97	7.84	LITTLE SWAN CREEK	4	LEWIS	6040003
ECO71F28	5/5/98	8.57	LITTLE SWAN CREEK	4	LEWIS	6040003
ECO71F28	9/21/98	7.57	LITTLE SWAN CREEK	4	LEWIS	6040003
ECO71F28	11/24/98	7.2	LITTLE SWAN CREEK	4	LEWIS	6040003
ECO71F28	2/22/99	8.26	LITTLE SWAN CREEK	4	LEWIS	6040003
ECO71F28	6/7/99	8.1	LITTLE SWAN CREEK	4	LEWIS	6040003
ECO71F28	8/24/99	8.06	LITTLE SWAN CREEK	4	LEWIS	6040003
ECO71F28	11/29/99	8.26	LITTLE SWAN CREEK	4	LEWIS	6040003
ECO71F28	2/3/00	8.6	LITTLE SWAN CREEK	4	LEWIS	6040003
ECO71G03	11/10/97	8.12	FLAT CREEK	4	OVERTON	5130106
ECO71G03	2/3/98	8.38	FLAT CREEK	4	OVERTON	5130106
ECO71G03	4/28/98	8.49	FLAT CREEK	4	OVERTON	5130106
ECO71G03	9/14/98	8.24	FLAT CREEK	4	OVERTON	5130106
ECO71G03	2/3/99	7.99	FLAT CREEK	4	OVERTON	5130106
ECO71G03	6/16/99	8.3	FLAT CREEK	4	OVERTON	5130106
ECO71G03	7/12/00	8.47	FLAT CREEK	4	OVERTON	5130106
ECO71G03	8/16/00	8.57	FLAT CREEK	4	OVERTON	5130106

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO71G03	9/21/00	8.36	FLAT CREEK	4	OVERTON	5130106
ECO71G03	11/16/00	7.96	FLAT CREEK	4	OVERTON	5130106
ECO71G03	12/14/00	8.12	FLAT CREEK	4	OVERTON	5130106
ECO71G03	1/24/01	8.2	FLAT CREEK	4	OVERTON	5130106
ECO71G03	2/22/01	8.15	FLAT CREEK	4	OVERTON	5130106
ECO71G03	4/18/01	8.45	FLAT CREEK	4	OVERTON	5130106
ECO71G04	2/3/98	8.38	SPRING CREEK	5	OVERTON	5130106
ECO71G04	4/28/98	8.04	SPRING CREEK	5	OVERTON	5130106
ECO71G04	9/14/98	7.79	SPRING CREEK	5	OVERTON	5130106
ECO71G04	2/3/99	7.79	SPRING CREEK	5	OVERTON	5130106
ECO71G04	6/16/99	8.07	SPRING CREEK	5	OVERTON	5130106
ECO71G04	7/12/00	8.11	SPRING CREEK	5	OVERTON	5130106
ECO71G04	8/16/00	8.21	SPRING CREEK	5	OVERTON	5130106
ECO71G04	9/21/00	7.82	SPRING CREEK	5	OVERTON	5130106
ECO71G04	11/16/00	7.42	SPRING CREEK	5	OVERTON	5130106
ECO71G04	12/14/00	7.88	SPRING CREEK	5	OVERTON	5130106
ECO71G04	1/24/01	7.28	SPRING CREEK	5	OVERTON	5130106
ECO71G04	2/22/01	7.35	SPRING CREEK	5	OVERTON	5130106
ECO71G04	4/18/01	8.28	SPRING CREEK	5	OVERTON	5130106
ECO71G10	5/2/96	7.6	HURRICANE CREEK	3	MOORE	6030003
ECO71G10	9/3/96	7.7	HURRICANE CREEK	3	MOORE	6030003
ECO71G10	11/25/96	7.96	HURRICANE CREEK	3	MOORE	6030003
ECO71G10	2/6/97	7.29	HURRICANE CREEK	3	MOORE	6030003
ECO71G10	5/1/97	8.34	HURRICANE CREEK	3	MOORE	6030003
ECO71G10	8/28/97	7.95	HURRICANE CREEK	3	MOORE	6030003
ECO71G10	10/10/97	7.92	HURRICANE CREEK	3	MOORE	6030003
ECO71G10	11/24/97	8.25	HURRICANE CREEK	3	MOORE	6030003
ECO71G10	2/25/98	7.6	HURRICANE CREEK	3	MOORE	6030003

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO71G10	4/23/98	8	HURRICANE CREEK	3	MOORE	6030003
ECO71G10	9/8/98	8.5	HURRICANE CREEK	3	MOORE	6030003
ECO71G10	12/2/98	7.53	HURRICANE CREEK	3	MOORE	6030003
ECO71G10	2/16/99	7.72	HURRICANE CREEK	3	MOORE	6030003
ECO71G10	6/8/99	7.74	HURRICANE CREEK	3	MOORE	6030003
ECO71H03	4/29/96	7.99	FLYNN CREEK	4	JACKSON	5130106
ECO71H03	8/27/96	7.99	FLYNN CREEK	4	JACKSON	5130106
ECO71H03	11/26/96	8.26	FLYNN CREEK	4	JACKSON	5130106
ECO71H03	2/3/97	7.94	FLYNN CREEK	4	JACKSON	5130106
ECO71H03	5/6/97	8.76	FLYNN CREEK	4	JACKSON	5130106
ECO71H03	8/20/97	8.07	FLYNN CREEK	4	JACKSON	5130106
ECO71H03	11/10/97	7.81	FLYNN CREEK	4	JACKSON	5130106
ECO71H03	2/3/98	8.49	FLYNN CREEK	4	JACKSON	5130106
ECO71H03	5/4/98	8.09	FLYNN CREEK	4	JACKSON	5130106
ECO71H03	9/17/98	8.21	FLYNN CREEK	4	JACKSON	5130106
ECO71H03	11/18/98	8.66	FLYNN CREEK	4	JACKSON	5130106
ECO71H03	6/2/99	8.38	FLYNN CREEK	4	JACKSON	5130106
ECO71H03	9/5/00	7.93	FLYNN CREEK	4	JACKSON	5130106
ECO71H03	10/16/00	8.19	FLYNN CREEK	4	JACKSON	5130106
ECO71H03	1/30/01	8.23	FLYNN CREEK	4	JACKSON	5130106
ECO71H06	4/22/96	7.85	CLEAR FORK	3	CANNON	5130108
ECO71H06	8/19/96	8.41	CLEAR FORK	3	CANNON	5130108
ECO71H06	10/16/96	7.53	CLEAR FORK	3	CANNON	5130108
ECO71H06	11/12/96	8.53	CLEAR FORK	3	CANNON	5130108
ECO71H06	2/4/97	8	CLEAR FORK	3	CANNON	5130108
ECO71H06	5/12/97	8.53	CLEAR FORK	3	CANNON	5130108
ECO71H06	8/22/97	8.36	CLEAR FORK	3	CANNON	5130108
ECO71H06	12/8/97	8.27	CLEAR FORK	3	CANNON	5130108

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO71H06	2/12/98	8.46	CLEAR FORK	3	CANNON	5130108
ECO71H06	4/13/98	8.63	CLEAR FORK	3	CANNON	5130108
ECO71H06	8/31/98	8.3	CLEAR FORK	3	CANNON	5130108
ECO71H06	11/16/98	8.33	CLEAR FORK	3	CANNON	5130108
ECO71H06	2/9/99	8.2	CLEAR FORK	3	CANNON	5130108
ECO71H06	6/11/99	8.48	CLEAR FORK	3	CANNON	5130108
ECO71H09	5/1/96	7.33	CARSON FORK	4	CANNON	5130203
ECO71H09	8/19/96	8.01	CARSON FORK	4	CANNON	5130203
ECO71H09	11/12/96	8.55	CARSON FORK	4	CANNON	5130203
ECO71H09	2/4/97	7.82	CARSON FORK	4	CANNON	5130203
ECO71H09	4/30/97	7.89	CARSON FORK	4	CANNON	5130203
ECO71H09	8/19/97	7.81	CARSON FORK	4	CANNON	5130203
ECO71H09	2/12/98	8.03	CARSON FORK	4	CANNON	5130203
ECO71H09	4/13/98	8.13	CARSON FORK	4	CANNON	5130203
ECO71H09	8/31/98	7.97	CARSON FORK	4	CANNON	5130203
ECO71H09	11/16/98	7.71	CARSON FORK	4	CANNON	5130203
ECO71H09	2/9/99	8.07	CARSON FORK	4	CANNON	5130203
ECO71H09	6/11/99	8.09	CARSON FORK	4	CANNON	5130203
ECO71H09	10/30/01	7.72	CARSON FORK	4	CANNON	5130203
ECO71H09	11/6/01	7.88	CARSON FORK	4	CANNON	5130203
ECO71I03	5/2/96	6.31	STEWART CREEK	3	RUTHERFORD	5130203
ECO71I03	9/3/96	7.32	STEWART CREEK	3	RUTHERFORD	5130203
ECO71I03	11/25/96	7.51	STEWART CREEK	3	RUTHERFORD	5130203
ECO71I03	2/6/97	7.51	STEWART CREEK	3	RUTHERFORD	5130203
ECO71I03	4/23/97	7.6	STEWART CREEK	3	RUTHERFORD	5130203
ECO71I03	10/1/97	6.73	STEWART CREEK	3	RUTHERFORD	5130203
ECO71I03	11/24/97	7.33	STEWART CREEK	3	RUTHERFORD	5130203
ECO71I03	2/25/98	7.11	STEWART CREEK	3	RUTHERFORD	5130203

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO71I03	10/31/01	7.25	STEWART CREEK	3	RUTHERFORD	5130203
ECO71I09	5/1/96	6.72	WEST FORK STONES RIVER	3	RUTHERFORD	5130203
ECO71I09	9/3/96	7.45	WEST FORK STONES RIVER	3	RUTHERFORD	5130203
ECO71I09	11/25/96	7.66	WEST FORK STONES RIVER	3	RUTHERFORD	5130203
ECO71I09	2/6/97	7.75	WEST FORK STONES RIVER	3	RUTHERFORD	5130203
ECO71I09	4/23/97	7.43	WEST FORK STONES RIVER	3	RUTHERFORD	5130203
ECO71I09	10/1/97	7.07	WEST FORK STONES RIVER	3	RUTHERFORD	5130203
ECO71I09	11/13/97	8.02	WEST FORK STONES RIVER	3	RUTHERFORD	5130203
ECO71I09	2/25/98	7.03	WEST FORK STONES RIVER	3	RUTHERFORD	5130203
ECO71I09	4/27/98	8.06	WEST FORK STONES RIVER	3	RUTHERFORD	5130203
ECO71I09	5/19/98	8.06	WEST FORK STONES RIVER	3	RUTHERFORD	5130203
ECO71I09	9/1/98	7.56	WEST FORK STONES RIVER	3	RUTHERFORD	5130203
ECO71I09	12/2/98	7.21	WEST FORK STONES RIVER	3	RUTHERFORD	5130203
ECO71I09	2/16/99	7.86	WEST FORK STONES RIVER	3	RUTHERFORD	5130203
ECO71I09	6/3/99	7.46	WEST FORK STONES RIVER	3	RUTHERFORD	5130203
ECO71I09	1/11/00	7.45	WEST FORK STONES RIVER	3	RUTHERFORD	5130203
ECO71I09	4/19/00	7.57	WEST FORK STONES RIVER	3	RUTHERFORD	5130203
ECO71I09	7/25/00	7.08	WEST FORK STONES RIVER	3	RUTHERFORD	5130203
ECO71I09	10/17/00	7.26	WEST FORK STONES RIVER	3	RUTHERFORD	5130203
ECO71I09	6/11/01	7.6	WEST FORK STONES RIVER	3	RUTHERFORD	5130203
ECO71I09	10/11/01	7.9	WEST FORK STONES RIVER	3	RUTHERFORD	5130203
ECO71I10	5/20/96	7.53	FLAT CREEK	3	MARSHALL	6040002
ECO71I10	9/3/96	7.81	FLAT CREEK	3	MARSHALL	6040002
ECO71I10	11/19/96	7.91	FLAT CREEK	3	MARSHALL	6040002
ECO71I10	2/10/97	8.23	FLAT CREEK	3	MARSHALL	6040002
ECO71I10	4/28/97	7.82	FLAT CREEK	3	MARSHALL	6040002
ECO71I10	5/1/97	7.82	FLAT CREEK	3	MARSHALL	6040002
ECO71I10	10/9/97	5.65	FLAT CREEK	3	MARSHALL	6040002

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO71I10	11/13/97	8.08	FLAT CREEK	3	MARSHALL	6040002
ECO71I10	2/25/98	7.33	FLAT CREEK	3	MARSHALL	6040002
ECO71I10	4/27/98	8.13	FLAT CREEK	3	MARSHALL	6040002
ECO71I10	5/19/98	8.12	FLAT CREEK	3	MARSHALL	6040002
ECO71I10	12/2/98	7.35	FLAT CREEK	3	MARSHALL	6040002
ECO71I10	2/16/99	8.39	FLAT CREEK	3	MARSHALL	6040002
ECO71I10	6/8/99	8.12	FLAT CREEK	3	MARSHALL	6040002
ECO71I10	11/9/99	7.7	FLAT CREEK	3	MARSHALL	6040002
ECO71I10	1/6/00	8.36	FLAT CREEK	3	MARSHALL	6040002
ECO71I10	1/25/00	7.71	FLAT CREEK	3	MARSHALL	6040002
ECO71I10	4/6/00	8.1	FLAT CREEK	3	MARSHALL	6040002
ECO71I10	4/12/00	7.71	FLAT CREEK	3	MARSHALL	6040002
ECO71I10	7/12/00	7.27	FLAT CREEK	3	MARSHALL	6040002
ECO71I10	5/30/01	7.6	FLAT CREEK	3	MARSHALL	6040002
ECO71I12	1/3/00	7.97	CEDAR CREEK	3	WILSON	5130201
ECO71I12	4/19/00	8.21	CEDAR CREEK	3	WILSON	5130201
ECO71I12	7/19/00	7.7	CEDAR CREEK	3	WILSON	5130201
ECO71I12	11/1/00	6.87	CEDAR CREEK	3	WILSON	5130201
ECO71I12	5/7/01	8.04	CEDAR CREEK	3	WILSON	5130201
ECO71I13	10/21/99	7.51	FALL CREEK	3	RUTHERFORD	5130203
ECO71I13	1/6/00	7.54	FALL CREEK	3	RUTHERFORD	5130203
ECO71I13	1/11/00	7.57	FALL CREEK	3	RUTHERFORD	5130203
ECO71I13	5/1/00	7.64	FALL CREEK	3	RUTHERFORD	5130203
ECO71I13	7/20/00	7.26	FALL CREEK	3	RUTHERFORD	5130203
ECO71I13	10/31/00	6.89	FALL CREEK	3	RUTHERFORD	5130203
ECO71I13	5/7/01	8.17	FALL CREEK	3	RUTHERFORD	5130203
ECO71I13	10/30/01	7.81	FALL CREEK	3	RUTHERFORD	5130203
ECO71I13	11/6/01	7.92	FALL CREEK	3	RUTHERFORD	5130203

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO71I14	1/25/00	7.81	LITTLE FLAT CREEK	3	MAURY	6040002
ECO71I14	4/11/00	7.67	LITTLE FLAT CREEK	3	MAURY	6040002
ECO71I14	7/11/00	7.53	LITTLE FLAT CREEK	3	MAURY	6040002
ECO71I14	5/9/01	7.93	LITTLE FLAT CREEK	3	MAURY	6040002
ECO71I14	9/12/01	7.51	LITTLE FLAT CREEK	3	MAURY	6040002
ECO71I15	1/24/00	7.85	HARPETH RIVER	4	WILLIAMSON	5130204
ECO71I15	5/3/00	7.86	HARPETH RIVER	4	WILLIAMSON	5130204
ECO71I15	7/13/00	7.59	HARPETH RIVER	4	WILLIAMSON	5130204
ECO71I15	10/31/00	7.42	HARPETH RIVER	4	WILLIAMSON	5130204
ECO71I15	5/9/01	8.07	HARPETH RIVER	4	WILLIAMSON	5130204
ECO71I15	10/9/01	7.99	HARPETH RIVER	4	WILLIAMSON	5130204
ECO73A01	12/21/95	7.02	COLD CREEK	3	LAUDERDALE	8010100
ECO73A01	5/2/96	7.61	COLD CREEK	3	LAUDERDALE	8010100
ECO73A01	8/15/96	7.91	COLD CREEK	3	LAUDERDALE	8010100
ECO73A01	9/10/96	7.24	COLD CREEK	3	LAUDERDALE	8010100
ECO73A01	10/29/96	7.01	COLD CREEK	3	LAUDERDALE	8010100
ECO73A01	4/21/97	7.76	COLD CREEK	3	LAUDERDALE	8010100
ECO73A01	6/10/97	8.55	COLD CREEK	3	LAUDERDALE	8010100
ECO73A01	8/5/97	7.42	COLD CREEK	3	LAUDERDALE	8010100
ECO73A01	8/26/97	6.97	COLD CREEK	3	LAUDERDALE	8010100
ECO73A01	10/16/97	7.74	COLD CREEK	3	LAUDERDALE	8010100
ECO73A01	9/18/01	7.27	COLD CREEK	3	LAUDERDALE	8010100
ECO73A02	4/24/97	7.01	MIDDLE FORK FORKED DEER RIVER	4	LAUDERDALE	8010100
ECO73A02	8/27/97	6.88	MIDDLE FORK FORKED DEER RIVER	4	LAUDERDALE	8010100
ECO73A02	5/27/98	6.72	MIDDLE FORK FORKED DEER RIVER	4	LAUDERDALE	8010100
ECO73A02	8/25/98	6.79	MIDDLE FORK FORKED DEER RIVER	4	LAUDERDALE	8010100
ECO73A02	11/17/98	6.79	MIDDLE FORK FORKED DEER RIVER	4	LAUDERDALE	8010100
ECO73A02	4/21/99	6.89	MIDDLE FORK FORKED DEER RIVER	4	LAUDERDALE	8010100

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO73A02	9/18/01	7.21	MIDDLE FORK FORKED DEER RIVER	4	LAUDERDALE	8010100
ECO73A03	4/24/97	7.14	COLD CREEK	4	LAUDERDALE	8010100
ECO73A03	8/26/97	6.79	COLD CREEK	4	LAUDERDALE	8010100
ECO73A03	5/26/98	6.9	COLD CREEK	4	LAUDERDALE	8010100
ECO73A03	8/25/98	6.82	COLD CREEK	4	LAUDERDALE	8010100
ECO73A03	11/17/98	6.96	COLD CREEK	4	LAUDERDALE	8010100
ECO73A03	4/20/99	6.88	COLD CREEK	4	LAUDERDALE	8010100
ECO73A04	5/28/98	7.04	BAYOU DU CHIEN	4	OBION	8010202
ECO73A04	8/19/98	4.85	BAYOU DU CHIEN	4	OBION	8010202
ECO73A04	11/17/98	6.8	BAYOU DU CHIEN	4	OBION	8010202
ECO73A04	2/9/99	7.45	BAYOU DU CHIEN	4	OBION	8010202
ECO73A04	4/21/99	7.14	BAYOU DU CHIEN	4	OBION	8010202
ECO74A06	4/18/96	8.02	SUGAR CREEK	2	TIPTON	8010100
ECO74A06	8/14/96	8.2	SUGAR CREEK	2	TIPTON	8010100
ECO74A06	8/19/96	7.83	SUGAR CREEK	2	TIPTON	8010100
ECO74A06	10/29/96	7.57	SUGAR CREEK	2	TIPTON	8010100
ECO74A06	3/11/97	8	SUGAR CREEK	2	TIPTON	8010100
ECO74A06	4/22/97	8.06	SUGAR CREEK	2	TIPTON	8010100
ECO74A06	5/21/97	8.05	SUGAR CREEK	2	TIPTON	8010100
ECO74A06	8/5/97	7.75	SUGAR CREEK	2	TIPTON	8010100
ECO74A06	8/25/97	7.39	SUGAR CREEK	2	TIPTON	8010100
ECO74A06	10/16/97	7.77	SUGAR CREEK	2	TIPTON	8010100
ECO74A06	4/27/98	8.02	SUGAR CREEK	2	TIPTON	8010100
ECO74A06	8/24/98	7.19	SUGAR CREEK	2	TIPTON	8010100
ECO74A06	11/16/98	7.47	SUGAR CREEK	2	TIPTON	8010100
ECO74A06	2/8/99	7.95	SUGAR CREEK	2	TIPTON	8010100
ECO74A06	4/20/99	7.71	SUGAR CREEK	2	TIPTON	8010100
ECO74A06	5/16/00	7.69	SUGAR CREEK	2	TIPTON	8010100

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO74A06	9/6/00	6.26	SUGAR CREEK	2	TIPTON	8010100
ECO74A08	4/11/96	7.99	PAW PAW CREEK	2	OBION	8010202
ECO74A08	8/19/96	8.02	PAW PAW CREEK	2	OBION	8010202
ECO74A08	9/19/96	7.71	PAW PAW CREEK	2	OBION	8010202
ECO74A08	11/12/96	7.79	PAW PAW CREEK	2	OBION	8010202
ECO74A08	2/5/97	7.32	PAW PAW CREEK	2	OBION	8010202
ECO74A08	4/17/97	7.62	PAW PAW CREEK	2	OBION	8010202
ECO74A08	4/22/97	8.14	PAW PAW CREEK	2	OBION	8010202
ECO74A08	8/5/97	7.6	PAW PAW CREEK	2	OBION	8010202
ECO74A08	11/20/97	7.91	PAW PAW CREEK	2	OBION	8010202
ECO74A08	3/4/98	8.34	PAW PAW CREEK	2	OBION	8010202
ECO74A08	4/21/98	7.78	PAW PAW CREEK	2	OBION	8010202
ECO74A08	8/18/98	7.91	PAW PAW CREEK	2	OBION	8010202
ECO74A08	11/17/98	7.99	PAW PAW CREEK	2	OBION	8010202
ECO74A08	2/17/99	7.93	PAW PAW CREEK	2	OBION	8010202
ECO74A08	4/13/99	7.7	PAW PAW CREEK	2	OBION	8010202
ECO74A08	3/14/01	8.14	PAW PAW CREEK	2	OBION	8010202
ECO74A08	6/12/01	7.82	PAW PAW CREEK	2	OBION	8010202
ECO74A08	10/16/01	7.8	PAW PAW CREEK	2	OBION	8010202
ECO74B01	4/9/96	6.47	TERRAPIN CREEK	2	HENRY	8010202
ECO74B01	9/3/96	6.59	TERRAPIN CREEK	2	HENRY	8010202
ECO74B01	9/11/96	6.43	TERRAPIN CREEK	22	HENRY	8010202
ECO74B01	12/4/96	6.62	TERRAPIN CREEK	2	HENRY	8010202
ECO74B01	2/11/97	6.69	TERRAPIN CREEK	2	HENRY	8010202
ECO74B01	5/6/97	6.61	TERRAPIN CREEK	2	HENRY	8010202
ECO74B01	8/6/97	6.63	TERRAPIN CREEK	2	HENRY	8010202
ECO74B01	8/20/97	6.24	TERRAPIN CREEK	2	HENRY	8010202
ECO74B01	11/17/97	5.92	TERRAPIN CREEK	2	HENRY	8010202

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO74B01	3/4/98	7.24	TERRAPIN CREEK	2	HENRY	8010202
ECO74B01	4/20/98	6.24	TERRAPIN CREEK	2	HENRY	8010202
ECO74B01	11/17/98	6.19	TERRAPIN CREEK	2	HENRY	8010202
ECO74B01	2/16/99	6.04	TERRAPIN CREEK	2	HENRY	8010202
ECO74B01	4/14/99	7.52	TERRAPIN CREEK	2	HENRY	8010202
ECO74B01	2/6/01	7.04	TERRAPIN CREEK	2	HENRY	8010202
ECO74B01	5/22/01	6.55	TERRAPIN CREEK	2	HENRY	8010202
ECO74B01	10/9/01	7.32	TERRAPIN CREEK	2	HENRY	8010202
ECO74B04	4/9/96	6.48	POWELL CREEK	2	WEAKLEY	8010202
ECO74B04	9/3/96	6.75	POWELL CREEK	2	WEAKLEY	8010202
ECO74B04	9/11/96	6.72	POWELL CREEK	2	WEAKLEY	8010202
ECO74B04	12/4/96	6.65	POWELL CREEK	2	WEAKLEY	8010202
ECO74B04	2/11/97	6.32	POWELL CREEK	2	WEAKLEY	8010202
ECO74B04	5/6/97	6.68	POWELL CREEK	2	WEAKLEY	8010202
ECO74B04	8/6/97	6.6	POWELL CREEK	2	WEAKLEY	8010202
ECO74B04	8/20/97	6.44	POWELL CREEK	2	WEAKLEY	8010202
ECO74B04	11/17/97	6.08	POWELL CREEK	2	WEAKLEY	8010202
ECO74B04	3/5/98	7.75	POWELL CREEK	2	WEAKLEY	8010202
ECO74B04	4/20/98	6.36	POWELL CREEK	2	WEAKLEY	8010202
ECO74B04	11/17/98	6.31	POWELL CREEK	2	WEAKLEY	8010202
ECO74B04	2/16/99	6.11	POWELL CREEK	2	WEAKLEY	8010202
ECO74B04	4/12/99	7.43	POWELL CREEK	2	WEAKLEY	8010202
ECO74B04	1/10/01	6.98	POWELL CREEK	2	WEAKLEY	8010202
ECO74B04	4/26/01	6.99	POWELL CREEK	2	WEAKLEY	8010202
ECO74B04	10/9/01	6.66	POWELL CREEK	2	WEAKLEY	8010202
ECO74B06	12/21/95	6.38	LAGOON CREEK	2	LAUDERDALE	8010208
ECO74B06	5/22/96	6.77	LAGOON CREEK	2	LAUDERDALE	8010208
ECO74B06	3/14/00	7.72	LAGOON CREEK	2	LAUDERDALE	8010208

STATION ID	DATE	PH_FIELD	STATION NAME	ORDER	COUNTY	USGSHUC
ECO74B06	5/16/00	6.7	LAGOON CREEK	2	LAUDERDALE	8010208
ECO74B12	5/16/96	7.5	WOLF RIVER	4	FAYETTE	8010210
ECO74B12	8/13/96	6.96	WOLF RIVER	4	FAYETTE	8010210
ECO74B12	9/17/96	6.88	WOLF RIVER	4	FAYETTE	8010210
ECO74B12	11/5/96	6.84	WOLF RIVER	4	FAYETTE	8010210
ECO74B12	3/11/97	6.79	WOLF RIVER	4	FAYETTE	8010210
ECO74B12	4/21/97	6.36	WOLF RIVER	4	FAYETTE	8010210
ECO74B12	6/11/97	7.01	WOLF RIVER	4	FAYETTE	8010210
ECO74B12	8/6/97	6.94	WOLF RIVER	4	FAYETTE	8010210
ECO74B12	8/25/97	6.12	WOLF RIVER	4	FAYETTE	8010210
ECO74B12	10/29/97	7.3	WOLF RIVER	4	FAYETTE	8010210
ECO74B12	4/27/98	6.46	WOLF RIVER	4	FAYETTE	8010210
ECO74B12	8/24/98	5.75	WOLF RIVER	4	FAYETTE	8010210
ECO74B12	11/16/98	5.75	WOLF RIVER	4	FAYETTE	8010210
ECO74B12	2/8/99	5.92	WOLF RIVER	4	FAYETTE	8010210
ECO74B12	4/19/99	5.83	WOLF RIVER	4	FAYETTE	8010210
ECO74B12	5/16/00	5.96	WOLF RIVER	4	FAYETTE	8010210
ECO74B12	9/6/00	7.91	WOLF RIVER	4	FAYETTE	8010210

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