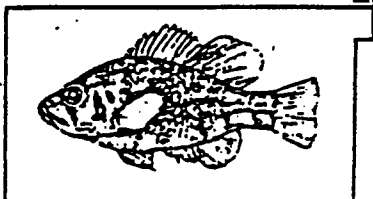


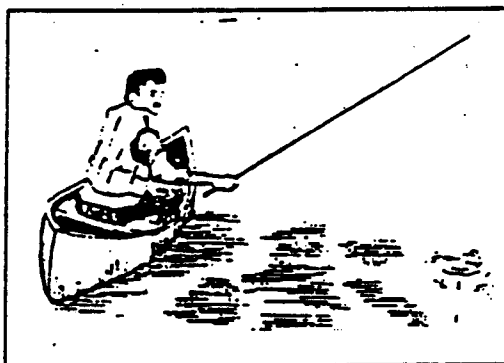
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(1991 THROUGH 1995)



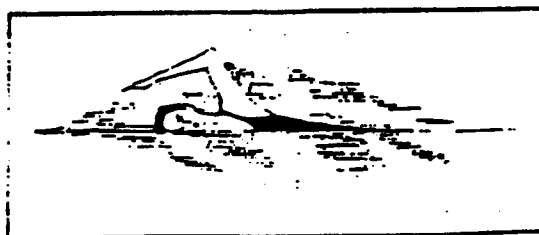
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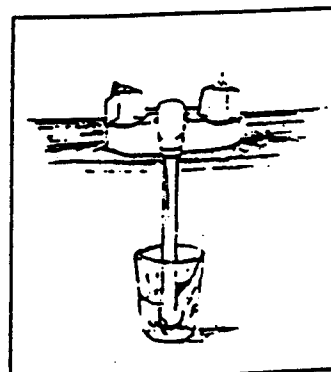
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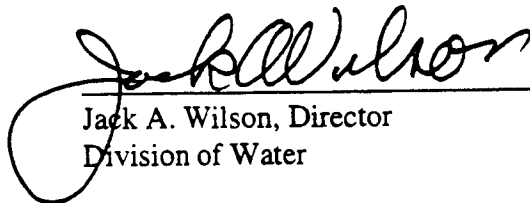
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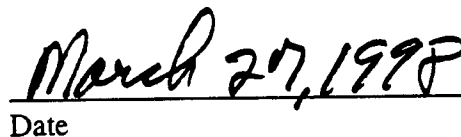
ALGAL AND HABITAT ASSESSMENTS FOR REFERENCE REACH STATIONS
1991 THROUGH 1995

Kentucky Department for Environmental Protection
Division of Water
Water Quality Branch
Ecological Support Section
Frankfort, Kentucky
January 1998

This report has been approved for release:



Jack A. Wilson, Director
Division of Water



Date

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EXECUTIVE SUMMARY

In 1990, the Reference Reach Program of the Kentucky Division of Water was formed with the objective of expanding the existing ambient biological trend network to include reference sites from the U.S. EPA's proposed ecoregions of the Commonwealth. These reference sites were selected from streams throughout each proposed ecoregion that best defined "typical" characteristics and least disturbed stream conditions for that ecoregion. A total of 40 reference sites were chosen for the collection of physical, chemical, and biological data.

Data generated by the Reference Reach Program will be used in several ways: 1) to establish a data base of ecological information that will eventually serve as empirical models for other more impacted streams within an ecoregion, 2) to provide control or reference sites for future biological assessments within the ecoregion, 3) to determine the critical parameters, ranges, and conditions that affect the normal survival, growth, and reproductive capacities of the aquatic communities which may be used to set biological and environmental criteria for each ecoregion pursuant to directives in the Clean Water Act, 4) to provide a more realistic measure of what is naturally and reasonably attainable in other, more altered streams or watersheds, and 5) to provide a sound ecological approach in decisions made to protect and manage aquatic ecosystems throughout the Commonwealth

The concept of aquatic ecoregions within physiographic regions is a recent postulation that has received considerable attention. The conceptual framework of aquatic ecoregions is based on definable similarities among streams in a region that are related to the terrestrial characteristics of that region. In effect, streams acquire their characteristics from their watersheds (Likens and Bormann 1974, Hynes 1975). Streams draining watersheds of the same size, with comparable land uses and habitats, and in the same region are more likely to contain similar aquatic communities than those draining watersheds of a different size or in a different region (Hughes et al. 1986).

Omernik (1987) mapped the aquatic ecoregions of the conterminous United States based on physiography, soil types, potential natural vegetation, geology, and land use types. Analysis of the data revealed regional homogeneities which allowed for the delineation of boundaries between ecoregions and the location of the most typical areas within each ecoregion. Each of the delineated ecoregions will be compared to the corresponding physiographic provinces in the following paragraphs. The ecoregions that composed the Commonwealth of Kentucky were the Central Appalachian, Western Allegheny, Southwestern Appalachian, Interior Plateau, Interior River Lowland, Mississippi Valley Loess Plains, and Mississippi Alluvial Plain.

Reference Reach sites were sampled two (2) times per year from 1991 to 1995. The first collection period was during the spring and early summer (April through mid-July), while the second collection period spanned from late summer to fall (August through November). At each site, habitat, physicochemical, and biological information were collected. Biological parameters of interest included algae, macroinvertebrate, and fish community composition. An assessment of biological integrity was made based on algal data. The goal was to categorize water quality as excellent, good, fair, or poor. Two metrics were used to assess the non-diatom algal community: taxa richness and number of divisions represented. A multiple metric index called the Diatom Bioassessment Index (DBI) was used to assess the diatom community (KDOW 1996). Non-diatom

algal assessments were used to supplement the DBI. For each ecoregion, scoring criteria for the DBI metrics were calculated based upon the Reference Reach algal data and historical data when available.

At a typical Reference Reach site in the Central Appalachian Ecoregion, the algal community was characterized by having a mean of 155 taxa. Of this total, Chrysophyta comprised around 76%, Chlorophyta 13%, Cyanophyta 8%, and any combination of Rhodophyta, Cryptophyta, Euglenophyta, and Pyrrophyta 3%. Common soft algae flora included *Closterium*, *Cosmarium*, *Mougeotia*, *Oedogonium*, *Staurastrum*, *Ulothrix*, *Anabaena*, *Lyngbya*, and *Oscillatoria*. The diatoms, *Achnanthes deflexa*, *Achnanthes minutissima*, *Cymbella delicatula*, *Eunotia pectinalis* var. *minor*, and *Fragilaria vaucheriae* frequented the natural substrates of these sites.

The Reference Reach algal community (exclusive of diatoms) was normally represented by three divisions and a mean total number of 19 taxa per sampling event. Mean metric values for Reference Reach diatoms were as follows: total number of diatom taxa, 68; diversity, 0.91; percent sensitive species, 30.9%; and pollution tolerance index, 2.9. Scoring criteria for the non-diatom algal metrics and the Diatom Bioassessment Index in the Central Appalachian Ecoregion were calculated and the results shown below.

Central Appalachian Ecoregion

Total Number of Non-diatom Algae Taxa

≥ 18	=	5
17 - 16	=	4
15 - 14	=	3
13 - 10	=	2
≤ 9	=	1

Number of Non-diatom Divisions Present

≥ 5	=	5
4	=	4
3	=	3
2	=	2
1	=	1

Total Number of Diatom Taxa

≥ 63	=	5
62 - 59	=	4
58 - 54	=	3
53 - 30	=	2
≤ 29	=	1

Diatom Diversity (H')

≥ 0.84	=	5
0.83 - 0.77	=	4
0.76 - 0.70	=	3
0.69 - 0.55	=	2
≤ 0.54	=	1

Percent Sensitive Species (Diatoms)

≥ 20.2	=	5
20.1 - 14.9	=	4
14.8 - 9.7	=	3
9.6 - 3.3	=	2
≤ 3.2	=	1

Pollution Tolerance Index (Diatoms)

≥ 2.8	=	5
2.7 - 2.6	=	4
2.5 - 2.3	=	3
2.2 - 2.0	=	2
≤ 1.9	=	1

In the Western Allegheny Ecoregion, the mean total taxa of algae was 176 for a Reference Reach site. Chrysophytes dominated this total comprising 79%, while chlorophytes constituted 12%, cyanophytes 6%, and any combination of Rhodophyta, Cryptophyta, Euglenophyta, and Pyrrophyta 3%. Among the most common non-diatom algal taxa at each site were the chlorophytes; *Anikistrodesmus*, *Chlamydomonas*, *Closterium*, *Cosmarium*, *Oedogonium*, *Spirogyra*, *Staurastrum*, and *Stigeoclonium*, the cyanophytes; *Anabaena*, *Calothrix*, *Lyngbya*, and *Oscillatoria*, and the rhodophyte; *Audouinella*. Dominant diatoms at Western Allegheny Reference Reach sites included *Achnanthes deflexa*, *Achnanthes minutissima*, *Cymbella delicatula*, *Cymbella silesiaca*, *Cymbella* sp. *K*, and *Fragilaria vaucheriae*.

Typically, the non-diatom algal community at each site was represented by a mean of four divisions and a mean of 19 taxa per sampling event. Likewise, for each sampling event, the diatom community was characterized by a mean total of 76 diatom taxa, a mean diversity of 0.91, a mean percent sensitive species of 44.2%, and mean pollution tolerance index score of 3.2. Scoring criteria for the algal metrics and the Diatom Bioassessment Index in the Western Allegheny Ecoregion were calculated and shown below.

Western Allegheny Ecoregion

Total Number of Non-diatom Algae Taxa

≥ 17	=	5
16 - 15	=	4
14 - 13	=	3
12 - 11	=	2
≤ 10	=	1

Number of Non-diatom Divisions Present

≥ 5	=	5
4	=	4
3	=	3
2	=	2
1	=	1

Total Number of Diatom Taxa

≥ 71	=	5
70 - 67	=	4
66 - 60	=	3
59 - 51	=	2
≤ 50	=	1

Diatom Diversity (H')

≥ 0.86	=	5
0.85 - 0.80	=	4
0.79 - 0.72	=	3
0.71 - 0.60	=	2
≤ 0.59	=	1

Percent Sensitive Species (Diatoms)

≥ 38.5	=	5
38.4 - 34.3	=	4
34.2 - 29.4	=	3
29.3 - 23.0	=	2
≤ 22.9	=	1

Pollution Tolerance Index (Diatoms)

≥ 3.1	=	5
3.0 - 2.9	=	4
2.8 - 2.7	=	3
2.6 - 2.5	=	2
≤ 2.4	=	1

A typical Interior Plateau Ecoregion would have a mean of 172 taxa. The division

Chrysophyta comprised 79% of the 172 taxa, while Chlorophyta (12%), Cyanophyta (6%), and a combination of Cryptophyta, Euglenophyta, Pyrrophyta, and Rhodophyta (3%) made up the rest of the total. A few non-diatom algal taxa that were common at Reference Reach sites were *Chlamydomonas*, *Cladophora*, *Closterium*, *Coelastrum*, *Cosmarium*, *Mougeotia*, *Oedogonium*, *Scenedesmus*, *Spirogyra*, *Staurastrum*, *Stigeoclonium*, *Lyngbya*, *Merismopedia*, *Oscillatoria*, *Euglena*, and *Audouinella*. *Achnanthes deflexa*, *Achnanthes minutissima*, *Cymbella affinis*, *Cymbella silesiaca*, *Melosira varians*, *Navicula cryptocephala* var. *veneta*, *Navicula minima*, *Navicula radiosa* var. *tenella*, *Navicula salinarum* var. *intermedia*, *Nitzschia dissipata*, and *Nitzschia palea* were dominant diatoms.

Interior Plateau Reference Reach sites averaged 20 non-diatom algal taxa represented by four divisions per sampling event. The mean number of diatom taxa from all of the Interior Plateau sites was 74, while diversity was 1.15, percent sensitive species was 18.6% and the pollution tolerance index was 2.6. Scoring criteria for Interior Plateau algal metrics and the Diatom Bioassessment Index were calculated and shown below.

Interior Plateau Ecoregion

<u>Total Number of Non-diatom Algal Taxa</u>	<u>Number of Non-diatom Divisions</u>
--	---------------------------------------

≥ 20 = 5	≥ 5 = 5
19 - 16 = 4	4 = 4
15 - 13 = 3	3 = 3
12 - 6 = 2	2 = 2
≤ 5 = 1	1 = 1

<u>Total Number of Diatom Taxa</u>	<u>Diatom Diversity (H')</u>
------------------------------------	------------------------------

≥ 66 = 5	≥ 1.255 = 5
65 - 55 = 4	1.254 - 1.087 = 4
54 - 43 = 3	1.086 - 0.978 = 3
42 - 30 = 2	0.977 - 0.710 = 2
≤ 29 = 1	≤ 0.709 = 1

<u>Percent Sensitive Species (Diatoms)</u>	<u>Pollution Tolerance Index (Diatoms)</u>
--	--

≥ 19.1 = 5	≥ 2.8 = 5
19.0 - 5.9 = 4	2.7 - 2.3 = 4
5.8 - 2.0 = 3	2.2 - 2.0 = 3
1.9 - 1.0 = 2	1.9 - 1.7 = 2
≤ 0.9 = 1	≤ 1.6 = 1

A typical Mississippi Valley Loess Plains Ecoregion stream was found to contain a mean of 158 algal taxa. Of this total, 79% were chrysophytes, 13% chlorophytes, 4% cyanophytes, 2% euglenophytes, and 2% any combination of rhodophytes, cryptophytes, and pyrrophytes. Common soft algae taxa included *Ankistrodesmus*, *Chlamydomonas*, *Closterium*, *Cosmarium*, *Scenedesmus*, *Staurastrum*, *Anabaena*, *Oscillatoria*, *Euglena*, and *Trachelomonas*, while common diatoms were, *Achnanthes minutissima*, *Cymbella silesiaca*, *Navicula cryptocephala*, *Navicula minima*, *Navicula secreta* var. *apiculata*, *Nitzschia palea*, and *Synedra rumpens* var. *familiaris*.

In a Mississippi Valley Loess Plains stream, 20 non-diatom algal taxa represented by four divisions were typical for each sampling event. Mean metric values for Reference Reach diatoms were as follows: total number of diatom taxa, 76; diversity, 1.26; percent sensitive species, 10.3%; and pollution tolerance index, 2.4. Scoring criteria for Mississippi Valley Loess Plains algal metrics and the Diatom Bioassessment Index were calculated and shown below.

Mississippi Valley Loess Plains

<u>Total Number of Non-diatom Algal Taxa</u>	<u>Number of Non-diatom Divisions Present</u>
--	---

≥ 20 = 5	≥ 6 = 5
19 - 18 = 4	5 = 4
17 - 16 = 3	4 = 3
15 - 12 = 2	3 = 2
≤ 11 = 1	≤ 2 = 1

Total Number of Diatom Taxa

≥ 74 = 5
73 - 68 = 4
67 - 62 = 3
61 - 58 = 2
≤ 57 = 1

Diatom Diversity (H')

≥ 1.25 = 5
1.24 - 1.20 = 4
1.19 - 1.12 = 3
1.11 - 0.92 = 2
≤ 0.91 = 1

Percent Sensitive Species (Diatoms)

≥ 8.5 = 5
8.4 - 7.9 = 4
7.8 - 6.3 = 3
6.2 - 5.1 = 2
≤ 5.0 = 1

Pollution Tolerance Index (Diatoms)

≥ 2.3 = 5
2.2 - 2.1 = 4
2.0 - 1.9 = 3
1.8 - 1.7 = 2
≤ 1.6 = 1

The other three smaller ecoregions (Southwestern Appalachian, Interior River Lowlands, and Mississippi Alluvial Plain) are currently being investigated. A future report will showcase those areas of the Commonwealth.

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INTRODUCTION

The demands placed upon the streams and associated watersheds by the populace of the Commonwealth of Kentucky become more intense and widespread with the passing of time. Consequently, more and more streams and watersheds become permanently degraded from their natural potential capacities to sustain viable aquatic life.

The potential capacity of any stream is made up of its physical, chemical, and biological components. It is essential to measure and document those components of certain unaltered or least impacted streams in order to define and identify a potential capacity that is characteristic of other streams within a given ecoregion.

In 1990, the Reference Reach Program of the Kentucky Division of Water was formed with the objective of expanding the existing ambient biological trend network to include reference sites from the U.S. EPA's proposed ecoregions of the Commonwealth. These reference sites were selected from streams throughout each proposed ecoregion that best defined typical characteristics and least disturbed stream conditions for that ecoregion. A total of 44 reference sites were chosen for the collection of physical, chemical, and biological data from 1991 through 1995.

Data generated by the Reference Reach Program will be used in several ways: 1) to establish a data base of ecological information that will eventually serve as an empirical model for other more impacted streams within an ecoregion, 2) to provide control or reference sites for future biological assessments within the ecoregion, 3) to determine the critical parameters, ranges, and conditions that affect the normal survival, growth, and reproductive capacities of the aquatic communities which may be used to set biological and environmental criteria for each ecoregion pursuant to directives in the Clean Water Act, 4) to provide a more realistic measure of what is naturally and reasonably attainable in other, more altered streams or watersheds, and 5) to provide a sound ecological approach in decisions made to protect and manage aquatic ecosystems throughout the Commonwealth.

PHYSIOGRAPHIC REGIONS OF KENTUCKY

The physiographic regions in the Commonwealth are well known (Lobeck 1928, McFarlan 1943). According to Quarterman and Powell (1978), three physiographic provinces exist in Kentucky: the Appalachian Plateaus Province, the Interior Low Plateaus Province, and the Coastal Plains Province (Figure 1). Each of these can be subdivided into discrete sections. In the Appalachian Plateaus Province, the three major sections are the Unglaciated Allegheny Plateau, the Cumberland Plateau, and the Cumberland Mountains. The Interior Low Plateaus province can be subdivided into the Highland Rim, the Shawnee Hills (the Western Coalfields), and the Blue Grass, while the two major sections of the Coastal Plains Province are the Mississippi Alluvial Plains and the Eastern Gulf Coastal Plains.

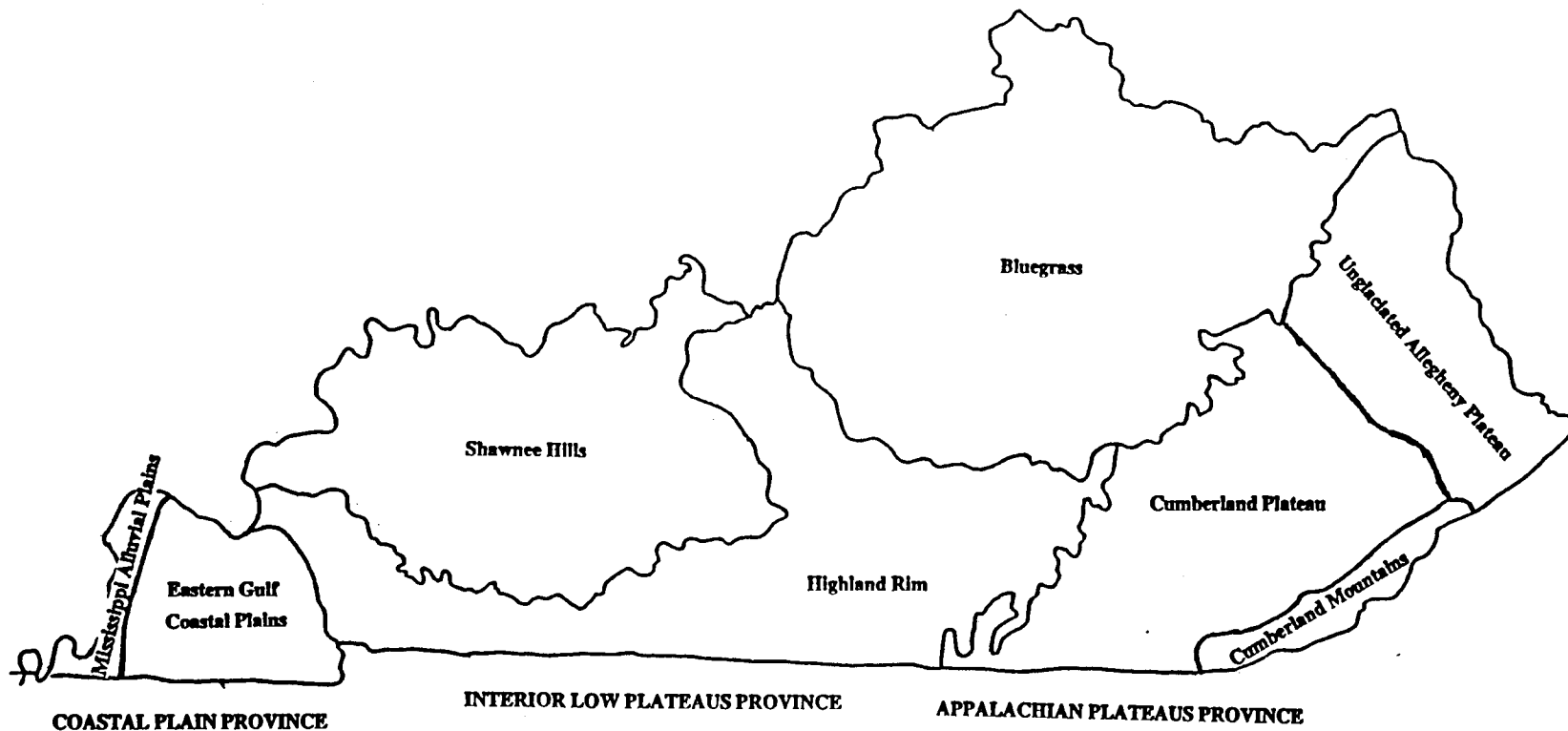


Figure 1. The physiographic regions of Kentucky.

ECOREGIONS OF KENTUCKY

The concept of aquatic ecoregions within physiographic regions is a recent postulation that has received considerable attention. The conceptual framework of aquatic ecoregions is based on definable similarities among streams in a region that are related to the terrestrial characteristics of that region. In effect, streams acquire their characteristics from their watersheds (Likens and Bormann 1974, Hynes 1975). Streams draining watersheds of the same size, with comparable land uses and habitats, and in the same region are more likely to contain similar aquatic communities than those draining watersheds of a different size or in a different region (Hughes et al. 1986).

Omernik (1987) mapped the aquatic ecoregions of the conterminous United States based on physiography, soil types, potential natural vegetation, geology, and land use types (Figure 2). Analysis of the data revealed regional homogeneities which allowed for the delineation of boundaries between ecoregions and the location of the most typical areas within each ecoregion. Each of the delineated ecoregions will be compared to the corresponding physiographic provinces in the following paragraphs.

Central Appalachian Ecoregion

The Central Appalachian ecoregion encompasses all of the Cumberland Mountain and a majority of the Cumberland Plateau sections of the Appalachian Plateaus physiographic province. This heavily forested area is underlain by Pennsylvanian rock strata. Major land uses include coal extraction, silviculture, and agriculture. The region is drained by a multitude of high gradient (>20 ft/mile) streams that make up the headwaters of the Kentucky, Cumberland, Licking, and Big Sandy River basins. Kuchler (1966) indicates that mixed mesophytic forests are the expected natural vegetation types within the Central Appalachian ecoregion.

Western Allegheny Ecoregion

This ecoregion includes the Unglaciated Allegheny Plateau section and the rest of the Cumberland Plateau section of the Appalachian Plateau physiographic province and a small portion of the Bluegrass section of the Interior Low Plateau physiographic province. The topography of the Western Allegheny ecoregion is mountainous but less rugged than the Central Appalachian; however, this area is still heavily forested. Major rock strata are Pennsylvanian and Mississippian. Resource extraction (oil, gas, and coal), silviculture, and agriculture remain the major land uses within this ecoregion. High-gradient headwater streams of the Kentucky, Licking, Little Sandy, and Ohio river basins originate within the Western Allegheny ecoregion. Mixed mesophytic forests are the expected natural vegetation types (Kuchler 1966).

Southwestern Appalachian Ecoregion

Although the Southwestern Appalachian Ecoregion is an important region of the eastern U.S., only a small fragment extends into Kentucky. Portions of the Highland Rim section of the Interior Low Plateau Physiographic Province form this relatively small ecoregion, which is underlain by

- I. Mississippi Alluvial Plain
- II. Mississippi Valley Loess Plains
- III. Interior River Lowland
- IV. Interior Plateau
- V. Southwestern Appalachian
- VI. Western Allegheny
- VII. Central Appalachian

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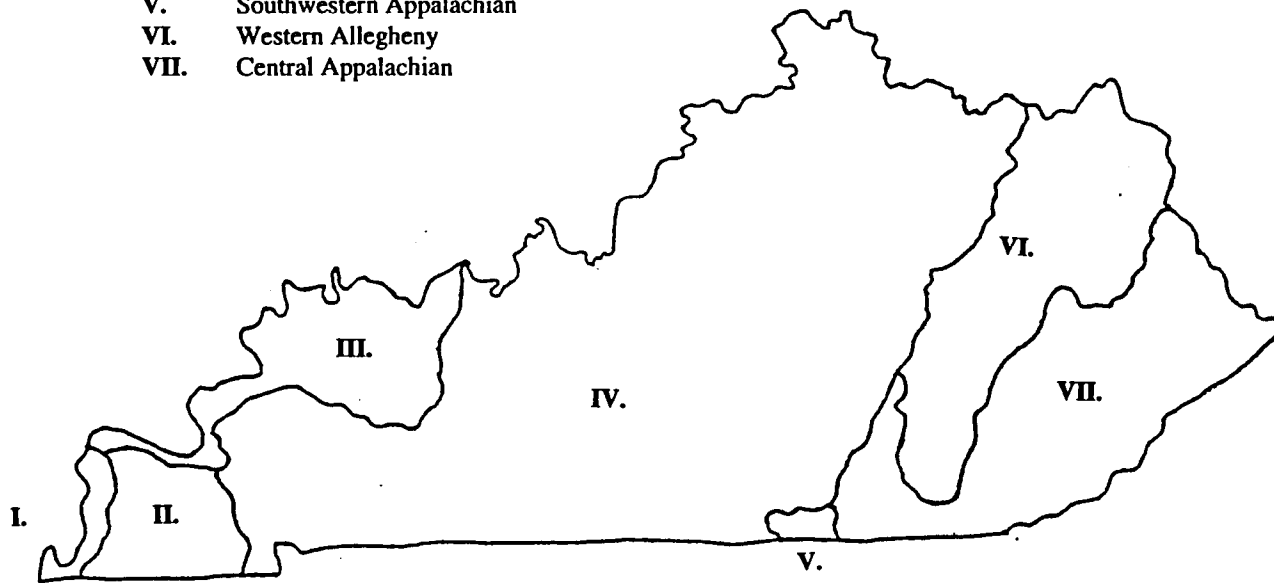


FIGURE 2. ECOREGIONS OF KENTUCKY

Pennsylvanian and Mississippian rock strata. Rugged, forested mountains are common. Resource extraction, agriculture, and silviculture are the major land uses. The streams within this ecoregion drain into the Cumberland River basin and are of high to moderately high (20-5 ft/mile) gradient. The expected natural vegetation types for the Southwestern Appalachian ecoregion are mixed mesophytic and oak-hickory forests (Kuchler 1966).

Interior Plateau Ecoregion

By far, the Interior Plateau Ecoregion is the largest ecoregion in the area, encompassing most of the Highland Rim and Blue Grass sections of the Interior Low Plateau Physiographic Province. It extends from the mountains of Eastern Kentucky west to the Tennessee River with the exception of the Western Coalfields area in Northwestern Kentucky. This is the most geologically diverse ecoregion, containing alluvial, Cretaceous, Pennsylvanian, Mississippian, Devonian, Silurian, and Ordovician aged rock strata. Rolling pastures, crop fields, and woodlots are common. Agriculture, urban expansion and construction are major land uses. Most of the streams in the Interior Plateau ecoregion are heavily influenced by man's activities. All, or at least part, of the Licking, Kentucky, Cumberland, Salt, Green, Tradewater, and Ohio river basins are located within the ecoregion. Most of these streams have moderately high gradients. Kuchler (1966) indicates that oak-hickory forests and bluestem prairies are the potential natural vegetation types in the Interior Plateau Ecoregion.

Interior River Lowlands Ecoregion

This ecoregion consists of the Shawnee Hills (the Western Coalfields) section of the Interior Low Plateau Physiographic Province. It is rich in Pennsylvanian aged coal reserves and alluvial deposits. Coal extraction, agriculture, and urban expansion are the major land uses of the region. Acid mine drainage and channelization occur in a large majority of the streams within this area as a result of coal mining and row cropping activities. Interior River Lowland streams feed the Tradewater, Green, and Ohio river basins and have typically low (<5 ft/mile) gradients. Wetlands were once common in this region, but many have since been drained for agricultural uses. Southern floodplain and oak-hickory forests are the potential natural vegetation types in the Interior River Lowlands Ecoregion (Kuchler 1966).

Mississippi Valley Loess Plains Ecoregion

The Mississippi Valley Loess Plains Ecoregion coincides with the Eastern Gulf Coastal Plain section of the Coastal Plain physiographic province. This ecoregion is characterized by low-gradient streams and flat to rolling topography. Wetlands are common throughout the area. Agriculture is a very important land use. Channelization and draining of wetlands has occurred in the past in order to increase agricultural yields. Underlying rock strata are Tertiary and alluvial in nature. Streams in the ecoregion drain into the Tennessee and Mississippi river basins. Kuchler (1966) indicates that oak-hickory forests and bluestem prairies are the potential natural vegetation types.

Mississippi Alluvial Plain Ecoregion

The Mississippi Alluvial Plain Ecoregion is identical to the Mississippi Alluvial Plain section of the Coastal Plain physiographic province. Topography is relatively flat. Rock strata is almost exclusively composed of alluvial deposits. Very low-gradient streams and wetlands are characteristic of the ecoregion. Agriculture is the predominant land use because of the rich alluvial soils. Again, channelization and draining of wetlands was a common practice in the past. All of the streams within the area drain into the Mississippi River. Southern floodplain forests are the potential natural vegetation types for the Mississippi Alluvial Plain Ecoregion (Kuchler 1966).

MATERIALS AND METHODS

Selection of Candidate Reference Reach Waterbodies

According to the U.S. Environmental Protection Agency's (EPA) Biocriteria Program Support Document, dated 20 February 1992, the selection process for candidate reference reach waterbodies should be well documented so that the data defining the reference condition will be scientifically defensible.

In order to comply with U.S. EPA guidelines, the Reference Reach Program undertook a step-by-step process for the selection of candidate reference reach waterbodies. This process involved the analysis of topographic maps, cross-referencing with other available data sources, and field reconnaissance of the candidate watersheds.

Every U.S. Geological Survey (USGS) 7.5 min. topographic quadrangle map lying within the boundaries of the Commonwealth of Kentucky was analyzed as part of the initial step of the selection process. Each stream was evaluated based upon the presence or absence of the following:

- 1) riparian zone;
- 2) towns or communities along the streambank;
- 3) resource extraction activities in the watershed (eg. oil wells, strip mines, gas wells, etc.);
- 4) hydrologic modification activities in the watershed (eg. impoundment, channelization, etc.); and
- 5) major sewage treatment dischargers.

If an adequate riparian zone existed along most of the stream length and minimal land-use activities occurred within the watershed, then the stream was recorded as an initial candidate. An initial candidates list was compiled for each county and ecoregion (Omernick 1987).

Once the initial candidates list was created, it was cross-referenced with other available data sources including the following:

- 1) the Kentucky Rivers Assessment (KDOW 1992);
- 2) the Kentucky Nonpoint Source Assessment Report (KDOW 1988);
- 3) the Kentucky Nature Preserves Commission's Fish Collection Catalogue (Warren et al. 1983);

- 4) the Kentucky Division of Water's Fish Collection Catalogue (Mills 1988);
- 5) Aquatic Biota and Water Quality Survey of the Appalachian Province, Vol. 1-3 (Harker et al. 1979);
- 6) Aquatic Biota and Water Quality Survey of the Upper Cumberland River Basin, Vol. 1-2 (Harker et al. 1980);
- 7) Aquatic Biota and Water Quality Survey of the Western Kentucky Coal Field, Vol. 1-2 (Harker et al. 1981);
- 8) Aquatic Biota and Water Quality Survey of the Kentucky Oil Shale Region, Vol. 1-2 (Hannan et al. 1984);
- 9) Recommendations for Kentucky's Outstanding Resource Water Classifications with Water Quality Criteria for Protection (KNPC 1982);
- 10) Kentucky Division of Water Intensive Survey Reports; and
- 11) personal communication with Kentucky Division of Water, Kentucky Nature Preserves Commission, and Kentucky Department of Fish and Wildlife Resources personnel.

Cross-referencing allowed for amendment of the initial candidates list resulting in a smaller, more workable secondary list.

Upon completion of cross-referencing, field reconnaissance of the watersheds was conducted. Each site was evaluated on the following categories:

- 1) riparian zone condition;
- 2) bank stability;
- 3) evidence of sedimentation;
- 4) evidence of nutrient enhancement;
- 5) aquatic habitat availability;
- 6) the presence or absence of trash in the stream;
- 7) evidence of new land-use activities in the watershed; and
- 8) accessibility of the site for collection.

A stream was confirmed as a reference candidate if 1) the riparian zone was well developed (@ 25 ft. or more in width) providing some canopy over the stream and adequate aquatic habitats in the form of root mats, coarse woody debris, and other allochthonous material; 2) the banks were at least moderately stable with only a few erodible areas within the sampling station; 3) the substrate was 50% or less embedded by fine sediment; 4) the water was relatively free from suspended solids during normal weather conditions; 5) the substrate was relatively free from extensive algal mats that could choke riffle habitats; 6) there were riffles, runs, and pools of various lengths and depths present; 7) there was a 30% or greater mix of rubble, gravel, boulders, submerged logs, root mats, aquatic vegetation, or other stable habitats available for aquatic organisms; 8) solid waste within the stream and on the streambank was at a minimum; 9) the land-use conditions remained constant from what was depicted on the USGS topo maps; and 10) it was accessible for collection.

Upon completion of field reconnaissance, Reference Reach biologists convened to decide which of the streams to sample based upon the ecoregion in which the stream was located, the river

basin in which it was located, and the perceived quality of the stream. The other streams on the list were used as back-ups in case additional streams were needed. A map and a list of the amended Reference Reach Candidates List is provided in Figure 3 and Table 1.

Sampling Frequency and Rationale

Reference Reach sites were sampled two times per year from 1991 through 1995. The first collection period was during the spring and early summer (April through mid-July). During this time, optimal instream environmental conditions existed which stimulate the life history strategies of most stream organisms. Collections and observations conducted at this time provide the apex or highest dimension of the stream's potential capacity, especially in the macroinvertebrate and fish communities.

The other sampling period was during the late summer and fall (August through November). It was necessary to document the habitat, physicochemical, and biological conditions during the period of quiescence in biological activities along with least disturbed substrate conditions. The available habitats were more concentrated, allowing for better delineation of habitat types and functional groupings. The data from this sampling period represented the lowest dimension of an unimpacted or least impacted stream's potential capacity.

Sampling Procedures and Data Analysis

Habitat Assessment

The attainable biological potential of a site is primarily determined by the quality of the habitat at that site (Plafkin et al. 1989). For example, the number of substrate types is a good predictor of species richness for some benthic insects and freshwater molluscs, and the complexity of habitats present in an area influences the fish community (Gorman and Karr 1978). An evaluation of habitat quality is critical to any assessment of ecological integrity (Plafkin et al. 1989).

The habitat assessment protocol utilized by the Reference Reach Program was the one proposed in the Rapid Bioassessment Protocols Document (Plafkin et al. 1989). It is composed of nine metrics, which were selected because of their influence on biological integrity at any given site (Figure 4). Each of these metrics was assigned to a category based on the degree of the relationship with the biological communities. Metrics that directly determine community structure and taxa richness were classified as primary parameters. Secondary metrics were those which might directly or indirectly affect the community structure as a result of channel morphology. The remaining metrics were classified as tertiary parameters which had an indirect relationship with the aquatic community. These parameters were associated with riparian vegetation and bank structure.

Each primary metric was assigned a value from 0-20. Each score then fell into one of four categories ranging from poor (0-5) to fair (6-10) to good (11-15) to excellent (16-20). Because of the direct impacts of the primary parameters, these metrics were more heavily weighted in the calculation of the final habitat assessment score. These metrics were used to assess substrate and instream cover and included the following metrics: 1) bottom substrate/available cover, 2) embeddedness, and 3) stream flow or stream velocity.

REFERENCE REACH SITES

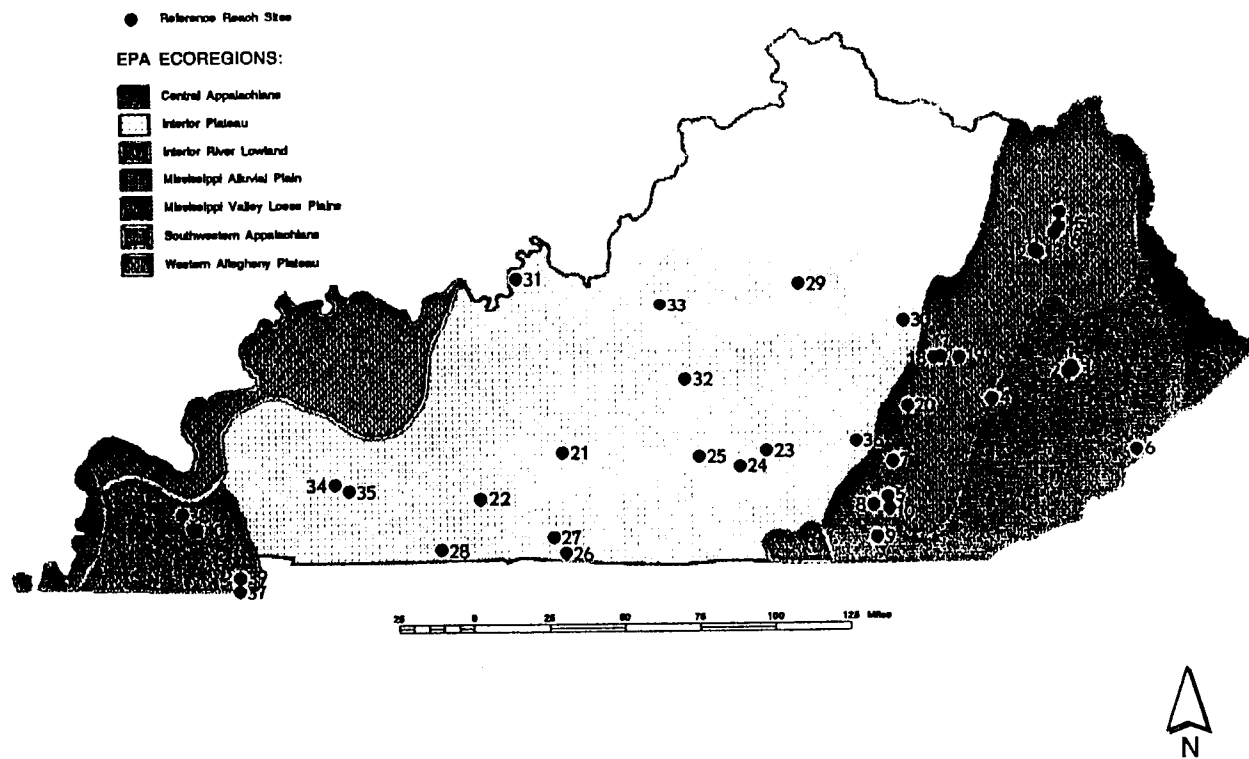


FIGURE 3. REFERENCE REACH SITES

Table 1. Reference Reach Sites

Map No.	Station Name	RMI	County	Road Location
CENTRAL APPALACHIAN ECOREGION				
Kentucky River Basin				
1	Clemons Fork	0.5	Breathitt	Robinson Forest Rd.
2	Clemons Fork	3.0	Breathitt	Robinson Forest Rd.
3	Coles Fork	0.6	Breathitt	Robinson Forest Rd.
4	Right Fork Buffalo Creek	1.1	Owsley	Off Whoopflarea Rd.
Upper Cumberland River Basin				
5	Bark Camp Creek	2.5	Whitley	USFS Rd. 193
6	Bad Branch	0.2	Letcher	KY 932 Bridge
7	Cane Creek	7.0	Laurel	Off Middle Fork Rd.
8	Eagle Creek	3.0	McCreary	KY 896 Bridge
9	Marsh Creek	12.6	McCreary	KY 478 Bridge
10	South Fork Dog Slaughter Cr.	3.6	Whitley	USFS Rd. 195
WESTERN ALLEGHENY ECOREGION				
Licking River Basin				
11	Bucket Branch	0.1	Morgan	Leisure-Paragon Rd. Br.
12	Devils Fork	0.2	Morgan	KY 711 Bridge
13	North Fork	13.0	Morgan	Off Leisure-Paragon Rd.
Little Sandy River Basin				
14	Arabs Fork	0.1	Elliott	KY 1620 Bridge
15	Big Caney Creek	7.9	Elliott	Off Binion Ford Rd.
16	Laurel Creek	7.6	Elliott	Carter School Rd. Br.
Kentucky River Basin				
17	Station Camp Creek	19.0	Estill	Off KY 1209
18	South Fork Station Camp Cr.	5.3	Jackson	KY 89 Bridge
19	Sturgeon Creek	4.0	Lee	Off Sturgeon Creek Rd.
Upper Cumberland River Basin				
20	Horse Lick Creek	1.9	Jackson	Horse Lick Creek Rd.

Table 1 (Cont'd). Reference Reach Sites

INTERIOR PLATEAU ECOREGION

Green River Basin

21	Beaverdam Creek	7.6	Edmonson	KY 101-259 Bridge
22	Gasper River	32.4	Logan	Bucksville Rd. Bridge
23	Goose Creek	5.6	Casey	Off Brock Rd.
24	Russell Creek	60.5	Adair	KY 80 Bridge
25	Russell Creek	25.6	Adair	Off KY 768
26	Trammel Fork	18.5	Allen	Red Hill Rd. Bridge
27	Trammel Fork	26.6	Allen	Concord Church Rd. Br.

Lower Cumberland River Basin

28	Whippoorwill Creek	4.3	Logan	KY 2395 Bridge
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Kentucky River Basin

29	Clear Creek	4.1	Woodford	Hifner Mill Rd. Bridge
30	Muddy Creek	13.4	Madison	KY 52 Bridge

Ohio River Basin

31	Yellowbank Creek	4.4	Breckinridge	Cart-Manning Rd.
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Salt River Basin

32	Salt Lick Creek	5.3	Marion	Off Salt Lick Rd.
33	Wilson Creek	12.2	Bullitt	Mt. Carmel Church Rd.

Tradewater River Basin

34	Sand Lick Creek	6.7	Christian	Mt. Carmel-Camp Cr. Rd.
35	Upper Tradewater River	128.9	Christian	T. Sparkman Rd. Bridge

Upper Cumberland River Basin

36	Buck Creek	28.9	Pulaski	Off Bud Rainey Rd.
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MISSISSIPPI VALLEY LOESS PLAINS ECOREGION

Tennessee River Basin

37	Blood River	15.1	Calloway	Grubbs Lane Rd. Bridge
38	Panther Creek	1.2	Graves	KY 2580 Bridge
39	Panther Creek	1.0	Calloway	KY 280 Bridge
40	Soldiers Creek	2.6	Marshall	KY 58 Bridge

HABITAT ASSESSMENT FIELD DATA SHEET

Name of Water Body _____ Station # _____

Date _____ Investigator _____

Comments _____

HABITAT PARAMETER	CATEGORIES			
	EXCELLENT	GOOD	FAIR	POOR
1. BOTTOM SUBSTRATE/AVAILABLE COVER	>50% rubble, gravel, submerged logs, undercut banks, or other stable habitat 16-20	30-50% rubble, gravel or other stable habitat. Adequate habitat. 11-15	10-30% rubble, gravel or other stable habitat. Habitat availability < desirable. 6-10	<10% rubble, gravel or other stable habitat. Lack of habitat is obvious. 0-5
2. EMBEDDEDNESS	Gravel, cobble, and boulder are <25% surrounded by fine sediment. 16-20	Gravel, cobble, and boulder are 25-50% surrounded by fine sediment. 11-15	Gravel, cobble, and boulder are 50-75% surrounded by fine sediment. 6-10	Gravel, cobble, and boulder are >75% surrounded by fine sediment. 0-5
3. <= 5 CFS OR > 5 CFS	Cold: > 2 cfs Warm: > 5 cfs 10-20	1-2 cfs 2-5 cfs 11-15	0.5-1 cfs 1-2 cfs 6-10	0.5 cfs 1 cfs 0-5
	Slow (<0.3 m/s), deep (>0.5m); slow, shallow (<0.5m); fast (>0.3m/s) deep; fast, shallow habitats all present 16-20	3 of 4 habitats present. (Missing riffles or runs get lower score than missing pools). 11-15	2 of 4 habitats present. (Missing riffles/runs get lower score.) 6-10	Dominated by one velocity/depth category (usually pool). 0-5
4. CHANNEL ALTERATION	Little / no enlargement of islands or point bars, and/or no channelization 12-15	Some new increase in bar formation, mostly from coarse gravel; and/or some channelization present. 8-11	Moderate deposition of new gravel, coarse sand on old and new bars; pools partially filled w/silt; and/or embankments on both banks. 4-7	Heavy deposits of fine material, bar development increase. Most pools filled w/silt; and/or extensive channelization. 0-3
5. BOTTOM SCOURING AND DEPOSITION	<5% of bottom affected. 12-15	5-30% affected. Scour at constrictions and steep grades. Some deposition in pools. 8-11	30-50% affected. Deposit and scour at obstructions, bends, and constrictions. Some filling of pools. 4-7	>50% bottom changing nearly year long. Pools absent due to deposition. Only large rocks exposed. 0-3
6. RUN/BEND, POOL/RIFFLE RATIOS	5-7. Variety of habitat. Deep riffles and pools. 12-15	7-15. Adequate depth in pools and riffles. Bends provide some habitat. 8-11	15-25. Occasional riffle or bend. Bottom provide some habitat. 4-7	>25. Essentially a straight stream. Flat water or shallow. Poor habitat. 0-3
7. BANK STABILITY	Stable. No erosion or bank failure. Side slopes <30%. 8-10	Moderately stable. Infrequent erosion mostly healed over. Side slopes to 40%. 6-8	Moderately unstable. Moderate erosion and side slopes to 60%. High erosion during high flow. 3-5	Unstable. Many eroded areas. Side slopes >60%. "Bar" areas frequent on straight and bends. 0-2
8. BANK VEGETATIVE STABILITY	>60% of streambank covered by vegetation or boulders and cobbles. 8-10	50-70% covered by vegetation, gravel or larger material. 6-8	25-40% covered by vegetation, gravel or larger material. 3-5	<25% covered by vegetation, gravel or larger material. 0-2
9. STREAMSIDE COVER	Dominant vegetation is shrub 8-10	Dominant vegetation is of tree form. 6-8	Dominant vegetation is grass or forbes. 3-5	>50% no vegetation. Dominant material is soil, rock, bridge materials, culverts, or mine tailings. 0-2
COLUMN TOTALS				
SCORE				

FIGURE 4. HABITAT ASSESSMENT SHEET USED AT SITES

The first primary metric evaluated in this habitat assessment protocol was bottom substrate/available cover. Streams with more than 50% rubble, gravel, submerged logs, undercut banks, or other suitable habitat had excellent bottom substrate and cover available. When 30-50% of the bottom substrate was composed of rubble, gravel, and other suitable structure, the station was determined to be good. A fair rating was assigned to a station with bottom substrate made up of 10-30% rubble and gravel. Poor sites had bottom substrates comprised of less than 10% rubble, gravel, or other suitable structures.

Embeddedness was considered the next primary metric. When fine sediment surrounded less than 25% of a particular boulder, embeddedness was evaluated as having no major impacts on community structure, therefore, the station was assessed as being excellent. At good stations, boulders at the station were 25-50% surrounded by fines. If settled sediments surrounded 50-75% of a boulder's surface, the station was rated as being fair. Poor stations had greater than 75% of a particular boulder's surface covered by fine sediments.

Stream flow and velocity determined community stability at each station. For this parameter, the assessor looked for the areas where stream flow was slow and deep, slow and shallow, fast and deep, and fast and shallow. An excellent station possessed all four categories of velocity and depth. Three of the four categories were present at good stations, while two were found at fair stations, and only one category existed at a poor station.

Metrics comprising the secondary parameters were evaluated in the same manner as described above, except that each metric was assigned a score ranging from 0-15. If a particular metric was considered excellent, a score from 12 to 15 was assigned. Likewise, a good rating received a score from 8-11, fair from 4-7, and poor from 0-3. Secondary parameters were given less weight in the final habitat assessment score than primary parameters because they influence the community structure to lesser extent. These secondary metrics pertained to channel morphology and included the following: 1) channel alterations, 2) bottom scouring and deposition, and 3) run/bend, pool/riffle ratio.

In order for a station to be classified as excellent with regard to channel alteration, it must have no or little enlargement of islands or point bars and/or no channelization. All good stations showed some new increase in bar formation, mostly from coarse gravel, and/or some channelization present. If there was moderate deposition of new gravel or coarse sand on old and new bars and some pools were partially filled with silt, the station was classified as fair. Stations where heavy deposits of fine material were present, increased bar development was evident, and/or extensive channelization existed were rated poor.

Excellent stations, as pertaining to bottom scouring and deposition, had <5% of the bottom affected by scouring and deposition. For a station to be classified as good, it must have had only 5-30% of the bottom affected with scouring at stream constrictions, and deposition in only a few pools. If 30-50% of the bottom was influenced by scouring and deposition at obstructions, bends, constrictions, and pools, the station was rated as fair. A poor score was assigned to a station where >50% of the bottom was impacted by scouring and most pools were filled in with sediment deposits.

A pool/riffle ratio (calculated by dividing the average distance between riffles by the average stream width) of five-seven was classified as excellent. These stations were characterized by a variety of habitats including deep pools and riffles. If a station had a ratio between 7 and 15 with adequate depth in the pools and riffles, then it was regarded as being good. In order to be classified

as fair, the ratio had to be between 15 to 25 with riffles and bends occurring only occasionally. All stations with pool/riffle ratios >25 were considered poor. These stream segments were essentially straight with flat, shallow water.

Riparian and bank structure were evaluated by tertiary parameters which were assigned scores ranging from 0-10. These metrics include the following: 1) bank stability, 2) bank vegetation stability, and 3) streamside cover. Because they were indirectly associated with community structure, these metrics comprise a smaller amount of the final habitat assessment score. An excellent score ranged from 9-10, good from 6-8, fair from 3-5, and poor from 0-2.

If the bank was stable with no erosion or bank failure and side slopes were <30%, the station received a rating of excellent. Moderately stable banks with infrequent healed-over erosion areas and side slopes between 30 and 40% were regarded as good conditions at a station. When the banks at the station were moderately unstable resulting from moderate erosion during normal hydrologic conditions and heavy erosion during high flow events and the side slopes were from 40-60%, the station was ranked as fair. Poor conditions were characterized by unstable banks with many eroding areas, raw areas in straights and bends, and side slopes of >60%.

If 80% of the streambank was covered by vegetation, the station was regarded as excellent for bank vegetative stability. All stations with 50-79% of the bank covered by vegetation were classified as good, while those with 25-49% of the bank covered were considered fair. Poor stations had <25% of the bank vegetated.

As pertaining to streamside cover, stations dominated by shrubs were considered of excellent quality because they offer more instream habitat than any other floristic form. If the dominant riparian plant form was tree, then the station was of good quality. Fair stations were predominantly composed of grasses and forbs. When >50% of the riparian zone was bare or composed of rock riprap, the station was considered poor for streamside cover.

The scores for each metric were then added together to attain the final habitat assessment score. Scores were compared to see if similarities existed between stations within an ecoregion. In order to reduce some of the subjectivity, two investigators conducted habitat assessments at the same time. As new land-use activities occurred within the reference watershed, the habitat assessments were used to document any physical changes of the waterbody as a result of the activity. Habitat scores for all of the Reference Reach sites are listed in Appendix 1.

Physicochemical Assessment

The following parameter determinations were made at each reference station according to accepted scientific procedures and equipment manufacturers recommendations: 1) dissolved oxygen (mg/l), 2) specific conductance (umhos/cm), 3) pH (S.U.), and 4) turbidity (NTU). Parameters were measured with a YSI 3800 data logger. This information was recorded on the habitat assessment sheet. Proper quality assurance procedures were followed with regard to calibration and use of field meters.

Water chemistry grab samples were taken at mid-stream from most reference stations according to procedures outlined in the most current edition of Standard Methods for the Examination of Water and Wastewater, U.S. EPA Methods for Chemical Analysis of Water and Wastes, or other acceptable scientific methods.

The amount of sample collected and the types of field preservation necessary are detailed below:

- 1) 1/2 gallon jug (1600 ml) - conventional parameters - Holding Time - 48 hours at 4 °C;
- 2) 1 cubitainer (1000 ml) - nutrients - Holding Time - 28 days preserved with 1 ml of H₂SO₄; and
- 3) 1 cubitainer (1000 ml) - total metals - Holding Time - 28 days preserved with 2 ml of HNO₃.

Water samples were labelled, placed on wet ice, and forwarded to the analytical laboratory according to proper chain-of-custody procedures. The following information was included on the sample label: 1) date, 2) time, 3) collector(s), 4) station number, 5) stream name, 6) location, 7) river mile, 8) analyses to be run, and 9) preservative used.

Water samples were analyzed for the following parameters:

Conventional Parameters:

Alkalinity	Total Organic Carbon
Acidity	Fluoride
Chloride	Total Hardness
Sulfate	Conductivity
Total Suspended Solids	pH
Total Dissolved Solids	Turbidity

Nutrient Parameters:

Ammonia-Nitrogen	Calcium
Nitrate-Nitrite	Magnesium
Total Kjeldhal Nitrogen	Potassium
Total Phosphorus	Sodium

Total Recoverable Metals Parameters:

Aluminum	Lead
Arsenic	Manganese
Barium	Mercury
Beryllium	Nickel
Cadmium	Selenium
Chromium	Silver
Copper	Zinc
Iron	

Other parameters not listed were added if deemed necessary. Holding times for samples were not exceeded.

The physicochemical data were compared with mean STORET values, existing U.S. Environmental Protection Agency recommended criteria, Kentucky surface water standards, and pertinent literature values. Parameters were considered "acceptable or normal" when their values did not exceed the Kentucky water quality standards or fell within the zero to 75th percentile STORET ranges of the Division of Water's STORET database for the years 1983 to 1993. Water chemistry results for all of the Reference Reach sites are listed in Appendix 2.

Algal Community Assessment

Algae are very sensitive indicator organisms of change in lotic waters, as well as being the primary producers within that ecosystem. The algae are usually the dominant component of the periphyton. Because it is attached to the substrate, the algal community integrates physical and chemical disturbances to a stream. Other advantages of using algae in water quality assessment are as follows: the algal community contains a naturally high number of species, making data useful for statistical and numerical applications to assess water quality. Response time is rapid, as is recovery time, with recolonization after a disturbance often more rapid than for other organisms. Diatoms in particular are useful indicators of biological integrity because they are ubiquitous; at least a few can be found under almost any conditions. In addition, most can be identified to species by experienced biologists, and tolerance or sensitivity to specific changes in environmental conditions are known for many species (Dixit et al. 1991, Rott 1991). By using algal data in association with macroinvertebrate and fish data, the health of the entire ecosystem can be ascertained.

Algae were collected by using a knife blade or microspatula to scrape off algal mats and filaments from all available microhabitats including but not limited to the following: epilithic, epipsammic, epidendric, epiphytic, epipellic, and epizoic. A composite sample was collected by sampling microhabitats in roughly the proportion that they occurred at the station and placing the dislodged algae in a 60 ml screw-cap jar. Riffles, runs, and pools were sampled. Additionally, a transect of five riffle rocks were scraped so sampling procedures could be more standardized. During the fall sampling period, pools were commonly the only habitat available. Samples were collected, if at all possible, during stable, normal flow conditions. After extremes of flooding or drought, stations were allowed to recolonize two weeks prior to sampling. Samples were preserved with a 2% glutaraldehyde solution. Labels were permanently affixed on the sampling jar and the following information recorded using waterproof, indelible ink: 1) waterbody name, 2) location, 3) sample number, 4) date, and 5) name of collector. Samples were refrigerated until analysis, then archived in a cool, dry place. Permanent mounts of diatom samples were retained in plastic slide boxes.

Analysis of the algal community began by examining the non-diatom algae. In order to dislodge epiphytes from filamentous taxa and randomly mix all algal organisms, the sample jar was thoroughly shaken. The contents were then poured into a shallow dish or bowl so that all filamentous and mat-forming taxa could be separated. Representative filamentous and mat-forming taxa were placed on a pre-cleaned microscope slide using needle-nose forceps. Approximately 0.5 ml of the sample liquid was used to cover the filaments and a coverslip was gently placed over the

subsample to complete the wet mount. The subsample was first examined at 200x and then at 400x to ensure that smaller organisms were not overlooked. All non-diatom algae were identified to the lowest taxonomic level using current taxonomic references. Each slide was scanned until no new organisms were seen. A minimum of three subsamples for each sample was examined. Observed taxa, taxonomic division, and any autecological information known for each taxon were recorded on a bench sheet, which was filed in the Reference Reach file cabinet.

After non-diatom algae were identified, diatom frustules were cleared of organic and intercellular material using the nitric acid oxidation method (Patrick and Reimer 1966). Approximately 20-30 ml of sample was poured into a 2000 ml Erlenmeyer flask. Under a flame hood, 50 ml of concentrated nitric acid was added and allowed to oxidize the organic material in the sample overnight. The flask was then filled with distilled water and allowed to resettle overnight. The supernatant was siphoned off the following day and the remaining diatom solution was poured into a 1000 ml graduated cylinder. The cylinder was again filled with distilled water and allowed to resettle overnight. This process was repeated at least twice more before the settled diatom solution was transferred into an archive vial. Once the diatom frustules were cleaned, diatoms were mounted in Naphrax or Hyrax mounting medium to make a permanent slide. Using current taxonomic references, diatoms were identified to species level whenever possible. All encountered species were recorded on the bench sheet so that a species list was compiled prior to enumeration. Each slide was scanned until several minutes passed without producing any new species. For quantitative data, a minimum of 500 diatom frustules were counted and the taxa and number counted were recorded on the bench sheet. Data assessment was based on the completed species list. Bench sheets were filed in the Reference Reach file cabinet.

An assessment of biological integrity was made based on algal data. The goal was to categorize water quality as excellent, good, fair, or poor. Two metrics were used to assess the non-diatom algal community: taxa richness and number of divisions present. A multiple metric index called the Diatom Bioassessment Index (DBI) was used to assess the diatom community (KDOW 1996). Non-diatom algae assessments were used to supplement the DBI.

In general, an inverse relationship exists between the number of non-diatom algal taxa present and the impairment that exists at a particular station. Extremely low taxa richness indicates possible occurrence of a toxicity problem, while high taxa richness suggests clean water. However, extremely high taxa richness in low-order streams may indicate a minor degree of nutrient enrichment, while low taxa richness may be natural in low-order, nutrient-poor streams.

Representatives from several divisions of non-diatom algae are common from stations with good water quality. The number of divisions present is reported as an indicator of diversity.

Non-diatom algae metric criteria for each ecoregion were preliminarily assigned based upon the Reference Reach data; however, these criteria may underestimate the non-diatom community in larger rivers. A separate set of non-diatom metric criteria should be developed for larger stream systems. The non-diatom criteria in this document represent communities from smaller, wadable streams.

The Diatom Bioassessment Index uses a multi-metric approach to provide a community structure-based assessment of water quality. The metrics of the DBI were the following: total number of diatom taxa (TNDT), species diversity (H'), pollution tolerance index (PTI), and percent sensitive species (%SS). Each metric is given a score ranging from one (poor) to five (excellent), and the DBI is simply the mean value of all the metric scores. Other metrics better suited to a

specific problem (e.g., siltation, organic pollution) may be substituted. Scoring criteria (ranges of values) have been developed for each metric using an extensive DOW data base collected from 1986-1992. Data collected by the Reference Reach program is being used to refine scoring criteria for each ecoregion. Final DBI scores range from one to five, and biotic integrity assessments are made accordingly:

Score	Biologic Integrity
1-2	Poor
2-3	Fair
3-4	Good
4-5	Excellent

The total number of diatom taxa (TNDT) is an estimate of diatom species richness. High species richness is assumed to be the case in an unimpacted station, and species richness is expected to decrease with increasing pollution. Slight levels of nutrient enrichment, however, may increase species richness in naturally unproductive, nutrient-poor streams (Bahls 1992). Low-order, pristine streams in the Central Appalachian and Western Allegheny ecoregions may fall into this category.

The mean Shannon diversity index is used in the DBI. It was chosen primarily because it is commonly used by many aquatic biologists, so values will be more readily interpreted and compared with other literature values. The Shannon index (H') "is a measure of the average degree of 'uncertainty' in predicting to what species an individual chosen at random from a collection of S species and N individuals will belong" (Ludwig and Reynolds 1988). Using this index, $H'=0$ when only one species is present in the collection and H' is at a maximum when all individuals are evenly distributed among the S species.

$$H' = -\sum \frac{n_i}{N} \log_{10} \frac{n_i}{N}$$

where:

n_i = the number of individuals of species i

N = the total number of individuals

The pollution tolerance index (PTI) used by the Division of Water is most similar to that of Lange-Bertalot (1979) and resembles the Hilsenhoff biotic index for macroinvertebrates (Hilsenhoff 1987). Lange-Bertalot distinguished three categories of diatoms according to their tolerance to increased pollution, with species assigned a value of one for most tolerant taxa (e.g. *Nitzschia palea* and *Gomphonema parvulum*) to three for relatively sensitive species. For the PTI, Lange-Bertalot's list has been adapted for four categories to differentiate a large, moderately tolerant group of species; the DOW diatom pollution tolerance values range from one (most tolerant) to four (most sensitive). Tolerance values for Kentucky diatoms were generated from a multitude of literature, including Lowe (1974), Patrick and Reimer (1966; 1975), Patrick (1977), Lange-Bertalot (1979), Descy (1979), Sabater et al. (1988), Bahls (1992), Rogers (pers. comm.), and Oklahoma Conservation Commission (1993). The extensive DOW diatom data base collected from 1977 to the present and

data collections by the Kentucky Nature Preserves Commission (1979-1986) were instrumental in determination of tolerance values. The list of tolerance values presently in use will be revised and updated as new autecological data is discovered; however, the tolerances of the most common species are fairly well understood. Because the index is based on relative abundances, rare species will have little effect on the final index value. If no autecological data is known, the species is given a PTI value of 0 and is not used in the PTI calculation which is as follows:

$$PTI = \frac{\sum n_i t_i}{N}$$

where:

n_i = the number of individuals in species i

N = the total number of individuals

t_i = the tolerance value for species i

The percent sensitive species metric is the sum of the relative abundances of all intolerant (category 4) species. This metric is especially important in low-order streams where primary productivity may be naturally low, causing the other metrics to underestimate water quality.

An attempt was made in this report to modify metric scoring criteria for each ecoregion based on Reference Reach data and all other available data. With the exception of the Interior Plateau Ecoregion, comparable impacted stream data was unavailable. In those instances where there was not enough data from lower quality streams, the Reference Reach data was the sole source used to calculate metric scoring criteria for that ecoregion. For the Interior Plateau Ecoregion, all available data from the Biological Monitoring Program and the Intensive Survey Program, as well as the Reference Reach Program, were used to develop scoring criteria.

As historical data is entered into the database and new biological assessments are conducted, the scoring criteria for each metric in each ecoregion will be modified. The scoring criteria in this document are designed to be starting points from which more precise criteria can be formulated. Ecoregion-specific criteria are discussed at the beginning of each ecoregion section of this report in the ecoregion summary.

Additional information on algal collection, analysis, and data assessment can be found in DOW's Methods for Assessing Biological Integrity of Surface Waters (1993). A complete list of soft algae taxa for each sampling event at Reference Reach sites can be found in Appendix 3. A complete list of diatom taxa and DBI metric scores for each sampling event at Reference Reach sites can be found in Appendix 4.

CENTRAL APPALACHIAN ECOREGION

CENTRAL APPALACHIAN ECOREGION

At a typical Reference Reach site in the Central Appalachian Ecoregion, the algae community was characterized by having a mean of 155 taxa. Of this total, Chrysophyta comprised around 76%, Chlorophyta 13%, Cyanophyta 8%, and any combination of Rhodophyta, Cryptophyta, Euglenophyta, and Pyrrophyta 3%. Common non-diatom algal flora included *Closterium*, *Cosmarium*, *Mougeotia*, *Oedogonium*, *Staurastrum*, *Ulothrix*, *Anabaena*, *Lyngbya*, and *Oscillatoria*. The diatoms, *Achnanthes deflexa*, *Achnanthes minutissima*, *Cymbella delicatula*, *Eunotia pectinalis* var. *minor*, and *Fragilaria vaucheriae*, frequented the natural substrates of these sites.

The Reference Reach non-diatom algal community was normally represented by three divisions and a mean total number of 19 taxa per sampling event. Mean metric values for Reference Reach diatoms were as follows: total number of diatom taxa, 68; diversity, 0.91; percent sensitive species, 30.9%; and pollution tolerance index, 2.9.

When developing scoring criteria for Central Appalachian diatom and non-diatom algal metrics, several problems arose that had to be addressed. A comparable amount of data from impacted sites within the ecoregion was not available; therefore, realistic criteria could not be established. Maximum species richness lines, similar to those used in modifying the fish Index of Biotic Integrity, were attempted, but there was not a significant relationship between the algae community and drainage area or stream order. By simply dividing the Reference Reach scores for each metric into fifths to attain scores from one to five, the resulting criteria were biased toward high water quality which could not be useful in making accurate assessments of all waters within the ecoregion. Another attempt was made to use the arithmetic mean of the Reference Reach sites as a "yardstick" for an excellent score. The mean was given a score of five and the scores that fell below the mean were divided into quartiles to develop scoring criteria. After checking the newly formed criteria with actual site data, it was determined that they were still too high. Scoring criteria were then calculated for the 60th and 75th percentiles in the same manner as detailed above. It was concluded that the 60th percentile scoring criteria most accurately assessed the diatom and non-diatom algal communities for the Central Appalachian Ecoregion.

Non-diatom algae scoring criteria for the Central Appalachian Ecoregion were calculated as shown in Table 2. These criteria represented smaller, wadable streams within the ecoregion.

Table 2. CENTRAL APPALACHIAN ECOREGION NON-DIATOM ALGAL METRICS AND SCORING CRITERIA (WADABLE STREAMS)

<u>Total Number of Non-diatom Algal Taxa</u>	<u>Number of Non-diatom Divisions Present</u>
≥ 18 = 5	≥ 5 = 5
17 - 16 = 4	4 = 4
15 - 14 = 3	3 = 3
13 - 10 = 2	2 = 2
≤ 9 = 1	1 = 1

Diatom metric scoring criteria for the Central Appalachian Ecoregion were determined as shown in Table 3.

Table 3. CENTRAL APPALACHIAN ECOREGION DIATOM METRICS AND SCORING CRITERIA

<u>Total Number of Diatom Taxa</u>	<u>Diatom Diversity (H')</u>
≥ 63 = 5	≥ 0.84 = 5
62 - 59 = 4	0.83 - 0.77 = 4
58 - 54 = 3	0.76 - 0.70 = 3
53 - 30 = 2	0.69 - 0.55 = 2
≤ 29 = 1	≤ 0.54 = 1

<u>Percent Sensitive Species (Diatoms)</u>	<u>Pollution Tolerance Index (Diatoms)</u>
≥ 20.2 = 5	≥ 2.8 = 5
20.1 - 14.9 = 4	2.7 - 2.6 = 4
14.8 - 9.7 = 3	2.5 - 2.3 = 3
9.6 - 3.3 = 2	2.2 - 2.0 = 2
≤ 3.2 = 1	≤ 1.9 = 1

Mean site habitat assessment scores ranged from 106.5 to 126.5 resulting in a mean ecoregion habitat assessment score of 118.5. Physicochemical parameters were below the Kentucky Water Quality Standards and the STORET mean values if not mentioned in the habitat assessment and site description section for each Central Appalachian Ecoregion site.

Figure 5 is a map showing the locations of the Reference Reach sites within the Central Appalachian Ecoregion. Detailed information on each site within this ecoregion follows.

CENTRAL APPALACHIAN ECOREGION

Bad Branch

County: Letcher

River Basin: Upper Cumberland

Stream Order: II

USGS Topo Quad: Whitesburg (5-58)

Latitude: 37° 04' 05"

Longitude: 82° 46' 16"

Location: State Highway 932; directly upstream of the confluence
with Poor Fork Cumberland River

Sampling Dates: 5 May 1992; 28 October 1992; 6 October 1993

Stream Length: 4.4 km

Direction of Flow: SE

Elevation: Headwaters - 829 m

Site - 536 m

Gradient: 66.7 m/km

Watershed: 95% Forested

5% Residential and Agricultural Areas

Riparian Zone: Well Developed; Complete Canopy Cover; Banks Steep;

Rock Outcroppings and Bluffs Common

Stream Character: Swiftly Flowing Riffles and Runs; Shallow, Small Pools

Pool Substrate: Cobble, Boulder, and Sand

Riffle Substrate: Cobble, Pebble, and Boulder

HABITAT ASSESSMENT AND SITE DESCRIPTION

Bad Branch is one of Kentucky's Wild Rivers and Outstanding Resource Waters. Nearly all of the stream is under the protection of a nature preserve that encloses the watershed. Bad Branch is a very small, mountainous, second-order stream with a drainage area of only 2.6 square miles. It arises in southern Letcher County and flows southwesterly until it enters Poor Fork. About 95% of the watershed is forested with the remaining 5% used primarily for residential and agricultural purposes. Our sampling location is just upstream of the confluence with Poor Fork, near the KY 932 bridge crossing.

The riparian zone was very well developed with a complete canopy cover over the stream, and steep banks, rock outcroppings, and bluffs common. The stream was characterized by clear, cool water with swiftly flowing riffles and runs and small shallow pools. Riffle and run substrate was composed of boulder, cobble, and pebble with no embeddedness. Substrates of the pools were typically cobble, boulder, and clean sand with no scouring or deposition. Many areas of exposed bedrock were present in the upper portions of the stream. Bad Branch was also known for the beautiful waterfall in its headwaters. By using the Rapid Bioassessment Protocol (RBP) Habitat Assessment Field Data Sheet (Plafkin et al. 1989), an average habitat assessment score of 122.5 was obtained.

Physicochemical grab samples collected in Fall '92 and Spring '94 at this site revealed pH (5.8 and 5.4 S.U., respectively) values lower than EPA's water quality criteria (US EPA 1987) and Kentucky water quality standards for warmwater aquatic habitat use (KDOW 1994). Total phosphorus levels exceeded the 75th percentile STORET value of 0.717 mg/l in the Fall '92 sample.

ALGAL COMMUNITY COMPOSITION

At Bad Branch, the least number of algal divisions represented in a sample was four in May 1992 and June 1994. Five divisions were present in the October 1992 and October 1993 samples. The divisions Chlorophyta, Crysochyta, and Cyanophyta were collected in every sample.

A total of 101 taxa was identified from a total of four samples collected at Bad Branch, of which 63 taxa were crysochytes, 20 chlorophytes, 13 cyanophytes, two euglenophytes, two pyrrophytes, and one rhodophytes. The highest number of taxa indentified in any one sample was 57 in October 1993. Conversely, the least number of taxa in a sample was 47 in October 1992.

Of the 63 diatom taxa, eight were identified in every algal sample. *Anomoeoneis serians* var. *brachysira*, *Eunotia exigua*, and *Eunotia pectinalis* var. *minor* were among the most abundant taxa collected. Seven non-diatom algal taxa were present during each sampling event, *Actinotaenium*, *Cosmarium*, *Geminella*, *Mougeotia*, and *Ulothrix* (Chlorophyta) and *Oscillatoria* and *Stigonema* (Cyanophyta).

The Diatom Bioassessment Index (DBI) scores varied from 1.25 in May 1992 to 3.5 in October 1992 (poor to good). Total number of diatom taxa metric scores were low on all sampling dates. Pollution tolerance index metric scores were in the fair to good range, while percent sensitive species and diversity metric scores rated from poor to excellent. Scores for total number of soft algae taxa and number of soft algae divisions present all fell within the good to excellent range. Overall, water quality, with respect to algae community composition at Bad Branch, was fair to good. Higher DBI scores were expected (Table 4), but the low pH and low nutrient concentrations (except for Fall 1992) may algal taxa richness.

Figure 4. Diatom Bioassessment Index and Non-diatom Algal Scores For the Central Appalachian Ecoregion

Stream	Date	TNDT	Div.	%SS	PTI	DBI	TNSAT	TNDR
Bad Branch	5/92	25(1)	0.44(1)	1.2(1)	2.0(2)	1.25	21(5)	3(3)
Bad Branch	10/92	25(1)	0.89(5)	23.2(5)	2.3(3)	3.5	31(5)	5(5)
Bad Branch	10/93	30(2)	0.83(4)	44.6(5)	2.1(2)	3.25	27(5)	4(4)
Bad Branch	6/94	32(2)	0.84(5)	3.3(2)	2.0(2)	2.75	17(4)	3(3)
Bark Camp Creek	6/91	81(5)	1.30(5)	20.3(5)	2.7(4)	4.75	15(3)	2(2)
Bark Camp Creek	11/91	86(5)	1.21(5)	14.9(4)	2.7(4)	4.5	20(5)	3(3)
Bark Camp Creek	4/93	76(5)	0.74(3)	13.2(3)	2.8(5)	4	19(5)	3(3)
Bark Camp Creek	11/93	94(5)	1.06(5)	16.8(4)	2.9(5)	4.75	34(5)	6(5)
Bark Camp Creek	6/94	72(5)	0.92(5)	23.9(5)	3.0(5)	5	16(4)	5(5)
Cane Creek	6/92	65(5)	0.79(4)	7.5(2)	2.8(5)	4	20(5)	5(5)
Cane Creek	9/92	54(3)	0.98(5)	24.6(5)	2.9(5)	4.5	25(5)	4(4)
Cane Creek	4/93	57(3)	0.60(2)	5.3(2)	2.8(5)	3	21(5)	3(3)
Cane Creek	10/93	75(5)	0.96(5)	12.4(3)	2.7(4)	4.25	21(5)	4(4)
Cane Creek	6/94	62(4)	0.69(2)	9.6(2)	2.8(5)	3.25	15(3)	4(4)
Cane Creek	10/94	69(5)	0.89(5)	9.7(3)	2.7(4)	4.25	17(4)	4(4)
Cane Creek	7/95	65(5)	1.04(5)	9.7(3)	2.5(3)	4	17(4)	3(3)
Clemons Fork(D)	5/91	29(1)	0.54(1)	76.1(5)	3.7(5)	3	18(5)	5(5)
Clemons Fork(D)	10/91	76(5)	0.72(3)	78.7(5)	3.7(5)	4.5	19(5)	4(4)
Clemons Fork(D)	4/93	33(2)	0.46(1)	81.9(5)	3.8(5)	3.25	17(4)	3(3)
Clemons Fork(D)	10/93	58(3)	0.57(2)	63.5(5)	3.6(5)	3.75	23(5)	3(3)
Clemons Fork(D)	5/94	44(2)	0.57(2)	74.2(5)	3.7(5)	3.5	14(3)	3(3)
Clemons Fork(U)	5/91	67(5)	1.22(5)	33.5(5)	3.0(5)	5	10(2)	2(2)
Clemons Fork(U)	10/91	69(5)	1.04(5)	67.5(5)	3.4(5)	5	19(5)	3(3)
Clemons Fork(U)	4/93	70(5)	0.97(5)	30.9(5)	2.9(5)	5	21(5)	4(4)
Clemons Fork(U)	5/94	60(4)	0.77(4)	46.3(5)	3.2(5)	4.5	20(5)	4(4)
Clemons Fork(U)	5/95	73(5)	1.15(5)	19.8(4)	2.6(4)	4.5	16(4)	3(3)
Clemons Fork(U)	6/91	30(2)	0.57(2)	34.0(5)	3.3(5)	3.5	16(4)	3(3)
Coles Fork	10/91	60(4)	0.84(5)	63.7(5)	3.4(5)	4.75	14(3)	3(3)
Coles Fork	7/93	74(5)	1.02(5)	25.8(5)	2.8(5)	5	19(5)	3(3)
Coles Fork	10/93	63(5)	0.83(4)	39.5(5)	3.2(5)	4.75	17(4)	3(3)
Coles Fork	5/94	64(5)	0.83(4)	22.9(5)	2.9(5)	4.75	17(4)	4(4)
Coles Fork	5/95	62(4)	0.55(2)	32.5(5)	3.2(5)	4	19(5)	4(4)
Eagle Creek	5/91	54(3)	0.92(5)	41.3(5)	2.7(4)	4.25	21(5)	3(3)
Eagle Creek	10/91	86(5)	1.31(5)	29.5(5)	2.9(5)	5	24(5)	5(5)
Eagle Creek	4/93	58(3)	0.85(5)	20.6(5)	2.6(4)	4.25	25(5)	3(3)
Eagle Creek	6/94	70(5)	1.19(5)	19.5(4)	2.7(4)	4.25	17(4)	5(5)
Eagle Creek	11/94	79(5)	1.29(5)	12.0(3)	2.6(4)	4.25	14(3)	4(4)
Marsh Creek	7/92	89(5)	0.98(5)	6.3(2)	2.7(4)	4	23(5)	4(4)
Marsh Creek	11/94	75(5)	0.90(5)	5.6(2)	2.6(4)	4	15(3)	4(4)
RF Buffalo Creek	6/92	59(4)	0.78(4)	57.6(5)	3.4(5)	4.5	20(5)	3(3)
RF Buffalo Creek	10/92	73(5)	0.80(4)	63.9(5)	3.5(5)	4.75	17(4)	3(3)
RF Buffalo Creek	10/93	71(5)	0.83(4)	31.4(5)	3.1(5)	4.75	20(5)	4(4)
RF Buffalo Creek	6/94	53(2)	0.73(3)	69.3(5)	3.6(5)	3.75	17(4)	4(4)
RF Buffalo Creek	10/94	75(5)	0.89(5)	41.2(5)	3.2(5)	5	22(5)	3(3)
SF Dog Slaughter Cr	5/91	78(5)	1.32(5)	15.2(4)	2.5(3)	4.25	14(3)	3(3)
SF Dog Slaughter Cr	10/91	74(5)	1.38(5)	20.7(5)	2.5(3)	4.5	18(5)	4(4)
SF Dog Slaughter Cr	4/93	77(5)	1.18(5)	14.9(4)	2.7(4)	4.5	19(5)	3(3)
SF Dog Slaughter Cr	11/93	68(5)	1.29(5)	12.9(3)	2.4(3)	4	16(4)	3(3)
SF Dog Slaughter Cr	6/94	75(5)	1.23(5)	20.2(5)	2.7(4)	4.75	14(3)	5(5)

TNDT = Total Number of Diatom Taxa
 Div. = Diatom Diversity (H')

%SS = Percent Sensitive Species (Diatoms)
 PTI = Pollution Tolerance Index (Diatoms)
 DBI = Diatom Bioassessment Index
 TNSAT = Total Number of Non-diatom Algal Taxa
 TNDR = Total Number of Non-diatom Divisions Present
 () = Metric Score: 1 (poor) to 5 (excellent)

CENTRAL APPALACHIAN ECOREGION

Bark Camp Creek

County: Whitney

River Basin: Upper Cumberland

Stream Order: IV

USGS Topo Quad: Sawyer (4-46)

Latitude: 36° 54' 14"

Longitude: 84° 16' 53"

Location: U.S. Forest Service Rd. #193

Sampling Dates: 26 June 1991; 15 October 1991; 29 April 1993; 8 November 1993;
23 June 1994

Stream Length: 11.4 km

Direction of Flow: NW

Elevation: Headwater - 378 m

Site - 268 m

Gradient: 9.6 m/km

Watershed: 95% Forested within the Daniel Boone National Forest
5% Residential and Agricultural

Riparian Zone: Well Developed; Heavily Forested; Rock Outcroppings
and Bluffs Common; Complete Canopy Cover

Stream Character: Large, Deep Pools and Swift, Shallow Riffles

Pool Substrate: Cobble, Pebble, and Boulder

Riffle Substrate: Boulder, Cobble, and Pebble

HABITAT ASSESSMENT AND SITE DESCRIPTION

Bark Camp Creek arises in the northwest corner of Whitley County and flows in a northwesterly direction through the Daniel Boone National Forest, where it joins the Cumberland River below the Falls. Our sampling site is located at milepoint 2.5, near the United States Forest Service (USFS) Road #193 bridge crossing. The stream at this point is fourth order with a drainage area of 9.9 square miles. About 95% of the watershed is forested with the remaining 5% used primarily for residential and agricultural purposes.

The riparian zone was well developed with a complete canopy cover over most of the site and rock outcroppings and bluffs common. The stream was characterized by clear, cool water with deep pools and swiftly flowing riffles. Pool substrates were composed of clean sandy areas and large boulders with little or no scouring or deposition. Riffle and run substrates typically were boulder, cobble, and pebble with no embeddedness present. Banks were stable and were covered by boulders and vegetation, mostly in the form of shrubs. The average habitat assessment score obtained for this site was 126.5 out of a possible 135 points, when using the Rapid Bioassessment Protocol (RBP) Habitat Assessment Field Data Sheet (Plafkin et al. 1989).

Physicochemical grab samples were collected in Fall '91, Spring '93, and Spring '94. All parameters were within normal limits except zinc (0.026 mg/l) which was higher in Fall '91 than both the acute and chronic criteria established by the Kentucky water quality standards.

ALGAL COMMUNITY COMPOSITION

A total of seven algal divisions was collected at Bark Camp Creek. The least number of algal divisions present in any sample was three in June 1991, while seven divisions were represented in the November 1993 sample. Taxa from the divisions Chlorophyta, Crysophyta, and Cyanophyta were identified in all samples.

Out of a total of 195 taxa, 148 (76%) were chrysophytes, 25 (12%) were chlorophytes, 16 (8%) were cyanophytes, two (1%) were euglenophytes, two (1%) were rhodophytes, one (0.5%) pyrrophyte, and one (0.5%) cryptophyte. The highest number of taxa identified in one sample was 128 in November 1993, while the least number of taxa in a sample was 88 in June 1994.

Twelve diatom taxa were identified in every sample. Of the 146 diatom taxa, *Achnanthes deflexa*, *Achnanthes minutissima*, and *Fragilaria vaurheriae* were among the most abundant taxa collected. *Closterium*, *Cosmarium*, *Mougeotia*, *Oedogonium*, *Staurastrum*, and *Oscillatoria* were non-diatom algal taxa that were present during all sampling events.

Diatom Bioassessment Index scores were all within the excellent range (4.0 in April 1993 to 5.0 in June 1994). For all sampling events, total number of diatom taxa, diversity, percent sensitive species and pollution tolerance index metric scores were good to excellent. Non-diatom algal metric scores also ranged from good to excellent. Algal community composition indicated excellent water quality at Bark Camp Creek (Table 4).

CENTRAL APPALACHIAN ECOREGION

Cane Creek

County: Laurel

River Basin: Upper Cumberland

Stream Order: IV

USGS Topo Quad: London SW (5-47)

Latitude: 37° 04' 20"

Longitude: 84° 14' 30"

Location: Middle Fork Rd.; 7.0 river miles upstream from the
confluence with the Rockcastle River

Sampling Dates: 24 June 1992; 24 September 1992; 29 April 1993; 18 October 1993;
10 June 1994; 25 October 1994; 20 July 1995

Stream Length: 17.4 km

Direction of Flow: W

Elevation: Headwaters - 360 m

Site - 244 m

Gradient: 7.3 m/km

Watershed: 95% Forested; within the Daniel Boone National Forest;
5% Residential and Agricultural

Riparian Zone: Well Developed; Complete Canopy Cover; Rock
Outcroppings, Cliffs, and Bluffs Common; Banks Steep

Stream Character: Long Pools of Varying Depths; Shallow, Swift
Riffles

Pool Substrate: Sand, Pebble, and Boulder

Riffle Substrate: Cobble and Pebble

HABITAT ASSESSMENT AND SITE DESCRIPTION

Cane Creek is a westerly flowing tributary to the Rockcastle River that arises within the Daniel Boone National Forest in southwestern Laurel County. Our site is located at milepoint 7.0 off Middle Fork Road. The stream at this point is third order with a drainage area of 7.9 square miles. About 95% of the watershed is forested with the remaining 5% used for residential and agricultural purposes.

The riparian zone was well developed with complete canopy cover over nearly all of the stream, and rock outcroppings, cliffs, and bluffs common. The stream was characterized by clear, cool water with long pools of varying depths and swiftly flowing riffles. Little or no scouring or deposition was found in the pool substrates, which were composed of sand, pebble, and boulders. Riffle substrates consisted of cobble and pebble and had no embeddedness. Excellent habitat and cover for aquatic organisms, including rubble, gravel, submerged logs, and undercut banks, was available. A variety of flow habitat types, such as, slow deep, slow shallow, fast deep, and fast shallow areas, was present at the site. Banks were stable with no erosion evident, and were covered by boulders and vegetation, which was mostly trees and shrubs. The average habitat assessment score for the site, when using the RBP Habitat Assessment Field Data Sheets (Plafkin et al. 1989), was 122.5.

Physicochemical grab samples were collected from this site in Fall '92, Spring '93, Spring '94, and Fall '94. In the Spring '92 sample, pH was slightly elevated (8.7 S.U.) when compared with STORET ranges. Zinc (0.021 mg/l) exceeded both the chronic and acute Kentucky water quality standards (WQS) criteria in the Spring '93 sample. Barium (0.070 mg/l) and chromium (0.004 mg/l) were above normal STORET values in the Spring '94 sample, while total organic carbon (TOC) was detected in slightly higher levels (4.7 mg/l) in the Fall '94 sample.

ALGAL COMMUNITY COMPOSITION

Six algal divisions (Chlorophyta, Chrysophyta, Cyanophyta, Cryptophyta, Euglenophyta, and Rhodophyta) were present in Cane Creek samples. The samples with the greatest number of divisions represented (five) were collected in June 1992, June 1994, and October 1994, while only four divisions were present in the September 1992, April 1993, and October 1993 samples. Again, Chlorophyta, Chrysophyta, and Cyanophyta were collected in every sample.

One hundred seventy-two taxa were identified. Diatoms and other chrysophytes were the dominant group of taxa comprising 130 (76%) of this total, followed by chlorophytes at 21 (12%); cyanophytes, 15 (9%); euglenophytes, three (1%); rhodophytes, two (1%); and cryptophytes, one (1%). The highest number of taxa in one sample was 96 in October 1993, while the lowest number of taxa was 77 in June 1994.

Eight diatom taxa were collected during every sampling event. *Achnanthes minutissima*, *Fragilaria vaucheriae*, and *Gomphonema apuncto* were among the most abundant taxa. *Anabaena*, *Lyngbya*, and *Oscillatoria* (Cyanophyta) and *Mougeotia* and *Oedogonium* (Chlorophyta) were present in all samples.

Diatom Bioassessment Index scores rated good (3.0 in April 1993) to excellent (4.5 in September 1992). Total number of diatom taxa and pollution tolerance index metric values were consistently good to excellent; however, diversity and percent sensitive species scores rated as fair to excellent. Total number of non-diatom algal taxa and the number of non-diatom algal divisions represented scored good to excellent. Algal community composition indicated very good to excellent water quality at Cane Creek (Table 4).

CENTRAL APPALACHIAN ECOREGION

Clemons Fork

County: Breathitt

River Basin: Kentucky

Stream Order: III

USGS Topo Quad: Noble (8-55)

Latitude: 37° 27' 35"

Longitude: 83° 09' 30"

Location: UK Robinson Forest Rd.; 0.5 river miles upstream from
the confluence with Buckhorn Creek

Sampling Dates: 14 May 1991; 09 October 1991; 27 April 1993; 12 October 1993; 25 May 1994

Stream Length: 7.6 km

Direction of Flow: SW

Elevation: Headwaters - 366 m

Site - 260 m

Gradient: 14.0 m/km

Watershed: 90% Forested; within UK Robinson Forest

10% Agricultural, Logging, and Hydrology Research

Riparian Zone: Well Developed; Canopy Cover Nearly Complete

Stream Character: Small, Shallow Pools and Riffles

Pool Substrate: Cobble and Pebble

Riffle Substrate: Pebble, Cobble, and Bedrock

HABITAT ASSESSMENT AND SITE DESCRIPTION

Clemons Fork is a small, mountainous stream located in the Kentucky River basin. It arises in eastern Breathitt County and flows to the southwest, where it joins Buckhorn Creek. This stream is entirely contained within the University of Kentucky's Robinson Forest. Therefore, the watershed is about 90% forested with the remaining 10% used for agricultural, silvicultural, and hydrological research purposes. Our downstream site on Clemons Fork is located at milepoint 0.5 near the Robinson Forest Camp. The stream at this point is third order with a drainage area of 5.9 square miles.

The riparian zone at the site was good and the canopy cover varied to allow some areas of exposure. Pools were small and shallow with cobble and pebble substrate. Little or no scouring and deposition had occurred in the pools at this site. Riffles were small and had substrates composed of exposed bedrock, pebble, and cobble. No embeddedness was observed. Banks were fairly stable and were covered by boulder and vegetation. No channelization or island enlargement was evident. An average habitat assessment score of 113.5 was obtained, when using the Rapid Bioassessment Protocol (RBP) Habitat Assessment Field Data Sheet (Plafkin et al. 1989).

Physicochemical samples were collected in Fall '91, Spring '93, and Spring '94 at the upstream Clemons Fork site only.

ALGAL COMMUNITY COMPOSITION

The algal community at the downstream Clemons Fork site was diverse with six divisions represented. In May 1991, all six divisions were present, while only four were recorded in April 1993, October 1993, and May 1995. Again, Chlorophyta, Chrysophyta, and Cyanophyta were collected in every sample.

One hundred and forty-four taxa were identified from the downstream site with the chrysophytes the dominant algal group comprising 106 taxa (74% of the total). Other represented groups were the following: chlorophytes, 22 (15%); cyanophytes, 11 (8%); rhodophytes, two (1%); euglenophytes, two (1%); and cryptophytes, one (1%). The highest number of taxa present in a sample was 95 in October 1991, while only 47 were observed in May 1991.

Fifteen of the 105 diatoms were collected in every sample. Some abundant taxa were *Achnanthes deflexa*, *Achnanthes minutissima*, and *Cymbella delicatula*. Six non-diatom algal genera were observed in every sample. Among the most common were *Closterium*, *Cosmarium*, *Staurastrum*, *Stigeoclonium*, *Ulothrix*, and *Oscillatoria*.

Ranging from 3.0 in May 1991 to 4.5 in October 1991, Diatom Bioassessment Index scores rated good to excellent. Pollution tolerance index and percent sensitive species values were excellent, while total number of diatom species and diversity were only poor to good. Non-diatom algal metrics scored good to excellent. Algal community composition indicated very good water quality at the downstream Clemons Fork (Table 4).

CENTRAL APPALACHIAN ECOREGION

Clemons Fork

County: Breathitt

River Basin: Kentucky

Stream Order: II

USGS Topo Quad: Noble (8-55)

Latitude: 37° 28' 50"

Longitude: 83° 08' 08"

Location: UK Robinson Forest Rd.; 3.0 river miles upstream from
the confluence of Buckhorn Creek

Sampling Dates: 14 May 1991; 09 October 1991; 27 April 1993; 25 May 1994; 23 May 1995

Stream Length: 7.6 km

Direction of Flow: SW

Elevation: Headwaters - 366 m

Site - 300 m

Gradient: 38.8 m/km

Watershed: 90% Forested; within UK Robinson Forest

10% Agricultural, Logging, and Hydrology Research

Riparian Zone: Well Developed; Canopy Cover Nearly Complete

Stream Character: Small, Shallow Pools and Riffles

Pool Substrate: Cobble and Pebble

Riffle Substrate: Pebble, Cobble, Bedrock, and Boulder

HABITAT ASSESSMENT AND SITE DESCRIPTION

Our upper site on Clemons Fork is located at milepoint 3.0 off of the Robinson Forest Camp Road. The stream at this point is second order with a drainage area of 2.0 square miles.

The riparian zone was very well developed with complete canopy cover at the site. The stream was characterized by small, shallow pools with little or no scouring or deposition of the cobble and pebble substrate. Riffles were small, composed of pebble, cobble, bedrock, and boulder, and had no embeddedness of the substrate. A variety of flow habitat types, including slow deep, slow shallow, fast deep, and fast shallow areas, was present. Excellent habitat and cover for aquatic organisms, such as undercut banks, submerged logs, and rocks, were available. No channelization or enlargement of islands had occurred within the stream. Banks were stable and covered by vegetation (mainly trees), boulders, and cobble. The average habitat score obtained, when using the RBP Habitat Assessment Field Data Sheet (Plafkin et al. 1989), was 124.

Physicochemical grab samples were collected from this site in Fall '91, Spring '93, and Spring '94. Biological oxygen demand (BOD) was detected in slightly higher levels (1.8 mg/l) than expected when compared to STORET ranges in the Fall '91 sample. All other parameters were found within normal STORET ranges.

ALGAL COMMUNITY COMPOSITION

Representative taxa from the algae divisions Chlorophyta, Chrysophyta, Cyanophyta, Cryptophyta, Euglenophyta and Rhodophyta, were collected at the upstream Clemons Fork site. In May 1991, only three divisions were present, while five were collected in April 1993, May 1994, and May 1995. Chlorophyta, Chrysophyta, and Cyanophyta were represented in every sample.

At the upstream site, 165 taxa were present with 129 chrysophytes, 21 chlorophytes, 11 cyanophytes, two rhodophytes, one euglenophyte, and one cryptophyte. The greatest number of taxa per sample was 91 in May 1994, while only 77, the lowest number of taxa, were collected in May 1991.

Of the diatom taxa recorded from the upstream site, 24 were found in every sample. *Achnanthes deflexa*, *Achnanthes minutissima*, and *Cymbella delicatula* were a few of the more abundant diatom taxa. The non-diatom algal genera, *Closterium*, *Cosmarium*, and *Oscillatoria*, were recorded in every sample and were among the most common genera at the site.

Diatom Bioassessment Index scores were excellent at the upstream site ranging from 4.5 in May 1994 and May 1995 to 5.0 in May 1991, October 1991, and April 1993. All of the diatom metric scores fell within the very good to excellent range, while non-diatom algal metric values were fair to very good. The algal community composition indicated excellent water quality at the upstream Clemons Fork site (Table 4).

CENTRAL APPALACHIAN ECOREGION

Coles Fork

County: Breathitt

River Basin: Kentucky

Stream Order: III

USGS Topo Quad: Noble (8-55)

Latitude: 37° 27' 50"

Longitude: 83° 07' 40"

Location: UK Robinson Forest Access Rd.; 0.6 river miles upstream
of the confluence with Buckhorn Creek

Sampling Dates: 27 June 1991; 10 October 1991; 19 July 1993; 12 October 1993; 26 May 1994;
23 May 1995

Stream Length: 8.4 km

Direction of Flow: W-SW

Elevation: Headwaters - 378 m

Site - 280 m

Gradient: 11.7 m/km

Watershed: 100% Forested; Hydrology Research

Riparian Zone: Well Developed; Complete Canopy Cover; Banks
Fairly Steep

Stream Character: Small, Shallow Pools and Riffles

Pool Substrate: Cobble, Pebble, Boulder, and Sand

Riffle Substrate: Cobble, Pebble, and Boulder

HABITAT ASSESSMENT AND SITE DESCRIPTION

Coles Fork is a small, mountainous stream in the Kentucky River basin that arises in northern Knott County and flows west/southwest until it joins Buckhorn Creek near the Knott/Breathitt County line. The watershed of Coles Fork is 100% forested and was entirely contained in the University of Kentucky's Robinson Forest. Some hydrology research has been conducted in the watershed. Our site on Coles Fork is at milepoint 0.6 along the Robinson Forest Access Road. The stream at this point is third order with a drainage area of 6.4 square miles.

The riparian zone was very well developed with complete canopy cover of the stream. Excellent habitat and cover for aquatic organisms, including submerged logs, undercut banks, rubble, gravel, and boulders, were available. A variety of flow habitat types was present, including slow deep, slow shallow, fast deep, and fast shallow areas. Pools were typically small and shallow, but some deeper areas were observed. Little scouring or deposition occurred on the substrates (cobble, pebble, boulder, and sand) of the pools. Riffles were small with substrates composed of cobble, pebble, and boulder. No embeddedness was evident at the site. No channelization or enlargement of islands occurred at the site. Banks were stable with little or no erosion seen and were covered by shrubs and trees. The habitat score, when obtained using the RBP Habitat Assessment Field Data Sheet (Plafkin et al. 1989), was 115.

Physicochemical grab samples were collected from this site in Fall '91 and Spring '94. Several parameters exceeded normal STORET mean values: chromium (0.005 mg/l) in the Fall '91 sample, copper (0.057 mg/l and 0.015 mg/l) in Fall '91 and Spring '94 respectively, and zinc (0.032 mg/l) in Fall '91. Additionally, both copper values exceeded the acute and chronic criteria of the Kentucky water quality standards (WQS) and the zinc value exceeded the chronic criteria of the Kentucky WQS.

ALGAL COMMUNITY COMPOSITION

Six algal divisions were present at Coles Fork. The greatest number of divisions in one sample was five in May 1994 and May 1995, while the least number of divisions, four, was collected in June 1991, October 1991, July 1993, and October 1993. As with previously mentioned reference sites, Chlorophyta, Chrysophyta and Cyanophyta were the only algal divisions present in every sample.

A total of 149 taxa was identified from the six samples of which 119 (80%) were chrysophytes, 16 (11%) chlorophytes, 10 (7%) cyanophytes, two (1%) rhodophytes, one (0.5%) euglenophyte, and one (0.5%) pyrrophyte. In July 1993, 93 taxa were collected, the most taxa at any sampling event. Only 46 taxa were present in June 1991, the lowest number of taxa in one sample.

Of the 119 diatom taxa, 15 were present in each sample. The taxa *Achnanthes deflexa*, *Achnanthes minutissima*, and *Gomphonema sparsistriatum f. maculatum* were among the most abundant diatoms collected. Three chlorophyte taxa, *Closterium*, *Oedogonium*, and *Staurastrum*, and three cyanophyte taxa, *Anabaena*, *Calothrix*, and *Oscillatoria*, were identified in every algae sample.

Diatom Bioassessment Index scores were very good to excellent ranging from 3.5 in June 1991 to 5.0 in July 1993. Total number of diatom taxa and diversity metric scores were in the fair

to excellent range. However, percent sensitive species and pollution tolerance index scores rated excellent in every sample, bolstering DBI values. The total number of non-diatom taxa scored good to excellent, and the number of non-diatom divisions present was good to very good. Algal community composition indicated very good to excellent water quality at Coles Fork (Table 4).

CENTRAL APPALACHIAN ECOREGION

Eagle Creek

County: McCreary

River Basin: Upper Cumberland

Stream Order: III

USGS Topo Quad: Cumberland Falls (3-46)

Latitude: 36° 52' 05"

Longitude: 84° 22' 05"

Location: State Highway 896; 3.0 river miles upstream of the
confluence with the Cumberland River

Sampling Dates: 08 May 1991; 14 October 1991; 28 April 1993; 23 June 1994;
3 November 1994

Stream Length: 9.5 km

Direction of Flow: SE

Elevation: Headwaters - 351 m

Site - 281 m

Gradient: 7.4 m/km

Watershed: 90% Forested

10% Residential and Agricultural

Riparian Zone: Well Developed; Complete Canopy Cover; Banks Steep

Stream Character: Long, Shallow Pools, Riffles, and Runs

Pool Substrate: Bedrock, Sand, and Cobble

Riffle Substrate: Cobble, Bedrock, and Pebble

HABITAT ASSESSMENT AND SITE DESCRIPTION

Eagle Creek is a small tributary of the Upper Cumberland River that arises in northern McCreary County and flows southeasterly where it has its confluence just below the falls. Our site on Eagle Creek is at milepoint 3.0 near the KY 896 bridge crossing. The stream at this point is third order with a drainage area of 4.6 square miles. About 90% of the watershed is forested as most of the stream flows through the Daniel Boone National Forest. The remaining 10% is primarily residential and agricultural.

The riparian zone was well developed with a nearly complete canopy cover. Excellent cover and habitat for aquatic organisms was available at the site with greater than 50% rubble, gravel, submerged logs, and undercut banks present. Several flow types were observed, including slow shallow, fast deep, and fast shallow areas. No channelization of the site had occurred. Little or no bottom scouring or deposition was present in the pools, which had mostly clean, sandy substrates with some bedrock and cobble and were shallow. There was little or no embeddedness in the riffles. Banks were very stable with no erosion evident and were covered with vegetation (shrubs mostly). The average RBP habitat assessment score, when calculated using the RBP Habitat Assessment Field Data Sheet (Plafkin et al. 1989), was 116.

Physicochemical grab samples were collected from this site in Fall '91, Spring '93, Spring '94, and Fall '94. Chromium (0.010 mg/l) and zinc (0.033 mg/l) exceeded normal mean STORET limits in the Fall '91 sample. Conductivity (459.0 umhos/cm), total hardness (212.0 mg/l), total dissolved solids (334.0 mg/l), sulfate (177.0 mg/l), magnesium (20.4 mg/l), and potassium (4.61 mg/l) were all greater than the STORET 75th percentile values in the Spring '94 samples.

ALGAL COMMUNITY COMPOSITION

At Eagle Creek, six algal divisions were present Chlorophyta, Chrysophyta, Cyanophyta, Cryptophyta, Euglenophyta, and Rhodophyta. The highest number of divisions represented in one sample was six in October 1991 and June 1994, while the lowest number was four in May 1991 and April 1993. Chlorophyta, Chrysophyta, Cyanophyta, and Rhodophyta were found in each sample.

From the five samples collected at this site, 164 taxa were identified, of which 123 (75%) were chrysophytes, 26 (15%) were chlorophytes, nine (6%) were cyanophytes, three (2%) were rhodophytes, two (1%) were euglenophytes, and one (1%) was a cryptophyte. The greatest number of taxa present in one sample was 110 in October 1991, while the least number was 75 in May 1991.

Thirty-two diatom taxa were collected from all samples. *Achnanthes minutissima*, *Cymbella delicatula*, *Fragilaria vaucheriae*, and *Synedra pulchella* were a few of the more abundant diatom taxa. Five non-diatom algal taxa, *Closterium*, *Mougeotia*, *Oedogonium*, *Oscillatoria*, and *Audouinella*, were found in each sample.

Diatom Bioassessment Index scores were all in the excellent range from 4.25 in May 1991, April 1993, and November 1994 to 5.0 in October 1991. All of the metrics in the DBI, as well as the non-diatom algal metrics, were good to excellent. Algal community composition indicated excellent water quality at Eagle Creek (Table 4).

CENTRAL APPALACHIAN ECOREGION

Marsh Creek

County: McCreary

River Basin: Upper Cumberland

Stream Order: V

USGS Topo Quad: Hollyhill (2-46)

Latitude: 36° 42' 55"

Longitude: 84° 21' 10"

Location: State Highway 748; 12.6 river miles upstream from the
confluence with the Cumberland River

Sampling Dates: 16 July 1992; 26 October 1992; 2 July 1993; 3 November 1994

Stream Length: 42.2 km

Direction of Flow: N-NE

Elevation: Headwaters - 415 m

Site - 313 m

Gradient: 2.4 m/km

Watershed: 60% Forested

40% Agricultural, Residential, Mining, and Logging

Riparian Zone: Well Developed; Steep Banks; Rock Cliffs and
Bluffs Common

Stream Character: Long, Deep Pools; Large, Swift Riffles and Runs

Pool Substrate: Boulder and Cobble

Riffle Substrate: Cobble and Boulder

HABITAT ASSESSMENT AND SITE DESCRIPTION

Marsh Creek is a long stream (26.2 river miles) that arises in southern McCreary County near the Tennessee/Kentucky border and flows to the north where it enters the Cumberland River. The watershed is about 60% forested with the remaining 40% used for agricultural, silvicultural, mining, and residential purposes. Our site is located at milepoint 12.6 near the KY 478 bridge crossing. The stream at this point is fifth order with a drainage area of 39.3 square miles.

The riparian zone was well developed with steep banks, rock cliffs, and bluffs common. Undercut banks, submerged logs, rubble, and cobble were widely available and were excellent sources of habitat and cover for aquatic organisms. No channelization or island formation of the stream had occurred. A variety of flow habitat types was present with slow deep, slow shallow, fast deep, and fast shallow areas available. Pools were long with some very deep areas and typically had substrates of boulder and cobble. Some bottom scouring or deposition was observed in the pools. Riffles and runs were well developed and were swift. Little or no embeddedness occurred in the riffle substrates, which were mostly cobble and boulder. Banks were stable and covered with shrubs and trees. By using the Rapid Bioassessment Protocol (RBP) Habitat Assessment Field Data Sheet (Plafkin et al. 1989), an average habitat assessment score of 106.5 was obtained.

Physicochemical grab samples were collected from this site in Fall '92, Spring '94, and Fall '94. Parameter values all fell within normal STORET 75th percentile ranges except for total organic carbon (6.5 mg/l) in Fall '92, manganese (0.557 mg/l) in Spring '94, sulfate (85.4 mg/l) in Fall '94, and magnesium (13.4 mg/l) in Fall '94.

ALGAL COMMUNITY COMPOSITION

In the two algae samples analyzed from Marsh Creek, five divisions were present, Chlorophyta, Chrysophyta, Cyanophyta, Rhodophyta, and Euglenophyta. With the exception of Euglenophyta, all of the divisions were represented in each collection. In July 1992, all five divisions were found, while only four were collected in November 1994.

One hundred and thirty-six taxa were identified. Of this total, 112 (82%) were chrysophytes, 15 (11%) were chlorophytes, six (4%) were cyanophytes, two (2%) were rhodophytes, and one (1%) euglenophyte. In July 1992, 112 taxa were collected, while only 90 taxa were present in November 1994.

Of the 111 diatom taxa, 52 (47%) were identified in both samples with *Achnanthes minutissima*, *Anomoeoneis vitrea*, and *Fragilaria vaucheriae* being a few of the most common taxa. Eleven non-diatom taxa were present in both samples.

Diatom Bioassessment Index scores for both sampling events were excellent, each receiving a score of 4.0, with the total number of diatom taxa, diversity, and pollution tolerance index values ranging from very good to excellent and percent sensitive species values rating fair. Non-diatom algal metrics, total number of taxa and number of divisions represented, fell within the good to excellent range. Algal community composition indicated excellent water quality at Marsh Creek (Table 4).

CENTRAL APPALACHIAN ECOREGION

Right Fork Buffalo Creek

County: Owsley

River Basin: Kentucky

Stream Order: III

USGS Topo Quad: Oneida (7-51)

Latitude: 37° 20' 56"

Longitude: 83° 37' 32"

Location: Whoopflarea Rd.; 1.1 river miles upstream from the
confluence with Left Fork Buffalo Creek

Sampling Dates: 29 June 1992; 23 October 1992; 25 October 1993; 6 June 1994

Stream Length: 17.9 km

Direction of Flow: W-NW

Elevation: Headwaters - 415 m

Site - 233 m

Gradient: 10.2 m/km

Watershed: 80% Forested

20% Residential and Agricultural

Riparian Zone: Good on the Right Bank; Well Developed on the Left
Bank: Fairly Wide Floodplain

Stream Character: Small, Shallow Pools and Riffles

Pool Substrate: Bedrock, Cobble, and Pebble

Riffle Substrate: Cobble, Bedrock, and Pebble

HABITAT ASSESSMENT AND SITE DESCRIPTION

Right Fork of Buffalo Creek is part of the Kentucky River basin that arises in the southeastern corner of Owsley County and flows to the northwest until it joins Buffalo Creek, a tributary of the South Fork Kentucky River. About 80% of the watershed is forested with the remaining 20% used primarily for agricultural and residential purposes. Our site is located off of Whoopflarea Road at milepoint 1.1. The stream at this point is third order with a drainage area of 15.1 square miles.

The riparian zone was well developed on the left bank of the stream (when facing downstream) but was less developed on the right bank because of road access. Also, row crops were grown on this side of the stream. Excellent habitat and cover for aquatic organisms, including submerged logs, undercut banks, and large rocks, were available at the site. Riffles and runs were very well developed with no embeddedness observed in the cobble, bedrock, and pebble substrates. Pools typically were small and shallow with substrates of bedrock, pebble, and cobble. Little or no bottom scouring or deposition occurred in the pools. Different flow habitats were available with some areas each of slow deep, slow shallow, fast deep, and fast shallow present. The stream had never been channelized. Banks were stable with little or no erosion observed and were covered with vegetation and boulders. An average habitat assessment score of 117.5 was obtained, when using the Rapid Bioassessment Protocol (RBP) Habitat Assessment Field Data Sheet (Plafkin et al. 1989).

Physicochemical grab samples were collected from this site in Fall '93 and Spring '94. Mercury (0.0003 mg/l) was found in levels higher than the normal STORET ranges and the chronic Kentucky water quality standards (WQS) criteria in the Spring '94 sample. Lead (0.003 mg/l) exceeded the chronic criteria for the Kentucky WQS in the Fall '93 sample.

ALGAL COMMUNITY COMPOSITION

A total of six algal divisions was present in Right Fork Buffalo Creek. The greatest number of divisions represented in one sample was five in October 1993 and June 1994, while only four divisions were collected in June 1992, October 1992, and October 1994. Along with Chlorophyta, Chrysophyta, and Cyanophyta, Rhodophyta was represented in all samples at this site.

One hundred and fifty-six taxa were identified. Chrysophytes were the dominant group of taxa comprising 78% of the community with 121 taxa present. The remainder of the community was composed of 21 chlorophytes (13%), 10 cyanophytes (6%), two rhodophytes (1%), one euglenophyte (1%) and one cryptophyte (1%). In October 1994, the greatest number of taxa (97) was collected, while the least number was 70 in June 1994.

Of the 121 diatom taxa, 22 were found in every sample. *Achnanthes deflexa*, *Achnanthes minutissima*, and *Cymbella delicatula* were among the most abundant diatom taxa. Seven non-diatom taxa, *Ankistrodesmus*, *Cosmarium*, *Oedogonium*, *Spirogyra*, *Staurastrum*, *Lyngbya*, and *Oscillatoria*, were found in each sample.

Diatom Bioassessment Index scores were very good to excellent, ranging from 3.75 in June 1994 to 5.0 in October 1994. Total number of diatom taxa scores were within the fair to excellent range, and diversity rated good to excellent. Metric values for percent sensitive species and the pollution tolerance index were excellent. The non-diatom algal data backed up the diatom data with each metric score falling into the very good to excellent range. Algal community composition indicated excellent water quality at Right Fork Buffalo Creek (Table 4).

CENTRAL APPALACHIAN ECOREGION

South Fork Dog Slaughter Creek

County: Whitley

River Basin: Upper Cumberland

Stream Order: II

USGS Topo Quad: Cumberland Falls (3-46)

Latitude: 36° 50' 55"

Longitude: 84° 16' 20"

Location: U.S. Forest Service Rd. # 195; 3.6 river miles upstream
from the confluence with the Cumberland River

Sampling Dates: 21 May 1991; 15 October 1991; 28 April 1993; 8 November 1993;
23 June 1994

Stream Length: 6.6 km

Direction of Flow: W-NW

Elevation: Headwaters - 366 m

Site - 281 m

Gradient: 12.8 m/km

Watershed: 95% Forested; within the Daniel Boone National Forest
5% Residential and Highways

Riparian Zone: Well Developed; Complete Canopy Cover; Steep Banks

Stream Character: Small, Shallow Pools and Riffles

Pool Substrate: Cobble and Sand

Riffle Substrate: Cobble and Pebble

HABITAT ASSESSMENT AND SITE DESCRIPTION

South Fork Dog Slaughter Creek is a small stream that arises in Whitley County and flows to the west, where it joins the Cumberland River below the falls. About 95% of the watershed is forested as the stream is contained in the Daniel Boone National Forest, and the remaining 5% is primarily used for roadways and residential purposes. Our site is located within the Daniel Boone National Forest at milepoint 3.6 near the United States Forest Service (USFS) Service Road #195 crossing. The stream at this point is second order with a drainage area of 2.0 square miles.

The riparian zone at this site was very well developed with quite dense canopy cover. Excellent habitat and cover was provided by an abundance of undercut banks, submerged logs, and rubble and gravel. No embeddedness was present in the riffles, which were composed mostly of cobble and pebble. Pools were typically small and shallow with clean sand and cobble substrates. Little or no bottom scouring or deposition occurred in the pools. No channelization of the stream was evident. Banks were fairly stable with little or no erosion observed and were covered with vegetation primarily in the form of shrubs. The average habitat score, when using the RBP Habitat Assessment Field Data Sheet (Plafkin et al. 1989), was 118 for this site.

Physicochemical grab samples were collected from this site in Fall '91, Spring '93, and Spring '94. Aluminum (0.657 mg/l) and zinc (0.033 mg/l) levels in the Fall '91 were greater than the STORET 75th percentile ranges. Total Kjeldahl nitrogen (0.796 mg/l) was higher than normal STORET values in the Spring '93 sample. Copper exceeded the chronic and acute criteria of the Kentucky water quality standards in the Fall '91 sample (0.002 mg/l) and Spring '93 sample (0.002 mg/l) as well as zinc (0.033 mg/l) in Fall '91.

ALGAL COMMUNITY COMPOSITION

At South Fork Dog Slaughter Creek, six algal divisions were represented, with only four present in May 1991, April 1993, and November 1993 and five in October 1991 and June 1994. Chlorophyta, Chrysophyta, Cyanophyta, and Rhodophyta were collected during each sampling event.

A total of 169 taxa was identified, with 135 chrysophytes comprising 80% of the total, 17 chlorophytes at 10%, 11 cyanophytes at 6%, three rhodophytes at 2%, two euglenophytes at 1% and one cryptophyte at 1%. The greatest number of taxa collected during a sampling event was 96 in April 1993, while the least number was 84 in November 1993.

Twenty-two diatom taxa were found in every sample. Among the most abundant diatoms were *Achnanthes minutissima*, *Cymbella delicatula*, *Eunotia pectinalis* var. *minor*, and *Fragilaria vaucheriae*. Only four non-diatom taxa were present in every sample, *Closterium*, *Cosmarium*, *Anabaena*, and *Oscillatoria*.

Every algal sample rated excellent by the Diatom Bioassessment Index ranging from 4.0 in November 1993 to 4.75 in June 1994. All metric scores were in the good to excellent range. Additionally, the non-diatom algal metrics, total number of taxa and number of divisions represented, scored good to excellent. Algal community composition indicated excellent water quality at South Fork Dog Slaughter Creek (Table 4).

WESTERN ALLEGHENY ECOREGION

WESTERN ALLEGHENY ECOREGION

The mean total of algal taxa of algae for a typical Reference Reach site in the Western Allegheny Ecoregion was 176. Chrysophytes dominated this total, comprising 79%, while chlorophytes constituted 12%, cyanophytes 6%, and any combination of Rhodophyta, Cryptophyta, Euglenophyta, and Pyrrophyta 3%. Among the most common non-diatom taxa at each site were the chlorophytes: *Anikistrodesmus*, *Chlamydomonas*, *Closterium*, *Cosmarium*, *Oedogonium*, *Spirogyra*, *Staurastrum*, and *Stigeoclonium*; the cyanophytes: *Anabaena*, *Calothrix*, *Lyngbya*, and *Oscillatoria*; and the rhodophyte: *Audouinella*. Dominant diatoms at Western Allegheny Reference Reach sites included *Achnanthes deflexa*, *Achnanthes minutissima*, *Cymbella delicatula*, *Cymbella silesiaca*, *Cymbella* sp. K, and *Fragilaria vaucheriae*.

Typically, the non-diatom algal community at each site was represented by a mean of four divisions and a mean of 19 taxa per sampling event. Likewise, for each sampling event, the diatom community was characterized by a mean total of 76 diatom taxa, a mean diversity of 0.91, a mean percent sensitive species of 44.2%, and mean pollution tolerance index score of 3.2.

Because of the lack of available comparative data, realistic criteria could not be developed using the Reference Reach data alone. Again, the 60th percentile proved to be an accurate yardstick for an excellent score of five. Those scores falling under the 60th percentile were divided into quartiles to determine good, fair, and poor scoring criteria.

Table 5 shows the non-diatom algal metrics for the Western Allegheny Ecoregion and represents smaller, wadable streams within the ecoregion.

Table 5. WESTERN ALLEGHENY ECOREGION NON-DIATOM ALGAL METRICS AND SCORING CRITERIA (WADABLE STREAMS)

<u>Total Number of Non-diatom Algal Taxa</u>	<u>Number of Non-diatom Divisions Present</u>
≥ 17 = 5	≥ 5 = 5
16 - 15 = 4	4 = 4
14 - 13 = 3	3 = 3
12 - 11 = 2	2 = 2
≤ 10 = 1	1 = 1

Scoring criteria for Western Allegheny Ecoregion diatom metrics are shown in Table 6.

Table 6. WESTERN ALLEGHENY ECOREGION DIATOM METRICS AND SCORING CRITERIA

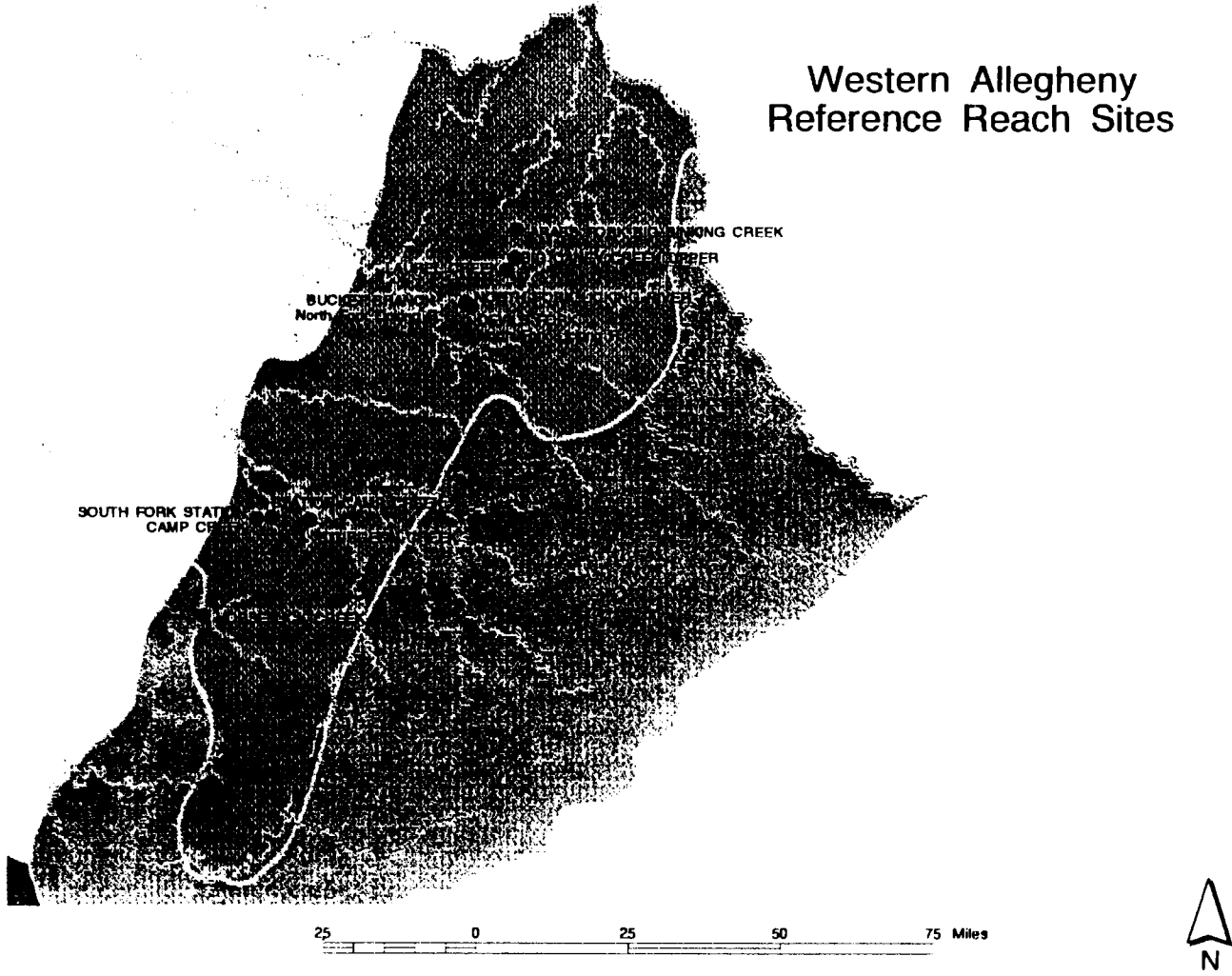
<u>Total Number of Diatom Taxa</u>	<u>Diatom Diversity (H')</u>
≥ 71 = 5	≥ 0.86 = 5
70 - 67 = 4	0.85 - 0.80 = 4
66 - 60 = 3	0.79 - 0.72 = 3
59 - 51 = 2	0.71 - 0.60 = 2
≤ 50 = 1	≤ 0.59 = 1

<u>Percent Sensitive Species (Diatoms)</u>	<u>Pollution Tolerance Index (Diatoms)</u>
≥ 38.5 = 5	≥ 3.1 = 5
38.4 - 34.3 = 4	3.0 - 2.9 = 4
34.2 - 29.4 = 3	2.8 - 2.7 = 3
29.3 - 23.0 = 2	2.6 - 2.5 = 2
≤ 22.9 = 1	≤ 2.4 = 1

Mean site habitat assessment scores ranged from 104 to 121. The mean ecoregion habitat assessment was 115.3. Physicochemical samples were collected at each site. Any values that exceeded the STORET 75th percentile are discussed later in the habitat assessment and site description section of each Western Allegheny site.

The locations of the Reference Reach sites within the Western Allegheny Ecoregion are shown on the following map (Figure 6). Detailed information on each site within this ecoregion follows.

Western Allegheny Reference Reach Sites



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FIGURE 6. MAP SHOWING WESTERN ALLEGHENY ECOREGION SITES

WESTERN ALLEGHENY ECOREGION

Arabs Fork

County: Elliott

River Basin: Little Sandy

Stream Order: III

USGS Topo Quad: Ault (14-55)

Latitude: 38° 13' 20"

Longitude: 83° 09' 20"

Location: State Highway 1620; 0.1 river miles upstream from the
confluence with Clays Fork

Sampling Dates: 29 April 1992; 12 October 1992; 9 May 1993; 27 October 1993; 16 June 1994;
2 November 1994

Stream Length: 8.2 km

Direction of Flow: NE

Elevation: Headwaters - 326 m

Site - 253 m

Gradient: 8.9 m/km

Watershed: 80% Forested

20% Agricultural and Residential

Riparian Zone: Good; 50% Canopy Cover

Stream Character: Small, Shallow Pools and Riffles

Pool Substrate: Sand and Pebble

Riffle Substrate: Pebble and Cobble

HABITAT ASSESSMENT AND SITE DESCRIPTION

Arabs Fork is a small, headwater stream in the Little Sandy River basin that arises in the northeast corner of Elliott County and flows to the northeast where it joins with Clays Fork to form Big Sinking Creek. About 80% of the watershed is forested with the remaining 20% primarily used for agricultural and residential purposes. Our site on Arabs Fork is located at milepoint 0.1 just upstream of the KY 1620 bridge crossing. The stream at this point is third order with a drainage area of 5.4 square miles.

The riparian zone was good, although one side of the stream was bordered by the roadway. Abundant rubble, gravel, submerged logs, and undercut banks provided excellent habitat and cover for aquatic organisms. A variety of flow types was present with slow shallow, slow deep, and fast shallow areas present. Pools were typically small and shallow with some deeper places. Little or no scouring or deposition was evident in the pool substrates, which consisted of sand and pebble. Riffles were composed of shifting sands and pebbles, but no embeddedness was observed. No channelization of the stream had occurred. Banks were moderately stable and were covered by vegetation and cobble. The habitat assessment score for this site when using the RBP Habitat Assessment Field Data Sheet (Plafkin et al. 1989) was 119.

Physicochemical grab samples were collected from this site in Fall '92, Spring '94, and Fall '94. All parameters for all samples were within normal limits.

ALGAL COMMUNITY COMPOSITION

The algal community at Arabs Fork was diverse with representatives from six divisions present. Only three divisions were recorded in the April 1992 sample, while five divisions were collected in June 1993 and November 1994. Taxa from Chlorophyta, Chrysophyta, and Cyanophyta were identified in every sample.

One hundred and ninety-six taxa were found, and of this total 160 (82%) were chrysophytes, 22 (11%) were chlorophytes, 11 (5.5%) were cyanophytes, one (0.5%) rhodophyte, one (0.5%) euglenophyte, and one (0.5%) cryptophyte. The greatest number of taxa identified in one sample was 112 in November 1994 and the least number was 76 in April 1992.

Of the 158 diatoms, 22 were represented in every sample. *Achnanthes deflexa*, *Achnanthes minutissima*, *Cymbella delicatula*, and *Cymbella silesiaca* were among the most abundant diatom taxa collected. Seven non-diatom taxa, *Ankistrodesmus*, *Closterium*, *Cosmarium*, *Staurastrum*, *Anabaena*, *Lyngbya*, and *Oscillatoria*, were found during every sampling event.

Diatom Bioassessment Index scores rated very good to excellent at Arabs Fork ranging from 3.75 in April 1992 to 4.75 in June and October 1993. The metrics, diversity, percent sensitive species, and pollution tolerance index, scored good to excellent for each collection, while total number of diatom taxa ranged from fair to excellent. Non-diatom algal metrics supported the DBI. Algal community composition indicated very good to excellent water quality at Arabs Fork (Table 7).

Figure 7. Diatom Bioassessment Index and Non-diatom Algal Scores For the Western Allegheny Ecoregion

Stream	Date	TNDT	Div.	%SS	PTI	DBI	TNSAT	TNDR
Arabs Fork	4/82	59(2)	0.96(5)	31.8(3)	3.0(4)	3.75	17(5)	3(3)
Arabs Fork	10/82	88(5)	0.78(3)	43.0(5)	3.4(5)	4.5	21(5)	3(3)
Arabs Fork	6/83	70(4)	0.98(5)	61.0(5)	3.5(5)	4.75	16(4)	5(5)
Arabs Fork	10/83	76(5)	1.17(5)	37.8(4)	3.1(5)	4.75	21(5)	3(3)
Arabs Fork	6/84	76(5)	0.99(5)	30.7(3)	3.1(5)	4.5	23(5)	3(3)
Arabs Fork	11/84	86(5)	1.40(5)	19.0(1)	2.6(2)	3.25	26(5)	6(5)
Big Caney Creek	4/82	67(4)	1.18(5)	38.4(3)	3.0(4)	4	14(3)	2(2)
Big Caney Creek	6/83	67(4)	1.05(5)	27.4(2)	2.9(4)	3.75	7(1)	2(2)
Big Caney Creek	6/84	75(5)	0.88(5)	56.5(5)	3.4(5)	5	16(4)	5(5)
Big Caney Creek	11/84	89(5)	1.29(5)	22.5(1)	2.7(3)	3.5	17(5)	2(2)
Bucket Branch	4/82	63(3)	0.77(3)	28.2(1)	3.1(5)	3.25	16(4)	3(3)
Bucket Branch	10/82	75(5)	0.81(4)	54.0(5)	3.3(5)	4.75	15(4)	4(4)
Bucket Branch	5/83	57(2)	0.72(3)	29.3(2)	3.1(5)	3	11(2)	3(3)
Bucket Branch	10/83	82(5)	0.87(5)	39.8(5)	3.2(5)	5	14(3)	3(3)
Bucket Branch	6/84	50(1)	0.83(4)	41.3(5)	3.2(5)	3.75	18(5)	3(3)
Bucket Branch	10/84	70(4)	0.88(5)	39.4(5)	3.1(5)	4.75	14(3)	3(3)
Devils Fork	4/82	62(3)	0.90(5)	21.5(1)	2.8(4)	3.25	20(5)	4(4)
Devils Fork	10/82	84(5)	0.94(5)	38.6(5)	3.2(5)	5	18(5)	4(4)
Devils Fork	5/83	79(5)	0.89(5)	34.2(3)	3.1(5)	4.5	21(5)	3(3)
Devils Fork	10/83	81(5)	0.82(5)	52.6(5)	3.2(5)	5	15(4)	3(3)
Devils Fork	6/84	68(4)	0.66(2)	69.8(5)	3.7(5)	4	21(5)	4(4)
Devils Fork	10/84	103(5)	1.32(5)	23.7(2)	2.7(3)	3.75	20(5)	6(5)
Horse Lick Creek	10/82	99(5)	0.89(5)	60.0(5)	3.4(5)	5	20(5)	2(2)
Horse Lick Creek	7/83	80(5)	1.05(5)	34.2(3)	3.0(4)	4.25	21(5)	4(4)
Horse Lick Creek	11/83	77(5)	0.88(5)	34.8(4)	3.2(5)	4.75	30(5)	3(3)
Laurel Creek	4/82	84(5)	1.11(5)	53.3(5)	3.3(5)	5	21(5)	3(3)
Laurel Creek	10/82	90(5)	1.14(5)	25.0(2)	2.9(4)	4	20(5)	4(4)
Laurel Creek	6/83	76(5)	0.97(5)	54.2(5)	3.3(5)	5	13(3)	3(3)
Laurel Creek	10/83	84(5)	1.10(5)	37.7(4)	3.1(5)	4.5	13(3)	2(2)
Laurel Creek	6/84	85(5)	0.98(5)	48.8(5)	3.2(5)	5	14(3)	3(3)
Laurel Creek	10/84	90(5)	1.25(5)	15.5(1)	2.6(2)	3.25	26(5)	6(5)
North Fork	4/82	80(5)	1.03(5)	35.9(4)	3.1(5)	4.75	17(5)	4(4)
North Fork	10/82	105(5)	1.36(5)	23.0(2)	2.7(3)	3.75	17(5)	3(3)
North Fork	5/83	71(4)	0.88(5)	53.3(5)	3.3(5)	4.75	23(5)	4(4)
North Fork	10/83	85(5)	0.97(5)	42.0(5)	3.1(5)	5	17(5)	4(4)
North Fork	6/84	83(5)	0.83(5)	41.4(5)	3.2(5)	5	28(5)	5(5)
North Fork	10/84	83(5)	1.39(5)	24.6(2)	2.6(2)	3.5	26(5)	6(5)
SF Station Camp Cr	7/82	52(2)	0.62(2)	79.4(5)	3.7(5)	3.5	18(5)	2(2)
SF Station Camp Cr	9/82	53(2)	0.64(2)	39.6(5)	3.4(5)	3.5	22(5)	4(4)
SF Station Camp Cr	6/83	66(3)	0.80(4)	67.5(5)	3.5(5)	4.25	17(5)	3(3)
SF Station Camp Cr	6/84	51(2)	0.55(1)	79.1(5)	3.7(5)	3.25	16(4)	4(4)
SF Station Camp Cr	10/84	65(3)	0.65(2)	76.5(5)	3.7(5)	3.75	19(5)	3(3)
SF Station Camp Cr	7/85	76(5)	0.85(4)	40.8(5)	3.1(5)	4.75	17(5)	2(2)
Station Camp Creek	7/82	79(5)	0.94(5)	51.7(5)	3.3(5)	5	18(5)	3(3)
Station Camp Creek	9/82	62(3)	0.60(2)	64.5(5)	3.6(5)	3.75	21(5)	3(3)
Station Camp Creek	5/83	77(5)	0.75(3)	71.1(5)	3.6(5)	4.5	24(5)	4(4)
Station Camp Creek	6/84	67(4)	0.52(1)	72.8(5)	3.7(5)	3.75	21(5)	4(4)
Station Camp Creek	10/84	61(3)	0.71(2)	60.7(5)	3.5(5)	3.75	11(2)	3(3)
Station Camp Creek	7/85	81(5)	0.80(4)	59.1(5)	3.4(5)	4.75	26(5)	4(4)
Sturgeon Creek	6/82	59(2)	0.67(2)	42.4(5)	3.3(5)	3.5	25(5)	3(3)
Sturgeon Creek	10/82	79(5)	0.74(3)	51.4(5)	3.4(5)	4.5	23(5)	3(3)
Sturgeon Creek	6/83	76(5)	0.96(5)	29.5(3)	3.0(4)	4.25	22(5)	3(3)
Sturgeon Creek	10/83	83(5)	1.32(5)	15.7(1)	2.5(2)	3.25	17(5)	4(4)
Sturgeon Creek	6/84	76(5)	0.85(4)	43.4(5)	3.2(5)	4.75	22(5)	4(4)
Sturgeon Creek	10/84	81(5)	0.79(3)	37.5(4)	3.2(5)	4.25	21(5)	3(3)
Sturgeon Creek	7/85	76(5)	0.56(1)	39.0(5)	3.3(5)	4	18(5)	3(3)

TNDT = Total Number of Diatom Taxa
 Div. = Diatom Diversity (H')
 %SS = Percent Sensitive Species (Diatoms)
 PTI = Pollution Tolerance Index (Diatoms)
 DBI = Diatom Bioassessment Index
 TNSAT = Total Number of Non-diatom Algal Taxa
 TNDR = Total Number of Non-diatom Divisions Present
 () = Metric Score; 1 (poor) to 5 (excellent)

WESTERN ALLEGHENY ECOREGION

Big Caney Creek

County: Elliott

River Basin: Little Sandy

Stream Order: III

USGS Topo Quad: Ault (14-55)

Latitude: 38° 09' 22"

Longitude: 83° 09' 48"

Location: Binion Ford Rd.; 7.9 river miles upstream from the
confluence with Little Caney Creek (Grayson Lake)

Sampling Dates: 30 April 1992; 19 October 1992

Stream Length: 20.6 km

Direction of Flow: E

Elevation: Headwaters - 329 m

Site - 253 m

Gradient: 9.6 m/km

Watershed: 75% Forested

25% Residential and Agricultural

Riparian Zone: Well Developed; Banks Steep and Densely Forested;
Complete Canopy Cover

Stream Character: Wide Variety of Pool Sizes and Depths; Small,
Shallow Riffles

Pool Substrate: Cobble, Boulder, and Sand

Riffle Substrate: Pebble and Cobble

HABITAT ASSESSMENT AND SITE DESCRIPTION

Big Caney Creek is a stream in the Little Sandy River basin that arises in western Rowan County and flows easterly into Elliott County. It is impounded by Grayson Lake in its lower reaches where it confluences with Little Caney Creek. About 75% of the watershed is forested with the remaining 25% primarily used for residential and agricultural purposes. Our site on Big Caney Creek is located at milepoint 7.9 at the Binion Ford Road bridge crossing. The stream at this point is third order with a drainage area of 11.2 square miles.

The riparian zone at this site was very well developed and most of the site was under complete canopy cover. Several flow types were found at the site, including slow deep, slow shallow, and fast shallow areas. Riffles were composed mainly of shifting pebble, cobble, and sand substrates, with no embeddedness observed. Pools were of various sizes and depths, with little or no scouring or deposition present in the cobble, boulder, and sand substrates. No channelization of the stream had occurred. Some bar formation was observed. Banks were moderately stable and were covered by vegetation (mostly trees) and some boulders and cobble. The habitat score when calculated using the RBP Habitat Assessment Field Data Sheet (Plafkin et al. 1989) was 104.

Physicochemical grab samples were collected from this stream in Fall '92, Spring '94, and Fall '94. The Spring '92 sample showed high levels of total organic carbon (TOC) (26.7 mg/l) and potassium (3.7 mg/l). Samples taken in Spring '94 and Fall '94 showed all parameters within normal limits.

ALGAL COMMUNITY COMPOSITION

Six algal divisions were found in the four Big Caney Creek samples. In June 1994, all six divisions were present, while only three were collected in the other samples (April 1992, June 1993, and November 1994). In every sample, the divisions Chlorophyta, Chrysophyta, and Cyanophyta were represented.

Of the total of 154 taxa, 125 (81%) were chrysophytes. The rest of the total was comprised of 18 chlorophytes (11%), eight cyanophytes (5%), one rhodophyte (1%), one euglenophyte (1%), and one cryptophyte (1%). The highest number of taxa identified in one sample was 106 in November 1994. Conversely, the least number of taxa collected in a sample was only 74 in June 1993.

Thirty-four of the 125 diatoms were found in every sample. *Achnanthes deflexa*, *Cymbella delicatula*, and *Achnanthes minutissima* were among the most abundant taxa at this site. Only the three non-diatom taxa, *Chlamydomonas*, *Staurastrum*, and *Oscillatoria*, were present in every collection.

Diatom Bioassessment Index scores were good to excellent (3.5 in November 1994 to a perfect 5.0 in June 1994). The metric scores for total number of diatom taxa, diversity, and the pollution tolerance index fell within the good to excellent range; however, the metric, percent sensitive species, was only poor to good. The non-diatom community was assessed as fair to good. Algae community composition indicated good water quality at Big Caney Creek (Table 7).

WESTERN ALLEGHENY ECOREGION

Bucket Branch

County: Morgan

River Basin: Licking

Stream Order: II

USGS Topo Quad: Wrigley (13-54)

Latitude: 38° 03' 12"

Longitude: 83° 19' 00"

Location: Leisure-Paragon Rd.; 0.1 river mile upstream from the
confluence with North Fork

Sampling Dates: 28 April 1992; 21 October 1992; 19 May 1993; 26 October 1993;
21 June 1994; 24 October 1994

Stream Length: 3.1 km

Direction of Flow: S-SW

Elevation: Headwaters - 323 m

Site - 253 m

Gradient: 24.1 m/km

Watershed: 95% Forested

5% Agricultural

Riparian Zone: Well Developed; Densely Forested; Complete Canopy
Cover

Stream Character: Small, Shallow Pools and Riffles

Pool Substrate: Pebble and Sand

Riffle Substrate: Pebble and Cobble

HABITAT ASSESSMENT AND SITE DESCRIPTION

Bucket Branch is a very small stream in the Licking River basin that arises in northern Morgan County and flows to the south/southwest where it enters North Fork. About 95% of the watershed is forested with the remaining 5% used for agricultural purposes. Our site is located at milepoint 0.1 just upstream of the Leisure-Paragon Road crossing. The stream at this point is only second order and has a drainage area of 1.6 square miles.

The riparian zone was very well developed and was densely forested, thus providing complete canopy cover for the stream. Excellent habitat for aquatic organisms was provided by rubble, gravel, and undercut banks. Riffles were typically very small with shifting substrates composed of sand, cobble, and pebble. No embeddedness was observed. Pools were small and shallow with some deeper areas (relative to stream size) and usually had cobble, pebble, and sands for substrate. Some deposition and scouring was evident in the pools. A variety of flow habitat types was present, including fast shallow, fast deep, slow shallow, and slow deep areas. No channelization of the stream had occurred and there was little enlargement of islands or point bars. Banks were stable with little or no erosion evident and were covered with shrubs. The habitat score when using the RBP Habitat Assessment Field Data Sheet (Plafkin et al. 1989) was 121.

Physicochemical grab samples were collected from this site in Fall '92, Spring '93, Spring '94, and Fall '94. Zinc was found at a higher level (0.068 mg/l) than the STORET 75th percentile range STORET in the Fall '92 sample, however, this was well below the Kentucky water quality standards chronic and acute criteria. Barium was elevated (0.065 mg/l) in the Spring '94 sample. Samples from Spring '93 and Fall '94 revealed no parameters that exceeded normal ranges.

ALGAL COMMUNITY COMPOSITION

At Bucket Branch, six divisions were collected. With the exception of the sample collected in October 1992 when five divisions were present, all of the other samples were represented with four divisions. Chlorophyta, Chrysophyta, and Cyanophyta were found in every sample.

A total of 167 taxa was identified of which 134 (80%) were chrysophytes, 21 (13%) were chlorophytes, eight (5%) were cyanophytes, two (1%) were euglenophytes, one (0.5%) cryptophyte, and one (0.5%) rhodophyte. Maximum and minimum numbers of taxa per sample were 96 in October 1993 and 66 in May 1993, respectively.

Twenty of the 134 diatom taxa were present in every sample. *Achnanthes deflexa*, *Achnanthes minutissima*, and *Cymbella sp.* (K) were three of the most abundant diatom taxa. Only three non-diatom taxa, *Chlamydomonas*, *Staurastrum*, and *Oscillatoria* were found in every sample.

Ranging from 3.0 in May 1993 to 5.0 in October 1993, Diatom Bioassessment Index scores were good to excellent. Metric values for diversity and pollution tolerance index scored good to excellent, while percent sensitive species was fair to excellent, and total number of diatom taxa was poor to excellent. The non-diatom algal metrics rated as fair to excellent. Algal community composition indicated good water quality at Bucket Branch (Table 7).

WESTERN ALLEGHENY ECOREGION

Devils Fork

County: Morgan

River Basin: Licking

Stream Order: IV

USGS Topo Quad: Wrigley (13-54)

Latitude: 38° 02' 38"

Longitude: 83° 18' 00"

Location: State Highway 711; 0.2 river miles upstream of the
confluence with North Fork

Sampling Dates: 28 April 1992; 21 October 1992; 10 May 1993; 26 October 1993;
24 June 1994; 24 October 1994

Stream Length: 12.6 km

Direction of Flow: S-SW

Elevation: Headwaters - 337 m

Site - 242 m

Gradient: 7.7 m/km

Watershed: 80% Forested

20% Agricultural and Residential

Riparian Zone: Well Developed; Complete Canopy Cover

Stream Character: Small, Shallow Pools and Riffles

Pool Substrate: Pebble, Cobble, and Sand

Riffle Substrate: Pebble, Cobble, and Bedrock

HABITAT ASSESSMENT AND SITE DESCRIPTION

Devils Fork is a small Licking River basin stream that arises near the eastern Elliott County, northern Morgan County line and flows south/southwest where it joins the North Fork at the KY 711 bridge crossing. The watershed is about 80% forested with the remaining 20% primarily used for agricultural and residential purposes. Our site on Devils Fork is at milepoint 0.2 just upstream of the KY 711 bridge. The stream is fourth order at this site and has a drainage area of 17.9 square miles.

The riparian zone was well developed and offered complete canopy cover. Excellent habitat for aquatic organisms was provided by submerged logs, undercut banks, and greater than 50% rubble and gravel bottom substrate. A variety of flow habitats was present, including slow shallow, slow deep, fast shallow, and fast deep. Riffles typically were small and shallow with pebble, cobble, and bedrock substrates. Little or no embeddedness was observed. Pools were also small and varied in depth and had substrates of pebble, cobble, and sand. Some deposition and bottom scouring was evident in the pools. No channelization of the stream had occurred, and little or no enlargement of islands or bars was seen. Banks were stable with no erosion evident and were covered with vegetation (mostly shrubs). The habitat score was 118 when measured using the RBP Habitat Assessment Field Data Sheet (Plafkin et al. 1989).

Physicochemical grab samples were collected from this site in Fall '92, Spring '93, Spring '94, and Fall '94. Total organic carbon (TOC) (6.4 mg/l) was found in levels higher than the normal for this parameter in the Fall '92 sample. Lead (0.002 mg/l) slightly exceeded the chronic criteria of the Kentucky water quality standards (WQS). The Spring '93 sample showed the chromium (0.004 mg/l) level to be higher than normal. Copper was elevated and was slightly higher than the chronic Kentucky WQS criteria in the Spring '94 (0.014 mg/l) sample, and was higher than the normal STORET ranges in the Fall '94 (0.007 mg/l) sample. The Fall '94 sample also had an above normal level of potassium (3.58 mg/l).

ALGAL COMMUNITY COMPOSITION

The algal community at Devils Fork was diverse, with six divisions represented. In October 1994, all six divisions were collected, while in April 1992, October 1992, May 1993, and October 1993, only four divisions were present. Along with Chlorophyta, Chrysophyta and Cyanophyta, members of the division Rhodophyta were prominent in every algal sample from this site.

One hundred and eighty-five taxa were observed from Devils Fork of which 144 (78%) were chrysophytes, 22 (12%) were chlorophytes, 13 (7%) were cyanophytes, three (1%) were rhodophytes, two (1%) were euglenophytes, and one (1%) cryptophyte. In October 1994, 123 taxa were identified which represented the greatest number of taxa in one sample. Conversely, only 82 taxa were collected in April 1992 which was the least number of taxa.

Twenty-three diatom taxa were present in each sample. The most abundant diatom taxa were *Achnanthes deflexa*, *Achnanthes minutissima*, and *Cymbella delicatula*. Two chlorophyte taxa, *Oedogonium* and *Staurastrum*, two cyanophytes, *Lyngbya* and *Oscillatoria*, and one rhodophyte, *Audouinella*, were collected during each sampling event.

Diatom Bioassessment Index scores were good to excellent, ranging from 3.25 in April 1992 to a perfect 5.0 in October 1993. The metrics, total number diatom taxa and pollution tolerance index, scored good to excellent for each sample, while diversity rated fair to excellent and percent sensitive species as poor to excellent. The non-diatom algal community was rated as very good to excellent. Algal community composition indicated excellent water quality at Devils Fork (Table 7).

WESTERN ALLEGHENY ECOREGION

Horse Lick Creek

County: Jackson

River Basin: Upper Cumberland

Stream Order: IV

USGS Topo Quad: Livingston (7-47)

Latitude: 37° 20' 03"

Longitude: 84° 08' 10"

Location: Horse Lick Cr. Rd.; 1.9 river miles upstream from the
confluence with the Rockcastle River

Sampling Dates: 9 October 1992; 6 July 1993; 10 November 1993

Stream Length: 27.0 km

Direction of Flow: S-SW

Elevation: Headwaters - 427 m

Site - 274.5 m

Gradient: 5.7 m/km

Watershed: 60% Forested

40% Residential, Agricultural, Logging, and Mining

Riparian Zone: Good; Broad Floodplain Allows for Light Penetration

Stream Character: Wide Variety of Pool and Riffle Sizes and Depths

Pool Substrate: Cobble, Pebble, and Sand

Riffle Substrate: Pebble, Gravel, and Sand

HABITAT ASSESSMENT AND SITE DESCRIPTION

Horse Lick Creek is a Rockcastle River tributary that arises in northwestern Jackson County and flows to the south where it skirts along the Rockcastle County border and eventually enters the river near the Jackson, Rockcastle, and Laurel County borders. Horse Lick Creek is considered a "transitional" stream because it flows along the borders of three ecoregions (Interior Plateau, Western Allegheny, and Central Appalachian) and thus is not truly representative of any of the three. In fact, the stream probably has characteristics of each ecoregion. We place it in the Western Allegheny Ecoregion only for logistical purposes. Data from this site, therefore, should not strictly be considered for one ecoregion. The watershed is about 60% forested with the remaining 40% used primarily for residential, agricultural, logging, and mining purposes. Our site on Horse Lick Creek is at milepoint 1.9 at the first ford off Horse Lick Creek Road. The stream at this point is fourth order and has a drainage area of 56.2 square miles.

The riparian zone was good and canopy cover varied in density. Excellent habitat and cover for aquatic organisms was available as submerged logs, undercut banks, and rubble or gravel. A variety of flow habitat types was obvious, including fast shallow, fast deep, slow shallow, and slow deep areas present. Riffles varied in size and had substrates typically composed of pebble, sand, and cobble. No embeddedness was observed. Pools also varied in size and depth. Pool substrates consisted of cobble, pebble, and sand. Some deposition was evident in the pools. No channelization or enlargement of islands or bars was seen at the site. Banks were stable and covered with vegetation (mostly trees) and some boulders. The habitat score when derived using the RBP Habitat Assessment Field Data Sheet (Plafkin et al. 1989) was 119.

Physicochemical grab samples were collected from this site in Fall '92. All parameters were within normal ranges.

ALGAL COMMUNITY COMPOSITION

From the three algal samples collected at Horse Lick Creek, a total of five divisions was represented, with the highest number of divisions in one sample (four) occurring in July 1993 and November 1993 and the least number (three) in October 1992. The divisions Chlorophyta, Chrysophyta, and Cyanophyta were represented in all of the samples.

A total of 158 taxa was identified, of which 126 (79%) were chrysophytes, 15 (10%) were chlorophytes, 13 (8%) were cyanophytes, three (2%) were rhodophytes, and one (1%) charophyte. In October 1992, the highest number of taxa was collected (119), while only 101 were found in the July 1993 sample.

Achnanthes deflexa, *Achnanthes minutissima*, and *Cymbella delicatula* were among the most abundant taxa. Of the 125 diatoms, 47 were present in every collection. The chlorophyte, *Spirogyra*, *Stigeoclonium*, *Gloeocystis*, *Oedogonium*, *Cosmarium*, *Closterium*, *Protococcus*, and *Staurastrum*, as well as the cyanophytes, *Oscillatoria*, *Microcoleus*, *Merismopedia*, *Anabaena*, and *Lynngbya*, and the charophyte, *Chara*, were identified in every sample.

Horse Lick Creek scored excellent by the Diatom Bioassessment Index, ranging from 4.25 in June 1993 to 5.0 in October 1992. The total number of diatom taxa and diversity metrics scored excellent, while percent sensitive species and pollution tolerance index were good to excellent. Non-diatom algal data supported the DBI rating as very good to excellent. Algae community composition indicated excellent water quality at Horse Lick Creek (Table 7).

WESTERN ALLEGHENY ECOREGION

Laurel Creek

County: Elliott

River Basin: Little Sandy

Stream Order: IV

USGS Topo Quad: Ault (14-55)

Latitude: 38° 07' 43"

Longitude: 83° 11' 25"

Location: Carter School Rd.; 7.6 river miles upstream of the
confluence with the Little Sandy River (Grayson Lake)

Sampling Dates: 30 April 1992; 22 October 1992; 29 June 1993; 27 October 1993;
17 June 1994; 28 October 1994

Stream Length: 23.3 km

Direction of Flow: E-SE

Elevation: Headwaters - 345 m

Site - 250 m

Gradient: 8.6 m/km

Watershed: 95% Forested

5% Agricultural and Residential

Riparian Zone: Well Developed; Densely Forested, Steep Banks;

Rock Outcroppings Common

Stream Character: Long, Deep Pools; Well Developed Riffles

Pool Substrate: Sand, Cobble, and Boulder

Riffle Substrate: Pebble and Cobble

HABITAT ASSESSMENT AND SITE DESCRIPTION

Laurel Creek arises in the eastern corner of Rowan County and flows east/southeasterly into Elliott County, where it enters the Little Sandy River. About 95% of the watershed is forested with the remaining 5% used for agricultural and residential purposes. Our site on Laurel Creek is at milepoint 7.6 near the Carter School Road bridge crossing. The stream at this point is fourth order with a drainage area of 14.6 square miles.

The riparian zone was very densely forested with steep banks and rock outcroppings common. Several flow habitat types were present at the site, including slow deep, slow shallow, fast deep, and fast shallow areas. Pools were typically long with varying depths and had substrates composed of sand, bedrock, cobble, and boulder. Some bottom scouring and deposition was observed. Riffles were small and shallow with shifting substrates composed of pebble and cobble. No embeddedness was evident at the site. No channelization or enlargement of islands or point bars had occurred. Banks were very stable and were covered by both vegetation (mostly trees) and boulders. By using the Rapid Bioassessment Protocol (RBP) Habitat Assessment Field Data Sheet (Plafkin et al. 1989), an average habitat assessment score of 112.5 was obtained.

Physicochemical grab samples were collected from this site in Fall '92, Spring '94, and Fall '94. Total organic carbon (TOC) (27.0 mg/l) was considerable higher than the normal range for this parameter in the Fall '92 sample. The chromium level was above the normal STORET range (0.006 mg/l).

ALGAL COMMUNITY COMPOSITION

At Laurel Creek, the algal community was comprised of six divisions, three of which (Chlorophyta, Chrysophyta, and Cyanophyta) were represented in every sample collected at this site. The highest number of divisions present in one sample was six in October 1994 and the lowest was three in October 1993.

One hundred and eighty-five taxa were collected at this site of which chrysophytes were the dominant algae group, comprising 145 (78%) of this total. The rest of the total was divided up as follows: 21 (11%) were chlorophytes, 12 (6%) were cyanophytes, three (2%) were euglenophytes, three (2%) were rhodophytes, and one (1%) cryptophyte. In October 1994, the greatest number of taxa in one sample was collected (116), while only 89 were found in June 1993, which represented the least number of taxa in a sample.

Of all the diatom taxa, 36 were identified in every sample. *Achnanthes deflexa*, *Achnanthes minutissima*, and *Cymbella delicatula* were among the most abundant diatom taxa. *Oscillatoria* was the only non-diatom taxon that was present during each sampling event.

Diatom Bioassessment Index scores were good to excellent, ranging from 3.25 in October 1994 to 5.0 in April 1992, June 1993, and June 1994. The metrics, total number of diatom taxa and diversity, scored excellent, while pollution tolerance index values ranked as fair to excellent and percent sensitive species as poor to excellent. Non-diatom algal metric scores ranged from fair to excellent. Algal community composition indicated excellent water quality at Laurel Creek (Table 7).

WESTERN ALLEGHENY ECOREGION

North Fork Licking River

County: Morgan

River Basin: Licking

Stream Order: V

USGS Topo Quad: Wrigley (13-54)

Latitude: 38° 03' 04"

Longitude: 83° 19' 03"

Location: Leisure-Paragon Rd.; 13.0 river miles upstream of the
confluence with the Licking River (Cave Run Lake)

Sampling Dates: 28 April 1992; 21 October 1992; 10 May 1993; 26 October 1993;
21 June 1994; 24 October 1994

Stream Length: 34.3 km

Direction of Flow: NW

Elevation: Headwaters - 272 m

Site - 238 m

Gradient: 2.5 m/km

Watershed: 75% Forested

25% Residential, Mining, and Agricultural

Riparian Zone: Well Developed; Canopy Cover Nearly Complete; Rock
Cliffs and Bluffs Common

Stream Character: Long, Deep Pools; Swift, Well Developed Riffles

Pool Substrate: Cobble, Boulder, and Sand

Riffle Substrate: Cobble, Pebble, and Boulder

HABITAT ASSESSMENT AND SITE DESCRIPTION

North Fork is a partly impounded tributary of the Licking River. The stream arises in northern Morgan County and flows northwesterly, where it joins the Licking River (Cave Run Lake). About 75% of the watershed is forested with the remaining 25% used primarily for residential, mining, and agricultural purposes. Our site on North Fork is at milepoint 13.0 off Leisure-Paragon Road, just downstream of the mouth of Bucket Branch. The stream at this point is fifth order with a drainage area of 36.1 square miles.

The riparian zone at the site was very well developed with nearly complete canopy cover and rock cliffs and bluffs common. Excellent habitat and cover for aquatic organisms, including rubble, gravel, submerged logs, and undercut banks were present. Riffles were well developed, swift, and were composed of cobble, pebble, and boulder. Little or no embeddedness was observed. Pools were long and deep, and had a little deposition on the cobble, boulder, and sand substrates. A variety of flow habitat types was present, including fast deep, fast shallow, slow deep, and slow shallow areas. Banks were stable with little or no erosion evident and were covered by vegetation (mostly shrubs) and boulders. The habitat score, which was calculated by using the RBP Habitat Assessment Field Data Sheet (Plafkin et al. 1989), was 113.

Physicochemical grab samples were collected from this site in Fall '92, Spring '93, Spring '94, and Fall '94. All parameters fell within the normal ranges for all samples except Fall '94. Total organic carbon (TOC) (4.8 mg/l) was higher than the normal STORET range in the Fall '94 sample. Copper (0.015 mg/l) considerably exceeded the normal STORET range and also was higher than the Kentucky water quality standards chronic criteria.

ALGAL COMMUNITY COMPOSITION

The North Fork was very diverse with respect to algal community composition, represented by seven divisions. Four divisions, Chlorophyta, Chrysophyta, Cyanophyta, and Rhodophyta, were present in each sample. In October 1994, six divisions were collected, constituting the highest number within a sample, and only four divisions were identified in October 1992, which was the least number.

A total of 189 taxa was identified, of which 148 (78%) were chrysophytes, 22 (11%) were chlorophytes, 11 (6%) were cyanophytes, three (2%) were rhodophytes, three (2%) were euglenophytes, one (0.5%) was a cryptophyte, and one (0.5%) was a pyrrophyte. The greatest number of taxa identified in a sample was 122 in October 1992. Conversely, the least number of taxa was 94 in May 1993.

Thirty-three diatom and seven non-diatom algal taxa were found in each sample. A few of the more abundant diatoms were *Achnanthes deflexa*, *Achnanthes minutissima*, *Cymbella delicatula*, and *Fragilaria vaucheriae*, while *Closterium*, *Cosmarium*, *Staurastrum*, *Anabaena*, *Oscillatoria*, *Lyngbya*, and *Audouinella* were common non-diatom genera.

All Diatom Bioassessment Index tallies rated good to excellent for the North Fork, ranging from 3.5 in October 1994 to a perfect 5.0 in May 1993, October 1993, and June 1994. Values for the total number of diatom taxa and diversity metrics were all within the excellent range. Percent sensitive species and the pollution tolerance index, however, were only fair to excellent. The non-diatom algal metrics were excellent. Algae community composition indicated excellent water quality at North Fork (Table 7).

WESTERN ALLEGHENY ECOREGION

South Fork Station Camp Creek

County: Jackson

River Basin: Kentucky

Stream Order: IV

USGS Topo Quad: Leighton (9-49)

Latitude: 37° 33' 35"

Longitude: 83° 58' 00"

Location: State Highway 89; 5.3 river miles upstream from the
confluence with Station Camp Creek

Sampling Dates: 14 July 1992; 17 September 1992; 30 June 1993; 14 June 1994;
18 October 1994; 21 July 1995

Stream Length: 42.5 km

Direction of Flow: E-SE

Elevation: Headwaters - 338 m

Site - 223 m

Gradient: 3.4 m/km

Watershed: 70% Forested

30% Residential, Logging, and Highway Right-of-Way

Riparian Zone: Well Developed; Densely Forested, Steep Banks

Stream Character: Long, Deep Pools; Small, Shallow Riffles

Pool Substrate: Cobble, Boulder, and Bedrock

Riffle Substrate: Cobble and Pebble

HABITAT ASSESSMENT AND SITE DESCRIPTION

South Fork Station Camp Creek arises in northeastern Jackson County and flows east/southeast where it joins with War Fork to form Station Camp Creek in eastern Jackson County. About 70% of the watershed is forested with the remaining 30% used primarily for residential, logging, and roadway purposes. Our site on South Fork is at milepoint 5.3 near the KY 89 bridge crossing. The stream at this point is fourth order with a drainage area of 41.4 square miles.

The riparian zone was well developed, densely forested, and with steep banks. Canopy cover was generally complete, but some open areas were present. A variety of flow habitats was observed, including slow deep, slow shallow, fast deep, and fast shallow areas. Excellent habitat and cover for aquatic organisms, such as gravel, rubble, undercut banks, and submerged logs, were available. Riffles were generally small and shallow with substrates composed of cobble and pebble. Some embeddedness of the substrate was observed. Pools were typically long and deep with substrates consisting of cobble, bedrock and boulder. Some deposition was obvious at the site. Banks were stable with little or no erosion evident and were covered with vegetation (mostly shrubs) and boulders. The average habitat score, when using the RBP Habitat Assessment Field Data Sheet (Plafkin et al. 1989), was 112.

Physicochemical grab samples were collected from this site in Fall '92, Spring '94, and Fall '94. Alkalinity levels were high in the Spring '92 (130 mg/l) and Fall '94 (126 mg/l) samples. All other parameters for the samples were within normal ranges.

ALGAL COMMUNITY COMPOSITION

At South Fork Station Camp Creek, the greatest number of divisions represented in a sample was five in September 1992 and June 1994, while the least number was three in July 1993 and July 1995. The total number of divisions present was six, with Chlorophyta, Chrysophyta, and Cyanophyta represented in all algal samples.

One hundred and sixty-one total taxa were identified. Chrysophytes were the dominant algal group accounting for 121 (75%) of the total. Chlorophytes were the second most prominent group of taxa comprising 22 (13%) followed by cyanophytes, 13 (8%); rhodophytes, three (2%); charophytes, one (1%); and euglenophytes one (1%). In July 1995, the highest number of taxa was recorded (93), while the least number was only 67 in June 1994.

Seventeen diatom and three non-diatom algal taxa were found during every sampling event. The most abundant diatoms were *Achnanthes deflexa*, *Achnanthes minutissima*, and *Cymbella delicatula*. As for the non-diatom community, *Spirogyra* (Chlorophyta) and *Calothrix* and *Oscillatoria* (Cyanophyta) were the predominant taxa.

The Diatom Bioassessment Index represented good to excellent water quality with scores ranging from 3.25 in June 1994 to 4.75 in July 1995. Percent sensitive species and pollution tolerance index scores were excellent, while total number of diatom taxa rated as fair to excellent and diversity as only poor to very good. Non-diatom algal metrics were good to excellent. Algal community community indicated very good to excellent water quality at South Fork Station Camp Creek (Table 7).

WESTERN ALLEGHENY ECOREGION

Station Camp Creek

County: Estill

River Basin: Kentucky

Stream Order: V

USGS Topo Quad: Leighton (9-47)

Latitude: 37° 33' 42"

Longitude: 83° 55' 18"

Location: State Highway 1209; 19.0 river miles upstream of the
confluence with the Kentucky River

Sampling Dates: 09 July 1992; 15 September 1992; 28 May 1993; 14 June 1994;
18 October 1994; 13 July 1995

Stream Length: 78.2 km

Direction of Flow: E-NW

Elevation: Headwaters - 338 m

Site - 229 m

Gradient: 6.1 m/km

Watershed: 50% Forested

50% Residential, Agricultural, Logging, and Mining

Riparian Zone: Well Developed; Banks Steep; Varying Degrees of
Canopy Cover

Stream Character: Long, Deep Pools; Well Developed Riffles

Pool Substrate: Cobble, Sand, Boulder, and Pebble

Riffle Substrate: Cobble, Pebble, and Boulder

HABITAT ASSESSMENT AND SITE DESCRIPTION

Station Camp Creek arises in northeastern Jackson County where South Fork Station Camp Creek and War Fork join and flows to the north entering the Kentucky River near Irvine in Estill County. About 50% of the watershed is forested with the remaining 50% used for residential, agricultural, logging, and mining purposes. Our site on Station Camp Creek is at milepoint 19.0 off of KY 1209 at the Estill/Jackson County border. The stream at this point is fifth order with a drainage area of 92.5 square miles.

The riparian zone was well developed and densely forested with steep banks and varied canopy cover. Excellent habitat for aquatic organisms was present with rubble, gravel, submerged logs, and undercut banks all abundant. A variety of flow habitat types also was observed, including slow deep, slow shallow, fast deep, and fast shallow areas. The riffle/pool ratio of the stream was excellent. Riffles were generally composed of some shifting substrates, including cobble and pebble with no embeddedness evident. Pools were long and deep with substrates composed of boulder, sand, cobble, and pebble. Little deposition or bottom scouring was observed in the pools. The riffle/pool ratio was excellent with varying depths and habitats present in the stream. Banks at the site were very stable with no erosion obvious and were covered by boulders and vegetation (mostly trees). The average habitat score for the site was 121, when using the RBP Habitat Assessment Field Data Sheet (Plafkin et al. 1989).

Physicochemical grab samples were collected from this site in Fall '92, Spring '94, and Fall '94. Several parameters including aluminum (1.4 mg/l) and manganese (0.549 mg/l) were considerably higher than the normal STORET ranges for these parameters. Zinc also appeared high and probably exceeded the Kentucky water quality standards criteria, but the exact criteria could not be calculated because the hardness parameter was not measured. Parameters for the Spring '94 and Fall '94 samples all fell within the normal limits.

ALGAL COMMUNITY COMPOSITION

Algal community composition at Station Camp Creek was diverse, with a total six divisions represented. In July 1992, September 1992, and October 1994, only four divisions were present per sample, while five were collected in May 1993, June 1994, and July 1995. Chlorophyta, Chrysophyta, and Cyanophyta were found in every sample.

Out of a total of 177 taxa, 136 or 77% were chrysophytes followed by 24 (13%) chlorophytes, 11 (6%) cyanophytes, three (2%) rhodophytes, two (1%) euglenophytes, and one (1%) cryptophyte. The highest number of taxa in a sample was 107, occurring in July 1995. Conversely, the least number was only 72 in October 1994.

Twenty-six diatom taxa were identified in every Station Camp Creek algal sample. Among the most abundant taxa were *Achnanthes deflexa*, *Achnanthes minutissima*, and *Cymbella delicatula*. *Stigeoclonium*, a chlorophyte, and *Anabaena*, *Calothrix*, and *Oscillatoria*, cyanophytes, were the only non-diatom taxa present during every sampling event.

Diatom Bioassessment Index scores rated very good to excellent, ranging from 3.75 in September 1992, June 1994, and October 1994 and 5.0 in July 1992. Percent sensitive species and pollution tolerance index metrics scored within the excellent range. Total number of diatom taxa and diversity values fell in lower ranges, scoring fair to excellent and poor to excellent, respectively. With the exception of the October 1994 sampling event, which was fair, non-diatom algal metric data were excellent. Algal community composition indicated excellent water quality at Station Camp Creek (Table 7).

WESTERN ALLEGHENY ECOREGION

Sturgeon Creek

County: Lee

River Basin: Kentucky

Stream Order: V

USGS Topo Quad: Heidelberg (9-50)

Latitude: 37° 33' 08"

Longitude: 83° 48' 35"

Location: Sturgeon Creek Rd.; 4.0 river miles upstream of the
confluence with the Kentucky River

Sampling Dates: 29 June 1992; 23 October 1992; 28 June 1993; 25 October 1993; 6 June 1994;
5 October 1994; 12 July 1995

Stream Length: 53.8 km

Direction of Flow: NE

Elevation: Headwaters - 364 m

Site - 198 m

Gradient: 3.5 m/km

Watershed: 40% Forested

60% Agricultural, Residential, Mining, and Logging

Riparian Zone: Well Developed; Canopy Cover Nearly Complete

Stream Character: Long, Deep Pools; Well Developed Riffles

Pool Substrate: Cobble, Sand, and Pebble

Riffle Substrate: Cobble

HABITAT ASSESSMENT AND SITE DESCRIPTION

Sturgeon Creek arises in eastern Jackson County and flows northeasterly through Owsley County and Lee County where it eventually enters the Kentucky River near Heidelberg. About 40% of the watershed is forested with the remaining 60% used primarily for agricultural, residential, mining, and logging purposes. Our site on Sturgeon Creek is at milepoint 4.0 off Sturgeon Creek Road in Lee County. The stream at this point is fifth order with a drainage area of 92.2 square miles.

The riparian zone was well developed and canopy cover varied. Excellent habitat and cover for aquatic organisms, including submerged logs, undercut banks, gravel and rubble, were available at the site. Riffles were long and very well developed with substrates typically composed of cobble, pebble, and boulder. Little embeddedness was observed in the riffles. Pools were long and deep with substrates generally consisting of sand, boulder, and cobble. Some deposition was observed in the pool areas. A variety of flow habitats was available at the site, including fast deep, fast shallow, slow deep, and slow shallow areas present. No channelization of the stream had occurred. Banks were stable and covered by boulder and vegetation (mostly trees). An average habitat assessment score 113.5 was obtained by using the Rapid Bioassessment Protocol (RBP) Habitat Assessment Field Data Sheet (Plafkin et al. 1989).

Physicochemical grab samples were collected from this site in Fall '93, Spring '94, and Fall '94. The concentration of lead (0.023 mg/l), although higher than the normal STORET ranges, was below the Kentucky water quality standards acute limit, but exceeded the chronic criteria in the Fall '93 sample. Levels of sulfate (85.5 mg/l) and magnesium (13.5 mg/l) were higher than the normal STORET levels in the Spring '94 sample. All parameters analyzed for the Fall '94 sample were within normal limits.

ALGAL COMMUNITY COMPOSITION

At Sturgeon Creek, the algal community was comprised of five divisions of which representatives from Chlorophyta, Chrysophyta, Cyanophyta, and Rhodophyta were collected on each sampling trip. All sampling dates were represented by four divisions, with the exception of October 1993 and June 1994, when five divisions were present.

One hundred and fifty-three diatoms were identified which constituted 81% of the total number of taxa collected (188). There were 22 (12%) chlorophytes, nine (5%) cyanophytes, three (1.5%) rhodophytes, and one (0.5%) euglenophyte. In October 1993, 110 taxa were present which was the greatest number of taxa in one sample, while in June 1992, the least number was 84.

Of the 153 diatom taxa, 25 were identified from every sample. *Achnanthes deflexa*, *Achnanthes minutissima*, and *Cymbella delicatula* were a few of the most abundant diatom taxa. Seven non-diatom taxa, *Ankistrodesmus*, *Closterium*, *Anabaena*, *Lyngbya*, *Oscillatoria*, *Audouinella*, and *Lemanea*, were collected during each sampling trip.

Diatom Bioassessment Index scores were good to excellent, ranging from 3.25 in October 1993 to 4.75 in June 1994. Metric scores for total number diatom taxa and the pollution tolerance index were all fair to excellent, while diversity and percent sensitive species rated poor to excellent. Excellent non-diatom algal metric scores further supported the DBI. Algal community composition indicated water quality at Sturgeon Creek (Table 7).

INTERIOR PLATEAU ECOREGION

INTERIOR PLATEAU ECOREGION

During a random sampling event in the Interior Plateau Ecoregion, a mean of 172 taxa was expected per sample. The division, Chrysophyta, comprised 79% of the 172 taxa, while Chlorophyta (12%), Cyanophyta (6%), and a combination of Cryptophyta, Euglenophyta, Pyrrophyta, and Rhodophyta (3%) made up the rest of the total. A few non-diatom taxa that were common at Reference Reach sites were *Chlamydomonas*, *Cladophora*, *Closterium*, *Coelastrum*, *Cosmarium*, *Mougeotia*, *Oedogonium*, *Scenedesmus*, *Spirogyra*, *Staurastrum*, *Stigeoclonium*, *Lyngbya*, *Merismopedia*, *Oscillatoria*, *Euglena*, and *Audouinella*. *Achnanthes deflexa*, *Achnanthes minutissima*, *Cymbella affinis*, *Cymbella silesiaca*, *Melosira varians*, *Navicula cryptocephala* var. *veneta*, *Navicula minima*, *Navicula radiosa* var. *tenella*, *Navicula salinarum* var. *intermedia*, *Nitzschia dissipata*, and *Nitzschia palea* were dominant diatoms.

Interior Plateau Reference Reach sites averaged 20 soft algae taxa represented by four divisions per sampling event. The mean number of diatom taxa from all of the Interior Plateau sites was 74, while diversity was 1.15, percent sensitive species was 18.6%, and the pollution tolerance index was 2.6.

Diatom metric scoring criteria were developed for the Interior Plateau Ecoregion by using Reference Reach, Biological Monitoring Program, and Intensive Survey data. A vast array of excellent to poor sites was selected. Since there were enough comparative data available, all of the scores for each metric were ranked and divided into fifths. The top 20% were designated as excellent and given a score of five. The next 20% were considered to be very good and scored a four and so on. Soft algae scoring criteria, on the other hand, were calculated based on the 60th percentile as the benchmark for an excellent score for each metric. Those scores falling below the 60th percentile were then divided into quarters to provide scores from one to four.

Scoring criteria for the non-diatom algae as mentioned above are shown in Table 8 and represented smaller, wadable streams within the ecoregion.

Table 8. INTERIOR PLATEAU ECOREGION NON-DIATOM ALGAL METRICS AND SCORING CRITERIA (WADABLE STREAMS)

<u>Total Number of Non-diatom Algal Taxa</u>	<u>Number of Non-diatom Divisions Present</u>
≥ 20 = 5	≥ 5 = 5
19 - 16 = 4	4 = 4
15 - 13 = 3	3 = 3
12 - 6 = 2	2 = 2
≤ 5 = 1	1 = 1

Diatom metric scoring criteria for the Interior Plateau Ecoregion are shown in Table 9.

Table 9. INTERIOR PLATEAU ECOREGION DIATOM METRICS AND SCORING CRITERIA

<u>Total Number of Diatom Taxa</u>	<u>Diatom Diversity (H')</u>
≥ 66 = 5	≥ 1.255 = 5
65 - 55 = 4	1.254 - 1.087 = 4
54 - 43 = 3	1.086 - 0.978 = 3
42 - 30 = 2	0.977 - 0.710 = 2
≤ 29 = 1	≤ 0.709 = 1

<u>Percent Sensitive Species (Diatoms)</u>	<u>Pollution Tolerance Index (Diatoms)</u>
≥ 19.1 = 5	≥ 2.8 = 5
19.0 - 5.9 = 4	2.7 - 2.3 = 4
5.8 - 2.0 = 3	2.2 - 2.0 = 3
1.9 - 1.0 = 2	1.9 - 1.7 = 2
≤ 0.9 = 1	≤ 1.6 = 1

The mean site habitat assessment scores ranged from 96 to 118 resulting in a mean ecoregion habitat assessment score of 108.5. Only physicochemical data that was detected in levels above the STORET 75th percentile or the acute and chronic criteria of the Kentucky Water Quality Standards were discussed in the site reports.

The locations of the Reference Reach sites for the Interior Plateau Ecoregion are shown in Figure 7.

Interior Plateau
Reference Reach Sites

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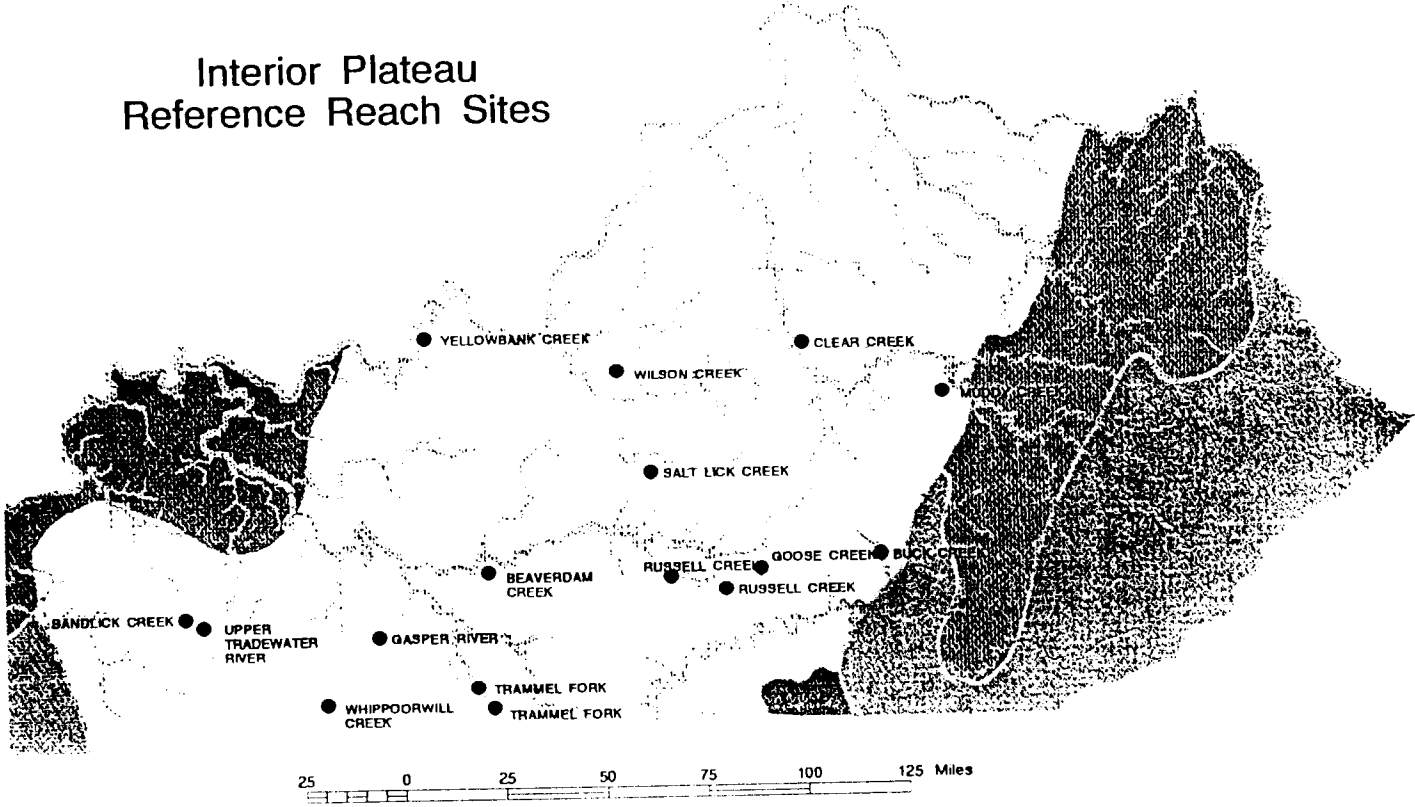


FIGURE 7. MAP SHOWING INTERIOR PLATEAU SITES



INTERIOR PLATEAU ECOREGION

Beaverdam Creek

County: Edmonson

River Basin: Green

Stream Order: III

USGS Topo Quad: Rhoda (6-31)

Latitude: 37° 09' 16"

Longitude: 86° 13' 36"

Location: State Highway 101; 7.6 river miles upstream of the
confluence with the Green River

Sampling Dates: 08 July 1992; 21 July 1993; 4 November 1993; 10 May 1994;
1 November 1994; 27 April 1995

Stream Length: 32.5 km

Direction of Flow: NW

Elevation: Headwaters - 207 m

Site - 159 m

Gradient: 2.4 m/km

Watershed: 25% Forested

75% Agricultural and Residential

Riparian Zone: Good; 75% Canopy Cover

Stream Character: Small, Shallow Pools and Riffles

Pool Substrate: Cobble, Bedrock, and Fines

Riffle Substrate: Pebble and Cobble

HABITAT ASSESSMENT AND SITE DESCRIPTION

Beaverdam Creek arises in southern Edmonson County and flows northwest where it enters the Green River at Brownsville. About 25% of the watershed is forested, while the remaining 75% is used primarily for agricultural and residential purposes. Our site on Beaverdam Creek is at milepoint 7.6 just upstream of the KY 101/259 bridge crossing. The stream at this point is third order and has a drainage area of 10.9 square miles.

The riparian zone at the site was good and provided about 75% canopy cover. Excellent habitat and cover for aquatic organisms was provided by submerged logs, undercut banks, and large rocks. Several flow habitat types were available, including slow deep, slow shallow, and fast shallow areas. Pools were typically small and shallow, but some deeper areas were also observed. Pool substrates were cobble, bedrock, and fine material. Some deposition was evident in the pools. Riffles were small with substrates composed of pebble and cobble and had little or no embeddedness. Banks were stable and were covered by shrubs, boulders, and cobbles. The habitat score that was obtained when using the RBP Habitat Assessment Field Data Sheet (Plafkin et al. 1989) was 109.

Grab samples were collected in Fall '93, Spring '94, and Fall '94 at Beaverdam Creek for the purpose of water quality analyses. With only two exceptions, all of the parameters analyzed for were within normal levels. In Spring '94, copper concentrations (0.016 mg/l) were above the chronic criteria of the Kentucky Water Quality Standards. Additionally, nitrate concentrations (1.76 mg/l) were above the STORET 75th percentile value.

ALGAL COMMUNITY COMPOSITION

Six divisions were represented in the algal samples from Beaverdam Creek, with five divisions present in November 1994 and April 1995 and only four collected in July 1992, July 1993, November 1993, and May 1994. Taxa from Chlorophyta, Chrysophyta, and Cyanophyta were found in each sample.

Out of a total of 203 taxa, chrysophytes were the dominant algal group, comprising 165 (81%) of the total. The rest of the total was composed of 22 chlorophytes (11%), 12 cyanophytes (6%), two euglenophytes (1%), one rhodophyte (0.5%), and one cryptophyte (0.5%). In May 1994 and April 1995, the greatest number of taxa per sample was collected (110), while the lowest (95) was recorded on July 1993.

Twenty-eight diatoms and four non-diatom algal taxa were identified in every sample. *Achnanthes minutissima*, *Melosira varians*, and *Navicula minima* were three of the more abundant diatom taxa, while *Chlamydomonas*, *Closterium*, *Lyngbya*, and *Oscillatoria* were the most common non-diatom algae.

Diatom Bioassessment Index scores were good to excellent, ranging from 3.5 in November 1994 to 4.75 in July 1993. Total number of diatom taxa rated excellent in every sample and diversity very good to excellent. However, pollution tolerance index and percent sensitive species metrics scores were not as stable, fluctuating between fair to excellent during the sampling period. Non-diatom algal metric scores ranged from fair to excellent. Algal community composition indicated very good to excellent water quality at Beaverdam Creek (Table 10).

Figure 10. Diatom Bioassessment Index and Soft Algae Scores For the Interior Plateau Ecoregion

Stream	Date	TNDT	Div.	%SS	PTI	DBI	TNSAT	TNDR
Beaverdam Creek	7/82	77(5)	1.08(3)	4.8(3)	2.3(4)	3.75	25(5)	3(3)
Beaverdam Creek	7/93	82(5)	1.30(5)	31.5(5)	2.6(4)	4.75	13(3)	2(2)
Beaverdam Creek	11/93	86(5)	1.52(5)	5.4(3)	1.9(2)	3.75	16(4)	3(3)
Beaverdam Creek	5/94	98(5)	1.45(5)	3.4(3)	2.2(3)	4	12(2)	3(3)
Beaverdam Creek	11/94	91(5)	1.11(4)	4.9(3)	1.9(2)	3.5	15(3)	5(5)
Beaverdam Creek	5/95	94(5)	1.46(5)	8.0(4)	2.3(4)	4.5	16(4)	4(4)
Buck Creek	5/92	67(5)	1.15(4)	15.7(4)	2.9(5)	4.5	27(5)	4(4)
Buck Creek	10/92	77(5)	1.00(3)	16.1(4)	2.9(5)	4.25	24(5)	3(3)
Buck Creek	5/93	60(4)	1.19(4)	22.2(5)	2.6(4)	4.25	20(5)	3(3)
Buck Creek	10/93	83(5)	0.89(2)	6.3(4)	2.6(4)	3.75	24(5)	2(2)
Buck Creek	6/94	75(5)	1.25(4)	18.8(5)	2.3(4)	4.25	19(4)	5(5)
Buck Creek	10/94	77(5)	0.92(2)	7.3(4)	2.7(4)	3.75	21(5)	3(3)
Buck Creek	7/95	72(5)	1.11(4)	22.4(5)	2.6(4)	4.5	11(2)	4(4)
Buck Creek	9/92	53(3)	1.03(3)	10.5(4)	1.9(2)	3	23(5)	3(3)
Clear Creek	5/92	59(4)	1.27(5)	4.8(3)	2.1(3)	3.75	28(5)	3(3)
Clear Creek	5/93	65(4)	1.26(5)	7.9(4)	2.1(3)	4	27(5)	4(4)
Clear Creek	5/94	71(5)	1.34(5)	10.5(4)	2.3(4)	4.5	21(5)	4(4)
Clear Creek	10/92	74(5)	1.45(5)	2.7(3)	2.6(4)	4.25	6(2)	2(2)
Gasper River	11/93	88(5)	1.32(5)	4.9(3)	1.8(2)	3.75	16(4)	4(4)
Gasper River	11/94	90(5)	1.10(4)	6.9(4)	1.6(1)	3.5	20(5)	5(5)
Gasper River	4/95	90(5)	1.42(5)	2.5(3)	2.3(4)	4.25	12(2)	3(3)
Goose Creek	5/92	65(4)	1.11(4)	26.8(5)	3.0(5)	4.5	26(5)	3(3)
Goose Creek	10/92	58(4)	1.38(5)	19.2(5)	2.6(4)	4.5	13(3)	2(2)
Goose Creek	5/93	82(5)	1.48(5)	18.1(4)	2.4(4)	4.5	21(5)	5(5)
Goose Creek	10/93	78(5)	1.39(5)	7.8(5)	2.2(3)	4.25	26(5)	3(3)
Goose Creek	5/94	70(5)	1.34(5)	7.4(4)	2.1(3)	4.25	19(4)	4(4)
Goose Creek	10/94	94(5)	1.12(4)	5.6(3)	2.3(4)	4	20(5)	4(4)
Goose Creek	6/95	75(5)	1.32(5)	6.2(4)	1.9(2)	4	19(4)	4(4)
Muddy Creek	5/92	69(5)	1.26(5)	6.4(4)	2.4(4)	4.5	37(5)	4(4)
Muddy Creek	10/92	77(5)	1.28(5)	11.7(4)	2.6(4)	4.5	24(5)	4(4)
Muddy Creek	5/93	62(4)	1.36(5)	6.6(4)	2.3(4)	4.25	21(5)	5(5)
Muddy Creek	10/93	76(5)	1.15(4)	9.0(4)	2.0(3)	4	28(5)	4(4)
Muddy Creek	6/94	68(5)	1.18(4)	6.4(4)	2.3(4)	4.25	23(5)	3(3)
Muddy Creek	10/94	76(5)	1.30(5)	5.4(3)	2.3(4)	4.25	27(5)	6(5)
Muddy Creek	7/92	69(5)	0.97(2)	8.4(4)	2.2(3)	3.5	23(5)	3(3)
Russell Creek (M)	9/92	63(4)	1.24(4)	15.8(4)	2.4(4)	4	21(5)	3(3)
Russell Creek (M)	5/93	82(5)	1.21(4)	7.1(4)	2.4(4)	4.25	22(5)	5(5)
Russell Creek (M)	7/95	74(5)	0.91(2)	15.1(4)	1.8(2)	3.25	21(5)	4(4)
Russell Creek (80)	7/92	65(4)	1.43(5)	19.5(5)	2.6(4)	4.5	26(5)	3(3)
Russell Creek (80)	5/93	76(5)	1.24(4)	23.3(5)	2.7(4)	4.5	14(3)	4(4)
Russell Creek (80)	11/93	76(5)	0.66(1)	10.7(4)	2.9(5)	3.75	21(5)	5(5)
Russell Creek (80)	4/94	74(5)	1.19(4)	14.3(4)	2.2(3)	4	19(4)	3(3)
Russell Creek (80)	10/94	91(5)	1.27(5)	7.4(4)	2.2(3)	4.25	21(5)	4(4)
Russell Creek (80)	6/95	96(5)	1.07(3)	14.3(4)	2.5(4)	4	22(5)	3(3)
Russell Creek (80)	11/95	68(5)	0.88(3)	5.5(3)	2.6(4)	3.75	25(5)	3(3)
Salt Lick Creek	5/92	35(2)	0.71(2)	76.6(5)	3.7(5)	3.5	21(5)	4(4)
Salt Lick Creek	9/92	54(3)	0.97(2)	50.8(5)	3.4(5)	3.75	21(5)	2(2)
Salt Lick Creek	4/93	48(3)	0.83(2)	38.4(5)	3.3(5)	3.75	18(4)	3(3)
Salt Lick Creek	10/93	67(5)	1.03(3)	23.1(5)	2.9(5)	4.5	16(4)	3(3)
Salt Lick Creek	5/94	56(4)	0.75(2)	64.7(5)	3.6(5)	4	13(3)	3(3)
Salt Lick Creek	10/94	55(4)	0.60(1)	25.2(5)	3.1(5)	3.75	10(2)	2(2)
Salt Lick Creek	4/95	59(4)	0.86(2)	64.3(5)	3.6(5)	4	16(4)	4(4)
Salt Lick Creek	5/93	64(4)	1.14(4)	22.5(5)	2.9(5)	4.5	22(5)	3(3)
Sand Lick Creek	5/94	81(5)	1.02(3)	11.3(4)	2.9(5)	4.5	10(2)	2(2)
Trammel Fork (C)	5/92	61(4)	1.14(4)	59.5(5)	3.2(5)	4.5	20(5)	4(4)
Trammel Fork (C)	9/92	65(4)	0.90(2)	32.9(5)	3.0(5)	4	18(4)	4(4)
Trammel Fork (C)	7/93	92(5)	1.37(5)	19.1(5)	2.6(4)	4.75	16(4)	5(5)
Trammel Fork (C)	11/93	79(5)	1.35(5)	9.8(4)	2.1(3)	4.25	21(5)	3(3)
Trammel Fork (C)	5/94	61(4)	1.15(4)	8.3(4)	2.4(4)	4	14(3)	3(3)
Trammel Fork (C)	10/94	98(5)	1.41(5)	9.4(4)	2.4(4)	4.5	18(4)	4(4)
Trammel Fork (C)	4/95	60(4)	0.95(2)	58.4(5)	3.3(5)	4	23(5)	3(3)

Figure 10. (Cont'd)

Stream	Date	TNDT	Div.	%SS	PTI	DBI	TNSAT	TNDR
Trammel Fork (RH)	5/92	73(5)	1.13(4)	43.3(5)	3.1(5)	4.75	20(5)	3(3)
Trammel Fork (RH)	9/92	85(5)	1.28(5)	29.2(5)	2.8(5)	5	21(5)	3(3)
Trammel Fork (RH)	7/93	82(5)	1.20(4)	33.7(5)	2.9(5)	4.75	19(4)	2(2)
Trammel Fork (RH)	11/93	83(5)	1.38(5)	8.6(4)	2.3(4)	4.5	15(3)	2(2)
Trammel Fork (RH)	5/94	58(4)	1.15(4)	33.8(5)	3.0(5)	4.5	13(3)	2(2)
Trammel Fork (RH)	10/94	78(5)	0.84(2)	42.5(5)	3.2(5)	4.25	21(5)	5(5)
Trammel Fork (RH)	7/95	69(5)	0.93(2)	23.8(5)	3.0(5)	4.25	25(5)	3(3)
U Tradewater River	5/93	48(3)	0.89(2)	39.0(5)	3.2(5)	3.75	23(5)	4(4)
U Tradewater River	5/94	76(5)	1.04(3)	15.0(4)	2.9(5)	4.25	21(5)	3(3)
Whippoorwill Creek	10/92	79(5)	1.32(5)	1.9(2)	2.4(4)	4	10(2)	3(3)
Whippoorwill Creek	7/93	72(5)	1.54(5)	6.4(4)	2.1(3)	4.25	13(3)	4(4)
Whippoorwill Creek	11/93	84(5)	1.46(5)	6.5(4)	2.1(3)	4.25	14(3)	4(4)
Whippoorwill Creek	11/94	91(5)	1.45(5)	10.3(4)	2.3(4)	4.5	21(5)	5(5)
Whippoorwill Creek	4/95	84(5)	1.31(5)	1.5(2)	2.2(3)	3.75	16(4)	4(4)
Wilson Creek	5/92	65(4)	0.88(2)	35.2(5)	3.2(5)	4	14(3)	3(3)
Wilson Creek	8/92	79(5)	1.13(4)	10.6(4)	2.4(4)	4.25	23(5)	5(5)
Wilson Creek	5/93	73(5)	0.99(3)	16.3(4)	3.0(5)	4.25	14(3)	2(2)
Wilson Creek	10/93	86(5)	1.11(4)	23.3(5)	2.8(5)	4.75	32(5)	6(5)
Wilson Creek	5/94	69(5)	0.98(3)	25.8(5)	3.0(5)	4.5	13(3)	4(4)
Wilson Creek	10/94	89(5)	1.03(3)	28.0(5)	2.9(5)	4.5	25(5)	5(5)
Yellowbank Creek	5/92	65(4)	0.83(2)	16.4(4)	3.0(5)	3.75	23(5)	5(5)
Yellowbank Creek	10/92	86(5)	1.20(4)	4.0(3)	2.5(4)	4	20(5)	4(4)
Yellowbank Creek	10/93	77(5)	0.94(2)	14.5(4)	2.8(5)	4	34(5)	6(5)
Yellowbank Creek	6/94	83(5)	1.00(3)	38.1(5)	3.1(5)	4.5	23(5)	4(4)

TNDT = Total Number of Diatom Taxa

Div. = Diatom Diversity (H')

%SS = Percent Sensitive Species (Diatoms)

PTI = Pollution Tolerance Index (Diatoms)

DBI = Diatom Bioassessment Index

TNSAT = Total Number of Non-diatom Algal Taxa

TNDR = Total Number of Non-diatom Divisions Present

() = Metric Score; 1 (poor) to 5 (excellent)

INTERIOR PLATEAU ECOREGION

Buck Creek

County: Pulaski

River Basin: Upper Cumberland

Stream Order: V

USGS Topo Quad: Shopville (6-45)

Latitude: 37° 10' 39"

Longitude: 84° 27' 23"

Location: Bud Rainey Rd.; 28.9 river miles upstream of the
confluence with the Cumberland River (Lake Cumberland)

Sampling Dates: 21 May 1992; 02 October 1992; 17 May 1993; 14 October 1993; 7 June 1994;
13 June 1994; 11 October 1994; 11 July 1995

Stream Length: 100.8 km

Direction of Flow: S-SE

Elevation: Headwaters - 401 m

Site - 250 m

Gradient: 2.8 m/km

Watershed: 25% Forested

75% Agricultural and Residential

Riparian Zone: Well Developed; Wide Variety of Canopy Cover

Stream Character: Long, Deep Pools; Well Developed Riffles

Pool Substrate: Cobble, Pebble, and Bedrock

Riffle Substrate: Cobble and Pebble

HABITAT ASSESSMENT AND SITE DESCRIPTION

Buck Creek arises in central Lincoln County near Hall's Gap and flows south/southeast into Pulaski County, where it eventually joins the Cumberland River (upper reaches of Lake Cumberland). About 25% of the watershed is forested, while the remaining 75% is used primarily for agricultural and residential purposes. Our site on Buck Creek is at milepoint 28.9 just off Bud Rainey Road in Pulaski County. The stream at this point is fifth order with a drainage area of 172.2 square miles.

The riparian zone at the site was well developed and the canopy cover was varied. Excellent habitat and cover for aquatic organisms was available in the form of submerged logs, undercut rocks, rubble, and gravel. A variety of flow habitat types, including slow deep, slow shallow, fast deep and fast shallow, was present at the site. No channelization of the stream had occurred. Pools were typically long with a variety of depths and had substrates composed of cobble, pebble, and bedrock. Little deposition or bottom scouring was evident in the pools. Some enlargement of point bars was observed. Riffles were very well developed with a variety of depths and currents. Riffle substrates generally consisted of cobble and pebble. No embeddedness of the substrate was observed. Banks were stable and covered by trees and boulders. An average habitat assessment score of 117.5 was obtained when using the Rapid Bioassessment Protocol (RBP) Habitat Assessment Field Data Sheet (Plafkin et al. 1989).

Four grab samples were analyzed for their chemical composition. In Spring '93, the chronic criterion of the Kentucky water quality standard for lead (0.003 mg/l) was exceeded. Mercury concentrations (0.0002 mg/l) were slightly above the STORET 75th percentile levels in Fall '94. All other parameters were considered to be within normal limits.

ALGAL COMMUNITY COMPOSITION

Six divisions were represented in the Buck Creek algal samples. In October 1992 and October 1993, only three divisions were present, while five divisions were collected in June 1994 and July 1995. The divisions Chlorophyta, Chrysophyta, and Cyanophyta were identified in every sample.

A total of 181 taxa was found, of which 143 (79%) were chrysophytes, 21 (11.5%) were chlorophytes, 12 (6.5%) were cyanophytes, two (1%) were rhodophytes, two (1%) were euglenophytes, and one (1%) pyrrophyte. The greatest number of taxa present in a sample was 107 in October 1993, while lowest, only 80, was collected in May 1993.

Of the 142 diatoms, 24 taxa were observed in every sample. Among the more abundant taxa were *Achnanthes minutissima*, *Cymbella affinis*, and *Navicula salinarum* var. *intermedia*. Two chlorophyte genera, *Cladophora* and *Stigeoclonium*, and two cyanophyte genera, *Oscillatoria* and *Schizothrix*, were the most common non-diatom algae.

Ranging from 3.75 in October 1993 to 4.5 in May 1992, June 1994, and July 1995, Diatom Bioassessment Index scores for Buck Creek were very good to excellent. Metric values for total number of diatom taxa, pollution tolerance index, and percent sensitive species rated very good to excellent, while diversity scored good to very good. Non-diatom algal metric values received good to excellent water quality scores. Algal community composition indicated excellent water quality at Buck Creek (Table 10).

INTERIOR PLATEAU ECOREGION

Clear Creek

County: Woodford

River Basin: Kentucky

Stream Order: IV

USGS Topo Quad: Salvisa (12-42)

Latitude: 37° 56' 40"

Longitude: 84° 45' 53"

Location: Hifner Mill Rd.; 4.1 river miles upstream of the
confluence with the Kentucky River

Sampling Dates: 12 May 1992; 14 September 1992; 5 May 1993; 12 May 1994

Stream Length: 31.1 km

Direction of Flow: W

Elevation: Headwaters - 275 m

Site - 169 m

Gradient: 4.3 m/km

Watershed: 15% Forested

85% Agricultural and Residential

Riparian Zone: Well Developed; Wide Variety of Canopy Cover

Stream Character: Medium-sized, Shallow Pools; Well Developed

Riffles

Pool Substrate: Bedrock and Cobble

Riffle Substrate: Cobble, Pebble, and Bedrock

HABITAT ASSESSMENT AND SITE DESCRIPTION

Clear Creek arises in central Woodford County just south of Versailles, then flows to the west where it enters the Kentucky River. About 15% of the watershed is forested and the remaining 85% is used for agricultural and residential purposes. Our site on Clear Creek is at milepoint 4.1 near the bridge crossing on Hifner Mill Road. The stream at this point is fourth order with a drainage area of 61.6 square miles.

The riparian zone was well developed, and canopy cover varied. Submerged logs, undercut banks, boulders, gravel, and rubble were abundant and provided excellent cover and habitat for aquatic organisms. A variety of flow habitat types, including slow deep, slow shallow, fast deep, and fast shallow areas, was available at the site. No channelization of the stream had occurred. Pools varied in depth and size and had substrates of bedrock, cobble, and boulder. Little deposition or bottom scouring was evident in the pools. Riffles were well developed with substrates of cobble, pebble, and bedrock. No embeddedness was observed in the riffles. Banks were very stable with no erosion and were covered by boulders, cobble, shrubs, and trees. When using the Rapid Bioassessment Protocol (RBP) Habitat Assessment Field Data Sheet (Plafkin et al. 1989), an average habitat assessment score of 117.5 was obtained.

Three grab samples were collected at Clear Creek during the sampling period. In Fall '92, alkalinity (206 mg/l), calcium (85.7 mg/l), total phosphorus (0.274 mg/l), total hardness (185 mg/l), and zinc (0.609 mg/l) were above the STORET 75th percentile value. In Spring '93, again, alkalinity (184 mg/l), calcium (74.4 mg/l), and total phosphorus (0.196 mg/l) were above the STORET 75th percentile value. Alkalinity (174 mg/l), total Kjeldahl nitrogen (0.756 mg/l), nitrate (1.59 mg/l), and calcium (66.4 mg/l) concentrations were above the STORET 75th percentile value and copper (0.014 mg/l) exceeded the acute and chronic criteria of the Kentucky water quality standards in Spring '94.

ALGAL COMMUNITY COMPOSITION

Five divisions were present in Clear Creek, with four (Chlorophyta, Chrysophyta, Cyanophyta, and Rhodophyta) represented in every sample. In May 1993 and May 1994, all five divisions were collected, while only four were recorded in May 1992 and September 1992.

A total of 152 taxa was identified during the sampling period of which 113 (74%) were chrysophytes, 21 (14%) were chlorophytes, 14 (9%) were cyanophytes, three (2%) were rhodophytes, and one (1%) euglenophyte. A high of 92 taxa was collected in May 1993 and May 1994, while only 76 were observed in September 1992.

Twenty-five diatoms and 10 non-diatom genera were found in every Clear Creek sample. Among the most abundant diatoms were *Achnanthes deflexa*, *Navicula cryptocephala* var. *veneta*, *Navicula minima*, *Navicula radiosa* var. *tenella*, *Navicula salinarum* var. *intermedia*, and *Nitzschia dissipata*. Likewise, a few of the more common non-diatom genera were *Chlamydomonas*, *Cladophora*, *Closterium*, *Coelastrum*, *Oedogonium*, *Protococcus*, *Scenedesmus*, *Stigeoclonium*, *Lynbya*, and *Oscillatoria*.

Rating from 3.0 in September 1992 to 4.5 in May 1994, Diatom Bioassessment Index scores were good to excellent. Total number of diatom taxa and diversity scored good to excellent, while percent sensitive species rated good to very good, and pollution tolerance index values were fair to very good. Clear Creek non-diatom algal metrics were within the excellent range. Algal community composition indicated very good water quality at Clear Creek (Table 10).

INTERIOR PLATEAU ECOREGION

Gasper River

County: Logan

River Basin: Green

Stream Order: III

USGS Topo Quad: South Union (4-27)

Latitude: 36° 56' 11"

Longitude: 86° 43' 30"

Location: Bucksville Rd.; 32.4 river miles upstream of the
confluence with the Barren River

Sampling Dates: 8 October 1992; 4 November 1993; 1 November 1994; 26 April 1995

Stream Length: 61.2 km

Direction of Flow: NE

Elevation: Headwaters - 195 m
Site - 168 m

Gradient: 3.0 m/km

Watershed: 40% Forested
60% Agricultural and Residential

Riparian Zone: Good; 75% Canopy Cover; Pasture and Fields
Adjacent to Site

Stream Character: Long, Fairly Deep Pools; Well Developed Riffles

Pool Substrate: Cobble, Bedrock, Fines, and Sand

Riffle Substrate: Pebble and Cobble

HABITAT ASSESSMENT AND SITE DESCRIPTION

Gaspar River originates in northeastern Logan County and flows northeast into Warren County where it enters the Barren River. About 40% of the watershed is forested with the remaining 60% used primarily for agricultural and residential purposes. Our site on Gaspar River is at milepoint 32.4 near the Bucksville Road bridge crossing in Logan County. The stream at this point is third order and has a drainage area of 26.3 square miles.

The riparian zone at the site was good and provided about 75% canopy cover. Excellent habitat and cover for aquatic organisms were available as submerged logs, undercut banks, boulders, rubble, and gravel were abundant. Several flow habitat types, including slow deep, slow shallow, and fast shallow, were present at the site. No channelization of the stream had occurred. Pools were long with varied depths and substrates composed of cobble, bedrock, fines, and sand. Some deposition was evident in the pools. Riffles were shallow with substrates consisting of pebble and cobble that were surrounded by some fine sediments. Banks were fairly stable with no erosion and were covered with boulders and vegetation (mostly trees). The habitat score when calculated using the RBP Habitat Assessment Field Data Sheet (Plafkin et al. 1989) was 96.

At the Gaspar River, two grab samples were collected for the purpose of water chemistry analyses. In Fall '92, alkalinity (217 mg/l), barium (0.064 mg/l), calcium (105.0 mg/l), chloride (37.7 mg/l), iron (5.28 mg/l), nitrate (4.87 mg/l), potassium (5.72 mg/l), sodium (31.0 mg/l), total dissolved solids (316 mg/l), and total phosphorus (0.589 mg/l) were above the STORET 75th percentile value and zinc concentrations (0.336 mg/l) were above the acute and chronic criteria of the Kentucky water quality standards. Likewise, several parameters in Fall '94 exceeded the STORET 75th percentile values (alkalinity (223 mg/l), calcium (86.1 mg/l), chloride (38.9 mg/l), conductivity (593 mho/s), nitrate (2.09 mg/l), potassium (5.86 mg/l), sodium (29.2 mg/l), total dissolved solids (336 mg/l), and total Kjeldahl nitrogen (0.646 mg/l)).

ALGAL COMMUNITY COMPOSITION

The Gaspar River algal community was represented by a total of six divisions. In November 1994, all six were present, while only four were found in October 1992. Four divisions Chlorophyta, Chrysophyta, Cyanophyta, and Rhodophyta were collected in every sample.

A total of 172 taxa was identified from the four samples. Chrysophytes were the dominant algal group, comprising 144 (84%) of the total. Chlorophytes were the next abundant group with 14 (8%), followed by nine cyanophytes (5%), two rhodophytes (1%), two euglenophytes (1%), and one cryptophyte (1%). In November 1994, the highest number of taxa present in a sample (110) was collected, while the least number (80) was recorded in October 1992.

Thirty-seven diatom and two non-diatom taxa were observed in every sample. *Navicula minima*, *Nitzschia linearis*, and *Nitzschia palea* were among the most abundant diatom taxa. *Cladophora* and *Oscillatoria* were the only non-diatom taxa identified from all samples.

Diatom Bioassessment Index scores rated very good to excellent, ranging from 3.5 in November 1994 to 4.25 in October 1992. All total number of diatom taxa values were excellent, and diversity was very good to excellent. However, the pollution tolerance index and percent sensitive species metrics scored only fair to good. Non-diatom algal metric values fluctuated from fair to excellent. Algae community composition at Gaspar River indicated good water quality (Table 10).

WESTERN ALLEGHENY ECOREGION

Goose Creek

County: Casey

River Basin: Green

Stream Order: IV

USGS Topo Quad: Phil (6-41)

Latitude: 37° 08' 37"

Longitude: 84° 59' 54"

Location: Brock Rd.; 5.6 river miles upstream of the
confluence with the Green River

Sampling Dates: 21 May 1992; 27 October 1992; 11 May 1993; 14 October 1993; 19 May 1994;
14 October 1994; 14 June 1995

Stream Length: 24.5 km

Direction of Flow: N

Elevation: Headwaters - 331 m

Site - 238 m

Gradient: 6.0 m/km

Watershed: 60% Forested

40% Agricultural and Residential

Riparian Zone: Well Developed; Wide Variety of Canopy Cover

Stream Character: Long, Deep Pools; Well Developed Riffles

Pool Substrate: Pebble, Cobble, Boulder, Bedrock, and Fines

Riffle Substrate: Pebble and Cobble

HABITAT ASSESSMENT AND SITE DESCRIPTION

Goose Creek arises in northeastern Russell County and flows northerly into Casey County where it joins the Green River near Dunnville. About 60% of the watershed is forested with the remaining 40% used primarily for agricultural and residential purposes. Our site on Goose Creek is at milepoint 5.6 just off of Brock Road in Casey County. The stream at this point is fourth order with a drainage area of 40.1 square miles.

The riparian zone was well developed and had a wide variety of canopy cover. Excellent habitat and cover for aquatic organisms was provided by an abundance of submerged logs, undercut banks, boulder, rubble, and gravel. A variety of flow habitat types was observed including slow deep, slow shallow, fast deep and fast shallow areas. No channelization of the stream had occurred. Pools were long and generally deep with substrates composed of pebble, cobble, boulder, bedrock, and fines. Some deposition was evident in the pools. Riffle substrates were composed of shifting pebble and cobble, and little or no embeddedness was observed. Banks were very stable and were covered by cobble, boulder, or vegetation (mostly trees). By using the Rapid Bioassessment Protocol (RBP) Habitat Assessment Field Data Sheet (Plafkin et al. 1989), an average habitat assessment score of 116 was obtained.

In Fall '92, Spring '93, Spring '94, and Fall '94, grab samples were collected at Goose Creek so that water chemistry analyses could be conducted. With only a few exceptions, all of the parameters were within the normal levels. Nitrate concentrations (1.25 and 1.39 mg/l) were above the STORET 75th percentile value in Spring '93 and Spring '94, while lead (0.005 mg/l) was above the chronic criterion of the Kentucky water quality standard in Spring '94. Total Kjeldahl nitrogen (0.733 mg/l) was above the STORET 75th percentile value in Fall '94.

ALGAL COMMUNITY COMPOSITION

The algal community was diverse at Goose Creek with six divisions represented. All six were present in October 1994, while the lowest number of taxa in a sample was three in October 1992. Representative taxa from Chlorophyta, Chrysophyta, and Cyanophyta were found in every sample.

A total of 193 taxa was identified during the sampling period. Of this total, 155 (80%) were chrysophytes, 21 (11%) were chlorophytes, 12 (6%) were cyanophytes, two (1%) were rhodophytes, two (1%) were euglenophytes, and one (1%) was a cryptophyte. The greatest number of taxa per sample was 114 in October 1994, and the lowest was 71 in October 1992.

Twenty-eight diatom and six soft algal taxa were recorded in every sample. A few of the more abundant diatoms were *Achnanthes deflexa*, *Achnanthes minutissima*, *Cymbella affinis*, *Navicula minima*, and *Navicula salinarum* var. *intermedia*. The chlorophytes, *Chlamydomonas*, *Scenedesmus*, *Spirogyra*, and *Stigeoclonium*, and the cyanophytes, *Lyngbya* and *Oscillatoria*, were several of the common non-diatom genera.

Diatom Bioassessment Index scores rated excellent, ranging from 4.0 in October 1994 and June 1995 to 4.75 in May 1992. Scores for total number diatom taxa, diversity, and percent sensitive species metrics were all very good to excellent. However, pollution tolerance index values were lower, falling into the good to very good range. With the exception of the October 1992 sampling event when Goose Creek rated fair, the non-diatom algal composition indicated very good to excellent water quality. Algal community composition indicated excellent water quality at Goose Creek (Table 10).

INTERIOR PLATEAU ECOREGION

Muddy Creek

County: Madison

River Basin: Kentucky

Stream Order: IV

USGS Topo Quad: Moberly (10-47)

Latitude: 37° 44' 30"

Longitude: 84° 08' 23"

Location: State Highway 52; 13.4 river miles upstream of the
confluence with the Kentucky River

Sampling Dates: 7 May 1992; 20 October 1992; 5 May 1993; 7 October 1993; 9 June 1994;
6 October 1994

Stream Length: 47.0 km

Direction of Flow: N

Elevation: Headwaters - 296 m

Site - 236 m

Gradient: 2.4 m/km

Watershed: 10% Forested

90% Agricultural, Residential, and U.S. Army Depot

Riparian Zone: Fair; 50% Canopy Cover; Falls; Residences Adjacent
to Site

Stream Character: Long, Shallow Pools and Riffles

Pool Substrate: Bedrock and Cobble

Riffle Substrate: Bedrock and Cobble

HABITAT ASSESSMENT AND SITE DESCRIPTION

Muddy Creek originates near the Central Kentucky Wildlife Management Area in southeastern Madison County and flows northerly until it enters the Kentucky River. About 10% of the watershed is forested while the remaining 90% is used primarily for agricultural, residential, and U.S. Army Depot purposes. Our site on Muddy Creek is at milepoint 13.4 near the KY 52 bridge crossing. The stream at this point is fourth order with a drainage area of 37.0 square miles.

The riparian zone at the site was fair and about 50% of the stream was under canopy cover. Submerged logs and undercut banks were abundant and provided good habitat and cover for aquatic organisms. Several flow habitat types were present, including slow deep, slow shallow and fast shallow areas. No channelization had occurred at the site, but some formation of gravel bars was observed. Pools were typically long and shallow with some deeper areas and had substrates composed of bedrock and cobble. Some deposition was obvious in the pools. Riffle substrates were primarily bedrock and cobble with some embeddedness observed. Banks were moderately stable and were covered with vegetation (mostly trees). At Muddy Creek, an average habitat assessment score of 101 was obtained by using the Rapid Bioassessment Protocol (RBP) Habitat Assessment Field Data Sheet (Plafkin et al. 1989).

Water chemistry analyses were conducted on grab samples collected in Fall '92, Spring '94, and Fall '94. In all three samples, alkalinity (184, 157, and 166 mg/l) and magnesium (19.2, 18.6, and 15.8 mg/l) were above the STORET 75th percentile value. Additionally, in Fall '92, potassium (4.78 mg/l), total hardness (184 mg/l), total organic carbon (40.8 mg/l), and total phosphorus (0.249 mg/l) were above those levels. Total hardness (213 mg/l), again, was above the STORET 75th percentile value in Spring '94, while potassium concentrations (3.96 mg/l) were above in Fall '94.

ALGAL COMMUNITY COMPOSITION

The algal community at Muddy Creek was very diverse, with seven divisions represented of which four (Chlorophyta, Chrysophyta, Cyanophyta, and Rhodophyta) were present in every sample. All seven divisions were collected in October 1994, while only four were observed in June 1994. Five divisions were recorded for each of the other samples.

A total of 189 taxa was identified. Chrysophytes were the dominant group comprising 140 (74%) of the total. Other algae groups recorded at this site were 28 chlorophytes (15%), 13 cyanophytes (7%), three rhodophytes (1.5%), three euglenophytes (1.5%), one pyrophyte (0.5%), and one cryptophyte (0.5%). In May 1992, the highest number of taxa in a sample was observed (106), while the lowest number of taxa was 83 in May 1993.

Of the 139 diatom taxa, 26 were found in every sample. Among the most abundant were *Achnanthes minutissima*, *Cocconeis pediculus*, *Navicula minima*, *Navicula salinarum* var. *intermedia*, *Nitzschia dissipata*, and *Nitzschia sinuata* var. *tabellaria*. Likewise, 10 non-diatom genera were collected in every sample with *Chlamydomonas*, *Cladophora*, *Closterium*, *Cosmarium*, *Mougeotia*, *Oedogonium*, *Scenedesmus*, *Spirogyra*, *Merismopedia*, and *Oscillatoria* being a few of the more common taxa.

Diatom Bioassessment Index values were all excellent, ranging from 4.0 in May 1993 to 4.5 in May 1992 and October 1992. Metric scores for total number of diatom taxa and diversity rated

very good to excellent, while percent sensitive species and pollution tolerance index were good to very good. Scores for the non-diatom algal metrics, total number of taxa and total number of divisions represented, fell within the good to excellent range. Algal community composition indicated excellent water quality at Muddy Creek (Table 10).

INTERIOR PLATEAU ECOREGION

Russell Creek

County: Adair

River Basin: Green

Stream Order: III

USGS Topo Quad: Montpelier (5-39)

Latitude: 37° 04' 34"

Longitude: 85° 09' 32"

Location: State Highway 80 near Gentrys Mill; 60.5 river miles
upstream of the confluence with the Green River

Sampling Dates: 10 July 1992; 16 September 1992; 6 May 1993; 11 November 1993;
25 April 1994; 12 October 1994; 28 June 1995; 1 November 1995

Stream Length: 109.8 km

Direction of Flow: NW

Elevation: Headwater - 320 m

Site - 256 m

Gradient: 5.2 m/km

Watershed: 15% Forested

85% Agricultural, Residential, and Logging

Riparian Zone: Well Developed; Nearly Complete Canopy Cover

Stream Character: Long, Deep Pools; Well Developed Riffles

Pool Substrate: Cobble, Bedrock, Pebble, and Sand

Riffle Substrate: Cobble and Pebble

HABITAT ASSESSMENT AND SITE DESCRIPTION

Russell Creek is a lengthy stream that arises in northwestern Russell County and flows northwest through Adair County and into Green County, where it eventually enters the Green River near Greensburg. About 15% of the watershed is forested with the remaining 85% used primarily for agricultural, residential, and logging purposes. Our upper site on Russell Creek is at milepoint 60.5 near the KY 80 bridge crossing in Adair County. The stream at this point is third order with a drainage area of 16.5 square miles.

The riparian zone at this site was well developed with nearly complete canopy cover of the stream. Submerged logs, undercut banks, rubble, and gravel were abundant and provided excellent habitat and cover for aquatic organisms. A variety of flow habitat types, including slow deep, slow shallow, fast deep and fast shallow areas, was present. No channelization of the stream had occurred, but some enlargement of gravel bars was observed. Pools were long, varied in depth, and had substrates composed of bedrock, cobble, pebble, and sand. Little deposition or bottom scouring was observed in the pools. Riffles were well developed with shifting substrates consisting of cobble and pebble. No embeddedness of the riffles was evident at the site. Banks were moderately stable with some erosion and were covered by shrubs and trees. The site at Hwy. 80 had an average habitat assessment score of 115 when using the Rapid Bioassessment Protocol (RBP) Habitat Assessment Field Data Sheet (Plafkin et al. 1989).

In Spring '93, Spring '94, October 12, 1994, and October 14, 1994, grab samples were collected for water quality analysis. All of the parameters were within normal ranges.

ALGAL COMMUNITY COMPOSITION

Six divisions were present at the KY 80 Russell Creek site with Chlorophyta, Chrysophyta, and Cyanophyta represented in every sample. The highest number of divisions collected from one sample was five in May 1993, November 1993, and October 1994 and the least was four in July 1992, April 1994, June 1995, and November 1995.

A total of 196 taxa was collected, of which 157 (80%) were chrysophytes, 24 (12%) were chlorophytes, 11 (6%) were cyanophytes, two (1%) were euglenophytes, one (0.5%) was a rhodophyte, and one (0.5%) was a cryptophyte. In June 1995, the highest number of taxa per sample (118) was recorded, while the lowest number of taxa was 90 in May 1993.

Twenty-three diatoms and five non-diatom algae were identified in every sample at this site. While *Achnanthes deflexa*, *Achnanthes linearis*, *Achnanthes minutissima*, *Navicula minima*, and *Navicula salinarum* var. *intermedia* were abundant diatoms, *Chlamydomonas*, *Staurastrum*, *Lyngbya*, *Microcoleus*, and *Oscillatoria* were the most common non-diatom taxa.

Diatom Bioassessment Index scores were very good to excellent ranging from 3.75 in November 1993 and November 1995 to 4.75 in July 1992 and May 1993. Total number of diatom taxa values were all excellent, while percent sensitive species and pollution tolerance index were very good. Diversity scores were highly variable, ranging from poor to excellent. Non-diatom algal metric scores rated good to excellent. Algal community composition indicated excellent water quality at the KY 80 Russell Creek site (Table 10).

INTERIOR PLATEAU ECOREGION

Russell Creek

County: Adair

River Basin: Green

Stream Order: IV

USGS Topo Quad: Gradyville (5-37)

Latitude: 37° 07' 27"

Longitude: 85° 24' 16"

Location: State Highway 768 near Milltown; 25.6 river miles
upstream of the confluence with the Green River

Sampling Dates: 13 July 1992; 16 September 1992; 6 May 1993; 26 May 1993;
11 November 1993; 31 May 1994; 17 July 1995

Stream Length: 109.8 km

Direction of Flow: NW

Elevation: Headwaters - 320 m

Site - 188 m

Gradient: 1.9 m/km

Watershed: 15% Forested

85% Agricultural and Residential

Riparian Zone: Well Developed; Wide Variety of Canopy Cover

Stream Character: Long, Deep Pools; Well Developed Riffles

Pool Substrate: Cobble, Pebble, Fines, Sand, and Bedrock

Riffle Substrate: Cobble, Pebble, Bedrock and Sand

HABITAT ASSESSMENT AND SITE DESCRIPTION

Our downstream site on Russell Creek is located at milepoint 25.6 off KY 768 near Milltown in Adair County. The stream at this point is fourth order with a drainage area of 198.4 square miles.

The riparian zone at this site was well developed with a wide variety of canopy cover. Excellent habitat and cover for aquatic organisms was available as submerged logs, undercut banks, boulders, rubble, and gravel were in abundance. A variety of flow habitat types was also observed, including slow deep, slow shallow, fast deep, and fast shallow areas. No channelization of the stream had occurred, but some island or gravel bar formation was evident. Pools were long and deep with substrates composed of cobble, pebble, fines, sand, and bedrock. Some deposition was observed in the pools. Riffles were well developed and swift with a variety of depths and had substrates consisting of cobble, bedrock, pebble, and sand. No embeddedness was evident in the riffles. Banks were very stable and were covered with vegetation (mostly trees). An average habitat assessment score of 115 was obtained by using the Rapid Bioassessment Protocol (RBP) Habitat Assessment Field Data Sheet (Plafkin et al. 1989).

Three grab samples were collected for water chemistry analyses. With the exception of lead (0.006 mg/l), which exceeded the chronic criterion of the Kentucky water quality standards in the Fall of 1992, all of the parameters were within normal levels.

ALGAL COMMUNITY COMPOSITION

Five divisions were represented at the Milltown site on Russell Creek. Taxa from Chlorophyta, Chrysophyta, and Cyanophyta were found in every sample. All five divisions were collected in May 1993, while four were found in July 1992, September 1992, and July 1995.

Over the sampling period, 156 taxa were recorded, with 123 (79%) chrysophytes, 19 (12%) chlorophytes, 11 (7%) cyanophytes, two (1%) rhodophytes, and one (1%) euglenophyte. The highest number of taxa per sample was 104 in May 1993, and the lowest was 84 in September 1992.

Thirty-five diatom and nine non-diatom taxa were observed in every sample. While *Achnanthes minutissima*, *Cymbella affinis*, *Melosira varians*, and *Navicula minima* were abundant diatoms, *Cladophora*, *Closterium*, *Cosmarium*, *Oedogonium*, *Scenedesmus*, *Stigeoclonium*, *Anabaena*, *Merismopedia*, and *Oscillatoria* were common non-diatom taxa.

Diatom Bioassessment Index scores indicated very good water quality. Scores were from 3.25 in July 1995 to 4.25 in May 1993. Metric values for total number of diatom taxa were very good to excellent, percent sensitive species were very good, and diversity and pollution tolerance index were fair to very good. All non-diatom algal metric scores rated very good to excellent. Algal community composition indicated good to excellent water quality at the Milltown Russell Creek site (Table 10).

INTERIOR PLATEAU ECOREGION

Salt Lick Creek

County: Marion

River Basin: Salt

Stream Order: IV

USGS Topo Quad: Saloma (8-37)

Latitude: 37° 29' 42"

Longitude: 85° 28' 34"

Location: Salt Lick Cr. Rd.; 5.3 river miles upstream of the
confluence with Rolling Fork

Sampling Dates: 20 May 1992; 02 September 1992; 22 April 1993; 13 October 1993;
18 May 1994; 27 October 1994; 19 April 1995

Stream Length: 13.5 km

Direction of Flow: NW

Elevation: Headwaters - 299 m

Site - 226 m

Gradient: 14.6 m/km

Watershed: 70% Forested

30% Agricultural and Residential

Riparian Zone: Well Developed; Nearly Complete Canopy Cover;
Pasture Adjacent to Site

Stream Character: Wide Variety of Pool Sizes and Depths; Well
Developed Riffles

Pool Substrate: Pebble, Cobble, and Sand

Riffle Substrate: Pebble and Cobble

HABITAT ASSESSMENT AND SITE DESCRIPTION

Salt Lick Creek arises in the southwestern corner of Marion County, flows northwest along the Marion/Larue County border, and enters the Rolling Fork near Gleanings. About 70% of the watershed is forested with the remaining 30% used primarily for agricultural and residential purposes. Our site on Salt Lick Creek is at milepoint 5.3 just off of Salt Lick Creek Road in Marion County. The stream at this point is fourth order with a drainage area of 5.0 square miles.

The riparian zone at the site was well developed and provided varied canopy cover. Submerged logs, undercut banks, rubble, and gravel provided good habitat and cover for aquatic organisms. Several flow habitat types were present, including slow deep, slow shallow, and fast shallow areas. No channelization of the stream had occurred. Pools varied in size and depth and had substrates composed of pebble, cobble, and sand. Little or no deposition was observed in the pools. Riffles were well developed, with substrates consisting of pebble and cobble. No embeddedness was present in the riffles. Banks were moderately stable with some areas of erosion evident and were covered with vegetation. By using the Rapid Bioassessment Protocol (RBP) Habitat Assessment Field Data Sheet (Plafkin et al. 1989), an average habitat assessment score of 109.5 was obtained.

At Salt Lick Creek, water chemistry analyses were conducted on grab samples collected in Fall '92, Spring '93, Spring '94, and Fall '94. In Fall '92, only alkalinity (136 mg/l) and arsenic (0.003 mg/l) were above the STORET 75th percentile values. Alkalinity (134 mg/l) and chloride (20.5 mg/l) were above those levels in Spring '94. Finally, alkalinity (172 mg/l) and calcium (60.7 mg/l) had elevated concentrations in Fall '94. All other parameters were within the normal ranges.

ALGAL COMMUNITY COMPOSITION

The algal community was composed of six divisions at Salt Lick Creek. In September 1993 and October 1994, the lowest number of divisions (three) was collected, while five divisions were present in May 1992 and May 1995. Chlorophyta, Chrysophyta, and Cyanophyta were found in every sample.

A total of 165 taxa was identified with 127 chrysophytes (77%), 20 chlorophytes (12%), 14 cyanophytes (8%), two rhodophytes (1%), one cryptophyte (1%), and one euglenophyte (1%). The highest number of taxa enumerated in a sample was 83 in October 1993, and the lowest was only 56 in May 1992.

Of the 127 diatoms, 11 were found in every sample. Abundant diatoms were as follows: *Achnanthes deflexa*, *Achnanthes minutissima*, *Cymbella affinis*, and *Cymbella delicatula*. Only two non-diatom taxa, *Lyngbya* and *Oscillatoria*, were present in every sample.

Ranging from 3.5 in May 1992 to 4.5 in October 1993, Diatom Bioassessment Index values were very good to excellent. Pollution tolerance index and percent sensitive species scores were excellent for every sample; however, total number of diatom taxa and diversity scores were in the good range. Non-diatom algal metric values fluctuated from fair to excellent. Algal community composition indicated good to excellent water quality at Salt Lick Creek (Table 10).

INTERIOR PLATEAU ECOREGION

Sand Lick Creek

County: Christian

River Basin: Tradewater

Stream Order: III

USGS Topo Quad: Dawson Springs SE (5-20)

Latitude: 37° 00' 28"

Longitude: 87° 35' 33"

Location: Mount Carmel-Camp Creek Rd. Bridge approximately 0.75 mi
W of jct. with State Highway 109 at Era; 6.7 river
miles upstream of the confluence with Tradewater River

Sampling Dates: 13 May 1993; 5 May 1994

Stream Length: 9 mi = 14.9 km

Direction of Flow: N

Elevation: Headwaters - 715 ft = 218.1 m

Site - 480 ft = 146.4 m

Gradient: 19.4 m/km

Watershed: 50 % Forested

50 % Agricultural and Residential

Riparian Zone: Fair; 50% Canopy Cover; Cattle Access Stream

Stream Character: Wide Variety of Pool Habitats; Small, Shallow Riffles

Pool Substrate: Pebble and Fines

Riffle Substrate: Pebble

HABITAT ASSESSMENT AND SITE DESCRIPTION

Sand Lick Creek arises in the northwestern corner of Christian County and flows northerly, where it enters the Tradewater River. About 50% of the watershed is forested with the remaining 50% used primarily for agricultural and residential purposes. Our site on Sandlick Creek is at milepoint 6.7 at the Mt. Carmel-Camp Creek Road bridge crossing. The stream at this point is third order with a drainage area of 5.1 square miles.

The riparian zone was fair and provided about 50% canopy cover. A variety of flow habitat types, including slow deep, slow shallow, fast deep, and fast shallow areas, was present at the site. No channelization was obvious at the site, but some development of gravel bars was observed. Pools were small and varied in depth with substrates composed of pebble and fines. Some deposition was observed in the pools. Riffles were small and shallow with substrates consisting of pebble. Some embeddedness was evident in the riffles. Banks were moderately stable and covered by vegetation (mostly trees). An average habitat score of 97 was obtained by using the Rapid Bioassessment Protocol (RBP) Habitat Assessment Field Data Sheet (Plafkin et al. 1989).

All physicochemical parameters were within normal ranges, except for chromium (0.005 mg/l) in Spring '93, when the STORET 75th percentile value was exceeded.

ALGAL COMMUNITY COMPOSITION

At Sand Lick Creek, only two algal samples were collected. In those two samples, representatives from four divisions were present. In May 1993, all four divisions were found, while in May 1994 only three were identified. Taxa from Chlorophyta, Chrysophyta, and Cyanophyta were observed in both samples.

One hundred and nineteen taxa were recorded from the samples, of which 94 (79%) were chrysophytes, 20 (17%) were chlorophytes, four (3%) were cyanophytes, and one (1%) was a euglenophyte. Ninety-one taxa were identified in May 1994, and only 86 were found in May 1993.

Of the 94 diatoms recorded, 50 were present in both samples, while seven soft algae taxa were found in both. *Achnanthes minutissima*, *Cymbella silesiaca*, and *Nitzschia dissipata* were among the most abundant diatom taxa. *Closterium*, *Coelastrum*, *Cosmarium*, *Mougeotia*, *Staurastrum*, *Lyngbya*, and *Oscillatoria* were common non-diatom genera.

Both sampling dates rated excellent according to the Diatom Bioassessment Index (4.25 in May 1994 and 4.5 in May 1993). Metric scores for total number of diatom taxa, pollution tolerance index, and percent sensitive species rated very good to excellent, while diversity was good to very good. For the metrics, total number of non-diatom algal taxa and total number of non-diatom divisions present, scores fell within the fair to excellent range. Algal community composition indicated excellent water quality at Sand Lick Creek (Table 10).

INTERIOR PLATEAU ECOREGION

Upper Tradewater River

County: Christian

River Basin: Tradewater

Stream Order: III

USGS Topo Quad: Pleasant Green Hill (4-20)

Latitude: 36° 58' 40"

Longitude: 87° 30' 44"

Location: T. Sparkman Rd. Bridge approximately 0.7 mi from the
jct. with Mt. Zoar Rd. at Larkin; 128.85 river miles
upstream of the confluence with the Ohio River

Sampling Date: 13 May 1993; 5 May 1994

Stream Length: 132.3 mi = 207.3 km

Direction of Flow: NW

Elevation: Headwaters - 690 ft = 210 m

Site - 520 ft = 158.6 m

Gradient: 9.3 m/km

Watershed: 65% Forested

35% Agricultural and Residential

Riparian Zone: Good; 60% Canopy Cover

Stream Character: Wide Range of Pool Types; Well Developed Riffles

Pool Substrate: Cobble, Bedrock, and Fines

Riffle Substrate: Cobble and Pebble

HABITAT ASSESSMENT AND SITE DESCRIPTION

Tradewater River originates in Christian County just north of Hopkinsville and flows northwesterly along the borders of Caldwell, Hopkins, Webster, Crittenden, and Union counties, where it eventually enters the Ohio River. About 65% of the watershed is forested with the remaining 35% used primarily for agricultural and residential purposes. Our site on Tradewater River is located in the upper reaches at milepoint 128.85 near the T. Sparkman Road bridge crossing in Christian County. The stream at this point is third order with a drainage area of 22.0 square miles.

The riparian zone at the site was good and provided about 60% canopy cover. Good habitat and cover for aquatic organisms was available in the form of submerged logs, undercut banks, rubble, and gravel. A variety of flow habitat types was present including slow deep, slow shallow, and fast shallow areas. No channelization of the stream at this site had occurred. Some formation of gravel bars was evident. The riffle/pool ratio was good. Pools varied in size and depth and had substrates composed of cobble, bedrock, and fines. Some deposition was observed in the pools. Riffles were well developed with substrate consisting of cobble and pebble. Some embeddedness in the riffles was evident. Banks were stable with little or no erosion and were covered with vegetation (mainly trees). At this site, an average habitat assessment score of 104 was obtained by using the Rapid Bioassessment Protocol (RBP) Habitat Assessment Field Data Sheet (Plafkin et al. 1989).

In Spring '93 and Spring '94, grab samples were collected for the purpose of water chemistry analyses. With the exception of chromium (0.016 mg/l), which was above the STORET 75th percentile value in Spring '93, all parameters fell within normal ranges.

ALGAE COMMUNITY COMPOSITION

The Upper Tradewater River was collected only twice during the sampling period, with five divisions represented. In May 1993, all five divisions were present, while only four were found in May 1994. In addition to the divisions Chlorophyta, Chrysophyta, and Cyanophyta, taxa from the division Euglenophyta were recorded from both samples.

A total of 116 taxa was identified with chrysophytes the dominant group consisting of 88 taxa (76%) of the total. The next most abundant group was the chlorophytes (19 taxa; 16%), followed by six cyanophytes (5%), two euglenophytes (2%), and one cryptophyte (1%). Ninety-seven taxa were found in the May 1994 sample, while only 71 were recorded for May 1993.

Of the 88 diatoms, 36 were collected in both samples. Among the most abundant taxa were *Achnanthes minutissima*, *Cymbella affinis*, *Cymbella silesiaca*, and *Nitaschia dissipata*. Sixteen non-diatom taxa were identified in both samples. *Cladophora*, *Cosmarium*, *Mougeotia*, *Scenedesmus*, *Stigeoclonium*, *Lyngbya*, and *Oscillatoria* were a few of the more common non-diatom genera.

Diatom Bioassessment Index scores rated very good and excellent (3.75 for May 1993 and 4.25 for May 1994). Pollution tolerance index and percent sensitive species scores were within the very good to excellent range. Total number of diatom taxa scored good and excellent, while diversity was good in both samples. A look at the non-diatom algal data revealed excellent water quality. Algal community composition indicated good to excellent water quality at the Upper Tradewater River (Table 10).

INTERIOR PLATEAU ECOREGION

Trammel Fork

County: Allen

River Basin: Green

Stream Order: IV

USGS Topo Quad: Allen Springs (3-30)

Latitude: 36° 45' 07"

Longitude: 86° 17' 16"

Location: Old Franklin Rd. at Red Hill; 18.5 river miles upstream
of the confluence with Drakes Creek

Sampling Dates: 14 May 1992; 23 September 1992; 20 July 1993; 3 November 1993;
9 May 1994; 31 October 1994; 19 July 1995

Stream Length: 48.6 km

Direction of Flow: NW

Elevation: Headwaters - 201 m

Site - 168 m

Gradient: 1.8 m/km

Watershed: 30% Forested

70% Agricultural and Residential

Riparian Zone: Good; 75% Canopy Cover; Pasture and Fields Adjacent
to the Site

Stream Character: Long, Deep Pools; Well Developed, Swift Riffles

Pool Substrate: Cobble, Pebble, and Sand

Riffle Substrate: Cobble

HABITAT ASSESSMENT AND SITE DESCRIPTION

Trammel Fork arises just over the border in Tennessee and flows northwest through Allen County into Warren County, where it enters Drakes Creek, a tributary of the Barren River. About 30% of the watershed is forested with the remaining 70% used primarily for agricultural and residential purposes. Our lower site on Trammel Fork is located at milepoint 18.5 near the Old Franklin Road bridge crossing in Allen County. The stream at this point is fourth order with a drainage area of 99.2 square miles.

The riparian zone was good and provided about 75% canopy cover. Excellent habitat and cover for aquatic organisms was available as submerged logs, undercut banks, rubble, and gravel were abundant. A variety of flow habitat types was observed, including areas such as slow deep, slow shallow, fast deep, and fast shallow. No channelization of the stream had occurred. Some development of gravel bars was evident. Pools were long and deep with cobble, pebble, and sand substrates. Some deposition was present in the pools. Riffles were swift with varying depths and substrates composed of shifting cobble. No embeddedness was observed in the riffles. Banks were stable with little or no erosion observed and were covered with cobble and vegetation (mostly trees). By using the Rapid Bioassessment Protocol (RBP) Habitat Assessment Field Data Sheet (Plafkin et al. 1989), an average habitat assessment score of 118 was obtained.

Water chemistry analyses were conducted on grab samples collected in Fall '92, Spring '94, and Fall '94. All parameters were within the normal ranges.

ALGAL COMMUNITY COMPOSITION

Algal community composition in Trammel Fork at Red Hill was very diverse, represented by seven divisions, of which three, Chlorophyta, Chrysophyta and Cyanophyta, were present in every sample. The greatest number of divisions recorded per sample was five in October 1994, while the least was three in July 1993 and November 1993.

One hundred and eighty-five taxa were identified. Chrysophytes were the dominant algal group, comprising 148 (80%). Chlorophytes were the next most populous group with 20 taxa (11%), followed by 12 cyanophytes (6.5%), two rhodophytes (1%), one euglenophyte (0.5%), one cryptophyte (0.5%), and one pyrrophyte (0.5%). In November 1993, 108 taxa were observed, marking the most taxa found in one sample at this site, while only 71 were collected in May 1994, which was the lowest number of taxa per sample.

Of the diatoms identified at the site, 31 were recorded from every sample. *Achnanthes deflexa*, *Achnanthes minutissima*, *Cymbella affinis*, *Navicula cryptocephala* var. *veneta*, *Navicula minima*, *Nitzschia dissipata*, and *Nitzschia palea* were among the most abundant diatom taxa. Seven non-diatom taxa were collected in every sample with *Cladophora*, *Closterium*, *Cosmarium*, *Stigeoclonium*, *Lyngbya*, and *Oscillatoria* being the most common genera.

Diatom Bioassessment Index scores were excellent ranging from 4.25 in October 1994 and July 1995 to 5.0 in September 1992. Metric scores for total number of diatom taxa and percent sensitive species rated very good to excellent, while pollution tolerance index and diversity values were in the good to excellent range. Fair to excellent scores were given to the non-diatom algal metrics, total number of taxa and total number of divisions represented. Algal community composition indicated excellent water quality at the Red Hill Trammel Fork site (Table 10).

INTERIOR PLATEAU ECOREGION

Trammel Fork

County: Allen

River Basin: Green

Stream Order: III

USGS Topo Quad: Petroleum (2-31)

Latitude: 36° 40' 43"

Longitude: 86° 12' 55"

Location: Concord Church Rd.; 26.6 river miles upstream of the
confluence with Drakes Creek

Sampling Dates: 14 May 1992; 23 September 1992; 20 July 1993; 3 November 1993;
9 May 1994; 31 October 1994; 25 April 1995

Stream Length: 48.6 km

Direction of Flow: NW

Elevation: Headwaters - 201 m

Site - 185 m

Gradient: 2.8 m/km

Watershed: 30% Forested

70% Agricultural and Residential

Riparian Zone: Well Developed; Wide Variety of Canopy Cover

Stream Character: Long, Deep Pools; Swift, Shallow Riffles

Pool Substrate: Cobble, Bedrock, and Sand

Riffle Substrate: Pebble and Cobble

HABITAT ASSESSMENT AND SITE DESCRIPTION

Our upper site on Trammel Fork is at milepoint 26.6 near the Concord Church Road bridge crossing in Allen County. The stream at this point is third order and has a drainage area of 31.9 square miles.

The riparian zone was well developed and provided a wide variety of canopy cover. Excellent habitat and cover for aquatic organisms was available in the form of submerged logs, undercut banks, rubble, and gravel. A variety of flow habitat types, including slow deep, slow shallow, fast deep, and fast shallow areas, was present. No channelization of the stream had occurred, but some formation of gravel bars was observed. Pools were long and deep with substrates composed of cobble, bedrock, and sand. Some scouring and deposition was evident in the pools. Riffles were swift with varying depths and had shifting substrates consisting of pebble and cobble. No embeddedness of the riffles was observed. Banks were stable with some erosion and were covered by boulders, cobbles, and trees. The habitat score, when calculated using the RBP Habitat Assessment Field Data Sheet (Plafkin et al. 1989), was 109.

Grab samples collected from Trammel Fork at Concord Church Road revealed no parameters exceeding the STORET 75th percentile values.

ALGAL COMMUNITY COMPOSITION

Represented by six divisions, the algal community at the Concord Church Trammel Fork site was considered to be diverse. All six divisions were collected in the July 1993 sample. Meanwhile, the lowest number of divisions present was four in November 1993 and May 1994. As at Red Hill, taxa from the divisions Chlorophyta, Chrysophyta, and Cyanophyta were found in every sample.

A total of 188 taxa was recorded of which 148 (78.5%) were chrysophytes, 22 (11.5%) were chlorophytes, 13 (7%) were cyanophytes, two (1%) were rhodophytes, two (1%) were euglenophytes, and one (1%) was a cryptophyte. The greatest number of taxa in a sample was 116 in October 1994 and the least was 75 in May 1994.

Twenty-six diatom and three non-diatom algal taxa were observed in each sampling trip. Abundant diatom taxa were *Achnanthes deflexa*, *Achnanthes minutissima*, *Cymbella affinis*, *Navicula cryptocephala* var. *veneta*, *Navicula minima*, *Nitzschia dissipata*, and *Nitzschia palea*, while the genera, *Cladophora*, *Closterium*, *Cosmarium*, *Stigeoclonium*, *Lyngbya*, and *Oscillatoria*, were common non-diatom algae.

Ranging from 4.0 in May 1994 and April 1995 to 4.75 in July 1993, the Diatom Bioassessment Index rated excellent. Metric values were as follows: total number of diatom taxa was very good to excellent, percent sensitive species was very good to excellent, pollution tolerance index was good to excellent, and diversity was good to excellent. Non-diatom algal metric scores fell within the good to excellent range. Algal community composition indicated excellent water quality at the Concord Church Trammel Fork site (Table 10).

INTERIOR PLATEAU ECOREGION

Whippoorwill Creek

County: Logan

River Basin: Lower Cumberland

Stream Order: V

USGS Topo Quad: Dot (2-25)

Latitude: 36° 41' 51"

Longitude: 86° 57' 43"

Location: State Highway 2375; 4.3 river miles upstream of the
confluence with the Red River

Sampling Dates: 7 October 1992; 22 July 1993; 4 November 1993; 1 November 1994;
26 April 1995

Stream Length: 72.0 km

Direction of Flow: S-SE

Elevation: Headwaters - 263 m

Site - 163 m

Gradient: 1.5 m/km

Watershed: 15% Forested

85% Agricultural and Residential

Riparian Zone: Well Developed; Wide Variety of Canopy Cover

Stream Character: Long, Deep Pools; Well Developed, Swift Riffles

Pool Substrate: Cobble, Bedrock, and Fines

Riffle Substrate: Cobble and Pebble

HABITAT ASSESSMENT AND SITE DESCRIPTION

Whippoorwill Creek arises in central Todd County just north of Elkton and flows southeasterly through Logan County, where it joins the Red River, of the lower Cumberland River basin. About 15% of the watershed is forested with the remaining 85% used primarily for agricultural and residential purposes. Our site on Whippoorwill Creek is at milepoint 4.3 near the KY 2375 bridge crossing in Logan County. The stream at this point is fifth order with a drainage area of 111.0 square miles.

The riparian zone was well developed and provided a variety of canopy cover. Excellent habitat and cover for aquatic organisms was available as submerged logs, undercut banks, boulders, rubble, and cobble were abundant. A variety of flow habitats was present, including slow deep, slow shallow, fast deep, and fast shallow areas. No channelization of the stream was obvious at the site; however, some formation of gravel islands and bars was present. The riffle/pool ratio was excellent. Pools were long and deep and had substrates composed of cobble, bedrock, and fines. Some deposition was observed in the pools. Riffles were well developed and swift with cobble and pebble substrates. Some embeddedness was evident in the riffles. Banks were moderately stable with some erosion and were covered by vegetation (mostly trees). The habitat score for the site, when calculated using the RBP Habitat Assessment Field Data Sheet (Plafkin et al. 1989), was 102.

Two grab samples were collected for water chemistry analyses. Alkalinity (213 and 212 mg/l), nitrate (4.6 and 3.47 mg/l), and calcium (101.0 and 79.9 mg/l) were above the STORET 75th percentile value for both the Fall '92 and Fall '94 samples. In Fall '94, conductivity (469 mho/s) and total dissolved solids (274 mg/l) were above the STORET 75th percentile value. All other parameters were within normal ranges.

ALGAL COMMUNITY COMPOSITION

At Whippoorwill Creek, five algal divisions were represented during the sampling period. The highest number of divisions present in one sample was five in July 1993, November 1994, and April 1995, while the lowest number was four in October 1992 and November 1993. In addition to Chlorophyta, Chrysophyta, and Cyanophyta, taxa from the division, Rhodophyta, were collected during each sampling event.

A total of 172 taxa was identified of which 142 (83%) were chrysophytes, 16 (9%) were chlorophytes, 10 (6%) were cyanophytes, two (1%) were euglenophytes, and one (1%) was a rhodophyte. In November 1994, 112 taxa were recorded representing the highest number of taxa present in a sample. Conversely, the July 1993 sample contained the lowest number of taxa per sample (85).

Of the 142 diatom taxa at Whippoorwill Creek, 31 were found in every sample. Among the most abundant diatoms were *Achnanthes deflexa*, *Achnanthes minutissima*, *Amphora perpusilla*, *Melosira varians*, *Navicula minima*, *Navicula radiosa* var. *tenella*, *Nitzschia dissipata*, *Nitzschia palea*, and *Rhoicosphenia curvata*. Five non-diatom algal taxa were found in every sample, *Cladophora*, *Closterium*, *Oedogonium*, *Oscillatoria*, and *Audouinella*.

Diatom Bioassessment Index scores rated excellent ranging from 4.0 in October 1992 and April 1995 to 4.5 in November 1994. All total number of diatom taxa metric values scored excellent and diversity very good to excellent in every account. However, pollution tolerance index and percent sensitive species were only good to very good. Non-diatom algal metric values rated fair to excellent. Algal community composition indicated excellent water quality at Whippoorwill Creek (Table 10).

INTERIOR PLATEAU ECOREGION

Wilson Creek

County: Bullitt

River Basin: Salt

Stream Order: IV

USGS Topo Quad: Cravens (11-36)

Latitude: 37° 51' 39"

Longitude: 85° 36' 40"

Location: Mt. Carmel Church Rd.; 12.2 river miles upstream of the
confluence with Rolling Fork

Sampling Dates: 22 May 1992; 29 September 1992; 7 May 1993; 11 October 1993;
11 May 1994; 4 October 1994

Stream Length: 27.4 km

Direction of Flow: SW

Elevation: Headwaters - 211 m

Site - 145 m

Gradient: 8.5 m/km

Watershed: 60% Forested

40% Agricultural and Residential

Riparian Zone: Well Developed; Wide Variety of Canopy Cover

Stream Character: Long, Deep Pools; Small, Shallow Riffles

Pool Substrate: Cobble, Fines, and Bedrock

Riffle Substrate: Pebble and Cobble

HABITAT ASSESSMENT AND SITE DESCRIPTION

Wilson Creek arises in northwestern Nelson County and flows southwest along the Nelson/Bullitt County border where it eventually enters the Rolling Fork River. About 60% of the watershed was forested with the remaining 40% used primarily for agricultural and residential purposes. Our site on Wilson Creek is located at milepoint 12.2 near the first Mt. Carmel Church Road crossing in Bullitt County. The stream at this point is fourth order with a drainage area of 12.4 square miles.

The riparian zone at the site was well developed and provided a wide variety of canopy cover. Excellent habitat and cover for aquatic organisms was available as submerged logs, undercut banks, rubble, and gravel were abundant. A variety of flow habitat types was present including slow deep, slow shallow, fast deep, and fast shallow areas. No channelization of the stream was evident at the site. Some formation of gravel bars was observed. Pools were long and deep with substrates composed of cobble, fines, and bedrock. Some deposition was observed in the pools. Riffles were small and shallow and had substrates of shifting pebble and cobble. No embeddedness was observed. Banks were stable with little erosion and covered by shrubs and trees. An average habitat assessment score of 109 was obtained by using the Rapid Bioassessment Protocol (RBP) Habitat Assessment Field Data Sheet (Plafkin et al. 1989).

During the sampling period, four grab samples were collected from Wilson Creek. Water chemistry analyses revealed that alkalinity (245, 176, 186, and 231 mg/l) and magnesium (31.9, 23.1, 25.5, and 27.9 mg/l) were above the STORET 75th percentile values for all the samples. Additionally, in Fall '92, calcium (66.3 mg/l) and total dissolved solids (304 mg/l) were above the STORET 75th percentile values. Total hardness 210 and 351 mg/l) was above those values in Spring '93 and Fall '94, potassium (18.2 mg/l) in Spring '94, and conductivity (502 mho/s) in Fall '94. All other parameters were determined to be well within normal levels.

ALGAL COMMUNITY COMPOSITION

The algal community at Wilson Creek was diverse, represented by six divisions, three of which, Chlorophyta, Chrysophyta, and Cyanophyta, that were present in every sample. In September 1992 and October 1993, representatives from all six divisions were collected, while only three divisions were found in May 1993.

One hundred and eighty-four taxa were identified. Chrysophytes, again, were the dominant algae group, with 145 taxa (79%) followed by 24 chlorophytes (13%), nine cyanophytes (5%), three euglenophytes (1.5%), two rhodophytes (1%), and one cryptophyte (0.5%). In October 1993, 118 taxa were present which was the highest number of taxa collected in one sample, while only 79, the lowest number of taxa, were found in May 1992.

Thirty-two diatoms and four non-diatom algal taxa were identified in each sample. *Achnanthes deflexa*, *Achnanthes minutissima*, *Cymbella affinis*, *Diatoma vulgare*, and *Navicula minima* were among the most abundant diatoms, while *Cladophora*, *Cosmarium*, *Oedogonium*, and *Oscillatoria* were the most common non-diatom algae.

Diatom Bioassessment Index scores were all excellent, ranging from 4.25 in May 1992, October 1992, and May 1993 to 4.75 in October 1993. Metrics values for total number of diatom taxa, pollution tolerance index and percent sensitive species scored very good to excellent, while diversity scored only good to very good. The metric, total number of non-diatom algal taxa, scored within the fair to excellent range, while the other, total number of non-diatom divisions present, ranked as good to excellent. Algal community composition indicated excellent water quality at Wilson Creek (Table 10).

INTERIOR PLATEAU ECOREGION

Yellowbank Creek

County: Breckinridge

River Basin: Ohio

Stream Order: III

USGS Topo Quad: Lodiburg (12-29)

Latitude: 37° 59' 43"

Longitude: 86° 28' 54"

Location: Cart-Manning Crossing Rd. in the Yellowbank Wildlife
Management Area; 4.4 river miles upstream of the
confluence with the Ohio River

Sampling Dates: 19 May 1992; 5 October 1992; 5 October 1993; 8 June 1994

Stream Length: 15.8 km

Direction of Flow: NW

Elevation: Headwaters - 226 m

Site - 124 m

Gradient: 11.8 m/km

Watershed: 65% Forested

35% Agricultural and Residential

Riparian Zone: Well Developed; Nearly Complete Canopy Cover;
Beaver Activity; Old Field Succession Adjacent
to Site

Stream Character: Long, Deep Pools; Small, Shallow Riffles

Pool Substrate: Cobble, Bedrock, and Fines

Riffle Substrate: Pebble and Cobble

HABITAT ASSESSMENT AND SITE DESCRIPTION

Yellowbank Creek arises in the northern tip of Breckinridge County and flows northwest until it enters the Ohio River. About 65% of the watershed is forested with the remaining 35% used primarily for agricultural and residential purposes. Our site on Yellowbank Creek is within the Yellowbank Wildlife Management Area at milepoint 4.4 off Cart-Manning Crossing Road. The stream at this point is third order with a drainage area of 15.8 square miles.

The riparian zone was well developed and provided nearly complete canopy cover. Excellent habitat and cover for aquatic organisms was available as submerged logs, undercut banks, rubble, and gravel were abundant. A variety of flow habitat types was present including slow deep, slow shallow, and fast shallow areas. No channelization of the stream was obvious; however, some formation of gravel bars was observed. The riffle/pool ratio at the site was excellent. Pools were long and deep with substrates of cobble, bedrock, and fines. Some deposition was evident in the pools. Riffles were small and shallow and had substrates composed of shifting pebble and cobble. Little embeddedness was observed in the riffles. Banks were moderately stable with some erosion observed and were covered by vegetation (mostly trees). At Yellowbank Creek, an average habitat assessment score of 101 was obtained by using the Rapid Bioassessment Protocol (RBP) Habitat Assessment Field Data Sheet (Plafkin et al. 1989).

Water chemistry analyses were conducted on two grab samples. Manganese concentrations (0.352 and 0.325 mg/l) were above STORET 75th percentile values in Fall '92 and Spring '94. Additional parameters that were higher than the STORET 75th percentile values were barium (0.062 mg/l), potassium (4.33 mg/l), total organic carbon (19.1 mg/l), and total phosphorus (0.128 mg/l) in Fall '92 and acidity (7.9 mg/l) and fluoride (1.18 mg/l) in Spring '94. All other parameters were within normal ranges.

ALGAL COMMUNITY COMPOSITION

Six algal divisions were represented at Yellowbank Creek during the sampling period. In October 1993, all of these divisions were present, while in October 1992, only four were found. In addition to Chlorophyta, Chrysophyta, and Cyanophyta, taxa from the division, Euglenophyta, were collected at every sampling trip.

A total of 182 taxa was identified, of which 141 (77.5%) were chrysophytes, 25 (14%) were chlorophytes, 10 (5.5%) were cyanophytes, three (1.5%) were euglenophytes, two (1%) were rhodophytes, and one (0.5%) was a cryptophyte. The highest number of taxa per sample was 111 in October 1993, while the lowest number was 88 in May 1992.

Of the 138 diatoms, 27 taxa were collected in every sample. *Achnanthes deflexa*, *Achnanthes minutissima*, and *Cymbella affinis* were among the most abundant diatom taxa. Meanwhile, 12 non-diatom algal taxa (*Ankistrodesmus*, *Chlamydomonas*, *Cosmarium*, *Mougeotia*, *Oedogonium*, *Scenedesmus*, *Sphaerocystis*, *Spirogyra*, *Oscillatoria*, *Euglena*, *Phacus*, and *Trachelomonas*) were present in all four samples.

Diatom Bioassessment Index scores were excellent ranging from 4.0 in May 1992, October 1992, and October 1993 to 4.5 in June 1994. Each metric rated as follows: total number of diatom taxa excellent, pollution tolerance index very good to excellent, diversity good, and percent sensitive species very good. All of the non-diatom algal metric scores were very good to excellent supporting the diatom data. Algal community composition indicated excellent water quality at Yellowbank Creek (Table 10).

MISSISSIPPI VALLEY LOESS PLAINS ECOREGION

MISSISSIPPI VALLEY LOESS PLAINS ECOREGION

A typical Mississippi Valley Loess Plains Ecoregion stream was found to contain a mean of 158 algal taxa. Of this total, 79% were chrysophytes, 13% chlorophytes, 4% cyanophytes, 2% euglenophytes, and 2% any combination of rhodophytes, cryptophytes, and pyrrophytes. Common non-diatom algal taxa included *Ankistrodesmus*, *Chlamydomonas*, *Closterium*, *Cosmarium*, *Scenedesmus*, *Staurastrum*, *Anabaena*, *Oscillatoria*, *Euglena*, and *Trachelomonas*, while common diatoms were, *Achnanthes minutissima*, *Cymbella silesiaca*, *Navicula cryptophyta*, *Navicula minima*, *Navicula secreta* var. *apiculata*, *Nitzschia palea*, and *Synedra rumpens* var. *familiaris*.

In a Mississippi Valley Loess Plains stream, 20 soft algae taxa represented by four divisions were typical for each sampling event. Mean metric values for Reference Reach diatoms were as follows: total number of diatom taxa, 76; diversity, 1.26; percent sensitive species, 10.3%; and pollution tolerance index, 2.4.

Again, the 60th percentile was used to divide excellent metric scores from others. Table 11 shows the scoring criteria for the non-diatom algal metrics which represented smaller, wadable streams within the ecoregion.

Table 11. MISSISSIPPI VALLEY LOESS PLAINS ECOREGION NON-DIATOM ALGAL METRICS AND SCORING CRITERIA (WADABLE STREAMS)

<u>Total Number of Non-diatom Algal Taxa</u>	<u>Number of Non-diatom Divisions Present</u>
≥ 20 = 5	≥ 6 = 5
19 - 18 = 4	5 = 4
17 - 16 = 3	4 = 3
15 - 12 = 2	3 = 2
≤ 11 = 1	≤ 2 = 1

Diatom metric scoring criteria for the Mississippi Valley Loess Plains Ecoregion are shown in Table 12.

Table 12. MISSISSIPPI VALLEY LOESS PLAINS ECOREGION DIATOM METRICS AND SCORING CRITERIA

<p><u>Total Number of Diatom Taxa</u></p> <p>≥ 74 = 5 73 - 68 = 4 67 - 62 = 3 61 - 58 = 2 ≤ 57 = 1</p>	<p><u>Diatom Diversity (H')</u></p> <p>≥ 1.25 = 5 1.24 - 1.20 = 4 1.19 - 1.12 = 3 1.11 - 0.92 = 2 ≤ 0.91 = 1</p>
<p><u>Percent Sensitive Species (Diatoms)</u></p> <p>≥ 8.5 = 5 8.4 - 7.9 = 4 7.8 - 6.3 = 3 6.2 - 5.1 = 2 ≤ 5.0 = 1</p>	<p><u>Pollution Tolerance Index (Diatoms)</u></p> <p>≥ 2.3 = 5 2.2 - 2.1 = 4 2.0 - 1.9 = 3 1.8 - 1.7 = 2 ≤ 1.6 = 1</p>

Mean site habitat assessment scores ranged from 104 to 109 resulting in a mean ecoregion habitat assessment score of 106.4. Physicochemical evaluations are made in the site reports. Only those parameters that exceeded STORET 75th percentile values or the Kentucky Water Quality Standards are discussed.

On the following map (Figure 8), the locations of the Reference Reach sites for the Mississippi Valley Loess Plains are shown.

Mississippi Valley Loess
Reference Reach Sites

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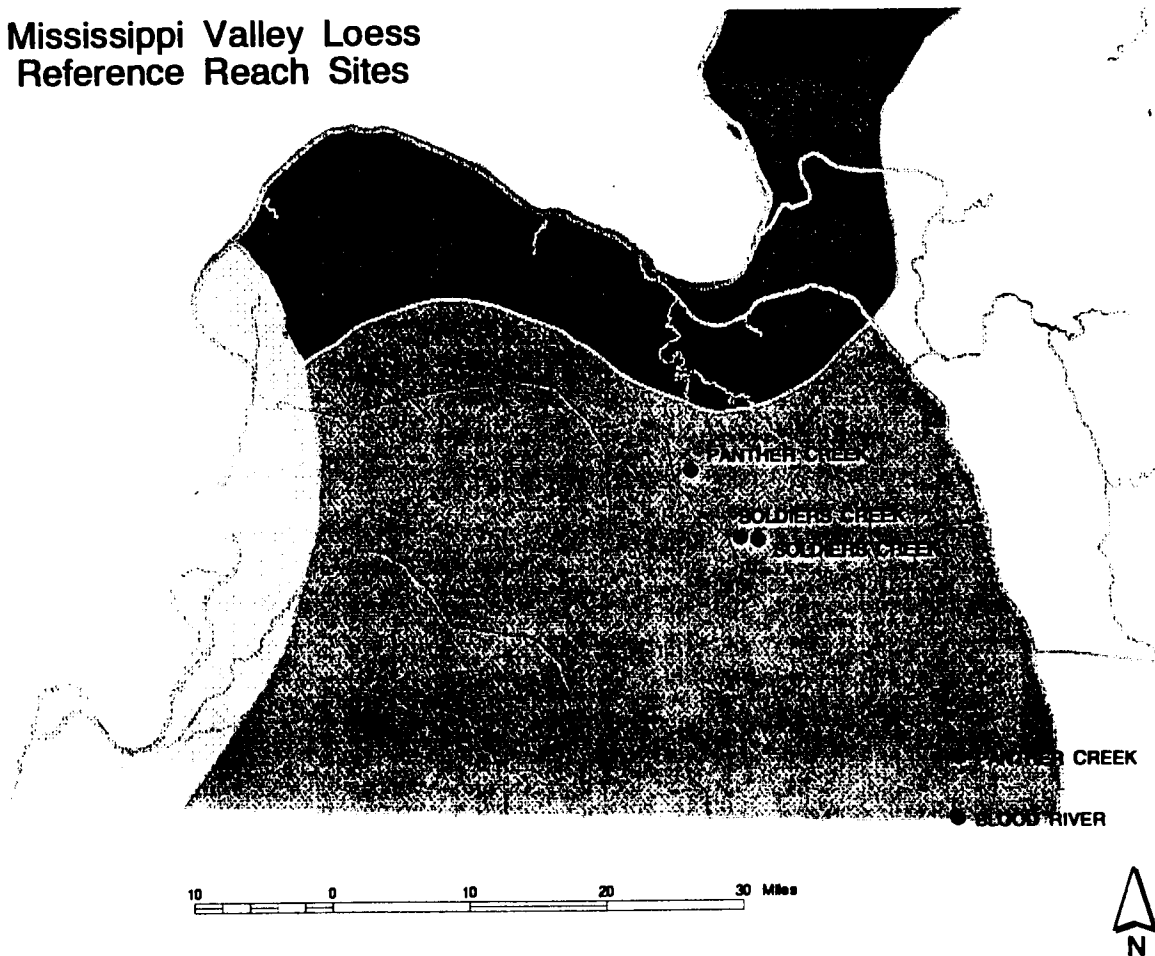


FIGURE 8. MAP SHOWING MISSISSIPPI VALLEY LOESS PLAINS ECOREGION SITES

MISSISSIPPI VALLEY LOESS PLAINS ECOREGION

Blood River

County: Calloway

River Basin: Tennessee

Stream Order: IV

USGS Topo Quad: New Concord (1-15)

Latitude: 36° 30' 13"

Longitude: 88° 10' 09"

Location: Grubbs Lane Bridge approximately 0.75 mi E of the jct.
with State Line Rd.; SSW of New Concord; 15.1 river
miles upstream of the confluence with the Tennessee
River (Kentucky Lake)

Sampling Dates: 12 May 1993; 4 May 1994; 16 November 1994; 12 April 1995

Stream Length: 15.65 mi at the State Line = 25.2 km

Direction of Flow: NNE

Elevation: Headwaters - 540 ft = 164.7 m

Site - 380 ft = 115.9 m

Gradient: 3.5 m/km

Watershed: 85% Forested

15% Agricultural and Residential

Riparian Zone: Well Developed; 70-90% Canopy Cover

Stream Character: Long, Deep Pools; Swift, Deep Riffle/Runs

Pool Substrate: Sand and Coarse Woody Debris

Riffle Substrate: Cobble and Sand

HABITAT ASSESSMENT AND SITE DESCRIPTION

Blood River originates in Tennessee and flows to the north/northeast into Calloway County where it is impounded in its lower reaches by Kentucky Lake. About 85% of the watershed is forested and the remaining 15% is used primarily for agricultural and residential purposes. Our site on Blood River is located at milepoint 15.1 near the Grubbs Lane bridge crossing in Calloway County. The stream at this point is fourth order with a drainage area of 34.2 square miles.

The riparian zone was well developed and provided 70-90% canopy cover. Excellent habitat and cover for aquatic organisms was available as undercut banks and submerged logs were abundant. Several flow habitat types were present, including slow deep, slow shallow, fast deep, and fast shallow areas. No formation of islands or bars was observed at the site. No channelization of the stream was evident. Pools were long and deep with substrates composed of sand and coarse woody debris. Some deposition was present in the pools. Riffles/runs were swift and deep with cobble and sand substrate. Some embeddedness of the riffles was observed. Banks were stable and covered by vegetation. An average habitat assessment score of 109 was obtained by using the Rapid Bioassessment Protocol (RBP) Habitat Assessment Field Data Sheet (Plafkin et al. 1989).

Grab samples were collected in Spring '94 and Fall '94 at Blood River for water chemistry analyses. In both samples, iron (2.18 and 3.55 mg/l) and manganese (0.393 and 0.549 mg/l) concentrations were above the STORET 75th percentile values. Total suspended solids (94 mg/l) was elevated over the STORET 75th percentile values in Fall '94. All other parameters were within normal levels.

ALGAL COMMUNITY COMPOSITION

The algal community was diverse at Blood River, with six divisions present in four samples. Two samples, May 1993 and November 1994, were represented by all six divisions, while five divisions were collected in May 1994 and April 1995. Chlorophyta, Chrysophyta, Cyanophyta, Euglenophyta, and Rhodophyta were found in each algae sample.

Of the 190 taxa identified, 157 (83%) were chrysophytes, 20 (10.5%) were chlorophytes, six (3%) were cyanophytes, three (1.5%) were euglenophytes, and one (0.5%) was a cryptophyte. The highest number of taxa in one sample was 106 in May 1993 and May 1994, while only 92 were collected in April 1995.

Thirty-three diatoms and six non-diatom taxa were present in all samples. Among the most abundant diatom taxa were *Achnanthes minutissima*, *Cymbella silesiaca*, *Navicula cryptocephala*, *Nitzschia palea*, and *Synedra rumpens* var. *familiaris*. Common non-diatom taxa were *Chlamydomonas*, *Closterium*, *Staurastrum*, *Anabaena*, *Oscillatoria*, and *Audouinella*.

Diatom Bioassessment Index scores were all excellent, ranging from 4.25 in November 1994 to a perfect 5.0 in May 1993 and April 1995. Total number of diatom taxa and percent sensitive species scored excellent. The pollution tolerance index was good to excellent and diversity fair to excellent. Non-diatom algal metrics also indicated very good to excellent. Algal community composition indicated excellent water quality at Blood River (Table 13).

Figure 13. Diatom Bioassessment Index and Non-diatom Algal Scores For the Mississippi Valley Loess Plains Ecoregion

Stream	Date	TNDT	Div.	%SS	PTI	DBI	TNSAT	TNDR
Blood River	5/93	85(5)	1.39(5)	24.7(5)	2.7(5)	5	21(5)	5(5)
Blood River	5/94	89(5)	1.52(5)	10.2(5)	2.0(3)	4.5	17(3)	5(5)
Blood River	11/94	87(5)	1.11(2)	14.8(5)	2.4(5)	4.25	16(3)	6(5)
Blood River	4/95	76(5)	1.29(5)	17.5(5)	2.5(5)	5	16(3)	4(4)
Panther Creek (GC)	5/93	70(4)	0.82(1)	3.6(1)	1.7(2)	2	18(4)	3(3)
Panther Creek (GC)	5/94	86(5)	1.45(5)	6.3(3)	2.3(5)	4.5	23(5)	3(3)
Panther Creek (GC)	11/94	62(3)	1.20(4)	10.1(5)	2.7(5)	4.25	18(4)	4(4)
Panther Creek (GC)	4/95	81(5)	1.26(5)	7.9(4)	2.5(5)	4.75	29(5)	5(5)
Panther Creek (CC)	5/94	60(2)	1.20(4)	11.3(5)	1.9(3)	3.5	16(3)	3(3)
Panther Creek (CC)	11/94	62(3)	0.92(2)	8.3(4)	2.8(5)	3.5	26(5)	7(5)
Panther Creek (CC)	4/95	74(5)	1.12(3)	12.8(5)	2.3(5)	4.5	17(3)	5(5)
Soldiers Creek (58)	5/94	68(4)	1.34(5)	11.6(5)	2.2(4)	4.5	16(3)	3(3)
Soldiers Creek (58)	11/94	87(5)	1.48(5)	9.2(5)	2.1(4)	4.75	22(5)	3(3)
Soldiers Creek (58)	4/95	80(5)	1.32(5)	5.1(2)	2.3(5)	4.25	21(5)	4(4)
Soldiers Creek (Van.)	10/92	93(5)	1.47(5)	2.2(1)	2.2(4)	3.75	17(3)	3(3)
Soldiers Creek (Van.)	5/93	62(3)	1.34(5)	8.5(4)	2.4(5)	4.5	15(2)	4(4)

TNDT = Total Number of Diatom Taxa

Div. = Diatom Diversity (H')

%SS = Percent Sensitive Species (Diatoms)

PTI = Pollution Tolerance Index (Diatoms)

DBI = Diatom Bioassessment Index

TNSAT = Total Number of Non-diatom Algal Taxa

TNDR = Total Number of Non-diatom Divisions Present

() = Metric Score; 1 (poor) to 5 (excellent)

MISSISSIPPI VALLEY LOESS PLAINS

Panther Creek

County: Graves

River Basin: Tennessee

Stream Order: IV

USGS Topo Quad: Westplains (3-12)

Latitude: 36° 52' 00"

Longitude: 88° 31' 21"

Location: State Highway 2580 (McKendree Church Rd.) Bridge
approximately 0.3 mi SE of the jct. with State
Highway 301; NW of Tice; 1.2 river miles upstream
of the confluence with West Fork Clarks River

Sampling Dates: 13 May 1993; 4 May 1994; 15 November 1994; 12 April 1995

Stream Length: 8.7 mi = 14.0 km

Direction of Flow: N

Elevation: Headwaters - 540 ft = 164.7 m

Site - 370 ft = 112.9 m

Gradient: 4.3 m/km

Watershed: 85% Forested

15% Agricultural and Residential

Riparian Zone: Well Developed; 75-90% Canopy Cover

Stream Character: Small, Shallow Pools and Riffles

Pool Substrate: Pebble and Sand

Riffle Substrate: Pebble and Sand

HABITAT ASSESSMENT AND SITE DESCRIPTION

Panther Creek arises in eastern Graves County and flows north until it enters the West Fork Clarks River. About 85% of the watershed is forested with the remaining 15% used primarily for agricultural and residential purposes. Our site is located at milepoint 1.2 near the KY 2580 bridge crossing. The stream at this point is fourth order with a drainage area of 20.9 square miles.

The riparian zone at the site was well developed and provided about 70-90% canopy cover. Good habitat and cover for aquatic organisms was available as submerged logs, undercut banks, rubble, and gravel were common. Several flow habitat types were present, including slow deep, slow shallow, and fast shallow areas. No channelization of the stream was evident at the site; however, some increase in gravel bars was observed. Pools were small and shallow with substrates composed of pebble and sand. Some deposition and scouring was evident in the pools. Riffles were small and shallow and had substrates consisting of shifting pebble and sand. Banks were stable and covered by vegetation (mostly trees). The habitat score, calculated using the RBP Habitat Assessment Field Data Sheet (Plafkin et al. 1989), was 104.

Three physicochemical grab samples were collected during the sampling period at Panther Creek in Graves County, Spring '93, Spring '94, and Fall '94. Water chemistry analyses revealed elevated arsenic levels (0.003 mg/l) in Spring '94. All other parameter concentrations were within normal levels.

ALGAL COMMUNITY COMPOSITION

The algal community at Panther Creek was diverse, represented by six divisions, three of which (Chlorophyta, Chrysophyta, and Cyanophyta) were collected in all four samples. In April 1995, all six divisions were found, while only four were present in the rest of the samples.

A total of 176 taxa was identified. Chrysophytes were the dominant algae group with 130 taxa (74%). Chlorophytes were the next dominant with 32 taxa (18%), followed by nine cyanophytes (5%), three euglenophytes (2%), one rhodophyte (0.5%), and one cryptophyte (0.5%). The greatest number of taxa in a sample was 110 in April 1995, while only 80 were recorded for November 1994, the lowest number of taxa per sample.

Thirty-six diatom and eight non-diatom algal taxa were collected. Among the most abundant diatoms were *Achnanthes minutissima*, *Navicula cryptocephala*, *Navicula decussis*, *Navicula minima*, *Nitzschia filiformis*, and *Nitzschia palea*. Common non-diatom algae were as follows: *Ankistrodesmus*, *Chlamydomonas*, *Closterium*, *Cosmarium*, *Scenedesmus*, *Staurastrum*, *Anabaena*, and *Oscillatoria*.

Ranging from 2.0 in May 1993 to 4.75 in April 1995, Diatom Bioassessment Index scores were fair to excellent. With the exception of May 1993, which had poor to fair diversity, percent sensitive species and pollution tolerance index values, diatom metric scores rated good to excellent. Scouring was probably the reason for low DBI metric scores in May 1993. Non-diatom algal metrics scored good to excellent. Algal community composition indicated very good to excellent water quality at Panther Creek (Table 13).

MISSISSIPPI VALLEY LOESS PLAINS ECOREGION

Panther Creek

County: Calloway

River Basin: Tennessee

Stream Order: III

USGS Topo Quad: New Concord (1-15)

Latitude: 36° 34' 04"

Longitude: 88° 10' 08"

Location: KY 280 bridge crossing; 2.3 km (1.4 river miles) upstream from confluence with
Blood River

Sampling Dates: 4 May 1994; 16 November 1994; 12 May 1995

Stream Length: 8.2 km

Direction of Flow: SE

Elevation: Headwaters - 540 ft = 164.6 m

Site - 376 ft = 114.6 m

Gradient: 8.5 m/km

Watershed: 85% Forested

15% Agricultural and Residential

Riparian Zone: Well Developed; 70-90% Canopy Cover

Stream Character: Pools of Various Sizes and Depths; Riffles Well Developed, Small and
Shallow

Pool Substrate: Fines, Sand, and Pebble

Riffle Substrate: Cobble and Pebble

HABITAT ASSESSMENT AND SITE DESCRIPTION

Panther Creek arises in central Calloway County and flows southeast until it joins the Blood River. About 85% of the watershed is forested with the remaining 15% used primarily for agricultural and residential purposes. Our site on Panther Creek is located at milepoint 1.4 near the KY 280 bridge crossing. The stream at this point is third order with a drainage area of 6.5 square miles.

The riparian zone was well developed and provided 70-90% of canopy cover. Excellent habitat and cover for aquatic organisms was available as submerged logs, undercut banks, rubble, and gravel were abundant. A variety of flow habitat types was present, including slow deep, slow shallow, fast deep, and fast shallow areas. No channelization of the stream was evident at the site, but some gravel bar formation was observed. Pools were varied in size and depth and had substrates composed of pebble and sand. Some deposition was observed in the pools. Riffles were small and shallow with substrates consisting of pebble, cobble, and sand. No embeddedness was present at the site. Banks were moderately stable with some erosion evident and were covered by vegetation (mostly shrubs) and gravel. The habitat score, when calculated using the RBP Habitat Assessment Field Data Sheet (Plafkin et al. 1989), was 107.

Water chemistry analyses were conducted on two grab samples from Panther Creek in Calloway County. In Spring '94 and Fall '94, iron (2.07 and 2.94 mg/l) and manganese (0.647 and 0.483 mg/l) concentrations were above the STORET 75th percentile values. All other parameters were within normal levels.

ALGAL COMMUNITY COMPOSITION

Seven algal divisions were represented at Panther Creek with Chlorophyta, Chrysophyta, Cyanophyta, and Euglenophyta present in all three samples. All seven divisions were found in November 1994, while only four were observed in May 1994.

A total of 135 taxa was identified. Diatoms and other chrysophytes were the dominant algae group with 103 taxa (76%). Other algae groups were as follows: 20 chlorophytes (15%), six cyanophytes (4%), three euglenophytes (2%), one rhodophyte (1%), one cryptophyte (1%), and one pyrrophyte (1%). In April 1995, the greatest number of taxa per sample (91) was collected. Conversely, the lowest number of taxa in a sample was 76 in May 1994.

Of the 102 diatoms, 36 were found in every sample. *Achnanthes minutissima*, *Cymbella silesiaca*, *Fragilaria vaucheriae*, *Gomphonema parvulum*, and *Synedra rumpens* var. *familiaris* were among the most abundant diatoms. Ten non-diatom taxa were present in every sample and a few of the most common were *Chlamydomonas*, *Closterium*, *Cosmarium*, *Oedogonium*, *Euglena*, *Trachelomonas*, and *Oscillatoria*.

Diatom Bioassessment Index scores were excellent, ranging from 3.5 in May and November 1994 to 4.5 in April 1995. Diatom metric values scored as follows: total number of diatom taxa was fair to excellent, diversity was fair to very good, pollution tolerance index was very good to excellent, and percent sensitive species was good to excellent. Ranging from three to five, non-diatom algal metric scores ranged from good to excellent. Algal community composition indicated very good to excellent water quality at Panther Creek (Table 13).

MISSISSIPPI VALLEY LOESS PLAINS ECOREGION

Soldiers Creek

County: Marshall

River Basin: Tennessee

Stream Order: IV

USGS Topo Quad: Oak Level (3-13)

Latitude: 36° 47' 39"

Longitude: 88° 26' 02"

Location: KY 58 bridge crossing; 2.6 river miles (4.2 km) upstream of the
confluence with the West Fork Clarks River

Sampling Dates: 3 May 1994; 15 November 1994; 11 April 1995

Stream Length: 8.5 km (5.27 mi.)

Direction of Flow: W

Elevation: Headwaters - 134 m

Site - 121.3 m

Gradient: 2.95 m/km

Watershed: 20% Forested

80% Agricultural and Residential

Riparian Zone: Good; Nearly Complete Canopy Cover; Pasture and
Fields Adjacent to Site

Stream Character: Wide Variety of Pool Sizes and Depths; Small,
Shallow Riffles

Pool Substrate: Pebble, Sand, and Fines

Riffle Substrate: Pebble

HABITAT ASSESSMENT AND SITE DESCRIPTION

Soldiers Creek arises in southern Marshall County and flows northwest until it joins the West Fork Clarks River. About 20% of the watershed is forested and the remaining 80% is used primarily for agricultural and residential purposes. Our upper site on Soldiers Creek is at milepoint 2.6 near the KY 58 bridge crossing. The stream at this point is fourth order with a drainage area of 13.5 square miles.

The riparian zone at the site was good and provided nearly complete canopy cover. Excellent habitat and cover for aquatic organisms was provided by submerged logs, undercut banks, rubble, and gravel. A variety of flow habitat types was present, including slow deep, slow shallow, fast deep, and fast shallow areas. No channelization of the stream was evident, but some formation of gravel bars was observed. Pools were of various sizes and depths and had substrates of cobble, pebble, and sand. Some deposition and scouring in the pools was evident. Riffles were small and shallow with shifting substrates composed of cobble and pebble. No embeddedness was present in the riffles. Banks were moderately stable with some erosion evident and were covered with vegetation (mostly trees). By using the Rapid Bioassessment Protocol (RBP) Habitat Assessment Field Data Sheet (Plafkin et al. 1989), an average habitat assessment score of 104 was obtained.

One grab sample was collected from Soldiers Creek at the KY 58 bridge for water chemistry analyses. Elevated chloride levels (16.8 mg/l) were detected in Fall '94 and copper concentrations (0.015 mg/l) were above acute and chronic criteria of the Kentucky water quality standards. All other parameters were within normal levels.

ALGAL COMMUNITY COMPOSITION

The algal community was fairly diverse at the upstream (Hwy. 58) Soldiers Creek site, with five divisions occurring during the sampling period. All five divisions were present in April 1995, while only four were collected in May 1994 and November 1994. In addition to the divisions Chlorophyta, Chrysophyta, and Cyanophyta, taxa from the division, Euglenophyta, were observed in every sample.

A total of 151 taxa was recorded. One hundred nineteen taxa (79%) were chrysophytes, 20 (13%) were chlorophytes, nine (6%) were cyanophytes, two (1%) were euglenophytes, and one (1%) was a cryptophyte. In November 1994, 109 taxa were found, representing the highest number of taxa per sample, while only 84 were identified in May 1994.

Forty-six diatom and 10 non-diatom algal taxa were present in all three samples. *Achnanthes minutissima*, *Navicula cryptocephala*, *Navicula minima*, *Navicula secreta* var. *apiculata*, *Nitzschia palea*, and *Surirella angustata* were a few of the more abundant diatom taxa. Similarly, some common non-diatom taxa were *Ankistrodesmus*, *Chlamydomonas*, *Closterium*, *Cosmarium*, *Gloeocystis*, *Scenedesmus*, *Spirogyra*, *Staurastrum*, *Anabaena*, and *Oscillatoria*.

Diatom Bioassessment Index scores were excellent, ranging from 4.25 in April 1995 to 4.75 in November 1994. Metric scores for total number of diatom taxa, diversity, and pollution tolerance index were very good to excellent. Percent sensitive species rated just fair to excellent. Both non-diatom algal metrics ranged between good and excellent. Algal community composition indicated excellent water quality at the upstream Soldiers Creek site (Table 13).

MISSISSIPPI VALLEY LOESS PLAINS ECOREGION

Soldiers Creek

County: Marshall

River Basin: Tennessee

Stream Order: IV

USGS Topo Quad: Oak Level (3-13)

Latitude: 36° 47' 48"

Longitude: 88° 27' 26"

Location: Vanzora Church Rd.; 1.1 river mile upstream of the
confluence with the West Fork Clarks River

Sampling Dates: 15 October 1992; 12 May 1993

Stream Length: 8.5 km

Direction of Flow: W

Elevation: Headwaters - 134 m

Site - 115 m

Gradient: 2.8 m/km

Watershed: 20% Forested

80% Agricultural and Residential

Riparian Zone: Good; Nearly Complete Canopy Cover; Pasture and
Fields Adjacent to Site

Stream Character: Wide Variety of Pool Sizes and Depths; Small,
Shallow Riffles

Pool Substrate: Pebble, Sand, and Fines

Riffle Substrate: Pebble

HABITAT ASSESSMENT AND SITE DESCRIPTION

Our lower site on Soldiers Creek is located near the Vanzora Church Road bridge crossing at milepoint 1.1. The stream at this point is fourth order with a drainage area of 18.5 square miles.

The riparian zone was good and provided nearly complete canopy cover. Excellent habitat and cover for aquatic organisms was available as submerged logs, undercut banks, rubble, and gravel were abundant. A variety of flow habitat types was present, including slow deep, slow shallow, fast deep, and fast shallow areas. No channelization of the stream was evident, but some formation of gravel bars was observed. Pools were varied in size and depth with substrates composed of pebble, sand, and fines. Some deposition and scouring was present in the pools. Riffles were small and shallow, and had shifting pebble substrates. No embeddedness was present at the site. Banks were moderately stable with some erosion evident and were covered by vegetation (mostly trees) and gravel. The habitat score, when calculated using the RBP Habitat Assessment Field Data Sheet (Plafkin et al. 1989), was 108.

Water chemistry analyses were conducted on two grab samples collected from Soldiers Creek at the Vanzora Church Road bridge in Fall '92 and Spring '93. These analyses revealed alkalinity (160 mg/l), barium (0.066 mg/l), and chromium (0.007 mg/l) concentrations above the STORET 75th percentile values in Fall '92. Nitrate (1.49 mg/l), barium (0.660), and iron (1.31 mg/l) concentrations were higher than the STORET 75th percentile values in Spring '93. All other parameters were within normal levels.

ALGAL COMMUNITY COMPOSITION

At the downstream (Vanzora Church Road) site on Soldiers Creek, the algal community had only five divisions present in the two samples. In May 1993, all five divisions were found, while in October 1992, only three were collected. Again, taxa from the divisions Chlorophyta, Chrysophyta, and Cyanophyta were observed in both samples.

One hundred and forty taxa were recorded of which 118 (84%) were chrysophytes, 15 (11%) were chlorophytes, five (4%) were cyanophytes, one (1%) was a rhodophyte, and one (1%) was a euglenophyte. While 110 taxa were collected in October 1992, representing the highest number of taxa per sample, only 77 were found in May 1993.

Of the 117 diatom taxa, 45 were present in both samples. Abundant diatoms were *Achnanthes lanceolata*, *Achnanthes minutissima*, *Navicula secreta* var. *secreta*, and *Nitzschia palea*. Nine soft algae taxa were found in both samples. Among the most common non-diatom algae were the genera, *Ankistrodesmus*, *Chlamydomonas*, *Closterium*, *Cosmarium*, *Scenedesmus*, and *Oscillatoria*.

Diatom Bioassessment Index scores rated very good to excellent, ranging from 3.75 in October 1992 to 4.5 in May 1993. Metric values scored as follows: total number of diatom taxa, diversity, and pollution tolerance index were good to excellent, while percent sensitive species was poor to excellent. Total number of non-diatom taxa scored within the fair to good range, and total number of non-diatom divisions present scored good to very good. Algal community composition indicated good to excellent water quality at the downstream Soldiers Creek site (Table 13).

INTER-ECOREGION SUMMARY

The arithmetic mean for the diatom metrics of each ecoregion was calculated. Mean total number of diatom taxa scores ranged from 63.6 for the Central Appalachian to 76.4 for the Mississippi Valley Loess Plains (Figure 9). For diversity, the mean for the Central Appalachian and Western Allegheny were the same (0.91), while the mean of the Interior Plateau was 1.15, and for the Mississippi Valley Loess Plains it was 1.26 (Figure 10). Pollution tolerance index mean scores ranked from 2.3 in the Mississippi Valley Loess Plains to 3.2 in the Western Allegheny (Figure 11). For percent sensitive species, the mean Mississippi Valley Loess Plains score was 10.3%, which was the lowest of all the ecoregions, while the highest mean score for all the ecoregions was 44.2% in the Western Allegheny (Figure 12).

The arithmetic means for the non-diatom algal metrics were also determined. For total number of non-diatom taxa, mean scores ranged from 19.0 in the Western Allegheny and the Central Appalachian to 19.8 in the Interior Plateau (Figure 13). Similarly, there was not a very big difference between the mean scores for the number of non-diatom divisions present metric, with the low being 3.5 for the Western Allegheny and Interior Plateau and the high being 4.2 for the Mississippi Valley Loess Plains (Figure 14).

One-way Analyses of Variance (ANOVAs) were calculated to determine if there were statistical differences between the ecoregions for each metric. With $P = 0.05$, the ANOVAs for the metrics, total number of diatom taxa, diversity, the pollution tolerance index, and the % sensitive species, showed statistical differences between at least two of the ecoregion means. For the metrics, total number of non-diatom taxa and total number of non-diatom divisions present, the ANOVAs ($P = 0.05$) indicated that there were no significant differences between the ecoregion means.

Within the framework of the one-way ANOVA, a t Test was used to compare specific ecoregions within a metric (Rosner 1986). With $P = 0.05$ and a t_{204} of 1.645, most of the ecoregions were significantly different from one another for total number of diatom taxa. Comparisons between the Interior Plateau and Western Allegheny ecoregions, the Interior Plateau and Mississippi Valley Loess Plains ecoregions, and the Western Allegheny and Mississippi Valley Loess Plains ecoregions revealed no significant differences (Figure 15). Except for the comparison between the Central Appalachian and Western Allegheny ecoregions, which were not statistically different, all of the ecoregions were significantly different from one another for diversity (Figure 16). For the pollution tolerance index metric and percent sensitive species, all of the ecoregions were significantly different from one another (Figure 17 and Figure 18, respectively).

The t Test ($P = 0.05$ and t_{205} of 1.645) for the non-diatom algal metric, total number of non-diatom taxa, showed no significant differences between the ecoregions (Figure 19). For total number of non-diatom divisions present, the Mississippi Valley Loess Plains ecoregion was significantly different from the other ecoregions, but all other comparisons were not statistically different (Figure 20).

In conclusion, the diatom metrics demonstrated that there were differences between the ecoregions especially for the pollution tolerance index and percent sensitive species metrics.

Reference Reach diatom data seemed to support the findings of Metzmeier (1987) who showed statistical differences between diatom communities in the Western Allegheny and the Interior Plateau Ecoregions of the Kentucky River drainage. The non-diatom algal metrics, however, were not as sensitive in showing differences between the ecoregions. From the perspective of diatom community composition, the proposed ecoregions developed by Omernik (1987) appeared to be effective boundaries for making biological criteria decisions.

Figure 9. Arithmetic Mean of Total Number of Diatom Taxa for Kentucky Ecoregions

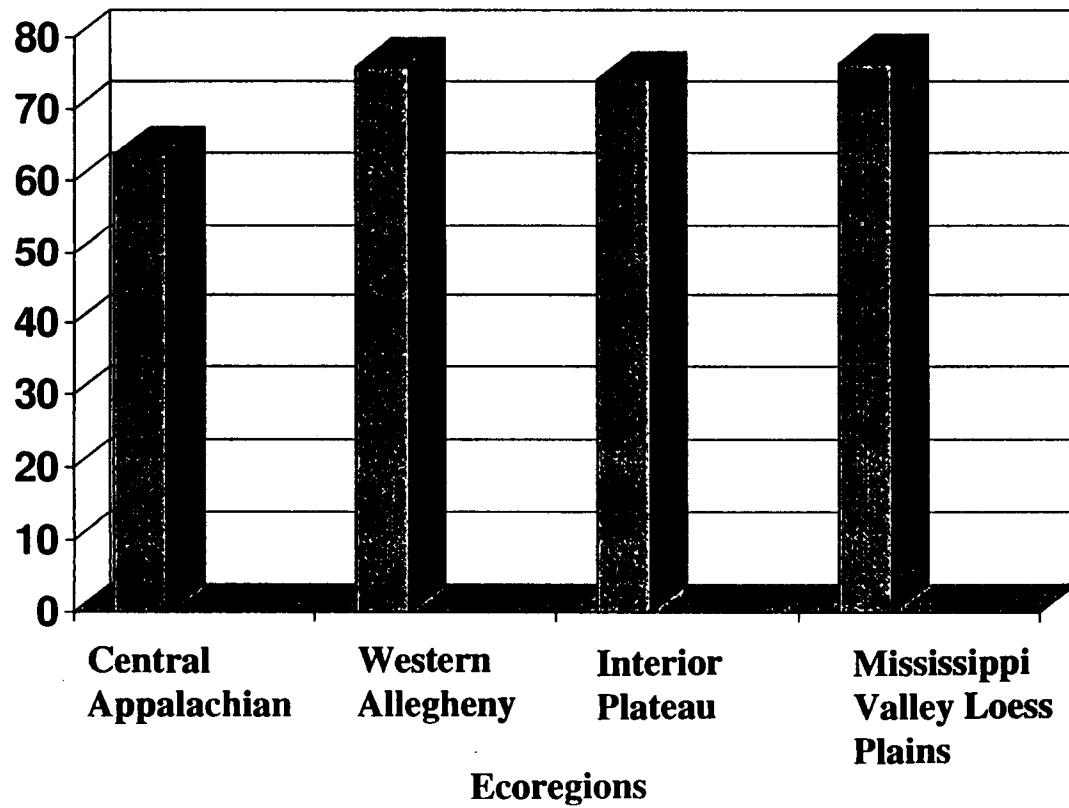


Figure 10. Arithmetic Mean of Diatom Diversity (H') for Kentucky Ecoregions

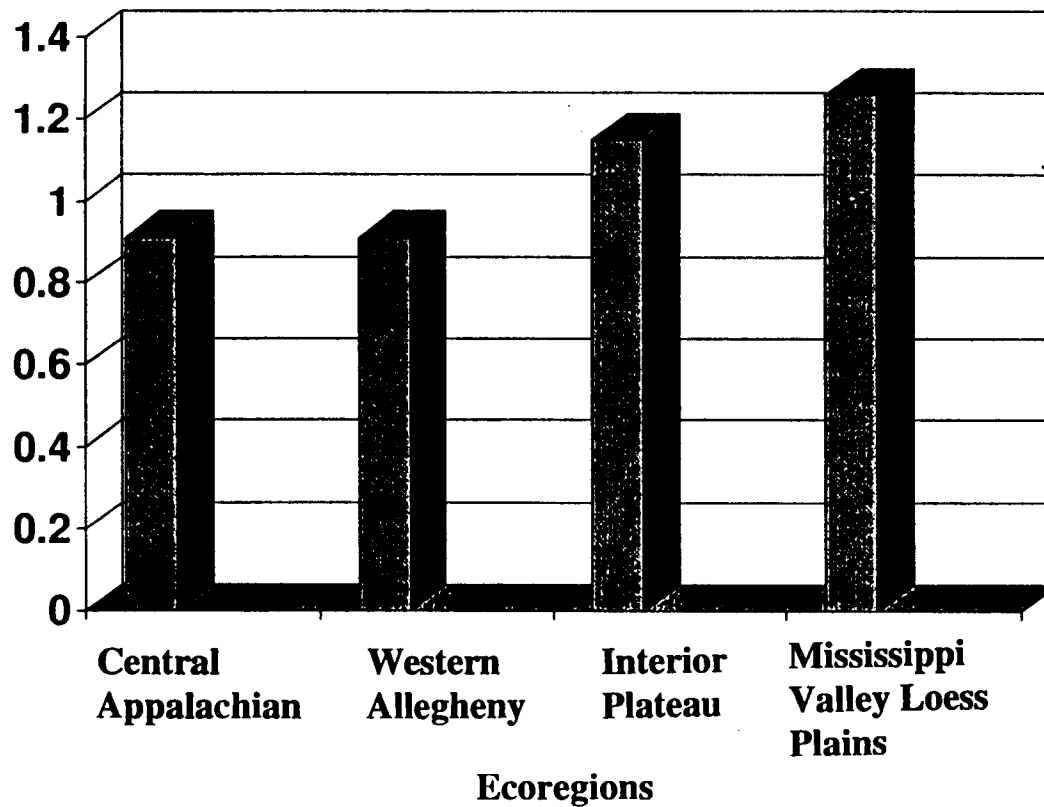


Figure 11. Arithmetic Mean of the Pollution Tolerance Index (Diatom) for Kentucky Ecoregions

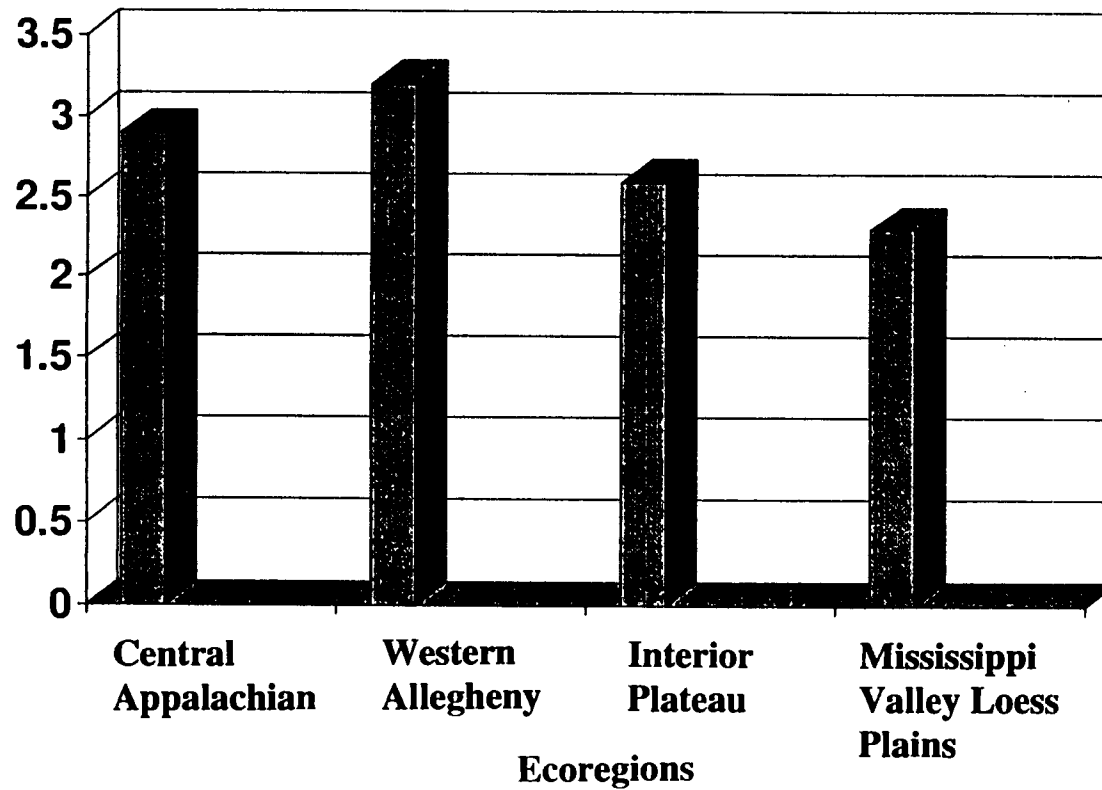


Figure 12. Arithmetic Mean of Percent Sensitive Species (Diatom) for Kentucky Ecoregions

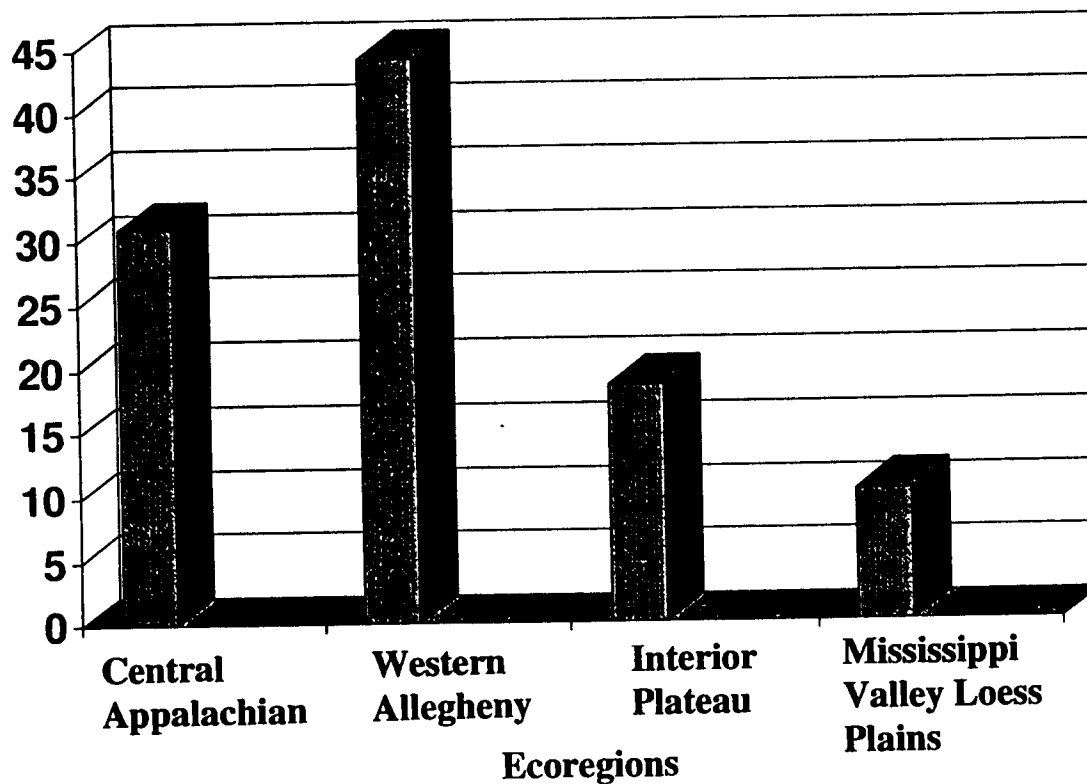


Figure 13. Arithmetic Mean of Total Number of Non-diatom Taxa for Kentucky Ecoregions

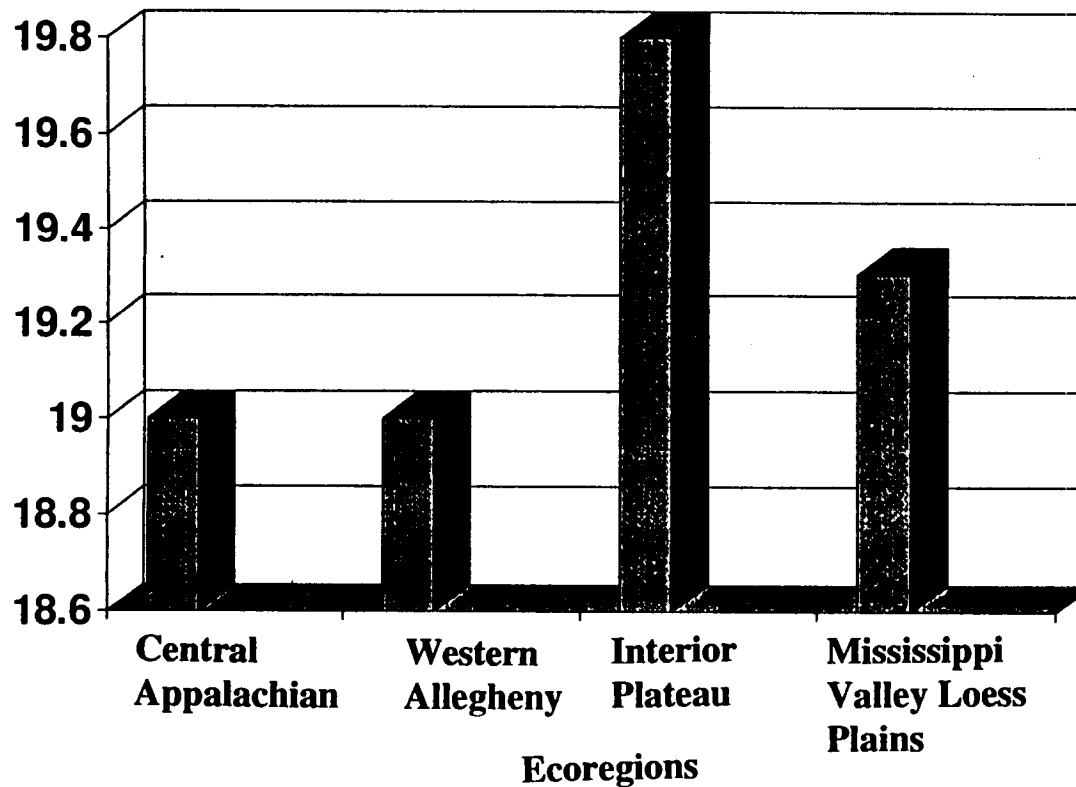


Figure 14. Arithmetic Mean of Total Number of Non-diatom Divisions Present for Kentucky Ecoregions

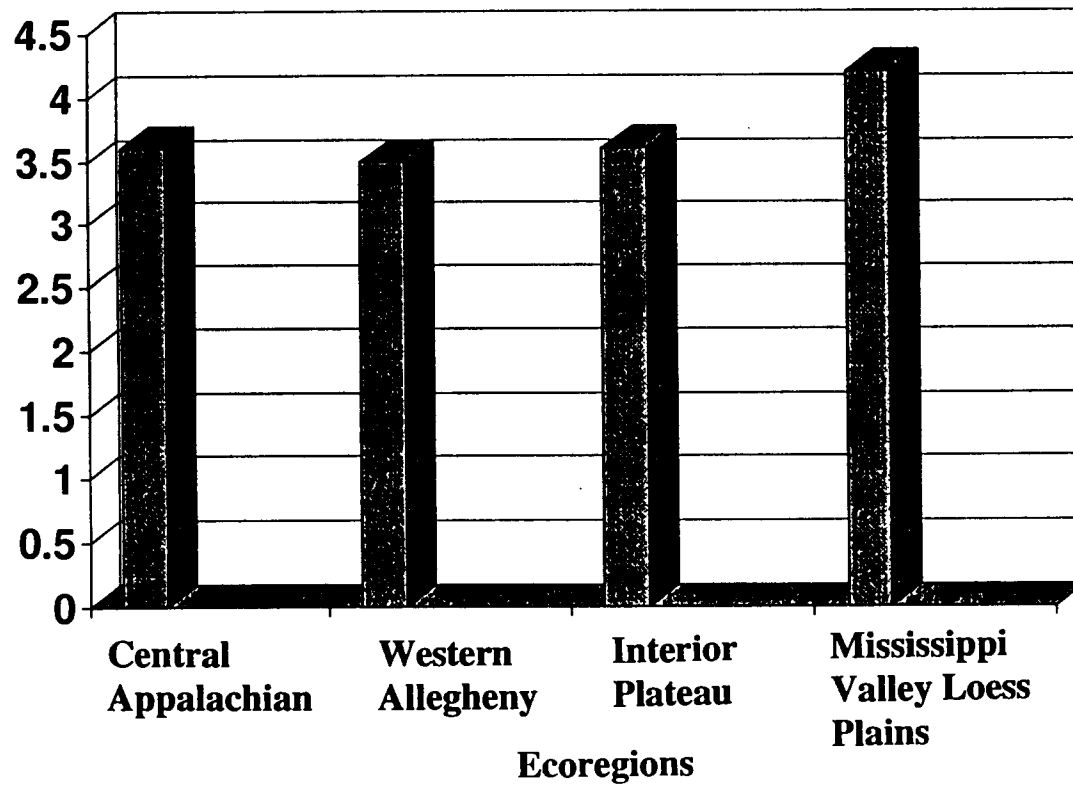
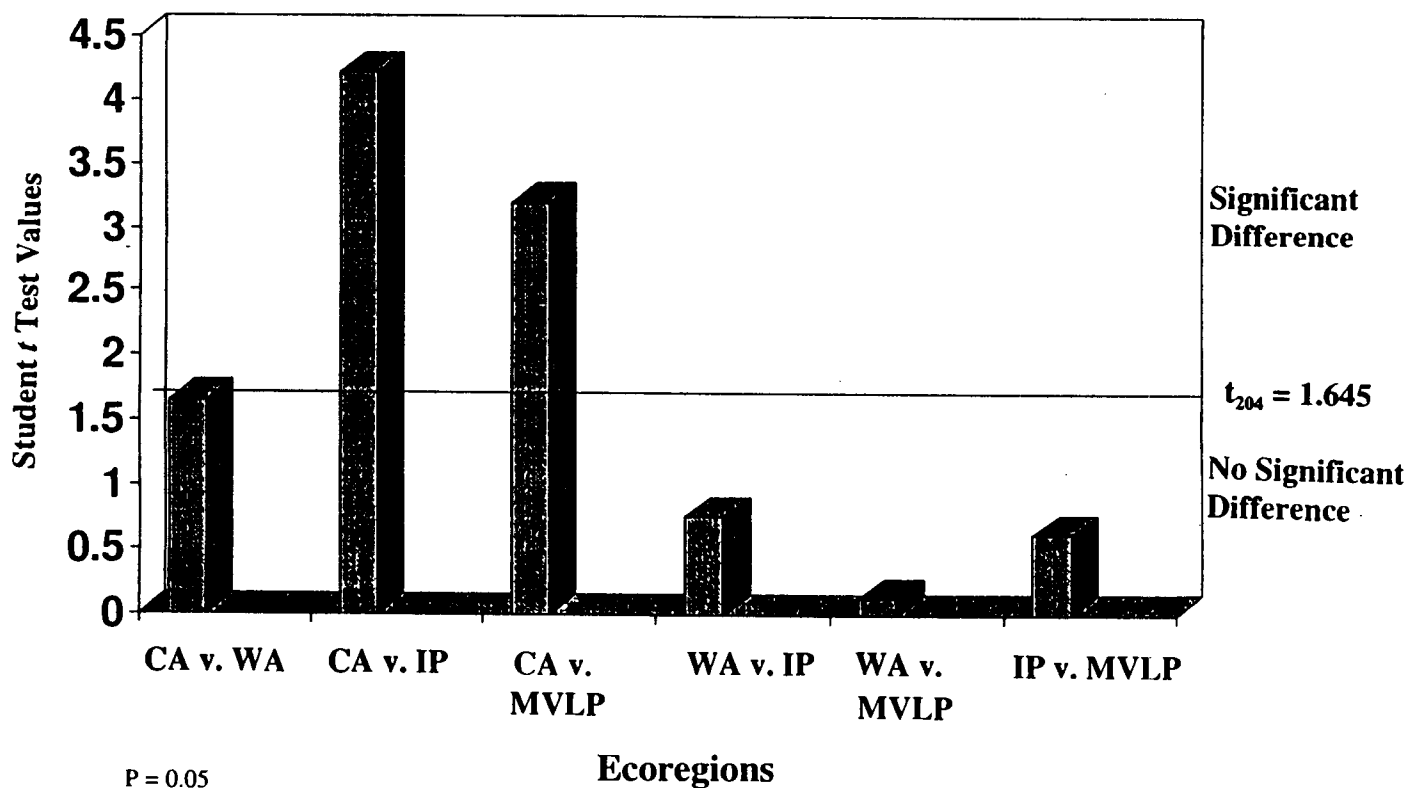


Figure 15. Student *t* Test Results Comparing Kentucky Ecoregions for the Total Number of Diatom Taxa Metric



P = 0.05

CA = Central Appalachian Ecoregion
IP = Interior Plateau Ecoregion

WA = Western Allegheny Ecoregion
MVLP = Mississippi Valley Loess Plains Ecoregion

Figure 16. Student t Test Results Comparing Kentucky Ecoregions for the Diatom Diversity (H') Metric

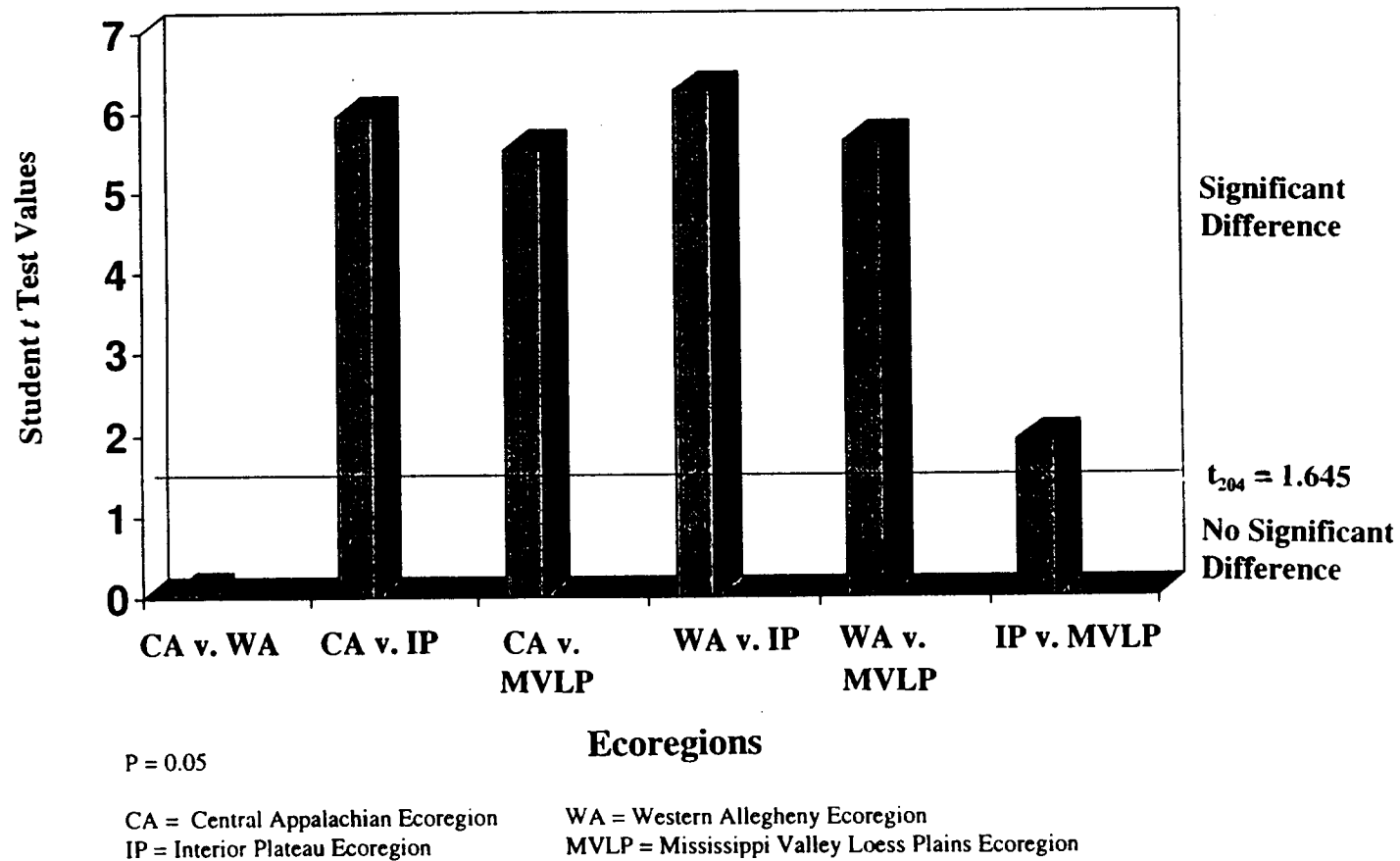
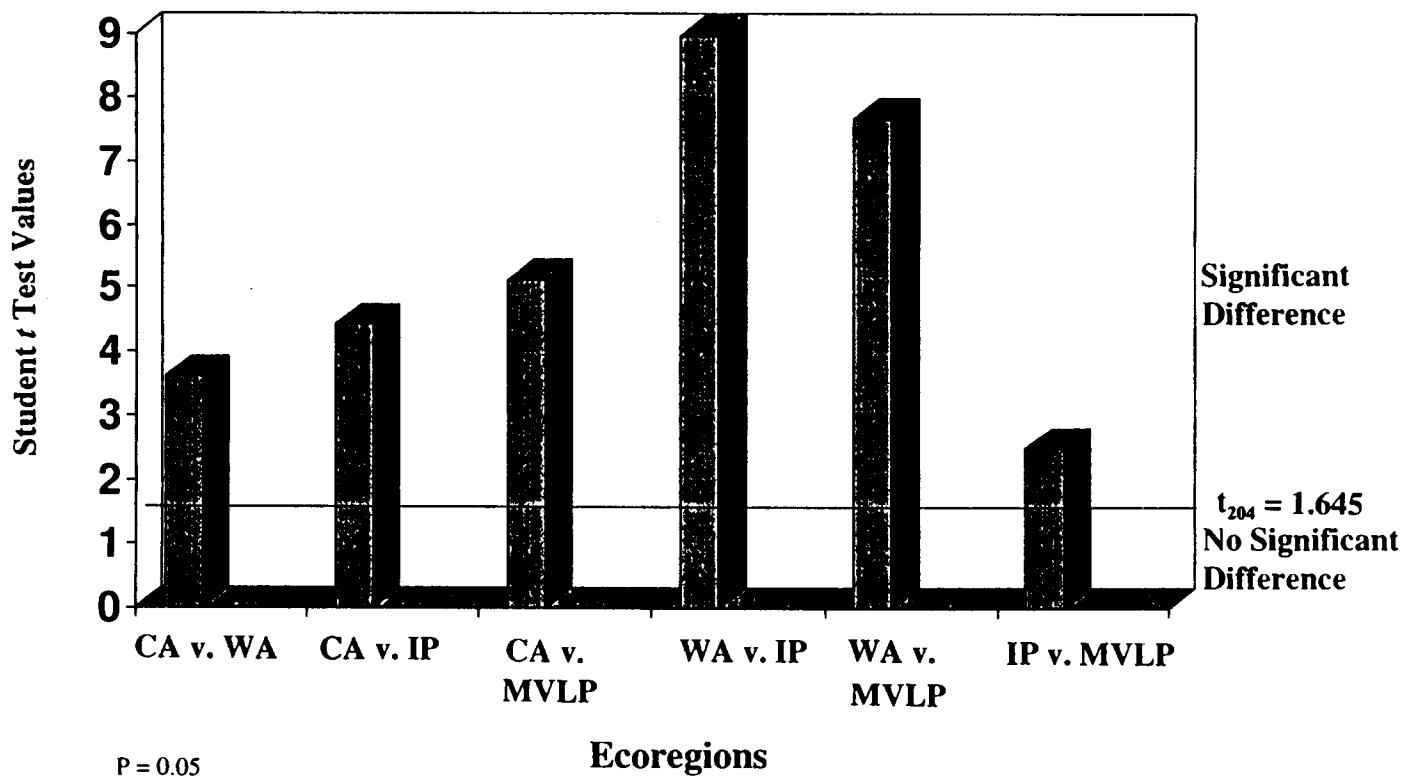


Figure 17. Student *t* Test Results Comparing Kentucky Ecoregions for the Pollution Tolerance Index (Diatom) Metric



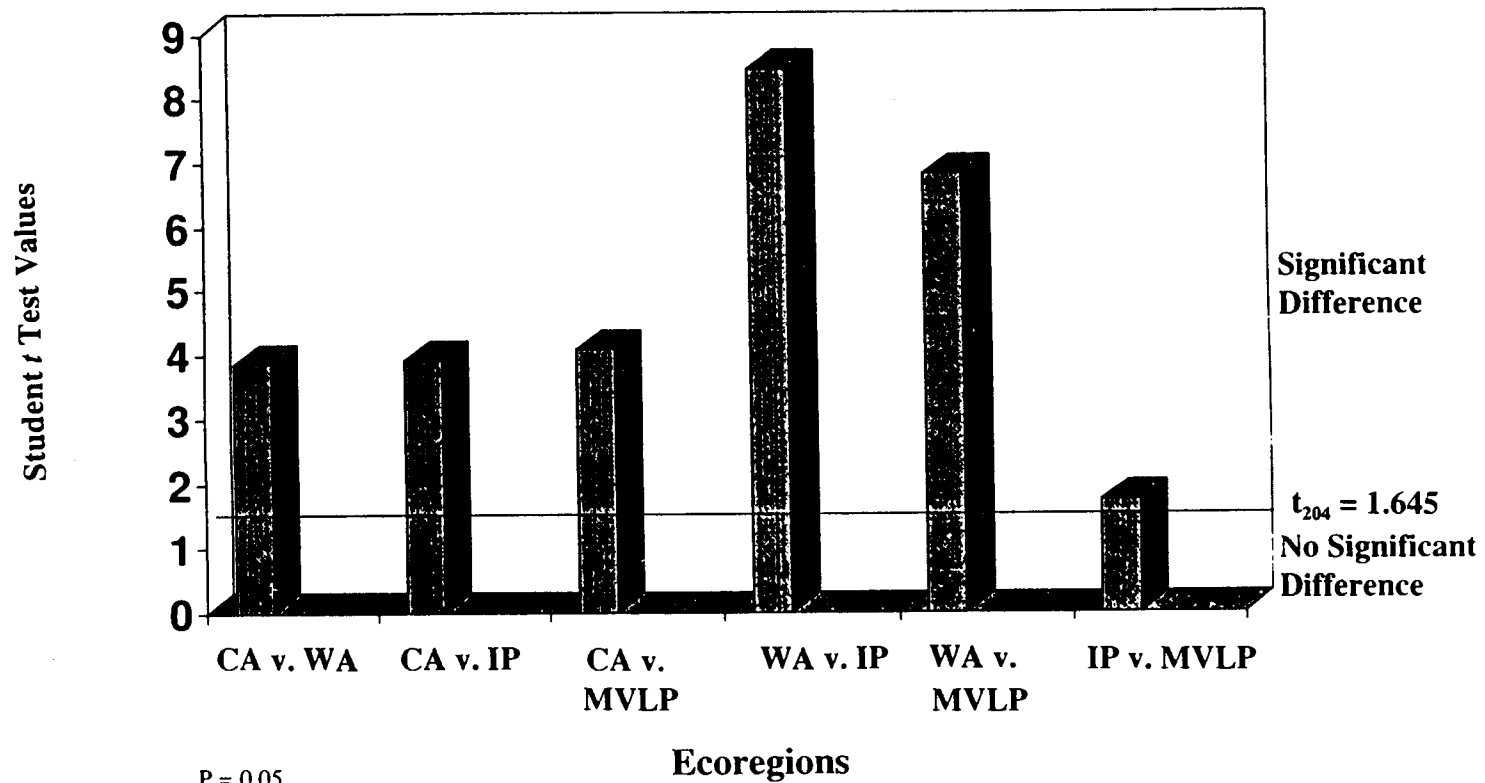
P = 0.05

CA = Central Appalachian Ecoregion
IP = Interior Plateau Ecoregion

WA = Western Allegheny Ecoregion
MVLP = Mississippi Valley Loess Plains Ecoregion

Figure 18. Student *t* Test Results Comparing Kentucky Ecoregions for the Percent Sensitive Species (Diatom) Metric

140



CA = Central Appalachian Ecoregion
IP = Interior Plateau Ecoregion

WA = Western Allegheny Ecoregion
MVLP = Mississippi Valley Loess Plains Ecoregion

Figure 19. Student *t* Test Results Comparing Kentucky Ecoregions for the Total Number of Non-diatom Taxa Metric

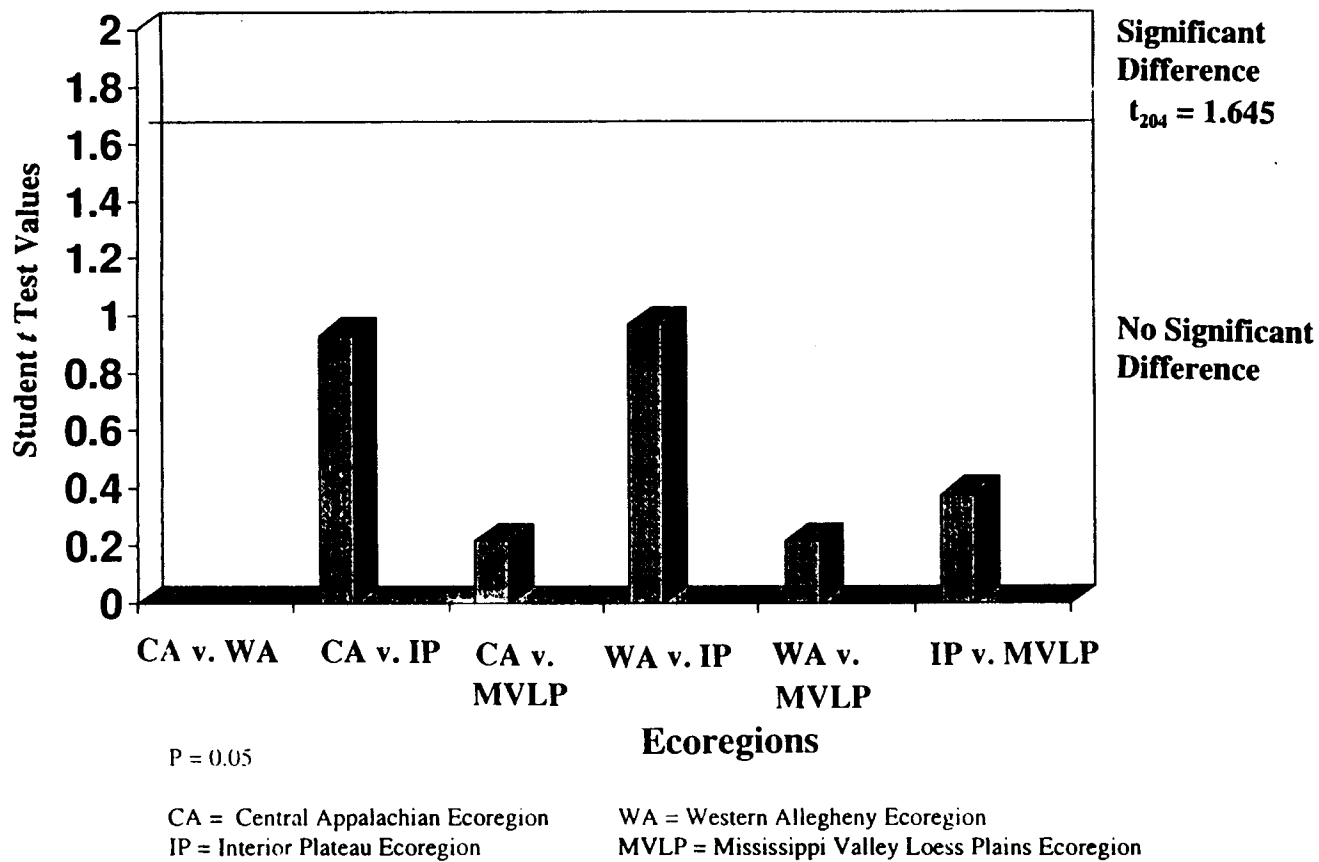
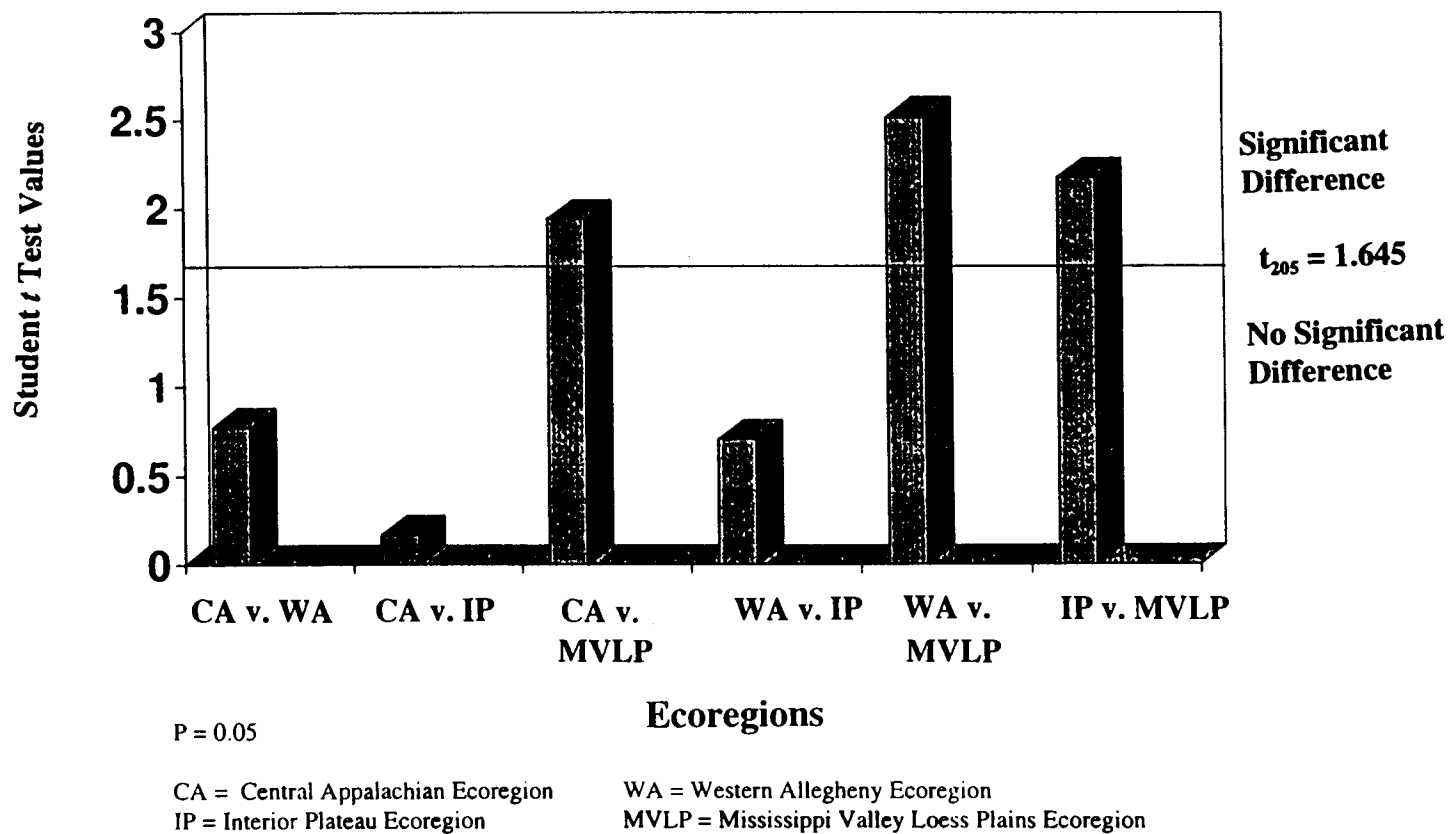


Figure 20. Student *t* Test Results Comparing Kentucky Ecoregions for the Total Number of Non-diatom Divisions Present Metric



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APPENDIX 1:
HABITAT ASSESSMENT DATA

Habitat Assessment Scores for Reference Reach Sites

Central Appalachian	1	2	3	4	5	6	7	8	9	Total
Bad Br.	19	20	16	14	13	11	10	10	9.5	122.5
Bark Camp Cr.	19.5	19.5	18	15	13	15	9	9.5	9.5	128
Cane Cr.	19	19	16	14.5	12.5	13.5	9.5	9.5	9	122.5
Clemons Fk. (Up)	19	20	18	14	14	12.5	8.5	10	8	124
Clemons Fk. (Dn)	17	19	16	14	13	11	9	8.5	6	113.5
Coles Fk.	18	20	16	14	11	12	8	8	8	115
Eagle Cr.	17	18	17	12	11.5	12	9.5	9.5	9.5	116
Marsh Cr.	17	13	17	13	8.5	12	8.5	9.5	8	106.5
R.Fk. Buffalo Cr.	17	19	17	13.5	13	12	9	9	8	117.5
S.Fk. Dog Slaughter Cr.	17	16	17	15	11	14	8	10	10	118
Arithmetic Mean	18	18	17	14	12	12.5	9	9	8.5	118.5

Western Allegheny	1	2	3	4	5	6	7	8	9	Total
Arabs Fk.	17	18	15	15	14	15	8	9	8	119
Big Caney Cr.	15	16	15	11	11	11	8	9	8	104
Big Sinking Cr.	10	16	10	8	11	7	8	8	8	86
Bucket Br.	18	18	18	15	8	14	10	10	10	121
Devils Fk.	18	18	18	14	8	13	9	10	10	118
Horse Lick Cr.	18	16	16	15	11	15	10	10	8	119
Laurel Cr.	15.5	19	16	13	10.5	11	9.5	9.5	8.5	112.5
N.Fk. Licking R.	18	16	18	13	8	13	9	9	9	113
S.Fk. Station Camp Cr.	16	11.5	16	13.5	12.5	13	10	10	9.5	112
Station Camp Cr.	20	17.5	16	14	12.5	13	10	10	8	121
Sturgeon Cr.	19	13	19	11	10.5	14	9.5	9.5	8	113.5
Arithmetic Mean	17	16	16	13	10.5	12.5	9	9.5	8.5	112.5

- 1 = Bottom Substrate/Available Cover
- 2 = Embeddedness
- 3 = Stream Flow
- 4 = Channel Alteration
- 5 = Bottom Souring and Deposition
- 6 = Run/Bend, Pool/Riffle Ratio
- 7 = Bank Stability
- 8 = Bank Vegetative Stability
- 9 = Streamside Cover

APPENDIX 2:

PHYSICOCHEMICAL DATA

Physicochemical Data -
Central Appalachian

	Bad Br.	Bad Br.	Bark Camp Cr.	Bark Camp Cr.	Bark Camp Cr.	Bark Camp Cr.	Cane Cr.	Cane Cr.	Cane Cr.	Cane Cr.	Clemons F.-U	Clemons F.-U	Clemons F.-U	May-94
	Oct-92	Jun-94	Oct-91	Apr-93	Jun-94	Sep-92	Apr-93	Jun-94	Oct-94	Oct-91	Apr-93	May-94		
Acidity	<1.0	<0.1	<0.1	0.8	<0.1	ND	0.7	1.9	3.12	<0.1	0.8	2.2		
Alkalinity	1.74	<1.0	8.8	4.5	6.1	95.4	4.4	7.9	14.1	23.2	5.9	17.6		
Chloride	<1.0	<1.0	2.3	1.7	<1.0	4.25	1.6	<1.0	1.5	2.2	2.2	2		
Conductivity	19.8	18.8	28.5	28.7	30.7	264	29.5	35.1	49.4	123	78	77.4		
Fluoride	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
Hardness	5.28	14.1	8	8.5	15.3	ND	6.9	20.9	11.4	48	20.9	31.1		
pH	5.8	5.4	7.1	6.9	6.9	8.7	6.9	7	7.2	7.7	7	7.2		
Total Suspended Solids	2	1	6	3	2	7	3	2	1	1	<1	1		
Total Dissolved Solids	34	41	32	34	50	124	28	33	50	102	46	44		
Sulfate	ND	<5.0	18.9	43.1	<5.0	25.9	44.8	20.4	7	25.9	51.8	18.8		
Total Organic Carbon	0.5	0.8	2.6	1.3	3.5	1.4	1.1	2.6	4.7	2.1	1.1	1.1		
Ammonia-Nitrogen	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
Total Kjeldahl Nitrogen	0.053	0.108	<0.05	<0.05	<0.05	<0.05	0.079	0.319	0.299	<0.05	0.132	<0.05		
Nitrate	0.005	0.032	0.006	0.026	0.116	0.823	0.058	0.122	0.007	0.043	0.068	0.139		
Total Phosphorus	0.717	ND	<0.005	0.006	ND	0.021	0.008	ND	ND	<0.005	0.037	ND		
Calcium	0.967	0.813	1.3	1.8	2.37	35.8	1.65	10	2.84	10.4	2.99	4.46		
Magnesium	0.553	0.62	0.92	0.871	0.916	8.42	0.926	1.93	1.47	5.78	3.05	3.46		
Potassium	0.57	0.299	0.69	0.53	1.11	1.62	0.654	1.82	1.9	1.26	1.12	1.07		
Sodium	0.289	0.191	1	1.03	0.882	3.55	0.812	315	1.31	1.6	0.977	1.45		
Aluminum	0.028	0.063	0.34	0.137	0.131	0.143	0.067	0.111	<0.056	0.024	0.137	<0.001		
Arsenic	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002		
Barium	0.016	0.031	0.025	0.018	0.025	0.032	0.019	0.07	0.018	0.017	0.021	0.028		
Beryllium	ND	ND	<0.001	ND	ND	<0.001	ND	ND	ND	<0.001	ND	ND		
Cadmium	ND	ND	<0.001	ND	ND	<0.001	ND	ND	ND	<0.001	ND	ND		
Chromium	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	0.001	0	<0.001	0.001	0.002	<0.001		
Copper	0.001	<0.001	0.001	0.001	<0.001	0.002	0.001	0.002	<0.002	0.002	0.003	0.001		
Iron	0.065	0.093	0.34	0.248	0.528	<0.009	0.182	0.238	0.718	0.33	0.117	0.046		
Lead	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002		
Manganese	0.024	0.037	0.01	0.011	0.029	0.018	0.02	0.029	0.04	0.03	0.006	0.007		
Mercury	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		
Nickel	ND	ND	<0.002	ND	ND	<0.002	ND	ND	ND	<0.002	ND	ND		
Selenium	ND	ND	<0.002	ND	ND	<0.002	ND	ND	ND	<0.002	ND	ND		
Silver	ND	ND	<0.001	ND	ND	<0.001	ND	ND	ND	<0.001	ND	ND		
Zinc	<0.003	0.003	0.026	0.01	<0.001	<0.003	0.021	0	0.003	0.017	0	0.005		

Physicochemical Data -
Central Appalachian

S.F. Dog Slaughter Cr. S.F. Dog Slaughter Cr. S.F. Dog Slaughter Cr.

	Oct-91	Apr-93	Jun-94
Acidity	<0.1	1	<0.1
Alkalinity	6.7	5.5	6.7
Chloride	2.8	2	1.2
Conductivity	33.8	34.4	30
Fluoride	<0.1	<0.1	<0.1
Hardness	7.5	8	15.2
pH	7	6.9	6.9
Total Suspended Solids	5	4	2
Total Dissolved Solids	30	38	52
Sulfate	4.21	47.1	<5
Total Organic Carbon	2.3	1.3	2.8
Ammonia-Nitrogen	<0.05	<0.05	<0.05
Total Kjeldahl Nitrogen	<0.05	0.796	0.258
Nitrate	0.017	0.032	0.091
Total Phosphorus	0.06	0.008	ND
Calcium	2.1	2.04	1.95
Magnesium	0.95	0.88	0.79
Potassium	0.71	0.621	0.94
Sodium	1.4	1.51	1.48
Aluminum	0.657	0.059	0.13
Arsenic	0.002	<0.002	<0.002
Barium	0.018	0.019	0.021
Beryllium	<0.001	ND	ND
Cadmium	<0.001	ND	ND
Chromium	<0.001	<0.001	<0.001
Copper	0.002	0.002	<0.001
Iron	0.41	0.082	0.62
Lead	<0.002	<0.002	<0.002
Manganese	0.02	0.01	0.057
Mercury	<0.0001	<0.0001	<0.0001
Nickel	<0.002	ND	ND
Selenium	<0.002	ND	ND
Silver	<0.001	ND	ND
Zinc	0.033	0.007	0.005

Physicochemical Data -
Western Allegheny

	Arabs Fk.	Arabs Fk.	B. Caney Cr.	B. Caney Cr.	B. Caney Cr.	B. Sinking Cr.	B. Sinking Cr.	B. Sinking Cr.	Bucket Br.	Bucket Br.	Bucket Br.	Bucket Br.
	Oct-92	Jun-94	Nov-94	Oct-92	Jun-94	Nov-94	Oct-92	Jun-94	Oct-92	May-93	Jun-94	Oct-94
Acidity	<1.0	3.2	1.4	1.47	4.8	1.9	<1.0	3.2	2.76	1.2	<0.1	1.2
Alkalinity	89.4	83.3	103	106	99.1	113	<1.0	86.3	110	53.5	95.3	107
Chloride	4.95	<1.0	5.2	3.56	3.5	3.9	4.31	<1.0	4.3	0	1.7	2.7
Conductivity	226	ND	248	245	ND	259	ND	ND	251	140	198	235
Fluoride	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Hardness	89.3	91.2	110	108	103	119	102	95.7	113	62.5	95.2	111
pH	7.6	7.9	7.9	8.3	8	7.9	ND	8.1	7.9	7.9	8.1	8
Total Suspended Solids	3	<1.0	3	ND	8	1	18	6	2	3	1	8
Total Dissolved Solids	150	110	100	ND	126	148	262	110	156	84	114	118
Sulfate	14.9	28.8	13.2	ND	29	12.4	ND	20	ND	11.7	18.1	8
Total Organic Carbon	1	0.8	1.2	26.7	1.2	2	1.6	1.3	2	1.46	0.9	1.6
Ammonia-Nitrogen	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total Kjeldahl Nitrogen	<0.05	<0.05	0.235	0.349	<0.05	0.588	0.125	0.177	0.136	0.101	<0.05	0.247
Nitrate	0.074	0.235	0.058	0.015	0.194	0.017	0.019	0.139	0.018	0.052	0.145	0.016
Total Phosphorus	0.017	ND	ND	0.027	ND	ND	0.027	ND	0.011	0.009	ND	ND
Calcium	31.6	31.1	29.2	39	40.2	33.5	35.2	34.4	4.1	17.8	36.4	32.1
Magnesium	5.91	5.9	6.12	6.08	5.31	4.32	5.37	5.32	0.647	3.66	5.53	5.81
Potassium	2.06	1.9	2.37	3.7	1.89	2.32	2.14	2.12	0.383	1.45	1.82	1.92
Sodium	3.33	3.34	3.6	3.08	3.04	2.96	0	3.15	2.8	1.64	2.12	1.89
Aluminum	0.016	<0.035	<0.056	0.086	<0.035	<0.056	0.046	0.112	0.021	0.071	<0.035	<0.056
Arsenic	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002
Barium	0.041	0.043	0.029	0.05	0.056	0.033	0.041	0.056	ND	0.043	0.065	0.047
Beryllium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.002	0.003	<0.001	<0.001
Copper	0.001	<0.001	0	0.002	<0.001	0.003	<0.001	0.003	0.001	0	<0.001	<0.001
Iron	<0.009	0.097	0.059	0.121	0.137	0.032	<0.009	0.38	0.31	0.132	0.132	0.415
Lead	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002
Manganese	0.01	0.013	0.007	0.012	0.047	0.011	0.028	0.103	0.008	0.035	0.03	0.088
Mercury	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Nickel	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	<0.003	<0.003	0	<0.003	0.005	<0.001	<0.003	0.006	0.068	0.005	<0.003	0.002

Physicochemical Data -
Western Allegheny

	Devils Fk.		Devils Fk.		Devils Fk.		Horse Lick Cr.		Laurel Cr.		Laurel Cr.		North Fork		North Fork		North Fork	
	Oct-92	May-93	Jun-94	Oct-94	Oct-92	Oct-92	Oct-92	Jun-94	Oct-94	Oct-92	May-93	Jun-94	Oct-94	Oct-92	May-93	Jun-94	Oct-94	
Acidity	6.01	1	<0.1	1.9	ND	5.98	3	3.82	3.56	1.6	<0.1	1.9						
Alkalinity	43.4	20.5	37	46.6	76.5	117	95.8	93.1	62.9	29.4	56.3	45.8						
Chloride	2.6	2.8	1.9	6.2	2.61	1.2	4.6	4.1	<1.0	3.1	4	5.4						
Conductivity	143	101	115	221	206	270	218	219	203	123	170	168						
Fluoride	<0.1	<0.1	<0.1	0.13	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1						
Hardness	53.7	34.7	103	83.4	89.3	117	97	99.8	76.7	44.8	82.7	62.7						
pH	7.5	7.6	7.2	7.8	7.8	7.9	8.2	7.8	7.7	7.7	7.5	7.8						
Total Suspended Solids	5	3	4	<1.0	2	9	3	5	4	6	3	2						
Total Dissolved Solids	112	80	64	120	80	156	122	142	132	76	94	86						
Sulfate	ND	20.7	23.3	53.7	17.2	ND	<5.0	10.7	ND	22	22.8	23.2						
Total Organic Carbon	6.4	1.99	1.8	3.6	ND	27	1.2	1.8	4	2.13	2	4.8						
Ammonia-Nitrogen	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05						
Total Kjeldahl Nitrogen	<0.05	0.143	0.199	0.319	0.132	<0.05	0.274	0.195	<0.05	<0.05	<0.05	0.579						
Nitrate	0.037	0.044	0.054	0.011	0.056	0.017	0.15	0.015	0.014	0.061	0.044	0.009						
Total Phosphorus	0.03	0.01	ND	ND	0.019	0.019	ND	ND	0.018	0.015	ND	ND						
Calcium	12.8	7.58	11.4	21.7	35.1	40.2	37.8	29.8	22.3	10.9	21.7	14.2						
Magnesium	5.62	3.73	5.34	7	5.4	6.06	5.37	4.7	6.39	3.75	5.99	5.96						
Potassium	2.97	1.45	2.16	3.58	1.74	2.59	1.8	1.85	3.21	1.18	2.23	3.32						
Sodium	3.07	3.05	3.29	4.58	2.36	3.82	3.76	2.72	4.87	2.82	4.52	3.61						
Aluminum	0.037	0.038	0.046	<0.056	0.078	0.034	<0.035	<0.056	<0.023	0.101	<0.035	<0.056						
Arsenic	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002						
Barium	0.023	0.02	0.027	0.026	0.027	0.049	0.052	0.027	0.029	0.018	0.036	0.023						
Beryllium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND						
Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND						
Chromium	0.001	0	0.001	<0.001	0.001	0.006	<0.001	<0.001	<0.001	0.003	<0.001	<0.001						
Copper	0.001	0.001	0.014	0.007	<0.001	0.001	<0.001	<0.002	0.002	0.001	<0.001	0.015						
Iron	0.405	0.283	0.36	0.273	0.879	0.204	0.145	0.243	0.212	0.418	0.157	0.329						
Lead	0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002						
Manganese	0.041	0.048	0.106	0.064	0.029	0.03	0.043	0.045	0.043	0.07	0.127	0.05						
Mercury	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001						
Nickel	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND						
Selenium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND						
Silver	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND						
Zinc	<0.003	0.009	0.02	0.008	<0.003	<0.003	0	0.002	<0.003	0.01	0.005	0.012						

Physicochemical Data -
Western Allegheny

	Sep-92	Jun-94	Oct-94	Sep-92	Jun-94	Oct-94	Jun-94	Oct-94	Oct-93	Jun-94	Oct-94
Acidity	ND	5.3	1.8	1.21	3	1.7	3	1.7	1.9	1.6	1.6
Alkalinity	130	109	126	112	90.2	105	90.2	105	26.2	43.7	54.5
Chloride	<1.0	<1.0	4.6	2.85	<1.0	4.6	<1.0	4.6	2.4	2.1	2.7
Conductivity	ND	254	322	ND	212	273	212	273	142	283	252
Fluoride	ND	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Hardness	ND	121	142	ND	98.3	124	98.3	124	51.1	99.9	85.3
pH	ND	7.6	8.1	ND	8.1	8.1	8.1	8.1	7.4	8.9	7.9
Total Suspended Solids	1	6	<1.0	<1.0	3	<1.0	3	<1.0	6	6	7
Total Dissolved Solids	184	146	168	178	114	140	114	140	86	176	162
Sulfate	ND	19.6	22.1	14.3	24.3	22.4	24.3	22.4	31.8	85.5	58.5
Total Organic Carbon	1.3	1	1.7	1.1	0.9	1.4	0.9	1.4	1.8	3.5	2.2
Ammonia-Nitrogen	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total Kjeldahl Nitrogen	<0.05	<0.05	0.131	0.076	0.167	0.461	0.167	0.461	0.186	<0.05	<0.05
Nitrate	0.127	0.192	0.249	0.12	0.19	0.058	0.19	0.058	0.587	0.102	0.01
Total Phosphorus	0.011	ND	ND	<0.005	ND	ND	ND	ND	ND	ND	ND
Calcium	48.9	44.1	48.3	38	37	36.4	37	36.4	11.4	22.2	17.5
Magnesium	6.08	5.56	6.57	5.16	5.06	5.55	5.06	5.55	5.62	13.5	9.42
Potassium	1.43	1.45	2.24	1.92	1.42	1.88	1.42	1.88	1.88	2.45	3.11
Sodium	2	2.35	4.26	3.82	2.22	2.9	2.22	2.9	3.43	13.3	10.8
Aluminum	<0.023	0.091	<0.056	1.4	<0.035	<0.056	<0.035	<0.056	0.108	0.059	0.101
Arsenic	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Barium	0.029	0.029	0.028	0.027	0.029	0.01	0.029	0.01	0.015	0.025	0.018
Beryllium	ND	ND	ND	<0.001	ND	ND	ND	ND	ND	ND	ND
Cadmium	<0.001	ND	ND	<0.001	ND	ND	ND	ND	<0.001	<0.001	<0.001
Chromium	<0.001	<0.001	<0.001	<0.001	0.003	<0.001	0.003	<0.001	<0.001	<0.001	<0.001
Copper	0.001	0.002	<0.001	0.001	0.003	<0.001	0.003	<0.001	0.003	0.001	<0.001
Iron	<0.009	0.188	0.076	147	0.1	0.072	0.1	0.072	0.386	0.167	0.203
Lead	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.023	<0.002	<0.002
Manganese	0.021	0.042	0.01	0.549	0.026	0.015	0.026	0.015	0.089	0.072	0.051
Mercury	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Nickel	<0.002	ND	ND	<0.002	ND	ND	ND	ND	ND	ND	ND
Selenium	<0.002	ND	ND	<0.002	ND	ND	ND	ND	ND	ND	ND
Silver	<0.001	ND	ND	<0.001	ND	ND	ND	ND	ND	ND	ND
Zinc	<0.003	<0.003	<0.003	1.53	<0.003	0.002	<0.003	0.002	<0.003	<0.003	<0.003

Physicochemical Data -
Interior Plateau

	Beaverdam Cr. Beaverdam Cr.		Beaverdam Cr.		Buck Cr.		Buck Cr.		Buck Cr.		Clear Cr.		Clear Cr.		Gasper R.		Gasper R.	
	Nov-93	May-94	Nov-94	May-93	Jun-94	Oct-94	Oct-94	Oct-94	Sep-92	May-93	May-94	Oct-92	Oct-92	Nov-94	Nov-94	Nov-94	Nov-94	Nov-94
Acidity	1.4	<0.1	3.3	0.2	4.8	1.3	2.5	<1.0	<1.0	3	<0.1	1.44	1.44	7.3	7.3	7.3	7.3	7.3
Alkalinity	116	74.6	123	74.7	70.3	96	90.5	206	184	184	174	217	217	223	223	223	223	223
Chloride	7.2	5.2	7.3	5.4	5.3	7.9	7.2	1.08	4.9	3.8	3.8	37.7	37.7	38.9	38.9	38.9	38.9	38.9
Conductivity	273	189	287	174	173	227	218	ND	393	365	365	ND	ND	593	593	593	593	593
Fluoride	<0.1	ND	<0.1	<0.1	<0.1	<0.1	<0.1	0.16	0.17	<0.1	<0.1	0.16	0.16	<0.1	<0.1	<0.1	<0.1	<0.1
Hardness	119	83.5	128	82.8	80.2	103	94.4	185	49.4	41.6	41.6	ND	ND	79.1	79.1	79.1	79.1	79.1
pH	8.1	8.1	7.8	8.1	7.8	7.7	7.8	ND	8.2	ND	ND	ND	ND	7.9	7.9	7.9	7.9	7.9
Total Suspended Solids	<1.0	4	3	<1.0	13	4	<1.0	1	<1.0	6	6	10	10	2	2	2	2	2
Total Dissolved Solids	166	141	168	82	104	116	136	250	246	226	226	316	316	336	336	336	336	336
Sulfate	11.9	<5.0	8.2	16.1	24.6	7.7	8.1	17.2	53.2	<5.0	<5.0	16.5	16.5	16.5	16.5	16.5	16.5	16.5
Total Organic Carbon	2.6	2.4	2.8	2.2	3.1	3.8	2.6	2.1	2.04	1.5	1.5	3.4	3.4	3.8	3.8	3.8	3.8	3.8
Ammonia-Nitrogen	0.016	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total Kjeldahl Nitrogen	0.108	<0.05	0.528	0.119	0.179	0.14	0.355	0.149	0.113	0.756	0.756	0.339	0.339	0.646	0.646	0.646	0.646	0.646
Nitrate	0.826	1.76	0.716	0.639	0.8	0.063	0.034	0.538	0.994	1.59	1.59	4.87	4.87	2.09	2.09	2.09	2.09	2.09
Total Phosphorus	ND	ND	ND	0.034	ND	ND	ND	0.274	0.196	ND	ND	0.547	0.547	ND	ND	ND	ND	ND
Calcium	42.8	30	45	24.8	24.9	27.9	26.2	85.7	74.4	66.4	66.4	105	105	86.1	86.1	86.1	86.1	86.1
Magnesium	3.73	2.78	3.86	6.05	5.74	7.22	6.7	5.48	4.52	3.91	3.91	7.65	7.65	7.28	7.28	7.28	7.28	7.28
Potassium	2.75	1.66	2.76	2.09	2.84	2.8	2.73	1.99	0.925	1.1	1.1	5.72	5.72	5.86	5.86	5.86	5.86	5.86
Sodium	4.66	3.42	4.53	2.35	2.22	2.37	2.53	2.85	2.59	2.25	2.25	31	31	29.2	29.2	29.2	29.2	29.2
Aluminum	0.087	0.095	<0.056	0.053	0.287	0.059	<0.056	0.174	0.102	0.05	0.05	0.589	0.589	<0.056	<0.056	<0.056	<0.056	<0.056
Arsenic	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Barium	0.046	0.046	0.036	0.022	0.031	0.027	0.015	0.03	0.018	0.02	0.02	0.064	0.064	0.02	0.02	0.02	0.02	0.02
Beryllium	ND	ND	ND	ND	ND	ND	ND	<0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	ND	ND	ND	ND	ND	ND	ND	<0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	0.003	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.002	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.001	0.016	<0.002	0.001	0.001	<0.001	<0.002	<0.001	0.001	0.014	0.014	0.003	0.003	<0.002	<0.002	<0.002	<0.002	<0.002
Iron	0.021	0.228	0.042	0.141	0.44	0.087	0.084	56	0.06	0.069	0.069	5.28	5.28	0.052	0.052	0.052	0.052	0.052
Lead	<0.002	<0.002	<0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Manganese	0.009	0.027	0.014	0.021	0.047	0.012	0.011	0.195	0.014	0.015	0.015	0.098	0.098	0.029	0.029	0.029	0.029	0.029
Mercury	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Nickel	ND	ND	ND	ND	ND	ND	ND	<0.002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium	ND	ND	ND	ND	ND	ND	ND	<0.002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	ND	ND	ND	ND	ND	ND	ND	<0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	<0.005	<0.003	0.013	<0.003	<0.003	<0.001	<0.001	0.609	0	0	0	0.336	0.336	0.014	0.014	0.014	0.014	0.014

Physicochemical Data -
Interior Plateau

	Goose Cr. Goose Cr.		Goose Cr. Muddy Cr.		Muddy Cr. Muddy Cr.		Russell Cr. (80)		Russell Cr. (80)		Russell Cr. (80)	
	Oct-92	May-93	May-94	Oct-94	Oct-92	Jun-94	Oct-94	May-93	Apr-94	Oct-94	Oct-94	Oct-94
Acidity	<1.0	2.2	<0.1	1.2	<1.0	2.9	<1.0	0.9	<0.1	1.2	1.1	1.1
Alkalinity	84.2	66.7	59.2	71	184	157	166	48.4	44.6	71.6	56.5	56.5
Chloride	5.7	5.2	5.3	6.8	4.57	5.5	5.2	4.5	5.7	6.9	4.6	4.6
Conductivity	212	176	163	201	391	331	350	133	128	192	168	168
Fluoride	<0.1	<0.1	<0.1	<0.1	<0.1	0.012	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Hardness	89.6	76.5	71.9	84.1	184	213	173	56.3	50.2	80.6	68.8	68.8
pH	ND	7.9	7.8	8	8.3	8.5	8.2	7.9	7.9	7.5	8	8
Total Suspended Solids	9	12	5	6	ND	8	10.2	6	<1.0	7	2	2
Total Dissolved Solids	108	106	116	96	ND	202	206	92	92	100	86	86
Sulfate	ND	14.7	<5.0	10.4	ND	24.6	10	9.81	<5.0	9.5	10.9	10.9
Total Organic Carbon	1.7	1.7	1.5	2.7	40.8	3.2	3.9	2.29	1.6	2.4	3.2	3.2
Ammonia-Nitrogen	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total Kjeldahl Nitrogen	0.077	<0.05	<0.05	0.733	0.123	0.419	0.084	0.371	<0.05	0.136	0.621	0.621
Nitrate	0.496	1.25	1.39	0.638	0.012	0.263	<0.005	0.714	0.778	0.182	0.47	0.47
Total Phosphorus	0.03	0.037	ND	ND	0.249	ND	ND	0.033	ND	ND	ND	ND
Calcium	27.9	22.7	23	22.8	47.8	43.1	41.9	17.4	16.9	26	20.3	20.3
Magnesium	5.97	5.1	5.05	5.66	19.2	18.6	15.8	2.91	2.74	4.49	3.75	3.75
Potassium	2.17	1.91	1.66	3.21	4.78	2.62	3.96	1.16	1.38	2.57	3.1	3.1
Sodium	2.73	2.37	2.32	2.97	2.95	3.1	2.76	2.51	2.79	3.92	3.11	3.11
Aluminum	<0.023	0.365	0.108	<0.056	0.038	0.175	0.128	0.069	0.028	<0.056	<0.056	<0.056
Arsenic	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Barium	0.032	0.033	0.031	0.023	0.038	0.039	0.04	0.019	0.023	0.031	0.02	0.02
Beryllium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	0.001	0.001	<0.001	<0.001	0.002	<0.001	0.003	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.001	<0.001	0.002	0.002	0.003	0.002	<0.001	<0.001	0.002	<0.001	<0.001	<0.001
Iron	0.034	0.204	0.09	0.084	0.132	0.306	0.223	0.206	0.04	0.166	0.251	0.251
Lead	<0.002	0.002	0.005	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	0.002
Manganese	0.015	0.024	0.018	0.023	0.008	0.023	0.011	0.029	0	0.024	0.029	0.029
Mercury	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Nickel	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	<0.003	0.008	<0.003	0.003	<0.003	<0.003	<0.001	0.007	<0.003	<0.001	<0.001	<0.001

Physicochemical Data -
Interior Plateau

	Sep-92	May-93	May-94	Sep-92	Apr-93	May-94	Oct-94	May-93	May-94	May-93	May-94	May-94
Acidity	<1.0	0.2	<1.0	ND	1.8	<0.1	4.24	1.4	<0.1	1.9	<0.1	<0.1
Alkalinity	106	85	104	136	126	134	172	61	53	101	92.6	92.6
Chloride	6.9	4.5	5.4	4.01	3.1	20.5	10.5	3.6	2.7	4.9	4.6	4.6
Conductivity	ND	215	244	ND	288	340	386	189	165	277	257	257
Fluoride	<0.1	<0.1	<0.1	ND	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Hardness	102	98.1	113	ND	140	129	137	76.5	71.2	119	106	106
pH	ND	8.2	7.9	ND	8.2	8.2	7.9	7.6	7.7	8	7.9	7.9
Total Suspended Solids	<1.0	20	16	ND	3	14	1	<1.0	4	<1.0	7	7
Total Dissolved Solids	168	126	146	ND	166	166	242	86	115	134	162	162
Sulfate	11.9	12.6	18.6	10.2	45.6	<5.0	16.5	21.1	<5.0	27.4	<5.0	<5.0
Total Organic Carbon	2	3.37	2.1	4.8	3	1	0.9	2.5	0.9	1.6	1.4	1.4
Ammonia-Nitrogen	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total Kjeldahl Nitrogen	<0.05	0.223	<0.05	<0.05	<0.05	0.055	0.235	0.055	0.161	<0.05	<0.05	<0.05
Nitrate	0.492	0.639	0.921	0.133	0.227	0.206	0.038	0.062	0.041	0.419	0.148	0.148
Total Phosphorus	0.044	0.046	ND	0.008	<0.005	ND	ND	<0.005	ND	<0.005	ND	ND
Calcium	38.5	29.2	41.1	52	46.1	46.4	60.7	23	19.1	42.1	39.5	39.5
Magnesium	6.21	4.65	6.2	6.95	6.31	6.12	9.63	4.54	4.29	5.71	5.48	5.48
Potassium	2.2	1.43	1.85	0.991	0.609	1.73	1.39	1.24	1.3	2.02	1.7	1.7
Sodium	3.4	2.26	2.85	2.49	1.71	3.01	4.63	3.48	3.72	5.49	5.6	5.6
Aluminum	<0.023	0.149	0.282	0.063	0.277	0.035	<0.056	0.107	0.08	0.095	0.103	0.103
Arsenic	<0.002	<0.002	<0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Barium	0.032	0.021	0.033	0.027	0.017	0.019	0.005	0.026	0.027	0.039	0.036	0.036
Beryllium	<0.001	ND	ND	<0.001	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	<0.001	ND	ND	<0.001	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	<0.003	0.007	<0.001	0.001	0.002	<0.001	<0.001	0.005	0.002	0.016	<0.001	<0.001
Copper	0.001	<0.001	0.001	<0.001	0.001	0.003	<0.001	<0.001	<0.001	<0.001	0.003	0.003
Iron	0.22	0.348	0.495	0.174	<0.008	<0.008	<0.005	0.059	0.345	0.246	0.257	0.257
Lead	0.006	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.001	<0.002	<0.001	<0.002	<0.002
Manganese	0.019	0.041	0.049	0.014	0.01	0.007	0.01	0.009	0.021	0.046	0.031	0.031
Mercury	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Nickel	<0.003	ND	ND	<0.003	ND	ND	ND	ND	ND	ND	ND	ND
Selenium	<0.002	ND	ND	<0.002	ND	ND	ND	ND	ND	ND	ND	ND
Silver	<0.001	ND	ND	<0.001	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	0.107	0.021	<0.003	<0.003	<0.003	0	<0.001	<0.003	0.018	<0.003	<0.003	<0.003

Russell Cr. (M) Russell Cr. (M) Russell Cr. (M) Salt Lick Cr. Salt Lick Cr. Salt Lick Cr. Salt Lick Cr. Sand Lick Cr. Sand Lick Cr. Sand Lick Cr. Tradewater R. Tradewater R. Tradewater R.

Physicochemical Data -
Interior Plateau

	Sep-92	May-94	Oct-94	May-94	Oct-94	Trammel Fk. (C) Trammel Fk. (C)	Trammel Fk. (RH) Trammel Fk. (RH)	Trammel Fk. (C) Trammel Fk. (C)	Whippoowill Cr. Whippoowill Cr.	Nov-94
Acidity	ND	<0.1	3.2	<0.1	3.5					7.5
Alkalinity	7.42	ND	117	70.2	107					212
Chloride	1.07	5.2	9.2	3.6	6					9.7
Conductivity	33.6	229	333	192	290					469
Fluoride	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1
Hardness	ND	99.6	154	85.1	136					102
pH	7.6	8.1	7.8	8	7.8					7.8
Total Suspended Solids	1	1	3	7	<1.0					3
Total Dissolved Solids	30	156	198	134	176					274
Sulfate	5.4	<5.0	53.8	<5.0	50.1					9.2
Total Organic Carbon	1.6	0.8	0.8	0.6	0.5					2.1
Ammonia-Nitrogen	<0.05	<0.05	<0.05	<0.05	<0.05					<0.05
Total Kjeldahl Nitrogen	<0.05	<0.05	0.166	<0.05	0.296					0.453
Nitrate	0.101	0.493	0.411	0.661	0.516					3.47
Total Phosphorus	0.005	ND	ND	ND	ND					ND
Calcium	2.59	28.4	42.5	24.4	37.3					79.9
Magnesium	1.14	7.47	10.9	6.47	9.88					7.68
Potassium	0.902	1.16	1.3	1.04	1.04					2.44
Sodium	0.822	3.28	4.97	2.43	3.47					3.39
Aluminum	0.174	0.05	<0.056	0.084	<0.056					<0.056
Arsenic	<0.002	<0.002	<0.002	<0.002	<0.002					<0.002
Barium	0.02	0.023	0.014	0.02	0.01					0.023
Beryllium	<0.001	ND	ND	ND	ND					ND
Cadmium	0.002	ND	ND	ND	ND					ND
Chromium	0.001	<0.001	<0.001	<0.001	<0.001					<0.001
Copper	0.002	0.001	<0.002	0.001	<0.002					<0.002
Iron	<0.009	0.009	0.053	0.079	0.043					0.068
Lead	<0.002	<0.002	<0.002	0.002	<0.002					<0.002
Manganese	0.018	0.017	0.023	0.028	0.023					0.021
Mercury	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001					<0.0001
Nickel	<0.002	ND	ND	ND	ND					ND
Selenium	<0.002	ND	ND	ND	ND					ND
Silver	<0.001	ND	ND	ND	ND					ND
Zinc	<0.003	<0.003	0.002	<0.003	<0.001					0.003

Physicochemical Data -
Interior Plateau

	Wilson Cr. Sep-92	Wilson Cr. May-93	Wilson Cr. May-94	Wilson Cr. Oct-94	Yellowbank Cr. Oct-92	Yellowbank Cr. Jun-94
Acidity	<1.0	1.5	<0.1	<1.0	1.41	7.9
Alkalinity	25	176	186	231	78	115
Chloride	3.24	2.3	2	2.7	6.78	5.9
Conductivity	ND	409	402	502	235	242
Fluoride	<0.1	<0.1	ND	<0.1	<0.1	0.18
Hardness	ND	210	156	351	ND	120
pH	ND	8.2	8.3	8	7.8	7.6
Total Suspended Solids	<1.0	17	6	5	8	2
Total Dissolved Solids	304	262	260	300	92	147
Sulfate	36.1	43.8	26.5	53.4	17.9	25.1
Total Organic Carbon	ND	2	1.6	1.1	19.1	2.7
Ammonia-Nitrogen	ND	<0.05	<0.05	<0.05	<0.05	0.083
Total Kjeldahl Nitrogen	0.12	<0.05	<0.05	<0.05	0.374	0.294
Nitrate	0.028	0.126	0.307	0.01	0.069	0.122
Total Phosphorus	ND	0.018	ND	ND	0.128	ND
Calcium	66.3	43.8	49.3	55.9	33.3	41.4
Magnesium	31.9	23.1	25.5	27.9	5.52	6.44
Potassium	2.62	1.61	18.2	2.45	4.33	2.86
Sodium	3.59	3	2.57	2.96	3.84	4.04
Aluminum	0.034	0.136	0.049	0.069	0.155	0.061
Arsenic	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Barium	0.041	0.023	0.031	0.036	0.062	0.06
Beryllium	<0.001	ND	ND	ND	<0.001	ND
Cadmium	<0.001	ND	ND	ND	<0.001	ND
Chromium	<0.001	<0.001	<0.001	<0.001	0.002	<0.001
Copper	0.003	0.001	0.002	<0.001	0.001	<0.001
Iron	<0.009	0.197	0.166	0.269	0.133	0.185
Lead	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Manganese	0.014	0.016	0.014	0.06	0.352	0.325
Mercury	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Nickel	<0.002	ND	ND	ND	<0.002	ND
Selenium	<0.002	ND	ND	ND	<0.002	ND
Silver	<0.001	ND	ND	ND	<0.001	ND
Zinc	<0.003	0.013	<0.003	<0.001	<0.003	<0.003

Physicochemical Data -
Mississippi Valley Loess Plains

	Blood R.		Panther Cr. (C)		Panther Cr. (C)		Panther Cr. (G)		Panther Cr. (G)	
	May-94	Nov-94	May-94	Nov-94	May-93	May-94	May-93	May-94	Nov-94	Nov-94
Acidity	0.9	4.5	<0.1	2.5	2.2	<0.1	2.2	<0.1	2.5	2.5
Alkalinity	12.4	9.5	13.1	12.8	19.3	16.6	19.3	16.6	17.3	17.3
Chloride	3.5	3.1	1.6	1.7	4.5	3.6	4.5	3.6	3.7	3.7
Conductivity	50.1	32.3	44.2	37.8	78	65.1	78	65.1	58.6	58.6
Fluoride	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Hardness	12.2	7.2	11.4	11.1	23.6	19.3	23.6	19.3	25	25
pH	6.7	6.3	6.8	6.6	7	6.9	7	6.9	6.6	6.6
Total Suspended Solids	7	94	15	9	5	6	5	6	1	1
Total Dissolved Solids	38	22	38	28	68	48	68	48	40	40
Sulfate	<5.0	<5.0	<5.0	<5.0	9.3	<5.0	9.3	<5.0	<5.0	<5.0
Total Organic Carbon	2.2	1.7	1.3	2.1	1.7	1.8	1.7	1.8	1.6	1.6
Ammonia-Nitrogen	0.11	<0.05	0.081	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total Kjeldahl Nitrogen	0.13	0.325	<0.05	0.364	0.168	0.054	0.168	0.054	0.484	0.484
Nitrate	0.336	0.117	0.241	0.115	0.512	0.468	0.512	0.468	0.158	0.158
Total Phosphorus	ND	0.021	ND	0.013	0.021	ND	0.021	ND	0.046	0.046
Calcium	3.59	2.58	3.27	2.73	6.29	5.54	6.29	5.54	4.3	4.3
Magnesium	1.43	1.03	1.36	0.982	2.03	1.92	2.03	1.92	1.34	1.34
Potassium	0.987	0.903	0.903	0.786	1.63	1.56	1.63	1.56	1.27	1.27
Sodium	2.56	2.6	1.6	1.76	3.13	3.05	3.13	3.05	3.81	3.81
Aluminum	0.312	0.64	0.223	0.158	0.155	0.122	0.155	0.122	0.105	0.105
Arsenic	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	<0.002	0.003	<0.002	<0.002
Barium	0.04	0.032	0.036	0.024	0.035	0.036	0.035	0.036	0.025	0.025
Beryllium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	<0.001	<0.001	<0.001	<0.001	0.003	0.003	0.003	0.003	<0.001	<0.001
Copper	<0.001	<0.001	<0.001	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Iron	2.18	3.55	2.07	2.94	0.76	0.723	0.76	0.723	0.874	0.874
Lead	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.001	<0.002	<0.002	<0.002
Manganese	0.393	0.549	0.647	0.483	0.199	0.179	0.199	0.179	0.065	0.065
Mercury	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Nickel	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	0.006	0.002	<0.003	0.003	<0.003	<0.003	<0.003	<0.003	0.002	0.002

Physicochemical Data -
Mississippi Valley Loess Plains

	Soldiers Cr. (V)			Soldiers Cr. (V)			Soldiers Cr. (52)		
	Oct-92	May-93	Nov-94	Oct-92	May-93	Nov-94	Oct-92	May-93	Nov-94
Acidity	1.66	3.6	3.3						
Alkalinity	160	15	19.3						
Chloride	2.8	7.9	6.8						
Conductivity	106	101	120						
Fluoride	<0.1	<0.1	<0.1						
Hardness	28.8	28.9	31.2						
pH	7.5	6.9	6.6						
Total Suspended Solids	<1.0	47	2						
Total Dissolved Solids	74	62	63						
Sulfate	ND	14.3	6.4						
Total Organic Carbon	ND	1.4	1.8						
Ammonia-Nitrogen	<0.05	<0.05	<0.05						
Total Kjeldahl Nitrogen	<0.05	0.203	0.382						
Nitrate	0.282	1.49	0.156						
Total Phosphorus	0.052	0.04	0.01						
Calcium	7.65	8.4	8.13						
Magnesium	2.38	2.72	2.66						
Potassium	2.42	2.2	3.07						
Sodium	3.97	4.49	7.22						
Aluminum	0.184	0.697	<0.056						
Arsenic	<0.002	<0.002	<0.002						
Barium	0.066	0.066	0.056						
Beryllium	ND	ND	ND						
Cadmium	ND	ND	ND						
Chromium	0.007	0.003	<0.001						
Copper	0.002	0.002	0.015						
Iron	<0.009	1.31	0.091						
Lead	<0.002	0.002	<0.002						
Manganese	0.135	0.11	0.074						
Mercury	<0.0001	<0.0001	<0.0001						
Nickel	ND	ND	ND						
Selenium	ND	ND	ND						
Silver	ND	ND	ND						
Zinc	<0.003	<0.003	0.013						

APPENDIX 3:
NON-DIATOM ALGAL COMMUNITY DATA

Bad Branch

	05/92	10/92	10/93	06/94
Chlorophyta				
Actinotaenium	X	X	X	X
Ankistrodesmus		X		
Arthrodesmus	X	X	X	X
Chlamydomonas		X	X	X
Closterium	X	X	X	
Coenidium	X	X	X	X
Cylindrocystis	X	X	X	
Geminella	X	X	X	X
Gloeocystis				X
Gonatozygon			X	
Klebsormidium	X		X	
Microspora		X	X	
Microthamnion	X			
Mougeotia	X	X	X	X
Oedogonium		X	X	X
Protococcus	X	X		
Scenedesmus	X			
Sphaerocystis		X		
Staurastrum		X	X	X
Stigeoclonium				X
Ulothrix	X	X	X	X
Cyanophyta				
Anabaena	X	X	X	
Aphanothece		X		
Calothrix	X	X	X	
Diclothrix	X	X		
Gloeocapsa		X	X	X
Haplolephon		X		
Lynbya	X	X	X	
Merismopedia			X	
Microcoleus	X	X	X	X
Oscillatoria	X	X	X	X
Phormidium		X		
Schizothrix		X		
Scytonema		X	X	X
Spirulina	X			
Stigonema	X	X	X	X
Tolypothrix			X	
Euglenophyta				
Euglena			X	
Trachelomonas		X	X	
Pyrophyta				
Gymnodinium		X	X	
Peridinium				X
Rhodophyta				
Audouinella	X	X		
TOTAL	21	31	27	17

Bark Camp Creek

	06/91	11/91	04/93	11/93	06/94
Chlorophyta					
Actinotaenium			X	X	
Ankistrodesmus	X			X	X
Arthrodesmus				X	
Chlamydomonas			X	X	X
Chlorella	X	X			
Closterium	X	X	X	X	X
Coelastrum	X				
Coenacium	X	X	X	X	X
Euastrum				X	
Glaucocystis		X			X
Gonatozygon			X	X	
Microsterias				X	
Microspora				X	
Mougeotia	X	X	X	X	X
Netrium				X	
Oedogonium	X	X	X	X	X
Oocystis	X				
Rhizoclonium				X	
Scenedesmus	X	X		X	X
Sphaerocystis		X		X	
Sprogyra			X		
Staurastrum	X	X	X	X	X
Stigeoclonium		X		X	
Ulothrix			X	X	
Zygnema		X	X		
Chrysophyta					
Synura					X
Cryptophyta					
Cryptomonas				X	
Cyanophyta					
Anabaena	X	X	X	X	
Anacystis		X		X	
Aphanocapsa		X			
Calothrix	X			X	
Chroococcus		X	X	X	X
Gloeocapsa			X		
Lynbya		X	X	X	
Merismopedia					X
Microcoleus	X				
Noctoc			X		
Oscillatoria	X	X	X	X	X
Phormidium				X	
Raphidiopsis				X	
Schizothrix	X			X	
Scytonema		X			
Tolypothrix		X	X	X	
Euglenophyta					
Euglena				X	
Phacus				X	X
Pyrrhophyta					
Gymnodinium				X	
Rhodophyta					
Audouinella		X	X	X	X
Lemanea					X
TOTAL	15	20	19	34	16

Cane Creek

	08/92	09/92	04/93	10/93	06/94	10/94	07/95
Chlorophyta							
Actinotaenium	X	X	X	X	X		
Ankistrodesmus				X	X		X
Chlamydomonas		X			X	X	X
Chlorella			X	X			
Closterium	X	X	X	X	X	X	
Coenidium	X	X	X	X		X	X
Gloeocystis					X	X	X
Gonatozygon			X				
Mougeotia	X	X	X	X	X	X	X
Netrium		X					
Oedogonium	X	X	X	X	X	X	X
Pleurotaenium		X					
Protococcus		X					
Scenedesmus						X	
Sphaerocystis				X			
Spirogyra	X	X	X	X	X		
Staurastrum	X	X	X	X	X	X	
Stigeoclonium	X				X		
Ulothrix		X	X				X
Xanthidium							X
Zygnema		X					
Chrysophyta							
Dinobryon	X	X					
Cryptophyta							
Cryptomonas						X	
Cyanophyta							
Anabaena	X	X	X	X	X	X	X
Calothrix	X	X		X		X	X
Chroococcus	X	X	X	X	X	X	X
Dactylococcopsis		X					
Haploisiphon		X					
Lyngbya	X	X	X	X		X	X
Merismopedia			X	X		X	
Microcoleus		X	X	X			
Noctoc	X	X					
Oscillatoria	X	X	X	X	X	X	X
Rhaphidiopsis							X
Schizothrix	X	X	X				
Scytonema	X		X	X			
Stigonema			X				
Tolypothrix				X			
Euglenophyta							
Euglena					X		X
Phacus							X
Trachelomonas	X			X			X
Rhodophyta							
Audouinella	X	X	X		X	X	
Lemanea	X		X	X		X	
TOTAL	20	25	21	21	15	17	17

Clemons Fork (Downstream)

	05/91	10/91	04/93	10/93	05/94
Chlorophyta					
Actinotaenium			X		X
Ankistrodesmus	X	X		X	
Bulbochaete				X	
Chlamydomonas		X			
Closterium	X	X	X	X	X
Cosmarium	X	X	X	X	X
Desmidiium	X				
Geminella					X
Gloeocystis			X		
Gonatozygon					X
Microspora	X		X		
Mougeotia	X	X		X	X
Oedogonium	X	X		X	X
Penium	X				
Pleurotaenium				X	
Protococcus			X		
Scenedesmus		X		X	
Sphaerocystis				X	
Spirogyra	X	X		X	
Staurastrum	X	X	X	X	X
Stigeoclonium			X	X	
Ulothrix	X	X	X	X	X
Chrysophyta					
Ophiocytium		X			
Cryptophyta					
Cryptomonas	X				
Cyanophyta					
Anabaena	X	X		X	
Anacystis			X	X	
Aphanocapsa		X		X	
Calothrix		X	X	X	
Chroococcus		X	X	X	
Lyngbya		X	X	X	X
Merismopedia		X			
Microcoleus	X		X	X	X
Oscillatoria	X	X	X	X	X
Phormidium			X		
Schizothrix	X			X	X
Euglenophyta					
Euglena	X				
Trachelomonas				X	
Rhodophyta					
Audouinella		X	X		
Lemanea	X				X
TOTAL	18	19	17	23	14

Clemons Fork (Upstream)

	05/91	10/91	04/93	05/94	05/95
Chlorophyta					
Actinotaenium			X	X	X
Ankistrodesmus		X			
Binuclearia			X		
Chlamydomonas				X	
Closterium	X	X	X	X	X
Coenidium	X	X	X	X	X
Cylindrocapsa		X			
Gloeocystis		X			X
Gonatozygon			X	X	
Microspora	X		X		
Mougeotia		X	X	X	X
Oedogonium		X	X	X	X
Palmodictyon				X	
Penium		X	X		
Protococcus			X		
Schizomeris			X		
Spirogyra	X			X	X
Staurastrum	X	X	X	X	
Stigeoclonium	X		X	X	X
Tetraspora				X	
Ulothrix	X		X		
Chrysophyta					
Bumillaria			X		
Cryptophyta					
Cryptomonas				X	
Cyanophyta					
Anabaena	X	X		X	X
Aphanocapsa		X			
Calothrix		X			
Chroococcus		X	X	X	X
Gloeocapsa					X
Lyngbya		X	X	X	X
Merismopedia		X			
Microcoleus	X		X	X	X
Oscillatoria	X	X	X	X	X
Phormidium		X			
Schizothrix					X
Euglenophyta					
Trachelomonas					X
Rhodophyta					
Audouinella		X	X	X	
Lemanea		X	X	X	
TOTAL	10	19	21	20	16

Coles Fort

	06/91	10/91	07/93	10/93	05/94	05/95
Chlorophyta						
Actinotaenium					X	
Ankistrodesmus		X	X	X		
Chlamydomonas		X			X	X
Closterium	X	X	X	X	X	X
Coenidium	X	X	X		X	X
Gloecystis					X	X
Gonatozygon			X		X	
Microspora			X			
Mougeotia	X	X	X	X		X
Oedogonium	X	X	X	X	X	X
Penium	X					
Sphaerocystis				X		
Spirogyra	X					
Staurastrum	X	X	X	X	X	X
Stigeoclonium		X	X	X	X	X
Ulothrix	X		X	X		X
Cyanophyta						
Anabaena	X	X	X	X	X	X
Anacystis	X		X			
Calothrix	X	X	X	X	X	X
Chroococcus		X	X	X		X
Lyngbya				X	X	X
Microcoleus	X		X	X		
Oscillatoria	X	X	X	X	X	X
Phormidium			X			
Raphidiopsis				X		X
Schizothrix	X			X	X	X
Euglenophyta						
Euglena					X	X
Pyrrophyta						
Gymnodinium				X		
Rhodophyta						
Audouinella	X	X	X		X	X
Lemanea	X	X	X		X	X
TOTAL	16	14	19	17	17	19

Eagle Creek

	05/91	10/91	04/93	08/94	11/94
Chlorophyta					
Actinotaenium			X		
Ankistrodesmus	X	X	X		X
Bulbochaete	X				
Chlamydomonas			X	X	X
Closterium	X	X	X	X	X
Coelastrum		X			
Coenidium	X	X	X	X	
Dictyoephaerium		X			
Draparnaldia	X				
Euastrum	X				
Gloeocystis		X		X	X
Gonatozygon			X	X	
Haematococcus	X				
Hyalotheca			X		
Microspora			X		
Mougeotia	X	X	X	X	X
Oedogonium	X	X	X	X	X
Pediastrum			X		
Penium		X			
Roya	X				
Scenedesmus	X	X	X		
Sphaerocystis	X	X			
Spirogyra		X	X		
Staurastrum	X	X	X	X	
Stigeoclonium	X	X	X		
Ulothrix	X		X		X
Chrysophyta					
Dinobryon				X	
Mallomonas		X			
Cryptophyta					
Cryptomonas				X	X
Cyanophyta					
Anabaena	X	X	X		X
Chroococcus	X	X	X		X
Lyngbya			X	X	X
Microcoleus	X				
Oscillatoria	X	X	X	X	X
Raphidiopsis					X
Schizothrix		X	X	X	
Spirulina		X	X		
Tolypothrix				X	
Euglenophyta					
Euglena		X			
Trachelomonas		X		X	
Rhodophyta					
Audouinella	X	X	X	X	X
Batrachospermum	X	X	X		
Lemanea			X	X	
TOTAL	21	24	25	17	14

Marsh Creek

07/92 11/94

Chlorophyta

Ankistrodesmus	X	X
Chlamydomonas	X	X
Closterium	X	X
Coenacium	X	X
Microspora	X	
Mougeotia	X	X
Oedogonium	X	X
Pandorina	X	
Pleurotaenium	X	
Rhizoclonium	X	
Scenedesmus	X	
Sphaerocystis	X	X
Spirogyra	X	
Staurastrum	X	X
Stigeoclonium	X	

Chrysophyta

Dinobryon		X
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Cyanophyta

Anabaena	X	X
Anacystis		X
Chroococcus	X	X
Lyngbya	X	X
Oscillatoria	X	X
Stigonema	X	

Euglenophyta

Euglena	X	
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Rhodophyta

Audouinella	X	X
Batrachospermum	X	

TOTAL	23	16
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Right Fork Buffalo Creek

	06/92	10/92	10/93	06/94	10/94
Chlorophyta					
Ankistrodesmus	X	X	X	X	X
Chlamydomonas			X	X	X
Cladophora	X				
Closterium	X		X	X	
Coelastrum					X
Coenacium	X	X	X	X	X
Dictyosphaerium		X			
Geminella		X			
Gloeocystis			X	X	X
Gonatozygon				X	
Haematococcus				X	
Mougeotia		X	X	X	X
Oedogonium	X	X	X	X	X
Pediastrum					X
Protooccus	X				X
Scenedesmus	X	X			X
Sphaerocystis	X	X			X
Spirogyra	X	X	X	X	X
Staurastrum	X	X	X	X	X
Stigeoclonium		X	X		X
Ulothrix			X	X	
Cryptophyta					
Cryptomonas					
Cyanophyta					
Anabaena					X
Anacystis	X		X		X
Calothrix	X	X	X		X
Chroococcus	X				X
Dichothrix	X				
Lyngbya	X	X	X	X	X
Microcoleus	X	X	X	X	
Oscillatoria	X	X	X	X	X
Raphidiopsis			X		
Schizothrix	X	X	X		
Euglenophyta					
Phacus			X		
Rhodophyta					
Audouinella	X	X	X		X
Lemanea	X			X	X
TOTAL	20	17	20	17	22

South Fort Dog Slaughter Creek

	05/91	10/91	04/93	11/93	06/94
Chlorophyta					
Actinotaenium			X	X	
Ankistrodesmus	X	X		X	
Chlamydomonas					X
Closterium	X	X	X	X	
Cosmarium	X	X	X	X	X
Gloeocystis		X			X
Gonatozygon			X		
Mougeotia	X	X	X	X	
Oedogonium	X	X	X	X	
Pediastrum				X	
Protooccus		X		X	X
Quadrigula	X				
Sphaerocystis		X			
Spirogyra			X		
Staurastrum	X		X	X	X
Stigeoclonium		X	X		
Ulothrix	X	X	X	X	
Chrysophyta					
Dinobryon					X
Cryptophyta					
Cryptomonas		X			
Cyanophyta					
Anabaena	X	X	X	X	X
Chroococcus		X		X	X
Lyngbya		X	X	X	X
Microcoleus	X		X		
Noctoc			X		
Oscillatoria	X	X	X	X	X
Phormidium				X	
Raphidiopsis					X
Schizothrix	X				
Scytonema	X	X	X		
Stigonema		X			
Euglenophyta					
Euglena					X
Phacus					X
Rhodophyta					
Audouinella	X	X	X	X	
Batrachospermum			X		
Lemanea			X		X
TOTAL	14	18	19	16	14

Arabe Fork

	04/92	10/92	06/93	10/93	06/94	11/94
Chlorophyta						
Ankistrodesmus	X	X	X	X	X	X
Chlamydomonas	X	X		X	X	X
Cladophora					X	
Closterium	X	X	X	X	X	X
Coenarium	X	X	X	X	X	X
Gloeocystis		X			X	X
Gonatozygon	X		X		X	
Gonium						X
Mougeotia	X		X	X	X	X
Oedogonium	X	X		X	X	X
Pleurotaenium						X
Protococcus		X		X		
Rhizoclonium	X		X		X	
Scenedesmus		X	X	X	X	X
Sphaerocystis				X	X	X
Spirogyra	X	X		X	X	X
Spondylosium					X	
Staurastrum	X	X		X	X	X
Stigeoclonium		X		X	X	X
Tetraspora	X					
Ulothrix		X		X	X	X
Zygnema						X
Chrysophyta						
Synura						X
Vaucheria	X		X			
Cryptophyta						
Cryptomonas			X			X
Cyanophyta						
Anabaena	X	X	X	X	X	X
Anacystis		X		X		X
Aphanocapsa	X				X	
Calothrix	X					
Chroococcus		X		X	X	X
Lyngbya	X	X	X	X	X	X
Merismopedia		X				
Microcoleus		X		X		
Ocellularia	X	X	X	X	X	X
Raphidiopsis			X			X
Schizothrix		X	X	X		X
Euglenophyta						
Euglena					X	
Rhodophyta						
Audouinella		X	X	X		X
TOTAL	17	21	15	21	23	26

Big Caney Creek

	04/92	06/93	06/94	11/94
Chlorophyta				
Ankistrodesmus			X	X
Chlamydomonas	X	X	X	X
Cladophora	X	X	X	
Closterium	X	X	X	
Coelastrum	X		X	
Gloeocystis				X
Mougeotia	X			X
Oedogonium				X
Pediastrum				X
Protooococus		X	X	
Rhizoclonium				X
Scenedesmus	X		X	X
Sphaerocystis	X			
Spirogyra	X			X
Staurastrum	X	X	X	X
Stigeoclonium				X
Tetraspora	X			
Ulothrix		X		X
Cryptophyta				
Cryptomonas			X	
Cyanophyta				
Anabaena	X		X	
Anacystis				X
Chroococcus			X	X
Lyngbya	X		X	X
Merismopedia	X			
Microcoleus			X	
Oscillatoria	X	X	X	X
Raphidiopsis				X
Euglenophyta				
Euglena			X	
Rhodophyta				
Lemanea			X	
TOTAL	14	7	16	17

Bucket Branch

	04/92	10/92	05/93	10/93	06/94	10/94
Chlorophyta						
Actinotaenium			X			
Ankistrodesmus		X	X		X	X
Chlamydomonas	X	X	X	X	X	X
Closterium	X	X		X		X
Coelastrum					X	
Cosmarium	X		X		X	X
Crucigenia					X	
Euastrum	X					
Geminella				X		
Gloeoecystis	X			X	X	X
Gonatozygon	X		X			
Mougeotia	X		X		X	X
Oedogonium	X	X		X	X	X
Protococcus		X				
Scenedesmus	X	X	X	X	X	X
Sphaerocystis	X			X	X	X
Spirogyra					X	
Staurastrum	X	X		X	X	X
Stigeoclonium				X	X	
Ulothrix		X				
Cryptophyta						
Cryptomonas			X			
Cyanophyta						
Anabaena		X		X	X	
Anacystis	X	X				X
Chroococcus	X				X	X
Dactylococcopsis		X				
Lyngbya		X			X	
Microcoleus	X		X	X		
Oscillatoria	X	X	X	X	X	X
Schizothrix			X	X		
Euglenophyta						
Euglena		X				
Trachelomonas	X			X	X	
Rhodophyta						
Audouinella		X				X
TOTAL	16	15	11	14	18	14

Devils Fort

	04/92	10/92	05/93	10/93	06/94	10/94
Chlorophyta						
Actinotaenium	X		X			
Ankistrodesmus	X		X		X	X
Chlamydomonas	X		X			X
Cladophora		X				
Closterium	X	X	X		X	
Coelastrum				X	X	
Coenarium	X	X	X			X
Ducellieria			X			
Geminella				X		X
Gloeocystis				X	X	
Gonatozygon			X			
Kircheriella			X			
Mougeotia	X	X	X		X	X
Oedogonium	X	X	X	X	X	X
Protococcus		X				
Scenedesmus	X	X	X		X	X
Sphaerocystis	X			X	X	
Spirogyra	X	X			X	X
Spondyloelium	X					
Staurastrum	X	X	X	X	X	X
Stigeoclonium			X			
Ulothrix				X		
Chrysophyta						
Dinobryon	X	X				X
Synura	X					
Cryptophyta						
Cryptomonas						X
Cyanophyta						
Anabaena	X		X	X		X
Anacystis		X		X	X	
Calothrix	X	X		X	X	
Chroococcus		X		X	X	X
Dactylococcopsis		X				
Dichothrix					X	
Lyngbya	X	X	X	X	X	X
Merismopedia		X	X			
Microcoleus				X		X
Oscillatoria	X	X	X	X	X	X
Phormidium			X			
Raphidiopsis			X			X
Schizothrix	X				X	
Euglenophyta						
Euglena						X
Trachelomonas					X	X
Rhodophyta						
Audouinella	X	X	X	X	X	X
Batrachospermum					X	
Lemanea			X		X	
TOTAL	20	18	21	15	21	20

Horse Lick Creek

	10/92	07/93	11/93
Charophyta			
Chara	X	X	X
Chlorophyta			
Ankistrodesmus	X		X
Cladophora	X	X	
Closterium	X	X	X
Coenacium	X	X	X
Geminella			X
Gloeocystis	X	X	X
Mougeotia	X		X
Oedogonium	X	X	X
Protococcus	X	X	X
Scenedesmus	X	X	
Sphaerocystis			X
Spirogyra	X	X	X
Staurastrum	X	X	X
Stigeoclonium	X	X	X
Ulothrix			X
Chrysophyta			
Vaucheria		X	
Cyanophyta			
Anabaena	X	X	X
Anacystis			X
Calothrix	X		X
Chroococcus		X	X
Dichothrix	X		X
Lyngbya	X	X	X
Merismopedia	X	X	X
Microcoleus	X	X	X
Oscillatoria	X	X	X
Phormidium			X
Raphidiopsis			X
Schizothrix			X
Tolypothrix			X
Rhodophyta			
Audouinella		X	X
Batrachospermum		X	X
Lemanea		X	X
TOTAL	20	21	30

Laurel Creek

	04/92	10/92	06/93	10/93	06/94	10/94
Chlorophyta						
Actinotaenium						X
Ankistrodesmus	X	X			X	X
Chlamydomonas		X			X	X
Cladophora	X	X	X		X	X
Closterium	X	X			X	X
Coelastrum						X
Coenarium	X	X		X	X	X
Crucigenia	X					
Draparnaldia	X					
Gloeocystis				X	X	X
Mougeotia	X	X	X	X		X
Oedogonium		X	X	X	X	
Pleurotaenium						X
Protococcus	X	X	X			
Scenedesmus	X	X		X	X	X
Sphaerocystis		X				X
Spirogyra	X	X	X		X	
Staurastrum	X	X		X	X	X
Stigeoclonium			X	X	X	X
Ulothrix	X	X				
Chrysophyta						
Vaucheria						X
Cryptophyta						
Cryptomonas	X					X
Cyanophyta						
Anabaena	X	X	X	X		X
Anacystis		X				X
Aphanocapsa	X					
Calothrix	X					
Chroococcus		X		X		X
Dactylococcopsis	X					
Lyngbya	X	X	X	X		X
Merismopedia	X				X	X
Microcoleus			X	X		X
Noctoc			X			
Oscillatoria	X	X	X	X	X	X
Schizothrix	X			X		
Euglenophyta						
Euglena		X				
Phacus						X
Trachelomonas					X	X
Rhodophyta						
Audouinella		X				X
Batrachospermum			X			
Lemanea			X			
TOTAL	21	20	13	13	14	26

North Fork Licking River

	04/92	10/92	05/93	10/93	06/94	10/94
Chlorophyta						
Actinotaenium			X			
Ankistrodesmus	X	X	X		X	X
Chlamydomonas		X	X	X	X	X
Closterium	X	X	X	X	X	X
Coelastrum					X	X
Cosmarium	X	X	X	X	X	X
Crucigenia					X	
Dictyoephaerium					X	
Gloeocystis	X				X	
Gonatozygon	X	X	X		X	
Klebsormidium				X		
Mougeotia	X	X	X		X	
Oedogonium		X	X		X	X
Pediastrum						X
Protococcus			X	X		
Scenedesmus	X	X			X	X
Sphaerocystis				X	X	X
Spirogyra	X	X	X		X	X
Staurastrum	X	X	X	X	X	X
Stigeoclonium	X		X	X		
Tetraedron						X
Ulothrix					X	
Chrysophyta						
Dinobryon						X
Cryptophyta						
Cryptomonas	X		X			X
Cyanophyta						
Anabaena	X	X	X	X	X	X
Anacystis		X	X	X		X
Aphanocapsa					X	
Calothrix		X	X	X		X
Chroococcus		X	X	X	X	X
Dactylococcopsis	X					
Lyngbya	X	X	X	X	X	X
Merismopedia					X	X
Microcoleus						X
Oscillatoria	X	X	X	X	X	X
Schizothrix			X	X		
Euglenophyta						
Euglena				X		
Phacus					X	X
Trachelomonas					X	X
Pyrophyta						
Peridinium					X	
Rhodophyta						
Audouinella	X	X	X	X	X	X
Batrachospermum	X		X		X	
Lemanea			X		X	X
TOTAL	17	17	23	17	28	28

South Fork Station Camp Creek

	07/82	09/82	06/83	06/84	10/84	07/85
Charophyta						
Chara		X				
Chlorophyta						
Ankistrodesmus		X		X	X	X
Bulbochaete						X
Chaetophora			X	X		
Chlamydomonas	X		X		X	
Cladophora						X
Closterium	X	X	X		X	X
Coelastrum						X
Coenarium	X	X	X			X
Dictyosphaerium						X
Geminella		X				
Gloeocystis	X		X	X	X	
Gonatozygon		X				
Mougeotia	X	X			X	X
Oedogonium	X	X			X	
Pediastrum						X
Protococcus		X		X		
Rhizoclonium	X					
Scenedesmus	X	X			X	X
Sphaerocystis	X					
Spirogyra	X	X	X	X	X	X
Staurastrum	X	X	X	X		
Stigeoclonium	X			X	X	
Cyanophyta						
Anabaena		X	X			X
Anacystis	X	X			X	X
Aphanocapsa						X
Calothrix	X	X	X	X	X	X
Chroococcus	X	X	X		X	
Gloeocapsa				X	X	
Lyngbya	X	X	X	X	X	
Merismopedia		X	X			X
Microcoleus	X	X	X		X	
Oscillatoria	X	X	X	X	X	X
Phormidium					X	
Schizothrix		X	X	X	X	
Spirulina			X			
Euglenophyta						
Trachelomonas				X		
Rhodophyta						
Audouinella		X	X	X	X	
Batrachospermum				X		
Lemanea				X		
TOTAL	18	22	17	16	19	17

Station Camp Creek

	07/92	09/92	05/93	06/94	10/94	07/95
Chlorophyta						
Ankistrodesmus		X	X	X	X	X
Bulbochaete	X					
Chaetophora			X			
Chlamydomonas	X	X	X	X		X
Cladophora	X					X
Closterium	X	X	X	X		X
Coelastrum						X
Coenarium	X	X	X	X		X
Dictyosphaerium		X				
Gloeoecystis			X	X	X	X
Gonatozygon			X			
Gonium						X
Kircheriella	X					
Mougeotia	X	X	X	X		X
Oedogonium	X	X	X	X		X
Pediastrum						X
Protococcus		X				
Rhizoclonium			X			
Scenedesmus	X	X	X	X		X
Sphaerocystis	X					
Spirogyra	X	X	X	X		X
Spondyloium			X			X
Staurastrum	X	X	X	X		
Stigeoclonium	X	X	X	X	X	X
Cryptophyta						
Cryptomonas	X		X			
Cyanophyta						
Anabaena	X	X	X	X	X	X
Anacystis						X
Aphanocapsa						X
Calothrix	X	X	X	X	X	X
Chroococcus	X	X	X		X	X
Lyngbya		X	X	X	X	X
Merismopedia		X	X	X		X
Microcoleus		X		X	X	
Oscillatoria	X	X	X	X	X	X
Raphidiopsis		X				X
Schizothrix				X	X	
Euglenophyta						
Euglena						X
Trachelomonas				X		
Rhodophyta						
Audouinella		X	X	X	X	X
Batrachospermum			X			
Lemanea				X		
TOTAL	18	21	24	21	11	26

Sturgeon Creek

	06/92	10/92	06/93	10/93	06/94	10/94	07/95
Chlorophyta							
Ankistrodesmus	X	X	X	X	X	X	X
Chlamydomonas	X	X	X	X	X		
Cladophora			X				
Closterium	X	X	X	X	X	X	X
Coelastrum	X	X				X	
Coenarium	X	X	X	X	X	X	
Crucigenia	X						
Cylindrocapsa		X					
Dictyocepharium		X					
Gloeocystis	X		X	X	X	X	X
Gonium	X						
Mougeotia	X	X	X				X
Oedogonium	X		X	X	X		X
Pediastrum	X				X		X
Pleurotaenium			X				
Protococcus		X		X	X	X	
Scenedesmus	X	X	X		X	X	X
Sphaerocystis	X						
Spirogyra	X	X	X		X	X	X
Staurastrum	X	X	X	X	X	X	
Stigeoclonium	X	X	X		X	X	X
Ulothrix			X		X		
Cyanophyta							
Anabaena	X	X	X	X	X	X	X
Anacystis				X		X	X
Calothrix	X	X	X		X	X	X
Chroococcus	X	X		X		X	
Lyngbya	X	X	X	X	X	X	X
Merismopedia		X	X			X	X
Microcoleus	X		X	X	X	X	X
Oscillatoria	X	X	X	X	X	X	X
Schizothrix	X	X			X	X	
Euglenophyta							
Trachelomonas				X	X		
Rhodophyta							
Audouinella	X	X	X	X	X	X	X
Batrachospermum		X					
Lemanea	X	X	X	X	X	X	X
TOTAL	25	23	22	17	22	21	18

Beaverdam Creek

	07/02	07/83	11/83	05/04	11/04	05/95
Chlorophyta						
Actinotaenium			X			
Ankistrodesmus			X	X	X	
Arthrodesmus	X					
Chlamydomonas	X	X	X	X	X	X
Chloromonas						X
Cladophora	X	X	X	X	X	
Closterium	X	X	X	X	X	X
Coelastrum	X	X		X		X
Coenaculum	X				X	
Crucigenia	X					
Eudorina	X					
Gloeocystis	X	X		X		X
Klebsormidium			X			
Mougeotia		X				
Oedogonium	X				X	
Pandorina	X					
Pediastrum	X					
Procooccus	X	X		X		X
Scenedesmus	X	X	X			X
Sphaerocystis	X		X			X
Staurastrum	X					X
Stigeoclonium	X		X	X		
Cryptophyta						
Cryptomonas	X				X	X
Cyanophyta						
Anabaena	X		X	X	X	X
Anacystis			X			
Aphanocapsa	X				X	
Calothrix					X	
Chroococcus	X	X	X		X	
Dactylococcopsis	X					
Gloeocapsa		X				X
Lyngbya	X	X	X	X	X	
Merismopedia						X
Microcoleus	X	X				
Oscillatoria	X	X	X	X	X	X
Raphidiopsis			X			
Euglenophyta						
Euglena					X	X
Trachelomonas						X
Rhodophyta						
Audouinella			X	X	X	
TOTAL	25	13	16	12	15	16

Buck Creek

	05/92	10/92	05/93	10/93	06/94	10/94	07/95
Chlorophyta							
Ankistrodesmus	X	X	X	X		X	
Chlamydomonas		X	X	X	X	X	
Cladophora	X	X	X	X	X	X	X
Closteriopsis	X						
Closterium	X	X	X	X		X	
Coelastrum	X	X	X	X		X	
Coenarium	X	X	X	X		X	
Gloeocystis	X			X	X	X	X
Hydrodictyon	X						
Kircheriella	X			X			
Mougeotia	X		X				
Oedogonium	X	X	X	X	X		
Pediastrum	X	X	X	X			
Penium		X					
Protococcus	X	X	X		X	X	
Rhizoclonium	X						
Scenedesmus	X	X	X	X	X	X	
Sphaerocystis	X	X	X	X			
Spirogyra	X	X		X	X	X	
Staurastrum	X	X	X	X	X		
Stigeoclonium	X	X	X	X	X	X	X
Chrysophyta							
Vaucheria	X	X					
Cyanophyta							
Anabaena		X		X		X	X
Anacystis	X	X		X	X	X	
Aphanocapsa	X						
Calothrix	X	X		X		X	X
Chroococcus					X		X
Dichothrix				X			
Lyngbya		X	X	X	X	X	
Merismopedia	X	X	X	X		X	
Microcoleus		X		X	X	X	X
Ocellularia	X	X	X	X	X	X	X
Schizothrix	X	X	X	X	X	X	X
Tolypothrix				X			
Euglenophyta							
Euglena					X	X	X
Trachelomonas						X	
Pyrophyta							
Peridinium					X		
Rhodophyta							
Audouinella			X		X		
Lemanea	X		X		X		X
TOTAL	27	24	20	24	19	21	11

Clear Creek

	05/92	09/92	05/93	05/94
Chlorophyta				
Actinotaenium		X		
Ankistrodesmus	X	X	X	
Chlamydomonas	X	X	X	X
Cladophora	X	X	X	X
Closterium	X	X	X	X
Coelastrum	X	X	X	X
Coemarium	X	X	X	
Cylindrocapsa		X		
Gonium				X
Klebsormidium		X		
Mougeotia	X			
Oedogonium	X	X	X	X
Pandorina	X			X
Pediastrum	X			
Protococcus	X	X	X	X
Scenedesmus	X	X	X	X
Sphaerocystis	X		X	X
Spirogyra	X		X	X
Staurastrum			X	
Stigeoclonium	X	X	X	X
Tetraspora	X		X	
Cyanophyta				
Anabaena		X	X	X
Anacystis	X			
Aphanocapsa	X			
Calothrix	X	X	X	
Chroococcus	X		X	X
Dactylococcopsis	X			
Lyngbya	X	X	X	X
Merismopedia	X	X	X	
Microcoleus	X	X	X	
Noctoc			X	
Ocellularia	X	X	X	X
Rhaphidiopsis		X		X
Schizothrix	X	X	X	
Spirulina		X		
Euglenophyta				
Euglena			X	X
Rhodophyta				
Audouinella	X		X	X
Batrachospermum	X		X	X
Lemanea		X	X	X
TOTAL	28	23	27	21

Gasper River

	10/92	11/93	11/94	04/95
Chlorophyta				
Chlamydomonas		X	X	X
Cladophora	X	X	X	X
Closterium		X	X	X
Coenidium	X	X	X	
Gloeocystis			X	X
Gonatozygon		X		
Mougeotia		X	X	
Oedogonium		X	X	
Protooccus		X		
Rhizoclonium			X	
Scenedesmus		X	X	X
Sphaerocystis	X			
Spirogyra			X	
Zoochlorella				X
Chrysophyta				
Vaucheria		X	X	
Cryptophyta				
Cryptomonas			X	
Cyanophyta				
Anabaena	X	X	X	
Anacystis		X	X	
Chroococcus			X	
Lyngbya			X	X
Merismopedia		X	X	X
Microcoleus	X			X
Oscillatoria	X	X	X	X
Phormidium		X		
Rhaphidiopsis				X
Euglenophyta				
Euglena		X	X	X
Trachelomonas			X	
TOTAL	6	16	20	12

Goose Creek

	05/92	10/92	05/93	10/93	05/94	10/94	08/95
Chlorophyta							
Ankistrodesmus	X		X	X	X		X
Carteria							X
Chlamydomonas	X	X	X	X	X	X	X
Cladophora	X	X	X	X	X	X	
Closterium		X	X	X	X		X
Coelastrum	X		X				X
Coenarium	X	X	X		X		X
Deamidium				X			
Gloeocystis	X	X		X	X	X	
Mougeotia	X			X	X	X	
Oedogonium	X		X	X	X	X	X
Pediastrum	X			X			
Protococcus	X		X	X			X
Rhizoclonium						X	
Soenedesmus	X	X	X	X	X	X	X
Schizomeris	X						
Sphaerocystis	X			X		X	X
Spirogyra	X	X	X	X	X	X	X
Staurastrum		X	X		X		
Stigeoclonium	X	X	X	X	X	X	X
Ulothrix			X		X		
Chrysophyta							
Vaucheria			X				
Cyanophyta							
Anabaena	X			X	X	X	
Anacystis			X	X			
Calothrix	X			X		X	
Chroococcus	X			X		X	
Dactylococcopsis	X						
Lyngbya	X	X	X	X	X	X	X
Merismopedia	X	X	X	X		X	X
Microcoleus	X	X		X	X	X	
Oscillatoria	X	X	X	X	X	X	X
Rhaphidiopsis				X			X
Schizothrix	X		X	X		X	
Tolypothrix				X			
Euglenophyta							
Euglena			X	X			X
Trachelomonas					X	X	X
Rhodophyta							
Audouinella	X						X
Lemanea	X		X		X	X	
TOTAL	26	13	21	26	19	20	19

Muddy Creek

	05/92	10/92	05/93	10/93	06/94	10/94
Chlorophyta						
Actinastrum	X					
Ankistrodesmus	X		X	X	X	
Chlamydomonas	X	X	X	X	X	X
Cladophora	X	X	X	X	X	X
Closterium	X	X	X	X	X	X
Coelastrum	X	X		X	X	X
Coemarium	X	X	X	X	X	X
Crucegenia			X			
Euastrum		X				
Geminella		X				
Gloeocystis	X			X	X	
Hydrodictyon				X		
Mougeotia	X	X	X	X	X	X
Nephrocotium	X					
Oedogonium	X	X	X	X	X	X
Pediastrum	X			X	X	X
Penium				X		
Protococcus	X	X	X	X		X
Scenedesmus	X	X	X	X	X	X
Schizomeris	X					
Sphaerocystis	X	X			X	X
Spirogyra	X	X	X	X	X	X
Staurastrum	X	X			X	X
Stigeoclonium	X		X	X	X	X
Tetraedron	X					
Tetraospora	X	X		X	X	
Ulothrix		X	X			
Zygnema				X		
Chrysophyta						
Vaucheria			X			
Cryptophyta						
Cryptomonas						X
Cyanophyta						
Anabaena	X			X		X
Anacystis	X	X		X		
Aphanocapsa	X				X	
Calothrix	X	X	X	X		X
Chroococcus	X	X		X	X	X
Coelosphaerium	X					
Haploisiphon	X					X
Lyngbya	X		X	X	X	X
Merismopedia	X	X	X	X	X	X
Microcoleus	X					
Oscillatoria	X	X	X	X	X	X
Phormidium		X				
Schizothrix	X				X	X
Euglenophyta						
Euglena				X		
Phacus						X
Trachelomonas	X	X	X	X		X
Pyrophyta						
Glenodinium						X
Rhodophyta						
Audouinella	X	X	X	X		X
Batrachospermum	X					
Lemanea	X		X		X	
TOTAL	37	24	21	28	23	27

Russell Creek @ Hwy. 80

	07/92	05/93	11/93	04/94	10/94	06/95	11/95
Chlorophyta							
Ankistrodesmus	X	X		X	X	X	X
Chlamydomonas	X	X	X	X	X	X	X
Chloromonas							X
Cladophora	X	X	X				X
Closterium	X	X	X	X	X		X
Coelastrum	X				X	X	
Coenarium	X			X	X	X	X
Crucigenia	X						
Geminella						X	
Gloeocystis				X	X	X	X
Gonatozygon				X			
Mougeotia	X	X					X
Oedogonium	X	X	X	X		X	X
Pandorina							X
Pediastrum	X						
Protococcus	X		X			X	X
Scenedesmus	X		X	X	X	X	X
Sphaerocystis			X	X	X	X	X
Spirogyra	X	X		X	X	X	X
Spondylosium	X						
Staurastrum	X	X	X	X	X	X	X
Stigeoclonium	X		X	X	X	X	X
Ulothrix			X	X	X	X	X
Zygnema				X			
Chrysophyta							
Tribonema			X				
Cryptophyta							
Cryptomonas			X	X	X		X
Cyanophyta							
Anabaena	X		X		X	X	
Anacystis	X		X				
Calothrix	X		X		X	X	X
Chroococcus	X	X	X		X		X
Dactyloocopsis	X						
Lyngbya	X	X	X	X	X	X	X
Merismopedia					X		X
Microcoleus	X	X	X	X	X	X	X
Ocellularia	X	X	X	X	X	X	X
Raphidiopsis						X	
Schizothrix	X		X	X	X	X	X
Euglenophyta							
Euglena	X	X				X	
Trachelomonas			X		X		
Rhodophyta							
Lemanea		X					
TOTAL	26	14	21	19	21	22	25

Russell Creek @ Milltown

	07/92	09/92	05/93	07/95
Chlorophyta				
Ankistrodesmus	X		X	X
Chlamydomonas	X	X		X
Cladophora	X	X	X	X
Closterium	X	X	X	X
Coelastrum		X		X
Coemarium	X	X	X	X
Cylindrocapsa	X			
Eudorina				X
Gloeocystis	X		X	X
Hydrodictyon			X	X
Microthamnion			X	
Oedogonium	X	X	X	X
Pediastrum		X	X	X
Protococcus	X	X		X
Scenedesmus	X	X	X	X
Sphaerocystis	X			
Spirogyra		X	X	X
Staurastrum	X	X	X	
Stigeoclonium	X	X	X	X
Chrysophyta				
Vaucheria		X	X	
Cyanophyta				
Anabaena	X	X	X	X
Anacyctis		X		
Calothrix	X	X		
Chroococcus			X	
Coelosphaerium	X			
Dactylococcopsis	X			
Lyngbya	X	X		X
Merismopedia	X	X	X	X
Oscillatoria	X	X	X	X
Raphidiopsis		X	X	
Schizothrix	X	X		X
Euglenophyta				
Trachelomonas			X	
Rhodophyta				
Audouinella	X		X	
Lemanea	X		X	X
TOTAL	23	21	22	21

Salt Lick Creek

	05/92	09/92	04/93	10/93	05/94	10/94	04/95
Chlorophyta							
Ankistrodesmus		X					
Aphanochaete						X	
Arthrodesmus		X					
Chlamydomonas	X	X		X			
Cladophora	X	X		X	X	X	X
Closterium	X	X	X	X	X		
Coenarium	X	X	X				X
Geminella			X				
Gloeocystis			X	X	X	X	X
Mougeotia	X	X	X	X			X
Oedogonium		X	X		X		
Protococcus	X	X	X	X			
Rhizoclonium				X			
Scenedesmus		X					X
Schizomeris	X						
Sphaerocystis				X			
Spirogyra	X	X	X	X			X
Staurastrum		X	X		X		X
Stigeoclonium	X		X	X	X	X	X
Ulothrix							X
Cryptophyta							
Cryptomonas							X
Cyanophyta							
Anabaena	X	X			X		
Aphanocapsa	X						X
Calothrix	X	X	X	X		X	X
Chroococcus		X				X	
Coelosphaerium		X					
Gloeocapsa	X		X		X	X	
Haploisiphon	X						
Lyngbya	X	X	X	X	X	X	X
Merismopedia		X		X			
Microcoleus	X	X	X			X	
Oscillatoria	X	X	X	X	X	X	X
Rhaphidiopsis					X		
Schizothrix	X	X	X	X			X
Scytonema	X						
Euglenophyta							
Trachelomonas	X						
Rhodophyta							
Audouinella	X		X	X	X		
Batrachospermum			X		X		X
TOTAL	21	21	18	16	13	10	16

Sand Lick Creek

05/93 05/94

Chlorophyta

Actinotaenium	X	
Ankistrodesmus	X	
Chlamydomonas	X	
Cladophora	X	
Closterium	X	X
Coelastrum	X	X
Cosmarium	X	X
Geminella		X
Gloeocystis		X
Klebsormidium	X	
Mougeotia	X	X
Oedogonium	X	
Scenedesmus	X	
Schizomeris	X	
Sphaerocystis	X	
Spirogyra	X	
Staurastrum	X	X
Stigeoclonium	X	
Tetraspora		X
Ulothrix	X	

Cyanophyta

Lyngbya	X	X
Merismopedia	X	
Microcoleus	X	
Oscillatoria	X	X

Euglenophyta

Trachelomonas	X	
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TOTAL 22 10

Trammel Fork @ Concord Ch. Rd.

	05/92	09/92	07/93	11/93	05/94	10/94	04/95
Chlorophyta							
Ankistrodesmus	X		X	X			X
Chlamydomonas				X	X	X	X
Cladophora	X	X	X	X	X	X	X
Closterium	X		X	X	X	X	X
Coelastrum						X	
Cosmarium	X	X	X	X	X		X
Dictyoephaerium							X
Gloecystis		X	X	X	X	X	X
Kircheriella		X					
Microspora							X
Mougeotia	X		X				X
Oedogonium		X	X	X			X
Protococcus		X		X	X	X	X
Rhizoclonium				X		X	
Scenedesmus	X		X	X		X	
Schizomeris	X						
Sphaerocystis		X		X			
Spirogyra	X		X				X
Staurastrum	X				X	X	X
Stigeoclonium	X	X	X	X	X	X	X
Tetraepora	X						X
Ulothrix			X		X		
Chrysophyta							
Vaucheria	X	X	X		X		
Cryptophyta							
Cryptomonas						X	X
Cyanophyta							
Anabaena	X	X		X		X	
Aphanocapsa				X	X		
Calothrix		X					
Chroococcus	X			X		X	
Dactylococcopsis		X					
Dichothrix		X					
Lyngbya	X	X		X	X	X	X
Merismopedia	X	X	X	X		X	X
Microcoleus	X	X					X
Oscillatoria	X	X	X	X	X	X	X
Phormidium				X			
Raphidiopsis				X			X
Schizothrix	X				X		X
Euglenophyta							
Euglena			X			X	
Trachelomonas				X		X	
Rhodophyta							
Audouinella		X	X				
Batrachospermum	X						X
TOTAL	20	18	16	21	14	18	23

Trammel Fort @ Red Hill

	05/92	09/92	07/93	11/93	05/94	10/94	07/95
Chlorophyta							
Ankistrodesmus	X		X	X	X		X
Carteria						X	
Chlamydomonas	X			X	X	X	
Cladophora	X	X	X	X	X	X	X
Closterium	X	X	X	X	X	X	X
Coelastrum							X
Coenarium	X	X	X	X	X	X	X
Gloecystis		X	X		X	X	X
Mougeotia		X		X			
Oedogonium	X	X			X		X
Pandorina			X				
Pediastrum			X				
Penium			X				
Protooccus		X	X	X		X	X
Scenedesmus	X	X	X	X	X	X	X
Sphaerocystis			X				
Spirogyra	X						X
Staurastrum	X	X		X	X	X	X
Stigeoclonium	X	X	X		X	X	X
Ulothrix	X		X			X	X
Cryptophyta							
Cryptomonas						X	
Cyanophyta							
Anabaena	X	X	X	X		X	X
Anacyctis		X				X	X
Calothrix		X	X	X		X	X
Chroococcus	X	X					X
Dichothrix		X					
Haploelphon							X
Lynghya	X	X	X	X	X	X	X
Merismopedia	X	X				X	X
Microcoleus	X	X	X	X	X	X	X
Oscillatoria	X	X	X	X	X	X	X
Raphidiopsis							X
Schizothrix	X	X	X	X			X
Euglenophyta							
Trachelomonas						X	
Pyrophyta							
Ceratium		X					
Rhodophyta							
Audouinella	X						
Lemanea	X					X	X
TOTAL	20	21	19	15	13	21	25

Upper Tradewater River

	05/93	05/94
Chlorophyta		
Ankistrodesmus	X	X
Chaetophora		X
Chlamydomonas	X	X
Cladophora	X	X
Closterium	X	X
Coelastrum	X	X
Coelastrum	X	X
Gloeocystis	X	X
Gonatozygon		X
Mougeotia	X	X
Oedogonium	X	
Pediastrum	X	
Protococcus	X	
Scenedesmus	X	X
Sphaerocystis		X
Spirogyra	X	
Staurastrum		X
Stigeoclonium	X	X
Ulothrix	X	X
Cryptophyta		
Cryptomonas	X	
Cyanophyta		
Anacystis	X	
Aphanocapsa		X
Lyngbya	X	X
Merismopedia	X	X
Microcoleus	X	X
Oscillatoria	X	X
Euglenophyta		
Euglena	X	
Trachelomonas	X	X
TOTAL	23	21

Whippoornill Creek

	10/92	07/93	11/93	11/94	04/95
Chlorophyta					
Ankistrodesmus				X	
Chlamydomonas			X	X	X
Cladophora	X	X	X	X	X
Closterium	X	X	X	X	X
Coelastrum		X			
Dictyosphaerium					X
Geminella				X	
Gloeoecystis				X	X
Mougeotia	X	X	X		
Oedogonium	X	X	X	X	X
Oocystis				X	
Protococcus			X	X	X
Scenedesmus	X			X	X
Sphaerocystis	X				
Spirogyra		X			
Stigeoclonium			X	X	
Chrysophyta					
Vaucheria			X	X	
Cyanophyta					
Anabaena	X	X	X	X	
Anacystis				X	
Chroococcus		X		X	X
Gloeocapsa					X
Lyngbya		X		X	X
Merismopedia			X	X	X
Microcoleus	X	X	X	X	
Oscillatoria	X	X	X	X	X
Rhaphidiopsis			X		
Schizothrix					X
Euglenophyta					
Euglena		X			
Trachelomonas				X	X
Rhodophyta					
Audouinella	X	X	X	X	X
TOTAL	10	13	14	21	16

Wilson Creek

	05/92	09/92	05/93	10/93	05/94	10/94
Chlorophyta						
Ankistrodesmus		X		X		X
Chlamydomonas	X		X	X	X	X
Cladophora	X	X	X	X	X	X
Closterium	X	X	X	X		
Coelastrum		X				
Coenidium	X	X	X	X	X	X
Desmidiium						X
Geminella		X	X	X		
Gloeocystis		X		X	X	X
Gonatozygon				X		
Hyalotheca				X		
Mougeotia	X	X	X	X		X
Oedogonium	X	X	X	X	X	X
Pediastrum				X		X
Pleurotaenium						X
Protococcus	X	X		X	X	
Scenedesmus	X	X		X		X
Sorastrum				X		X
Sphaerocystis		X	X	X		X
Spirogyra	X			X	X	X
Staurastrum	X	X	X	X		
Stigeoclonium			X			
Ulothrix				X		
Zygnema			X	X		
Chrysophyta						
Bumillaria			X			
Dinobryon				X		X
Vaucheria						X
Cryptophyta						
Cryptomonas		X		X		
Cyanophyta						
Anabaena		X		X	X	X
Anacytis	X					X
Calothrix				X	X	X
Chroococcus		X		X		X
Haploelphon		X				
Lynbya		X		X	X	X
Merismopedia	X	X		X		
Oscillatoria	X	X	X	X	X	X
Rhaphidiopsis			X	X		
Euglenophyta						
Euglena		X		X	X	X
Phacus		X		X		
Trachelomonas						X
Rhodophyta						
Audouinella	X	X		X		X
Batrachospermum					X	
TOTAL	14	23	14	32	13	25

Yellowbank Creek

	05/92	10/92	10/93	06/94
Chlorophyta				
Ankistrodesmus	X	X	X	X
Chlamydomonas	X	X	X	X
Gladophora	X	X	X	
Closterium	X	X	X	
Coelastrum	X		X	X
Cosmarium	X	X	X	X
Crucigenia			X	
Geminella				X
Gloeocystis			X	X
Gonium			X	
Microspora		X		
Mougeotia	X	X	X	X
Oedogonium	X	X	X	X
Oocystis		X		
Protococcus	X		X	X
Rhizoclonium			X	
Scenedesmus	X	X	X	X
Sphaerocystis	X	X	X	X
Spirogyra	X	X	X	X
Spondyloium			X	
Staurastrum	X	X		X
Stigeoclonium	X		X	X
Tetraspora	X			
Ulothrix		X		
Zoochlorella		X		
Chrysophyta				
Synura			X	
Tribonema			X	
Vaucheria	X	X		
Cryptophyta				
Cryptomonas			X	
Cyanophyta				
Anabaena	X		X	
Anacystis			X	
Aphanocapsa			X	
Calothrix			X	X
Chroococcus			X	
Lyngbya			X	X
Merismopedia	X		X	
Oscillatoria	X	X	X	X
Raphidiopsis			X	
Schizothrix				X
Euglenophyta				
Euglena	X	X	X	X
Phacus	X	X	X	X
Trachelomonas	X	X	X	X
Rhodophyta				
Audouinella	X		X	X
Batrachospermum				X
TOTAL	23	20	34	23

Blood River

	05/93	05/94	11/94	04/95
Chlorophyta				
Ankistrodesmus	X			
Chlamydomonas	X	X	X	X
Closterium	X	X	X	X
Coenidium	X		X	X
Desmidiium				X
Dictyosphaerium	X			
Euastrum			X	
Microspora	X			X
Mougeotia	X		X	X
Oedogonium	X		X	
Oocystis		X		
Pandorina		X		
Pleurotaenium	X			
Rhizoclonium		X		
Scenedesmus	X			
Sphaerocystis	X			
Spirogyra				X
Staurastrum	X	X	X	X
Stigeoclonium				X
Ulothrix		X		X
Chrysophyta				
Synura			X	
Vaucheria		X		
Cryptophyta				
Cryptomonas	X		X	
Cyanophyta				
Anabaena	X	X	X	X
Chroococcus	X	X	X	
Lyngbya	X	X		
Microcoleus	X			
Oscillatoria	X	X	X	X
Rhaphidiopsis			X	
Euglenophyta				
Euglena		X	X	X
Phacus	X	X		
Trachelomonas			X	X
Rhodophyta				
Audouinella	X	X	X	X
Batrachospermum	X	X		X
Lemanea		X		
TOTAL	21	17	16	16

Panther Creek @ New Concord

	05/94	11/94	04/95
Chlorophyta			
Actinotaenium			
Ankistrodesmus	X	X	X
Chlamydomonas	X	X	X
Closterium	X	X	X
Coelastrum	X		
Coenarium	X	X	X
Desmidium		X	X
Gloeocystis	X		
Gonatozygon	X		
Microspora			X
Mougeotia		X	
Netrium			X
Oedogonium	X	X	X
Penium		X	
Sphaerocystis		X	
Spirogyra		X	X
Staurastrum	X	X	X
Stigeoclonium	X	X	
Tetmemorus		X	
Ulothrix		X	
Chrysophyta			
Synura		X	
Cryptophyta			
Cryptomonas		X	X
Cyanophyta			
Anabaena	X	X	X
Aphanocapsa		X	
Chroococcus		X	X
Lyngbya		X	
Microcoleus	X	X	
Oscillatoria	X	X	X
Euglenophyta			
Euglena	X	X	X
Phacus	X		
Trachelomonas	X	X	X
Pyrophyta			
Peridinium		X	
Rhodophyta			
Audouinella		X	X
TOTAL	16	26	17

Panther Creek @ Graves Co.

	05/93	05/94	11/94	04/95
Chlorophyta				
Ankistrodesmus	X	X	X	X
Carteria		X		
Chlamydomonas	X	X	X	X
Closterium	X	X	X	X
Coccomonas				X
Coelastrum	X			
Coemarium	X	X	X	X
Crucigenia	X			
Desmidiium				X
Dictyocepharium				X
Euastrum	X		X	
Eudorina		X		X
Gonium				X
Microsterias			X	
Microspora				X
Mougeotia	X		X	X
Oedogonium		X	X	X
Pandorina	X			X
Pediastrum	X			
Penium		X		
Pleurotaenium				X
Scenedesmus	X	X	X	X
Sphaerocystis			X	X
Spirogyra		X		
Spondyloium				X
Staurastrum	X	X	X	X
Stigeoclonium		X		X
Tetraedron		X		
Tetrastrum		X		
Ulothrix			X	
Zoochlorella		X		
Zygnema	X			
Chrysophyta				
Vaucheria			X	
Cryptophyta				
Cryptomonas			X	X
Cyanophyta				
Anabaena	X	X	X	X
Anacystis				X
Aphanocapsa		X		X
Chroococcus			X	X
Lyngbya		X	X	
Merismopedia	X	X		
Ocellularia	X	X	X	X
Phormidium				X
Rhaphidiopsis		X		
Euglenophyta				
Euglena	X	X		X
Phacus	X			
Trachelomonas	X	X		X
Rhodophyta				
Audouinella				X
TOTAL	19	23	18	29

Soldiers Creek @ Vanzora Ch. Rd.

10/92 05/93

Chlorophyta

Actinotaenium	X	
Antistrodeemus	X	X
Chlamydomonas	X	X
Closterium	X	X
Coelastrum	X	X
Desmidiium	X	
Geminella		X
Mougeotia	X	X
Oedogonium	X	
Pandorina		X
Pediastrum	X	
Scenedesmus	X	X
Sphaerocystis	X	X
Staurastrum		X
Ulothrix	X	X

Chrysophyta

Vaucheria		X
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Cyanophyta

Lyngbya	X	
Merismopedia	X	
Microcoleus	X	
Oscillatoria	X	X
Raphidiopsis		X

Euglenophyta

Euglena	X	
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Rhodophyta

Audouinella		X
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TOTAL	17	15
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Soldiers Creek @ HWY 58

	05/94	11/94	04/95
Chlorophyta			
Ankistrodesmus	X	X	X
Chlamydomonas	X	X	X
Closterium	X	X	X
Coelastrum			X
Coenarium	X	X	X
Deemidium			X
Eudorina			X
Gloeocystis	X	X	X
Gonium			X
Mougeotia		X	X
Oedogonium	X		X
Oocystis		X	
Pandorina			X
Scenedesmus	X	X	X
Sphaerocystis			X
Spirogyra	X	X	X
Staurastrum	X	X	X
Stigeoclonium	X	X	
Ulothrix		X	X
Zoochlorella	X		
Cryptophyta			
Cryptomonas			X
Cyanophyta			
Anabaena	X	X	X
Anacystis		X	
Chroococcus	X	X	
Gloeocapsa		X	
Lynbya	X		
Merismopedia		X	
Microcoleus		X	
Oscillatoria	X	X	X
Raphidiopsis		X	
Euglenophyta			
Euglena		X	X
Trachelomonas	X	X	
TOTAL	16	22	21

APPENDIX 4:
DIATOM COMMUNITY DATA

DIATOM COLLECTION DATA

 Site ID: REFCABDB (02046003) Stream: BAD BRANCH
 Mile Point: 0.20 Drainage Area: 2.6 square miles
 Order: 2 Ecoregion: CENTRAL APPALACHIAN
 County: LETCHER Basin: UPPER CUMBERLAND
 Map Number: 05-58 Latitude: 37-04-05 Longitude: 082-46-16
 Location Description: KY 932 BRIDGE (WILD RIVER)

Date Collected: 05/05/92 Comments:
 Sample ID: 19920505-10 Substrate Type: Natural
 ID By:

Achnanthes detha	5
Achnanthes lanceolata	1
Anomoeoneis serians var. brachysira	1
Caloneis bacillum	*
Cocconeis placentula	1
Cymbella tumida	*
Eunotia curvata	6
Eunotia exigua	394
Eunotia incisa	21
Eunotia maior	37
Eunotia pectinalis var. minor	28
Eunotia septentrionalis	8
Fragilaria pinnata	*
Fragilaria vaucheriae	*
Frustulia rhomboides var. crassinervia	*
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	*
Gomphonema parvulum	*
Meridion circulare	2
Navicula angusta	*
Pinnularia subcapitata var. paucistriata	1
Pinnularia viridis	1
Synedra rumpens var. familiaris	2
Tabellaria fenestrata	5
Tabellaria flocculosa	1

Station ID: REFCABDB Collection Date: 05/05/92

Total Number of Taxa (TNT):	25
Total Number of Individuals (TNI):	514
Diversity (H):	0.44
Percent (%) Sensitive Individuals:	1.2
Pollution Tolerance Index (PTI):	2.0
Siltation Index**:	0.0

 *Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCABDB (02046003) Stream: BAD BRANCH
 Mile Point: 0.20 Drainage Area: 2.6 square miles
 Order: 2 Ecoregion: CENTRAL APPALACHIAN
 County: LETCHER Basin: UPPER CUMBERLAND
 Map Number: 05-58 Latitude: 37-04-05 Longitude: 082-46-16
 Location Description: KY 932 BRIDGE (WILD RIVER)

Date Collected: 10/28/92 Comments:
 Sample ID: 19921028-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	3
Achnanthes detha	29
Achnanthes minutissima	3
Anomoeoneis serians var. brachysira	31
Caloneis bacillum	*
Caloneis budensis	*
Cocconeis placentula	*
Cymbella delicatula	*
Cymbella silesiaca	106
Eunotia curvata	6
Eunotia exigua	150
Eunotia incisa	13
Eunotia pectinalis	*
Eunotia pectinalis var. minor	15
Eunotia praerupta	32
Frustulia rhomboides var. saxonica	91
Frustulia rhomboides var. amphipleuroides	19
Hantzschia amphioxys	*
Navicula radiosa	*
Nitzschia gracilis	5
Pinnularia viridis	*
Surirella linearis	*
Synedra acus	*
Tabellaria fenestrata	8
Tabellaria flocculosa	2

Station ID: REFCABDB Collection Date: 10/28/92

Total Number of Taxa (TNT):	25
Total Number of Individuals (TNI):	513
Diversity (H):	0.89
Percent (%) Sensitive Individuals:	23.2
Pollution Tolerance Index (PTI):	2.3
Siltation Index**:	1.0

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCABDB (02046003) Stream: BAD BRANCH
 Mile Point: 0.20 Drainage Area: 2.6 square miles
 Order: 2 Ecoregion: CENTRAL APPALACHIAN
 County: LETCHER Basin: UPPER CUMBERLAND
 Map Number: 05-58 Latitude: 37-04-05 Longitude: 082-46-16
 Location Description: KY 932 BRIDGE (WILD RIVER)

Date Collected: 10/06/93 Comments:
 Sample ID: 19931006-10 Substrate Type: Natural
 ID By:

Achnanthes chlidanos	1
Achnanthes detha	5
Achnanthes minutissima	*
Anomoeoneis serians var. brachysira	177
Cymbella lunata	139
Eunotia curvata	5
Eunotia exigua	40
Eunotia incisa	35
Eunotia maior	1
Eunotia pectinalis var. minor	13
Eunotia triodon	*
Fragilaria virescens	4
Frustulia rhomboides var. crassinervia	18
Frustulia rhomboides var. saxonica	1
Gomphonema affine	*
Gomphonema angustatum	*
Gomphonema gracile	*
Meridion circulare	2
Navicula angusta	*
Navicula cryptocephala	*
Navicula radiosa	*
Navicula radiosa var. tenella	*
Nitzschia recta	1
Pinnularia mesolepta	4
Pinnularia viridis	1
Stenopterobia delicatissima	*
Synedra rumpens	*
Synedra ulna	1
Tabellaria fenestrata	19
Tabellaria flocculosa	58

Station ID: REFCABDB Collection Date: 10/06/93

Total Number of Taxa (TNT):	30
Total Number of Individuals (TNI):	525
Diversity (H):	0.83
Percent (%) Sensitive Individuals:	44.6
Pollution Tolerance Index (PTI):	2.1
Siltation Index**:	0.2

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCABDB (02046003) Stream: BAD BRANCH
 Mile Point: 0.20 Drainage Area: 2.6 square miles
 Order: 2 Ecoregion: CENTRAL APPALACHIAN
 County: LETCHER Basin: UPPER CUMBERLAND
 Map Number: 05-58 Latitude: 37-04-05 Longitude: 082-46-16
 Location Description: KY 932 BRIDGE (WILD RIVER)

Date Collected: 06/28/94 Comments:
 Sample ID: 19940628-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	1
Achnanthes detha	20
Achnanthes hungarica	8
Achnanthes minutissima	9
Anomoeoneis serians var. brachysira	10
Cymbella lunata	*
Diploneis elliptica	*
Eunotia curvata	10
Eunotia exigua	143
Eunotia incisa	44
Eunotia pectinalis var. minor	180
Eunotia vanheurckii var. intermedia	46
Fragilaria vaucheriae	*
Frustulia rhomboides var. saxonica	11
Frustulia rhomboides var. amphipleuroides	1
Gomphonema affine	*
Gomphonema gracile	2
Gomphonema sparsistriatum f. maculatum	1
Melosira granulata	1
Meridion circulare	5
Navicula angusta	1
Navicula cryptocephala var. veneta	1
Navicula notha	1
Navicula radiosa var. tenella	1
Nitzschia linearis	2
Pinnularia biceps	*
Pinnularia viridis var. minor	1
Stauroneis phoenicenteron	1
Surirella linearis	*
Synedra ulna	1
Tabellaria fenestrata	1
Tabellaria flocculosa	6

Station ID: REFCABDB Collection Date: 06/28/94

Total Number of Taxa (TNT):	32
Total Number of Individuals (TNI):	508
Diversity (H):	0.84
Percent (%) Sensitive Individuals:	3.3

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Pollution Tolerance Index (PTI): 2.0
Siltation Index^{**}: 1.2

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*
06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCABCC (02006024) Stream: BARK CAMP CREEK
 Mile Point: 2.50 Drainage Area: 9.9 square miles
 Order: 4 Ecoregion: CENTRAL APPALACHIAN
 County: WHITLEY Basin: UPPER CUMBERLAND
 Map Number: 04-46 Latitude: 36-54-14 Longitude: 084-16-53
 Location Description: U.S. FOREST SERVICE ROAD 193 BRIDGE

Date Collected: 06/26/91 Comments:
 Sample ID: 19910626-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	33
Achnanthes detha	3
Achnanthes exigua	*
Achnanthes lanceolata	*
Achnanthes minutissima	147
Achnanthes stewartii	3
Amphipleura pellucida	1
Amphora ovalis	*
Anomoeoneis serians var. brachysira	7
Anomoeoneis vitrea	3
Caloneis bacillum	1
Cymbella aspera	1
Cymbella delicatula	1
Cymbella lunata	1
Cymbella minuta	1
Cymbella prostrata	*
Cymbella silesiaca	16
Cymbella sp. (K)	*
Cymbella tumida	*
Denticula elegans	*
Diploneis elliptica	1
Eunotia curvata	*
Eunotia exigua	*
Eunotia maior	4
Eunotia pectinalis var. minor	13
Eunotia praerupta	3
Eunotia serra var. diadema	*
Eunotia vanheurckii var. intermedia	4
Fragilaria vaucheriae	22
Frustulia assymetrica	*
Frustulia rhomboides var. crassinervia	5
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	*
Gomphonema acuminatum	19
Gomphonema affine	10
Gomphonema angustatum	6
Gomphonema apuncto	10
Gomphonema brasiliense	*
Gomphonema gracile	24

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Gomphonema parvulum	6
Gomphonema sparsistriatum f. maculatum	12
Gomphonema sphaerophorum	7
Gomphonema truncatum	*
Gyrosigma nodiferum	1
Hantzschia amphioxys	*
Meridion circulare	3
Navicula angusta	6
Navicula cryptocephala	1
Navicula cryptocephala var. veneta	5
Navicula decussis	*
Navicula minima	1
Navicula placenta	1
Navicula pupula	*
Navicula radiosa	4
Navicula radiosa var. parva	3
Navicula radiosa var. tenella	10
Navicula rhynchocephala	1
Navicula secreta var. apiculata	*
Navicula viridula	*
Neidium affine var. longiceps	1
Nitzschia clausii	*
Nitzschia dissipata	2
Nitzschia filiformis	1
Nitzschia microcephala	*
Nitzschia recta	9
Pinnularia subcapitata	*
Pinnularia subcapitata var. paucistriata	4
Pinnularia viridis	1
Rhopalodia gibberula var. vanheurckii	*
Stauroneis anceps	1
Stauroneis anceps f. gracilis	*
Stauroneis obtusa	1
Stauroneis phoenicenteron	1
Stauroneis smithii	3
Surirella angustata	3
Surirella linearis	29
Surirella ovalis	*
Surirella ovata	*
Synedra acus	16
Synedra ulna	39
Tabellaria flocculosa	1

 Station ID: REFCABCC Collection Date: 06/26/91

Total Number of Taxa (TNT):	81
Total Number of Individuals (TNI):	512
Diversity (H):	1.30
Percent (%) Sensitive Individuals:	20.3
Pollution Tolerance Index (PTI):	2.7
Siltation Index**:	8.6

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCABCC (02006024) Stream: BARK CAMP CREEK
 Mile Point: 2.50 Drainage Area: 9.9 square miles
 Order: 4 Ecoregion: CENTRAL APPALACHIAN
 County: WHITLEY Basin: UPPER CUMBERLAND
 Map Number: 04-46 Latitude: 36-54-14 Longitude: 084-16-53
 Location Description: U.S. FOREST SERVICE ROAD 193 BRIDGE

Date Collected: 10/15/91 Comments:
 Sample ID: 19911015-10 Substrate Type: Natural
 ID By:

Achnanthes coarctata	*
Achnanthes deflexa	14
Achnanthes detha	1
Achnanthes exigua	1
Achnanthes lanceolata	*
Achnanthes minutissima	195
Achnanthes stewartii	1
Amphipleura pellucida	4
Amphora ovalis	*
Anomoeoneis serians var. brachysira	12
Anomoeoneis vitrea	12
Bacillaria paradoxa	*
Caloneis bacillum	*
Cymbella aspera	2
Cymbella cuspidata	*
Cymbella delicatula	8
Cymbella lunata	5
Cymbella microcephala	*
Cymbella minuta	1
Cymbella naviculiformis	*
Cymbella prostrata var. auerswaldii	*
Cymbella silesiaca	18
Cymbella sinuata	*
Cymbella tumida	*
Diploneis elliptica	1
Eunotia curvata	2
Eunotia exigua	*
Eunotia maior	8
Eunotia pectinalis var. minor	20
Eunotia perpusilla	2
Eunotia praerupta	*
Eunotia vanheurckii var. intermedia	2
Fragilaria vaucheriae	37
Fragilaria virescens	2
Frustulia assymetrica	*
Frustulia rhomboides var. crassinervia	17
Frustulia rhomboides var. saxonica	*
Frustulia rhomboides var. amphipleuroides	1
Frustulia weinholdii	1

* Qualitative data

** Relative abundance of *Navicula*+*Nitzschia*+*Surriella*

06/25/96

DIATOM COLLECTION DATA

Gomphonema acuminatum	1
Gomphonema affine	17
Gomphonema angustatum	6
Gomphonema apuncto	6
Gomphonema brasiliense	*
Gomphonema gracile	12
Gomphonema parvulum	5
Gomphonema sparsistriatum f. maculatum	4
Gomphonema sphaerophorum	*
Gomphonema truncatum	*
Gyrosigma scalpoides	1
Hantzschia amphioxys	1
Melosira varians	1
Meridion circulare	*
Navicula angusta	11
Navicula cocconeiformis	*
Navicula cryptocephala	*
Navicula cryptocephala var. veneta	1
Navicula minima	16
Navicula mutica	1
Navicula pupula	1
Navicula pupula var. rectangularis	*
Navicula radiosa	2
Navicula radiosa var. tenella	8
Navicula rhynchocephala	*
Navicula secreta var. apiculata	*
Navicula viridula var. linearis	*
Neidium affine	*
Nitzschia clausii	*
Nitzschia dissipata	*
Nitzschia microcephala	*
Nitzschia palea	*
Nitzschia recta	*
Pinnularia subcapitata	3
Pinnularia subcapitata var. paucistriata	2
Pinnularia viridis	3
Stauroneis anceps var. americana	*
Stauroneis legumen	*
Stauroneis smithii	1
Stenopterobia delicatissima	*
Surirella angustata	*
Surirella linearis	3
Synedra acus	17
Synedra rumpens	6
Synedra rumpens var. familiaris	4
Synedra ulna	20
Synedra ulna var. oxyrhynchus	2

 Station ID: REFCABCC Collection Date: 10/15/91

Total Number of Taxa (TNT): 86

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

Total Number of Individuals (TNI):	522
Diversity (H):	1.21
Percent (%) Sensitive Individuals:	14.9
Pollution Tolerance Index (PTI):	2.7
Siltation Index**:	7.7

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCABCC (02006024) Stream: BARK CAMP CREEK
 Mile Point: 2.50 Drainage Area: 9.9 square miles
 Order: 4 Ecoregion: CENTRAL APPALACHIAN
 County: WHITLEY Basin: UPPER CUMBERLAND
 Map Number: 04-46 Latitude: 36-54-14 Longitude: 084-16-53
 Location Description: U.S. FOREST SERVICE ROAD 193 BRIDGE

Date Collected: 04/29/93 Comments:
 Sample ID: 19930429-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	37
Achnanthes detha	*
Achnanthes exigua	1
Achnanthes hungarica	*
Achnanthes lanceolata	*
Achnanthes minutissima	271
Achnanthes stewartii	*
Amphipleura pellucida	1
Amphora perpusilla	1
Anomoeoneis serians var. brachysira	*
Anomoeoneis vitrea	*
Caloneis sp.	*
Cymbella affinis	*
Cymbella delicatula	*
Cymbella lunata	6
Cymbella microcephala	1
Cymbella minuta	*
Cymbella naviculiformis	*
Cymbella silesiaca	21
Cymbella sp. (K)	*
Cymbella tumida	2
Eunotia curvata	*
Eunotia exigua	*
Eunotia maior	2
Eunotia pectinalis var. minor	8
Eunotia perpusilla	*
Eunotia vanheurckii var. intermedia	2
Fragilaria vaucheriae	142
Frustulia rhomboides var. crassinervia	3
Frustulia rhomboides var. saxonica	*
Frustulia rhomboides var. amphipleuroides	*
Gomphonema acuminatum	*
Gomphonema affine	*
Gomphonema angustatum	2
Gomphonema apuncto	*
Gomphonema gracile	*
Gomphonema parvulum	*
Gomphonema sparsistriatum f. maculatum	*
Gyrosigma scalproides	*

 * Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Melosira varians	2
Meridion circulare	2
Navicula angusta	1
Navicula capitata	1
Navicula cryptocephala	1
Navicula cryptocephala var. veneta	1
Navicula elginensis	1
Navicula lanceolata	*
Navicula mutica	*
Navicula pupula	*
Navicula radiosa	1
Navicula radiosa var. tenella	5
Navicula rhynchocephala	*
Navicula subhamulata var. undulata	1
Navicula tripunctata	*
Navicula viridula	*
Nitzschia acicularis	1
Nitzschia amphibia	3
Nitzschia dissipata	*
Nitzschia linearis	*
Nitzschia palea	*
Nitzschia recta	3
Nitzschia vermicularis	*
Pinnularia biceps	1
Pinnularia subcapitata var. paucistriata	1
Pinnularia viridis	*
Rhopalodia gibberula var. vanheurckii	*
Stauroneis anceps	*
Stauroneis smithii	*
Surirella angustata	1
Surirella linearis	*
Surirella ovata	*
Synedra acus	1
Synedra rumpens	6
Synedra rumpens var. familiaris	9
Synedra ulna	2
Synedra ulna var. oxyrhynchus	

 Station ID: REFCABCC Collection Date: 04/29/93

Total Number of Taxa (TNT):	76
Total Number of Individuals (TNI):	544
Diversity (H):	0.74
Percent (%) Sensitive Individuals:	13.2
Pollution Tolerance Index (PTI):	2.8
Siltation Index**:	3.5

 *Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCABCC (02006024) Stream: BARK CAMP CREEK
 Mile Point: 2.50 Drainage Area: 9.9 square miles
 Order: 4 Ecoregion: CENTRAL APPALACHIAN
 County: WHITLEY Basin: UPPER CUMBERLAND
 Map Number: 04-46 Latitude: 36-54-14 Longitude: 084-16-53
 Location Description: U.S. FOREST SERVICE ROAD 193 BRIDGE

Date Collected: 11/08/93 Comments:
 Sample ID: 19931108-10 Substrate Type: Natural
 ID By:

<i>Achnanthes deflexa</i>	57
<i>Achnanthes detha</i>	4
<i>Achnanthes exigua</i>	1
<i>Achnanthes lanceolata</i>	*
<i>Achnanthes minutissima</i>	283
<i>Achnanthes stewartii</i>	1
<i>Amphipleura pellucida</i>	11
<i>Amphora ovalis</i>	2
<i>Amphora submontana</i>	*
<i>Anomoeoneis serians</i> var. <i>brachysira</i>	1
<i>Anomoeoneis vitrea</i>	3
<i>Bacillaria paradoxa</i>	1
<i>Cocconeis placentula</i>	*
<i>Cyclotella stelligera</i>	*
<i>Cymbella aspera</i>	*
<i>Cymbella cuspidata</i>	*
<i>Cymbella cymbiformis</i>	1
<i>Cymbella delicatula</i>	*
<i>Cymbella lunata</i>	5
<i>Cymbella microcephala</i>	2
<i>Cymbella minuta</i>	2
<i>Cymbella naviculiformis</i>	1
<i>Cymbella silesiaca</i>	12
<i>Cymbella</i> sp. (K)	1
<i>Cymbella tumida</i>	3
<i>Cymbella turgidula</i>	1
<i>Denticula elegans</i>	1
<i>Diploneis elliptica</i>	2
<i>Diploneis oblongella</i>	*
<i>Eunotia curvata</i>	2
<i>Eunotia exigua</i>	*
<i>Eunotia incisa</i>	*
<i>Eunotia maior</i>	9
<i>Eunotia pectinalis</i> var. <i>minor</i>	10
<i>Eunotia praerupta</i>	2
<i>Fragilaria vaucheriae</i>	28
<i>Frustulia rhomboides</i> var. <i>crassinervia</i>	6
<i>Frustulia rhomboides</i> var. <i>saxonica</i>	*
<i>Frustulia rhomboides</i> var. <i>amphipleuroides</i>	2

* Qualitative data

** Relative abundance of *Navicula*+*Nitzschia*+*Surriella*

06/25/96

DIATOM COLLECTION DATA

<i>Frustulia weinholdii</i>	*
<i>Gomphonema abbreviatum</i>	2
<i>Gomphonema acuminatum</i>	*
<i>Gomphonema affine</i>	6
<i>Gomphonema angustatum</i>	5
<i>Gomphonema apuncto</i>	2
<i>Gomphonema gracile</i>	4
<i>Gomphonema parvulum</i>	4
<i>Gomphonema sparsistriatum f. maculatum</i>	3
<i>Hantzschia amphioxys</i>	*
<i>Melosira varians</i>	2
<i>Meridion circulare</i>	*
<i>Navicula angusta</i>	5
<i>Navicula contenta</i>	*
<i>Navicula cryptocephala</i>	14
<i>Navicula decussis</i>	*
<i>Navicula lanceolata</i>	1
<i>Navicula menisculus var. upsaliensis</i>	1
<i>Navicula minima</i>	9
<i>Navicula mutica</i>	*
<i>Navicula placenta</i>	*
<i>Navicula pupula var. capitata</i>	*
<i>Navicula pygmaea</i>	1
<i>Navicula radiosa</i>	2
<i>Navicula radiosa var. tenella</i>	8
<i>Navicula rhynchocephala</i>	1
<i>Navicula schroeteri var. escambia</i>	1
<i>Navicula secreta var. apiculata</i>	*
<i>Navicula tripunctata</i>	*
<i>Navicula viridula</i>	1
<i>Neidium affine</i>	1
<i>Neidium binode</i>	*
<i>Nitzschia amphibia</i>	3
<i>Nitzschia dissipata</i>	1
<i>Nitzschia filiformis</i>	2
<i>Nitzschia gracilis</i>	1
<i>Nitzschia linearis</i>	1
<i>Nitzschia microcephala</i>	1
<i>Nitzschia palea</i>	5
<i>Nitzschia recta</i>	6
<i>Nitzschia romana</i>	2
<i>Nitzschia sinuata var. tabellaria</i>	*
<i>Pinnularia biceps</i>	*
<i>Pinnularia subcapitata var. paucistriata</i>	3
<i>Pinnularia viridis</i>	2
<i>Stauroneis anceps</i>	1
<i>Stauroneis phoenicenteron</i>	2
<i>Stauroneis smithii</i>	*
<i>Surirella linearis</i>	1
<i>Surirella sp.</i>	*
<i>Synedra acus</i>	7

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surirella*

06/25/96

DIATOM COLLECTION DATA

Synedra parasitica	1
Synedra rumpens var. familiaris	*
Synedra ulna	6
Synedra ulna var. oxyrhynchus	1

Station ID: REFCABCC Collection Date: 11/08/93

Total Number of Taxa (TNT):	94
Total Number of Individuals (TNI):	573
Diversity (H):	1.06
Percent (%) Sensitive Individuals:	16.8
Pollution Tolerance Index (PTI):	2.9
Siltation Index ^{**} :	11.5

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCABCC (02006024) Stream: BARK CAMP CREEK
 Mile Point: 2.50 Drainage Area: 9.9 square miles
 Order: 4 Ecoregion: CENTRAL APPALACHIAN
 County: WHITLEY Basin: UPPER CUMBERLAND
 Map Number: 04-46 Latitude: 36-54-14 Longitude: 084-16-53
 Location Description: U.S. FOREST SERVICE ROAD 193 BRIDGE

Date Collected: 06/23/94 Comments:
 Sample ID: 19940623-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	64
Achnanthes detha	2
Achnanthes exigua	*
Achnanthes lanceolata	*
Achnanthes minutissima	261
Achnanthes stewartii	1
Amphipleura pellucida	*
Anomoeoneis serians var. brachysira	10
Anomoeoneis vitrea	1
Cymbella delicatula	6
Cymbella lunata	4
Cymbella microcephala	1
Cymbella minuta	3
Cymbella prostrata	*
Cymbella silesiaca	39
Cymbella tumida	1
Diploneis elliptica	2
Eunotia curvata	*
Eunotia exigua	4
Eunotia maior	7
Eunotia pectinalis var. minor	5
Eunotia perpusilla	*
Fragilaria vaucheriae	23
Frustulia rhomboides var. crassinervia	2
Frustulia rhomboides var. amphipleuroides	*
Gomphonema acuminatum	*
Gomphonema affine	3
Gomphonema angustatum	3
Gomphonema apuncto	2
Gomphonema gracile	1
Gomphonema parvulum	4
Gomphonema sparsistriatum f. maculatum	3
Melosira varians	*
Meridion circulare	*
Navicula angusta	*
Navicula cryptocephala	*
Navicula cryptocephala var. veneta	6
Navicula decussis	*
Navicula exigua	*

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Navicula laevissima	*
Navicula minima	2
Navicula mutica	*
Navicula notha	2
Navicula pupula	*
Navicula pupula var. rectangularis	*
Navicula radiosa	*
Navicula radiosa var. parva	3
Navicula radiosa var. tenella	11
Navicula rhynchocephala	*
Navicula subhamulata var. undulata	*
Navicula viridula	*
Neidium affine	1
Neidium dubium	*
Nitzschia dissipata	3
Nitzschia gracilis	*
Nitzschia palea	3
Nitzschia paleacea	*
Nitzschia perminuta	*
Nitzschia recta	6
Nitzschia vermicularis	2
Pinnularia biceps	*
Pinnularia mesolepta	1
Pinnularia subcapitata	*
Pinnularia viridis	*
Stauroneis phoenicenteron	1
Stauroneis smithii	3
Surirella angustata	1
Surirella linearis	4
Surirella ovata	*
Synedra delicatissima	*
Synedra ulna	18
Synedra ulna var. oxyrhynchus	*

 Station ID: REFCABCC Collection Date: 06/23/94

Total Number of Taxa (TNT):	72
Total Number of Individuals (TNI):	519
Diversity (H):	0.92
Percent (%) Sensitive Individuals:	23.9
Pollution Tolerance Index (PTI):	3.0
Siltation Index**:	7.3

 * Qualitative data

** Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCACAN (02006023) Stream: CANE CREEK
 Mile Point: 7.00 Drainage Area: 7.9 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: LAUREL Basin: UPPER CUMBERLAND
 Map Number: 05-47 Latitude: 37-04-20 Longitude: 084-14-30
 Location Description: NEAR MIDDLE FORK ON M.F. ROAD

Date Collected: 06/24/92 Comments:
 Sample ID: 19920624-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	2
Achnanthes detha	2
Achnanthes minutissima	310
Achnanthes stewartii	*
Anomoeoneis serians var. brachysira	*
Caloneis bacillum	*
Caloneis budensis	*
Cymbella aspera	1
Cymbella cuspidata	*
Cymbella delicatula	*
Cymbella naviculiformis	1
Cymbella silesiaca	13
Cymbella sp. (K)	*
Diploneis elliptica	*
Eunotia curvata	8
Eunotia exigua	1
Eunotia incisa	4
Eunotia maior	13
Eunotia pectinalis var. minor	16
Eunotia perpusilla	*
Eunotia praerupta	*
Eunotia septentrionalis	*
Fragilaria vaucheriae	76
Frustulia rhomboides var. crassinervia	1
Frustulia rhomboides var. saxonica	*
Frustulia vulgaris	1
Gomphonema acuminatum	*
Gomphonema affine	3
Gomphonema gracile	*
Gomphonema parvulum	7
Gomphonema sparsistriatum f. maculatum	2
Meridion circulare	7
Navicula angusta	1
Navicula bacillum	*
Navicula cryptocephala	1
Navicula cryptocephala var. veneta	*
Navicula exigua	1
Navicula minima	2
Navicula placenta	1

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Navicula radiosa	1
Navicula radiosa var. parva	*
Navicula radiosa var. tenella	7
Navicula rhynchocephala	*
Navicula schroeteri var. escambia	*
Navicula viridula	*
Navicula viridula var. linearis	*
Neidium affine var. longiceps	*
Nitzschia amphibia	*
Nitzschia dissipata	4
Nitzschia filiformis	*
Nitzschia linearis	1
Nitzschia recta	1
Pinnularia biceps	2
Pinnularia subcapitata	*
Pinnularia subcapitata var. paucistriata	1
Pinnularia viridis	1
Stauroneis anceps f. gracilis	1
Stauroneis smithii	5
Surirella linearis	3
Synedra acus	15
Synedra delicatissima	3
Synedra rumpens	8
Synedra rumpens var. familiaris	1
Synedra ulna	*
Tabellaria flocculosa	4

 Station ID: REFCACAN Collection Date: 06/24/92

Total Number of Taxa (TNT):	65
Total Number of Individuals (TNI):	532
Diversity (H):	0.79
Percent (%) Sensitive Individuals:	7.5
Pollution Tolerance Index (PTI):	2.8
Siltation Index**:	3.8

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCACAN (02006023) Stream: CANE CREEK
 Mile Point: 7.00 Drainage Area: 7.9 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: LAUREL Basin: UPPER CUMBERLAND
 Map Number: 05-47 Latitude: 37-04-20 Longitude: 084-14-30
 Location Description: NEAR MIDDLE FORK ON M.F. ROAD

Date Collected: 09/24/92 Comments:
 Sample ID: 19920924-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	92
Achnanthes detha	*
Achnanthes minutissima	231
Amphipleura pellucida	1
Anomoeoneis serians var. brachysira	1
Cyclotella striata var. ambigua	*
Cymbella aspera	*
Cymbella delicatula	17
Cymbella naviculiformis	1
Cymbella silesiaca	3
Cymbella tumida	3
Diploneis elliptica	1
Eunotia curvata	4
Eunotia exigua	*
Eunotia incisa	2
Eunotia maior	9
Eunotia pectinalis var. minor	*
Eunotia perpusilla	1
Fragilaria vaucheriae	21
Frustulia rhomboides var. crassinervia	*
Frustulia rhomboides var. amphipleuroides	1
Gomphonema acuminatum	2
Gomphonema affine	6
Gomphonema apuncto	26
Gomphonema gracile	3
Gomphonema parvulum	34
Gomphonema sparsistriatum f. maculatum	*
Gomphonema subclavatum	*
Gomphonema truncatum	*
Hantzschia amphioxys	*
Meridion circulare	4
Navicula angusta	4
Navicula cryptocephala	3
Navicula minima	12
Navicula mutica	*
Navicula pupula	*
Navicula radiosa	1
Navicula radiosa var. parva	6
Navicula radiosa var. tenella	14

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Nitzschia dissipata	2
Nitzschia linearis	2
Nitzschia microcephala	*
Nitzschia palea	1
Nitzschia recta	4
Pinnularia biceps	*
Pinnularia subcapitata var. paucistriata	*
Pinnularia viridis	3
Stauroneis smithii	1
Surirella angustata	*
Surirella linearis	1
Synedra rumpens	15
Synedra rumpens var. familiaris	6
Synedra ulna	6
Synedra ulna var. oxyrhynchus	1

 Station ID: REFCACAN Collection Date: 09/24/92

Total Number of Taxa (TNT):	54
Total Number of Individuals (TNI):	545
Diversity (H):	0.98
Percent (%) Sensitive Individuals:	24.6
Pollution Tolerance Index (PTI):	2.9
Siltation Index ^{**} :	9.0

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCACAN (02006023) Stream: CANE CREEK
 Mile Point: 7.00 Drainage Area: 7.9 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: LAUREL Basin: UPPER CUMBERLAND
 Map Number: 05-47 Latitude: 37-04-20 Longitude: 084-14-30
 Location Description: NEAR MIDDLE FORK ON M.F. ROAD

Date Collected: 04/29/93 Comments:
 Sample ID: 19930429-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	*
Achnanthes detha	3
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	358
Anomoeoneis serians var. brachysira	2
Anomoeoneis vitrea	15
Cymbella delicatula	4
Cymbella lunata	1
Cymbella minuta	3
Cymbella naviculiformis	2
Cymbella silesiaca	14
Eunotia curvata	5
Eunotia maior	2
Eunotia naegelii	*
Eunotia pectinalis var. minor	1
Eunotia perpusilla	*
Eunotia praerupta	1
Eunotia vanheurckii var. intermedia	1
Fragilaria vaucheriae	80
Frustulia rhomboides var. crassinervia	1
Frustulia rhomboides var. saxonica	2
Frustulia rhomboides var. amphipleuroides	*
Gomphonema acuminatum	1
Gomphonema affine	3
Gomphonema angustatum	4
Gomphonema apuncto	4
Gomphonema parvulum	5
Gomphonema sparsistriatum f. maculatum	3
Gomphonema truncatum	*
Meridion circulare	*
Navicula angusta	*
Navicula cryptocephala	*
Navicula cryptocephala var. veneta	*
Navicula lanceolata	*
Navicula menisculus var. upsaliensis	1
Navicula mutica var. stigma	*
Navicula pupula	1
Navicula radiosa	*
Navicula radiosa var. tenella	6

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula secreta</i> var. <i>apiculata</i>	*
<i>Neidium affine</i>	*
<i>Nitzschia dissipata</i>	*
<i>Nitzschia gracilis</i>	1
<i>Nitzschia linearis</i>	*
<i>Nitzschia palea</i>	*
<i>Nitzschia recta</i>	*
<i>Pinnularia biceps</i>	1
<i>Pinnularia borealis</i>	*
<i>Pinnularia nodosa</i>	*
<i>Pinnularia viridis</i>	*
<i>Stauroneis anceps</i>	*
<i>Stauroneis smithii</i>	1
<i>Surirella linearis</i>	*
<i>Synedra delicatissima</i>	*
<i>Synedra rumpens</i>	1
<i>Synedra rumpens</i> var. <i>familiaris</i>	*
<i>Synedra ulna</i>	5

 Station ID: REFCACAN Collection Date: 04/29/93

Total Number of Taxa (TNT):	57
Total Number of Individuals (TNI):	532
Diversity (H):	0.60
Percent (%) Sensitive Individuals:	5.3
Pollution Tolerance Index (PTI):	2.8
Siltation Index**:	1.7

 *Qualitative data
 **Relative abundance of *Navicula+Nitzschia+Surriella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCACAN (02006023) Stream: CANE CREEK
 Mile Point: 7.00 Drainage Area: 7.9 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: LAUREL Basin: UPPER CUMBERLAND
 Map Number: 05-47 Latitude: 37-04-20 Longitude: 084-14-30
 Location Description: NEAR MIDDLE FORK ON M.F. ROAD

Date Collected: 10/18/93 Comments:
 Sample ID: 19931018-10 Substrate Type: Natural
 ID By:

Achnanthes detha	4
Achnanthes exigua	*
Achnanthes lapponica var. ninckei	1
Achnanthes minutissima	324
Achnanthes stewartii	2
Amphipleura pellucida	*
Anomoeoneis serians var. brachysira	16
Anomoeoneis vitrea	2
Caloneis bacillum	*
Cymbella aspera	2
Cymbella delicatula	27
Cymbella lunata	1
Cymbella microcephala	1
Cymbella minuta	1
Cymbella naviculiformis	*
Cymbella silesiaca	2
Cymbella tumida	*
Diploneis elliptica	4
Diploneis oblongella	*
Entomoneis ornata	*
Eunotia curvata	5
Eunotia exigua	2
Eunotia maior	7
Eunotia pectinalis var. minor	5
Eunotia perpusilla	*
Eunotia praerupta	3
Eunotia serra var. diadema	*
Eunotia vanheurckii var. intermedia	2
Fragilaria vaucheriae	35
Frustulia rhomboides var. crassinervia	21
Frustulia rhomboides var. saxonica	*
Frustulia rhomboides var. amphipleuroides	2
Frustulia weinholdii	1
Gomphonema acuminatum	6
Gomphonema acuminatum var. elongatum	*
Gomphonema affine	4
Gomphonema apuncto	7
Gomphonema gracile	2
Gomphonema parvulum	9

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Gomphonema sparsistriatum f. maculatum	2
Gomphonema subclavatum	*
Gomphonema truncatum	*
Meridion circulare	2
Navicula angusta	7
Navicula cryptocephala	2
Navicula cryptocephala var. veneta	9
Navicula elginensis	*
Navicula menisculus var. upsaliensis	*
Navicula minima	9
Navicula placenta	*
Navicula pupula	1
Navicula pygmaea	*
Navicula radiosa	4
Navicula radiosa var. tenella	13
Navicula secreta var. apiculata	2
Navicula viridula	*
Neidium affine	*
Nitzschia dissipata	1
Nitzschia microcephala	*
Nitzschia palea	3
Nitzschia recta	2
Pinnularia biceps	*
Pinnularia subcapitata	1
Pinnularia subcapitata var. paucistriata	2
Pinnularia viridis	2
Stauroneis anceps	1
Stauroneis phoenicenteron	*
Stauroneis smithii	7
Stephanodiscus hantzschii	*
Surirella angustata	1
Surirella linearis	3
Surirella robusta	4
Synedra acus	*
Synedra delicatissima	1
Synedra ulna	10

 Station ID: REFCACAN Collection Date: 10/18/93

Total Number of Taxa (TNT):	75
Total Number of Individuals (TNI):	587
Diversity (H):	0.96
Percent (%) Sensitive Individuals:	12.4
Pollution Tolerance Index (PTI):	2.7
Siltation Index**:	9.0

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCACAN (02006023) Stream: CANE CREEK
 Mile Point: 7.00 Drainage Area: 7.9 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: LAUREL Basin: UPPER CUMBERLAND
 Map Number: 05-47 Latitude: 37-04-20 Longitude: 084-14-30
 Location Description: NEAR MIDDLE FORK ON M.F. ROAD

Date Collected: 06/10/94 Comments:
 Sample ID: 19940610-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	1
Achnanthes detha	8
Achnanthes exigua	2
Achnanthes minutissima	342
Achnanthes stewartii	*
Anomoeoneis serians var. brachysira	4
Anomoeoneis vitrea	*
Caloneis bacillum	1
Cyclotella stelligera	1
Cymbella delicatula	3
Cymbella lunata	*
Cymbella naviculiformis	2
Cymbella silesiaca	35
Diploneis elliptica	*
Eunotia curvata	5
Eunotia exigua	1
Eunotia maior	1
Eunotia pectinalis var. minor	12
Eunotia perpusilla	2
Eunotia vanheurckii var. intermedia	*
Fragilaria vaucheriae	34
Frustulia rhomboides var. crassinervia	*
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	*
Frustulia weinholdii	1
Gomphonema acuminatum	*
Gomphonema affine	1
Gomphonema angustatum	1
Gomphonema apuncto	*
Gomphonema gracile	2
Gomphonema parvulum	5
Gomphonema sparsistriatum f. maculatum	5
Gomphonema truncatum	*
Meridion circulare	*
Navicula angusta	1
Navicula cryptocephala	*
Navicula cryptocephala var. veneta	3
Navicula meniscus var. upsaliensis	*
Navicula minima	6

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula mutica	1
Navicula notha	*
Navicula pupula var. capitata	*
Navicula pygmaea	*
Navicula radiosa	*
Navicula radiosa var. parva	4
Navicula radiosa var. tenella	4
Navicula viridula var. linearis	*
Neidium affine	1
Nitzschia dissipata	5
Nitzschia palea	2
Nitzschia recta	8
Pinnularia biceps	*
Pinnularia obscurum	*
Pinnularia subcapitata	1
Rhopalodia gibberula var. vanheurckii	*
Stauroneis anceps	1
Stauroneis phoenicenteron	*
Stauroneis smithii	*
Surirella angustata	*
Surirella linearis	1
Synedra acus	1
Synedra ulna	5

 Station ID: REFCACAN Collection Date: 06/10/94

Total Number of Taxa (TNT):	62
Total Number of Individuals (TNI):	513
Diversity (H):	0.69
Percent (%) Sensitive Individuals:	9.6
Pollution Tolerance Index (PTI):	2.8
Siltation Index**:	6.6

 *Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCACAN (02006023) Stream: CANE CREEK
 Mile Point: 7.00 Drainage Area: 7.9 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: LAUREL Basin: UPPER CUMBERLAND
 Map Number: 05-47 Latitude: 37-04-20 Longitude: 084-14-30
 Location Description: NEAR MIDDLE FORK ON M.F. ROAD

Date Collected: 10/25/94 Comments:
 Sample ID: 19941025-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	12
Achnanthes detha	3
Achnanthes exigua	2
Achnanthes linearis	*
Achnanthes minutissima	329
Achnanthes stewartii	2
Amphipleura pellucida	6
Amphora submontana	2
Anomoeoneis serians var. brachysira	24
Anomoeoneis vitrea	4
Caloneis bacillum	1
Cymbella aspera	3
Cymbella cuspidata	*
Cymbella delicatula	2
Cymbella lunata	1
Cymbella minuta	1
Cymbella naviculiformis	1
Cymbella silesiaca	14
Diploneis elliptica	5
Diploneis oblongella	1
Eunotia curvata	6
Eunotia exigua	*
Eunotia maior	10
Eunotia pectinalis var. minor	3
Eunotia praerupta	*
Fragilaria vaucheriae	8
Frustulia rhomboides var. crassinervia	5
Frustulia rhomboides var. saxonica	4
Frustulia rhomboides var. amphipleuroides	1
Gomphonema acuminatum	*
Gomphonema affine	2
Gomphonema angustatum	2
Gomphonema apuncto	2
Gomphonema gracile	1
Gomphonema parvulum	5
Gomphonema sparsistriatum f. maculatum	1
Gomphonema truncatum	3
Gyrosigma sp.	1
Meridion circulare	1

 * Qualitative data

** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula angusta	5
Navicula cryptocephala var. veneta	2
Navicula elginensis	*
Navicula exigua	*
Navicula laevissima	*
Navicula minima	12
Navicula pelliculosa	*
Navicula pupula	*
Navicula radiosa	*
Navicula radiosa var. tenella	13
Navicula rhynchocephala	*
Navicula viridula	*
Neidium affine var. amphirhynchus	*
Nitzschia acicularis	1
Nitzschia amphibia	*
Nitzschia angustata var. acuta	*
Nitzschia dissipata	4
Nitzschia linearis	*
Nitzschia palea	11
Nitzschia romana	*
Nitzschia vermicularis	3
Pinnularia biceps	*
Pinnularia subcapitata	1
Pinnularia viridis	*
Stauroneis anceps	5
Stauroneis smithii	2
Surirella linearis	8
Surirella linearis var. helvetica	3
Synedra rumpens	*
Synedra ulna	7

 Station ID: REFCACAN Collection Date: 10/25/94

Total Number of Taxa (TNT):	69
Total Number of Individuals (TNI):	545
Diversity (H):	0.89
Percent (%) Sensitive Individuals:	9.7
Pollution Tolerance Index (PTI):	2.7
Siltation Index**:	9.4

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCACAN (02006023) Stream: CANE CREEK
 Mile Point: 7.00 Drainage Area: 7.9 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: LAUREL Basin: UPPER CUMBERLAND
 Map Number: 05-47 Latitude: 37-04-20 Longitude: 084-14-30
 Location Description: NEAR MIDDLE FORK ON M.F. ROAD

Date Collected: 07/20/95 Comments:
 Sample ID: 19950720-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	12
Achnanthes detha	4
Achnanthes minutissima	198
Achnanthes stewartii	*
Amphora submontana	*
Anomoeoneis serians var. brachysira	11
Anomoeoneis vitrea	*
Caloneis bacillum	*
Cymbella aspera	*
Cymbella cuspidata	2
Cymbella delicatula	1
Cymbella lunata	*
Cymbella minuta	1
Cymbella naviculiformis	4
Cymbella silesiaca	18
Diploneis elliptica	*
Diploneis oblongella	*
Eunotia curvata	5
Eunotia exigua	1
Eunotia maior	5
Eunotia pectinalis var. minor	4
Eunotia perpusilla	*
Fragilaria vaucheriae	31
Frustulia rhomboides var. crassinervia	2
Frustulia rhomboides var. amphipleuroides	6
Gomphonema acuminatum	5
Gomphonema affine	7
Gomphonema angustatum	2
Gomphonema apuncto	128
Gomphonema gracile	3
Gomphonema parvulum	12
Gomphonema sparsistriatum f. maculatum	3
Gomphonema truncatum var. turgidulum	1
Meridion circulare	1
Navicula angusta	4
Navicula contenta	*
Navicula cryptocephala	3
Navicula cryptocephala var. veneta	8
Navicula hustedtii	*

 *Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

Navicula lateropunctata	*
Navicula minima	9
Navicula notha	2
Navicula pupula var. rectangularis	*
Navicula radiosa var. parva	3
Navicula radiosa var. tenella	5
Navicula secreta var. apiculata	1
Navicula viridula var. linearis	2
Neidium affine	*
Nitzschia acicularis	1
Nitzschia dissipata	3
Nitzschia filiformis	*
Nitzschia palea	8
Nitzschia recta	3
Pinnularia biceps	3
Pinnularia obscurum	1
Pinnularia viridis	*
Stauroneis anceps	1
Stauroneis phoenicenteron	*
Stauroneis smithii	3
Surirella angustata	*
Surirella linearis	5
Surirella robusta	1
Synedra acus	1
Synedra ulna	3
Tabellaria fenestrata	*

 Station ID: REFCACAN Collection Date: 07/20/95

Total Number of Taxa (TNT):	65
Total Number of Individuals (TNI):	537
Diversity (H):	1.04
Percent (%) Sensitive Individuals:	9.7
Pollution Tolerance Index (PTI):	2.5
Siltation Index**:	9.7

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCACFD (04050001) Stream: CLEMONS FORK
 Mile Point: 0.50 Drainage Area: 5.9 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: BREATHTITT Basin: KENTUCKY
 Map Number: 08-55 Latitude: 37-27-35 Longitude: 083-09-30
 Location Description: ROBINSON FOREST ROAD

Date Collected: 05/14/91 Comments:
 Sample ID: 19910514-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	74
Achnanthes detha	1
Achnanthes lapponica var. ninckei	1
Achnanthes minutissima	94
Cymbella cymbiformis	2
Cymbella delicatula	311
Cymbella silesiaca	1
Cymbella tumida	*
Denticula elegans	*
Eunotia exigua	*
Eunotia perpusilla	*
Eunotia vanheurckii var. intermedia	1
Fragilaria vaucheriae	6
Gomphonema angustatum	*
Gomphonema olivaceum	2
Gomphonema parvulum	*
Gomphonema sparsistriatum f. maculatum	*
Gomphonema sphaerophorum	*
Meridion circulare	*
Navicula cryptocephala	*
Navicula minima	*
Navicula radiosa var. tenella	*
Nitzschia palea	*
Pinnularia subcapitata var. paucistriata	*
Synedra acus	*
Synedra delicatissima	7
Synedra rumpens var. familiaris	5
Synedra ulna	11
Synedra ulna var. oxyrhynchus	3

Station ID: REFCACFD Collection Date: 05/14/91

Total Number of Taxa (TNT):	29
Total Number of Individuals (TNI):	519
Diversity (H):	0.54
Percent (%) Sensitive Individuals:	76.1
Pollution Tolerance Index (PTI):	3.7
Siltation Index**:	0.0

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCACFD (04050001) Stream: CLEMONS FORK
 Mile Point: 0.50 Drainage Area: 5.9 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: BREATHITT Basin: KENTUCKY
 Map Number: 08-55 Latitude: 37-27-35 Longitude: 083-09-30
 Location Description: ROBINSON FOREST ROAD

Date Collected: 10/09/91 Comments:
 Sample ID: 19911009-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	50
Achnanthes detha	*
Achnanthes exigua	*
Achnanthes minutissima	77
Amphipleura pellucida	*
Amphora perpusilla	*
Anomoeoneis vitrea	1
Cocconeis placentula	*
Cymbella affinis	*
Cymbella aspera	*
Cymbella cistula	*
Cymbella cymbiformis	1
Cymbella delicatula	250
Cymbella minuta	1
Cymbella naviculiformis	*
Cymbella silesiaca	3
Cymbella sp. (K)	1
Cymbella tumida	1
Cymbella turgidula	109
Denticula elegans	1
Diploneis elliptica	*
Entomoneis ornata	*
Eunotia curvata	*
Eunotia incisa	*
Eunotia maior	*
Eunotia triodon	*
Fragilaria vaucheriae	2
Frustulia rhomboides var. crassinervia	*
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	1
Gomphonema acuminatum	*
Gomphonema affine	1
Gomphonema angustatum	1
Gomphonema apuncto	*
Gomphonema gracile	*
Gomphonema parvulum	3
Gomphonema sparsistriatum f. maculatum	6
Gomphonema sphaerophorum	1
Meridion circulare	*

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula angusta	*
Navicula capitata	*
Navicula cryptocephala	*
Navicula cryptocephala var. veneta	*
Navicula decussis	*
Navicula elginensis	*
Navicula menisculus var. upsaliensis	*
Navicula minima	3
Navicula mutica	*
Navicula placenta	*
Navicula radiosa	*
Navicula radiosa var. parva	*
Navicula radiosa var. tenella	12
Navicula viridula	1
Navicula viridula var. linearis	*
Nitzschia clausii	*
Nitzschia dissipata	1
Nitzschia filiformis	*
Nitzschia gracilis	*
Nitzschia linearis	*
Nitzschia microcephala	1
Nitzschia palea	*
Nitzschia recta	2
Nitzschia sinuata var. tabellaria	*
Nitzschia vermicularis	*
Pinnularia biceps	1
Pinnularia subcapitata	1
Stauroneis anceps f. gracilis	*
Stauroneis smithii	*
Surirella angustata	*
Surirella linearis	*
Synedra delicatissima	*
Synedra rumpens	*
Synedra rumpens var. familiaris	2
Synedra ulna	1
Synedra ulna var. oxyrhynchus	1
Synedra ulna var. ramesi	*

 Station ID: REFCACFD Collection Date: 10/09/91

Total Number of Taxa (TNT):	76
Total Number of Individuals (TNI):	536
Diversity (H):	0.72
Percent (%) Sensitive Individuals:	78.7
Pollution Tolerance Index (PTI):	3.7
Siltation Index**:	3.7

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCACFD (04050001) Stream: CLEMONS FORK
 Mile Point: 0.50 Drainage Area: 5.9 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: BREATHITT Basin: KENTUCKY
 Map Number: 08-55 Latitude: 37-27-35 Longitude: 083-09-30
 Location Description: ROBINSON FOREST ROAD

Date Collected: 04/29/93 Comments:
 Sample ID: 19930429-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	43
Achnanthes detha	*
Achnanthes lanceolata	*
Achnanthes lapponica var. ninckei	2
Achnanthes minutissima	50
Achnanthes stewartii	*
Amphipleura pellucida	*
Caloneis bacillum	*
Cocconeis placentula var. euglypta	1
Cymbella cymbiformis	1
Cymbella delicatula	425
Cymbella silesiaca	*
Cymbella tumida	*
Eunotia pectinalis var. minor	*
Fragilaria vaucheriae	11
Gomphonema affine	*
Gomphonema angustatum	4
Gomphonema olivaceum	8
Gomphonema parvulum	1
Gomphonema sparsistriatum f. maculatum	*
Gomphonema sphaerophorum	*
Meridion circulare	*
Navicula elginensis	*
Navicula minima	*
Navicula radiosa var. tenella	1
Nitzschia filiformis	*
Nitzschia linearis	*
Nitzschia recta	1
Stauroneis smithii	1
Synedra acus	*
Synedra rumpens	2
Synedra ulna	22
Synedra ulna var. oxyrhynchus	3

Station ID: REFCACFD Collection Date: 04/29/93

Total Number of Taxa (TNT): 33
 Total Number of Individuals (TNI): 576
 Diversity (H): 0.46

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Percent (%) Sensitive Individuals:	81.9
Pollution Tolerance Index (PTI):	3.8
Siltation Index**:	0.3

*Qualitative data

**Relative abundance of *Navicula*+*Nitzschia*+*Surriella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCACFD (04050001) Stream: CLEMONS FORK
 Mile Point: 0.50 Drainage Area: 5.9 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: BREATHITT Basin: KENTUCKY
 Map Number: 08-55 Latitude: 37-27-35 Longitude: 083-09-30
 Location Description: ROBINSON FOREST ROAD

Date Collected: 10/12/93 Comments:
 Sample ID: 19931012-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	43	
Achnanthes detha		*
Achnanthes lanceolata	1	
Achnanthes lapponica var. ninckei	1	
Achnanthes minutissima	168	
Amphipleura pellucida		*
Amphora ovalis		*
Amphora submontana		*
Anomoeoneis vitrea		*
Cocconeis placentula		*
Cymbella aspera		*
Cymbella cymbiformis	26	
Cymbella delicatula	263	
Cymbella minuta	1	
Cymbella minuta var. pseudogracilis		*
Cymbella silesiaca		*
Cymbella tumida		*
Cymbella turgidula	1	
Denticula elegans		*
Diploneis elliptica		*
Eunotia maior		*
Eunotia pectinalis var. minor		*
Fragilaria vaucheriae	1	
Frustulia rhomboides var. crassinervia		*
Frustulia rhomboides var. amphipleuroides		*
Gomphonema affine		*
Gomphonema apuncto		*
Gomphonema gracile		*
Gomphonema olivaceum		*
Gomphonema parvulum		*
Gomphonema sparsistriatum f. maculatum		*
Gomphonema sphaerophorum		*
Gomphonema subclavatum		*
Meridion circulare		*
Navicula cryptocephala		*
Navicula decussis		*
Navicula lanceolata		*
Navicula menisculus var. upsaliensis		*
Navicula minima		*

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula pelliculosa	*
Navicula pupula	*
Navicula radiosa var. tenella	9
Navicula secreta var. apiculata	1
Navicula tripunctata	*
Navicula viridula	*
Navicula viridula var. rostellata	*
Nitzschia acicularis	*
Nitzschia dissipata	1
Nitzschia gracilis	*
Nitzschia palea	*
Nitzschia recta	*
Nitzschia vermicularis	3
Pinnularia obscurum	*
Rhoicosphenia curvata	*
Stauroneis smithii	*
Synedra rumpens var. familiaris	1
Synedra ulna	2
Synedra ulna var. oxyrhynchus	2

 Station ID: REFCACFD Collection Date: 10/12/93

Total Number of Taxa (TNT):	58
Total Number of Individuals (TNI):	524
Diversity (H):	0.57
Percent (%) Sensitive Individuals:	63.5
Pollution Tolerance Index (PTI):	3.6
Siltation Index**:	2.7

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCACFD (04050001) Stream: CLEMONS FORK
 Mile Point: 0.50 Drainage Area: 5.9 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: BREATHITT Basin: KENTUCKY
 Map Number: 08-55 Latitude: 37-27-35 Longitude: 083-09-30
 Location Description: ROBINSON FOREST ROAD

Date Collected: 05/25/94 Comments:
 Sample ID: 19940525-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	46
Achnanthes detha	*
Achnanthes lanceolata	*
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	84
Amphipleura pellucida	*
Cymbella cymbiformis	16
Cymbella delicatula	330
Cymbella silesiaca	*
Cymbella tumida	*
Epithemia adnata	*
Eunotia exigua	*
Eunotia maior	*
Eunotia vanheurckii var. intermedia	*
Fragilaria vaucheriae	11
Frustulia rhomboides var. amphipleuroides	*
Gomphonema acuminatum	*
Gomphonema affine	1
Gomphonema angustatum	1
Gomphonema apuncto	*
Gomphonema gracile	1
Gomphonema olivaceum	*
Gomphonema parvulum	*
Gomphonema sparsistriatum f. maculatum	2
Gomphonema sphaerophorum	2
Meridion circulare	*
Navicula angusta	*
Navicula cryptocephala	1
Navicula cryptocephala var. veneta	*
Navicula hustedtii	*
Navicula minima	6
Navicula pupula var. capitata	*
Navicula radiosa	*
Navicula radiosa var. parva	*
Navicula radiosa var. tenella	*
Navicula secreta var. apiculata	*
Nitzschia palea	*
Nitzschia recta	*
Nitzschia sinuata var. tabellaria	*

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Nitzschia sp.1	*
Pinnularia viridis	*
Synedra rumpens var. familiaris	2
Synedra ulna	30
Synedra ulna var. oxyrhynchus	1

 Station ID: REFCACFD Collection Date: 05/25/94

Total Number of Taxa (TNT):	44
Total Number of Individuals (TNI):	534
Diversity (H):	0.57
Percent (%) Sensitive Individuals:	74.2
Pollution Tolerance Index (PTI):	3.7
Siltation Index**:	1.3

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCACFU (04050002) Stream: CLEMONS FORK
 Mile Point: 3.00 Drainage Area: 2.0 square miles
 Order: 2 Ecoregion: CENTRAL APPALACHIAN
 County: BREATHITT Basin: KENTUCKY
 Map Number: 08-55 Latitude: 37-28-50 Longitude: 083-08-08
 Location Description: ROBINSON FOREST ROAD

Date Collected: 05/14/91 Comments:
 Sample ID: 19910514-11 Substrate Type: Natural
 ID By:

<i>Achnanthes deflexa</i>	55
<i>Achnanthes detha</i>	2
<i>Achnanthes lanceolata</i>	*
<i>Achnanthes lanceolata</i> var. <i>dubia</i>	*
<i>Achnanthes lapponica</i> var. <i>ninckei</i>	11
<i>Achnanthes minutissima</i>	106
<i>Achnanthes stewartii</i>	*
<i>Amphipleura pellucida</i>	1
<i>Amphora ovalis</i>	*
<i>Cocconeis placentula</i>	1
<i>Cymbella delicatula</i>	61
<i>Cymbella hustedtii</i>	2
<i>Cymbella minuta</i>	2
<i>Cymbella naviculiformis</i>	2
<i>Cymbella silesiaca</i>	17
<i>Cymbella sinuata</i>	1
<i>Cymbella</i> sp. (K)	3
<i>Cymbella triangulum</i>	*
<i>Cymbella tumida</i>	5
<i>Diploneis elliptica</i>	*
<i>Eunotia curvata</i>	5
<i>Eunotia exigua</i>	1
<i>Eunotia pectinalis</i> var. <i>minor</i>	*
<i>Eunotia praerupta</i>	*
<i>Eunotia vanheurckii</i> var. <i>intermedia</i>	2
<i>Fragilaria vaucheriae</i>	46
<i>Frustulia vulgaris</i>	*
<i>Gomphonema acuminatum</i>	1
<i>Gomphonema affine</i>	5
<i>Gomphonema angustatum</i>	21
<i>Gomphonema olivaceum</i>	10
<i>Gomphonema parvulum</i>	4
<i>Gomphonema subclavatum</i>	2
<i>Gyrosigma scalproides</i>	*
<i>Meridion circulare</i>	4
<i>Navicula angusta</i>	*
<i>Navicula cryptocephala</i>	*
<i>Navicula cryptocephala</i> var. <i>veneta</i>	4
<i>Navicula decussis</i>	1

*Qualitative data

**Relative abundance of *Navicula*+*Nitzschia*+*Surriella*

06/25/96

DIATOM COLLECTION DATA

Navicula minima	3	
Navicula mutica		*
Navicula pupula		*
Navicula radiosa	2	
Navicula radiosa var. tenella	4	
Navicula rhynchocephala		*
Navicula secreta var. apiculata		*
Navicula viridula	1	
Neidium affine var. longiceps		*
Nitzschia amphibia	1	
Nitzschia dissipata		*
Nitzschia filiformis		*
Nitzschia gracilis	9	
Nitzschia linearis	4	
Nitzschia palea	1	
Nitzschia recta	4	
Nitzschia tryblionella var. victoriae	1	
Pinnularia subcapitata		*
Pinnularia subcapitata var. paucistriata		*
Stauroneis anceps		*
Stauroneis phoenicenteron		*
Surirella angustata		*
Synedra delicatissima	3	
Synedra rumpens	25	
Synedra rumpens var. familiaris	14	
Synedra ulna	50	
Synedra ulna var. oxyrhynchus	20	
Tabellaria flocculosa		*

 Station ID: REFCACFU Collection Date: 05/14/91

Total Number of Taxa (TNT):	67
Total Number of Individuals (TNI):	517
Diversity (H):	1.22
Percent (%) Sensitive Individuals:	33.5
Pollution Tolerance Index (PTI):	3.0
Siltation Index**:	6.8

 *Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCACFU (04050002) Stream: CLEMONS FORK
 Mile Point: 3.00 Drainage Area: 2.0 square miles
 Order: 2 Ecoregion: CENTRAL APPALACHIAN
 County: BREATHITT Basin: KENTUCKY
 Map Number: 08-55 Latitude: 37-28-50 Longitude: 083-08-08
 Location Description: ROBINSON FOREST ROAD

Date Collected: 10/09/91 Comments:
 Sample ID: 19911009-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	149
Achnanthes exigua	*
Achnanthes lanceolata	1
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	67
Amphipleura pellucida	1
Amphora perpusilla	*
Amphora submontana	1
Caloneis bacillum	3
Caloneis budensis	1
Cocconeis placentula	13
Cymbella aspera	*
Cymbella delicatula	47
Cymbella minuta	1
Cymbella naviculiformis	*
Cymbella silesiaca	7
Cymbella sinuata	2
Cymbella tumida	3
Cymbella turgidula	116
Denticula elegans	*
Diploneis elliptica	4
Eunotia curvata	*
Eunotia maior	4
Eunotia pectinalis var. minor	4
Fragilaria vaucheriae	4
Frustulia rhomboides var. crassinervia	4
Frustulia rhomboides var. amphipleuroides	2
Frustulia vulgaris	1
Gomphonema affine	1
Gomphonema angustatum	1
Gomphonema apuncto	1
Gomphonema parvulum	11
Gomphonema sparsistriatum f. maculatum	9
Gomphonema sphaerophorum	*
Gomphonema subclavatum	1
Meridion circulare	*
Navicula cryptocephala	*
Navicula cryptocephala var. veneta	1
Navicula decussis	1

* Qualitative data

** Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Navicula menisculus var. upsaliensis	*
Navicula minima	16
Navicula placenta	*
Navicula pupula	1
Navicula radiosa	*
Navicula radiosa var. parva	3
Navicula radiosa var. tenella	3
Navicula rhynchocephala	*
Navicula schroeteri var. escambia	1
Navicula viridula var. linearis	*
Neidium dubium	*
Nitzschia clausii	*
Nitzschia dissipata	1
Nitzschia filiformis	1
Nitzschia linearis	1
Nitzschia microcephala	1
Nitzschia palea	*
Nitzschia recta	1
Nitzschia vermicularis	1
Pinnularia biceps	1
Rhoicosphenia curvata	*
Stauroneis smithii	2
Surirella angustata	*
Surirella linearis	*
Synedra acus	5
Synedra rumpens	6
Synedra rumpens var. familiaris	1
Synedra ulna	4
Synedra ulna var. oxyrhynchus	*
Synedra ulna var. ramesi	1

 Station ID: REFCACFU Collection Date: 10/09/91

Total Number of Taxa (TNT):	69
Total Number of Individuals (TNI):	511
Diversity (H):	1.04
Percent (%) Sensitive Individuals:	67.5
Pollution Tolerance Index (PTI):	3.4
Siltation Index**:	6.3

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCACFU (04050002) Stream: CLEMONS FORK
 Mile Point: 3.00 Drainage Area: 2.0 square miles
 Order: 2 Ecoregion: CENTRAL APPALACHIAN
 County: BREATHITT Basin: KENTUCKY
 Map Number: 08-55 Latitude: 37-28-50 Longitude: 083-08-08
 Location Description: ROBINSON FOREST ROAD

Date Collected: 04/29/93 Comments:
 Sample ID: 19930429-0 Substrate Type: Natural
 ID By:

<i>Achnanthes deflexa</i>	102
<i>Achnanthes detha</i>	2
<i>Achnanthes exigua</i>	*
<i>Achnanthes lanceolata</i>	*
<i>Achnanthes lanceolata</i> var. <i>dubia</i>	1
<i>Achnanthes lapponica</i> var. <i>ninckei</i>	2
<i>Achnanthes minutissima</i>	150
<i>Achnanthes stewartii</i>	*
<i>Amphipleura pellucida</i>	1
<i>Amphora ovalis</i>	*
<i>Amphora perpusilla</i>	*
<i>Amphora submontana</i>	*
<i>Caloneis bacillum</i>	*
<i>Cocconeis placentula</i> var. <i>lineata</i>	*
<i>Cymbella delicatula</i>	61
<i>Cymbella microcephala</i>	*
<i>Cymbella minuta</i>	1
<i>Cymbella naviculiformis</i>	*
<i>Cymbella silesiaca</i>	6
<i>Cymbella</i> sp. (K)	*
<i>Cymbella triangulum</i>	1
<i>Cymbella tumida</i>	*
<i>Eunotia curvata</i>	2
<i>Eunotia exigua</i>	*
<i>Eunotia maior</i>	*
<i>Eunotia pectinalis</i> var. <i>minor</i>	3
<i>Eunotia praerupta</i>	5
<i>Eunotia serra</i> var. <i>diadema</i>	*
<i>Eunotia vanheurckii</i> var. <i>intermedia</i>	*
<i>Fragilaria vaucheriae</i>	116
<i>Frustulia rhomboides</i> var. <i>crassinervia</i>	1
<i>Frustulia vulgaris</i>	*
<i>Gomphonema affine</i>	3
<i>Gomphonema angustatum</i>	12
<i>Gomphonema gracile</i>	*
<i>Gomphonema olivaceoides</i>	*
<i>Gomphonema olivaceum</i>	16
<i>Gomphonema parvulum</i>	11
<i>Meridion circulare</i>	12

 *Qualitative data

**Relative abundance of *Navicula*+*Nitzschia*+*Surriella*

06/25/96

DIATOM COLLECTION DATA

Navicula angusta	*
Navicula cocconeiformis	*
Navicula cryptocephala	1
Navicula cryptocephala var. veneta	1
Navicula decussis	*
Navicula lanceolata	*
Navicula minima	9
Navicula placenta	1
Navicula radiosa var. tenella	*
Navicula tripunctata	1
Neidium affine	*
Nitzschia acicularis	*
Nitzschia amphibia	1
Nitzschia dissipata	*
Nitzschia filiformis	*
Nitzschia gracilis	*
Nitzschia linearis	4
Nitzschia palea	*
Nitzschia recta	*
Pinnularia subcapitata var. paucistriata	2
Pinnularia viridis	2
Rhopalodia gibberula var. vanheurckii	*
Stauroneis phoenicenteron	*
Stauroneis smithii	*
Surirella angustata	*
Surirella linearis	*
Synedra delicatissima	1
Synedra rumpens var. familiaris	*
Synedra ulna	10
Synedra ulna var. oxyrhynchus	15
Tabellaria fenestrata	*

 Station ID: REFCACFU Collection Date: 04/29/93

Total Number of Taxa (TNT):	70
Total Number of Individuals (TNI):	556
Diversity (H):	0.97
Percent (%) Sensitive Individuals:	30.9
Pollution Tolerance Index (PTI):	2.9
Siltation Index**:	3.2

 * Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCACFU (04050002) Stream: CLEMONS FORK
 Mile Point: 3.00 Drainage Area: 2.0 square miles
 Order: 2 Ecoregion: CENTRAL APPALACHIAN
 County: BREATHITT Basin: KENTUCKY
 Map Number: 08-55 Latitude: 37-28-50 Longitude: 083-08-08
 Location Description: ROBINSON FOREST ROAD

Date Collected: 05/25/94 Comments:
 Sample ID: 19940525-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	67
Achnanthes detha	2
Achnanthes lanceolata	1
Achnanthes lapponica var. ninckei	2
Achnanthes minutissima	182
Achnanthes stewartii	1
Amphipleura pellucida	*
Cocconeis placentula	*
Cymbella aspera	*
Cymbella cymbiformis	*
Cymbella delicatula	185
Cymbella hauckii	*
Cymbella microcephala	1
Cymbella minuta	2
Cymbella naviculiformis	*
Cymbella silesiaca	4
Cymbella sp. (K)	*
Cymbella tumida	*
Denticula elegans	*
Diploneis elliptica	*
Eunotia exigua	*
Eunotia maior	*
Eunotia pectinalis var. minor	*
Eunotia vanheurckii var. intermedia	1
Fragilaria vaucheriae	60
Frustulia rhomboides var. crassinervia	*
Frustulia rhomboides var. amphipleuroides	*
Gomphonema acuminatum	*
Gomphonema affine	1
Gomphonema angustatum	10
Gomphonema olivaceum	1
Gomphonema parvulum	5
Gomphonema sparsistriatum f. maculatum	*
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Meridion circulare	1
Navicula angusta	*
Navicula cryptocephala	1
Navicula cryptocephala var. veneta	*

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Navicula decussis		*
Navicula minima	10	
Navicula pupula		*
Navicula radiosa		*
Navicula radiosa var. tenella		*
Navicula viridula var. linearis		*
Nitzschia acicularis		*
Nitzschia dissipata		*
Nitzschia gracilis		*
Nitzschia linearis		*
Nitzschia palea	1	
Nitzschia paleacea		*
Nitzschia recta		*
Pinnularia subcapitata		*
Pinnularia viridis		*
Stauroneis smithii	1	
Surirella angustata	1	
Synedra rumpens var. familiaris	5	
Synedra ulna	12	
Synedra ulna var. oxyrhynchus	3	
Tabellaria flocculosa		*

 Station ID: REFCACFU Collection Date: 05/25/94

Total Number of Taxa (TNT):	60
Total Number of Individuals (TNI):	560
Diversity (H):	0.77
Percent (%) Sensitive Individuals:	46.3
Pollution Tolerance Index (PTI):	3.2
Siltation Index**:	2.1

 * Qualitative data

** Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCACFU (04050002) Stream: CLEMONS FORK
 Mile Point: 3.00 Drainage Area: 2.0 square miles
 Order: 2 Ecoregion: CENTRAL APPALACHIAN
 County: BREATHITT Basin: KENTUCKY
 Map Number: 08-55 Latitude: 37-28-50 Longitude: 083-08-08
 Location Description: ROBINSON FOREST ROAD

Date Collected: 05/23/95 Comments:
 Sample ID: 19950523-10 Substrate Type: Natural
 ID By:

<i>Achnanthes clevei</i>	1
<i>Achnanthes deflexa</i>	77
<i>Achnanthes detha</i>	2
<i>Achnanthes exigua</i>	*
<i>Achnanthes lanceolata</i>	*
<i>Achnanthes lapponica</i> var. <i>ninckei</i>	4
<i>Achnanthes microcephala</i>	7
<i>Achnanthes minutissima</i>	158
<i>Amphora ovalis</i>	*
<i>Amphora perpusilla</i>	2
<i>Anomoeoneis serians</i> var. <i>brachysira</i>	*
<i>Caloneis bacillum</i>	1
<i>Cocconeis placentula</i>	1
<i>Cymbella aspera</i>	*
<i>Cymbella delicatula</i>	7
<i>Cymbella microcephala</i>	*
<i>Cymbella minuta</i>	4
<i>Cymbella minuta</i> var. <i>pseudogracilis</i>	2
<i>Cymbella silesiaca</i>	17
<i>Cymbella</i> sp. (K)	*
<i>Cymbella triangulum</i>	2
<i>Cymbella turgidula</i>	*
<i>Denticula elegans</i>	2
<i>Diploneis elliptica</i>	1
<i>Diploneis oblongella</i>	*
<i>Epithemia adnata</i>	*
<i>Eunotia curvata</i>	1
<i>Eunotia exigua</i>	3
<i>Eunotia maior</i>	4
<i>Eunotia pectinalis</i> var. <i>minor</i>	16
<i>Eunotia perpusilla</i>	2
<i>Fragilaria vaucheriae</i>	74
<i>Frustulia rhomboides</i> var. <i>crassinervia</i>	*
<i>Frustulia vulgaris</i>	*
<i>Frustulia weinholdii</i>	1
<i>Gomphonema affine</i>	4
<i>Gomphonema angustatum</i>	12
<i>Gomphonema gracile</i>	*
<i>Gomphonema olivaceum</i>	*

 *Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

Gomphonema parvulum	28
Gomphonema sparsistriatum f. maculatum	*
Gomphonema subclavatum	*
Gyrosigma scalproides	*
Hantzschia amphioxys	*
Meridion circulare	18
Navicula angusta	*
Navicula contenta	6
Navicula cryptocephala	3
Navicula decussis	*
Navicula exigua	1
Navicula minima	19
Navicula notha	1
Navicula placenta	1
Navicula pupula	*
Navicula pupula var. rectangularis	*
Navicula radiosa var. tenella	2
Navicula rhynchocephala	*
Navicula seminulum	3
Navicula subhamulata var. undulata	*
Navicula tripunctata	*
Nitzschia linearis	3
Nitzschia palea	*
Nitzschia recta	4
Pinnularia obscurum	1
Pinnularia subcapitata	2
Pinnularia viridis	2
Stauroneis kriegeri	*
Surirella angustata	*
Synedra rumpens var. familiaris	16
Synedra ulna	14
Synedra ulna var. oxyrhynchus	9
Tabellaria fenestrata	*
Tabellaria flocculosa	3

 Station ID: REFCACFU Collection Date: 05/23/95

Total Number of Taxa (TNT):	73
Total Number of Individuals (TNI):	541
Diversity (H):	1.15
Percent (%) Sensitive Individuals:	19.8
Pollution Tolerance Index (PTI):	2.6
Siltation Index**:	7.9

 * Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCACOF (04050003) Stream: COLES FORK
 Mile Point: 0.60 Drainage Area: 6.4 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: BREATHITT Basin: KENTUCKY
 Map Number: 08-55 Latitude: 37-27-50 Longitude: 083-07-40
 Location Description: ROBINSON FOREST

Date Collected: 06/27/91 Comments:
 Sample ID: 19910627-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	19
Achnanthes lanceolata	1
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	301
Cymbella delicatula	1
Cymbella minuta	*
Cymbella silesiaca	10
Diploneis elliptica	*
Epithemia adnata	*
Eunotia curvata	*
Eunotia pectinalis var. minor	*
Fragilaria vaucheriae	2
Gomphonema affine	1
Gomphonema apuncto	4
Gomphonema parvulum	11
Gomphonema sparsistriatum f. maculatum	137
Meridion circulare	*
Navicula angusta	1
Navicula minima	6
Navicula radiosa	1
Navicula radiosa var. parva	2
Navicula radiosa var. tenella	3
Navicula tripunctata	1
Pinnularia biceps	*
Synedra acus	1
Synedra delicatissima	*
Synedra rumpens	8
Synedra rumpens var. familiaris	*
Synedra ulna	2
Synedra ulna var. oxyrhynchus	3

Station ID: REFCACOF Collection Date: 06/27/91

Total Number of Taxa (TNT):	30
Total Number of Individuals (TNI):	515
Diversity (H):	0.57
Percent (%) Sensitive Individuals:	34.0
Pollution Tolerance Index (PTI):	3.3
Siltation Index**:	2.7

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCACOF (04050003) Stream: COLES FORK
 Mile Point: 0.60 Drainage Area: 6.4 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: BREATHITT Basin: KENTUCKY
 Map Number: 08-55 Latitude: 37-27-50 Longitude: 083-07-40
 Location Description: ROBINSON FOREST

Date Collected: 10/10/91 Comments:
 Sample ID: 19911010-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	275
Achnanthes lapponica var. ninckei	1
Achnanthes minutissima	63
Achnanthes stewartii	*
Amphipleura pellucida	12
Anomoeoneis serians var. brachysira	*
Anomoeoneis vitrea	*
Cymbella aspera	1
Cymbella delicatula	1
Cymbella minuta	5
Cymbella silesiaca	13
Cymbella tumida	31
Cymbella turgidula	*
Denticula elegans	1
Diploneis elliptica	1
Eunotia curvata	*
Eunotia maior	*
Eunotia pectinalis var. minor	*
Fragilaria vaucheriae	4
Frustulia assymetrica	*
Frustulia rhomboides var. crassinervia	4
Frustulia rhomboides var. amphipleuroides	*
Frustulia weinholdii	*
Gomphonema affine	*
Gomphonema angustatum	*
Gomphonema gracile	*
Gomphonema parvulum	18
Gomphonema sparsistriatum f. maculatum	6
Gomphonema subclavatum	1
Meridion circulare	*
Navicula angusta	*
Navicula cryptocephala	*
Navicula cryptocephala var. veneta	1
Navicula minima	15
Navicula mutica	1
Navicula placenta	*
Navicula pupula	*
Navicula pupula var. elliptica	*
Navicula radiosa	*

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula radiosa var. parva	33
Navicula radiosa var. tenella	5
Navicula rhynchocephala	*
Navicula viridula	*
Nitzschia amphibia	1
Nitzschia clausii	1
Nitzschia filiformis	2
Nitzschia palea	1
Nitzschia recta	1
Nitzschia rostellata	*
Pinnularia biceps	*
Pinnularia subcapitata	*
Pinnularia viridis	*
Stauroneis smithii	2
Surirella angustata	*
Surirella linearis	*
Synedra acus	*
Synedra rumpens	2
Synedra rumpens var. familiaris	3
Synedra ulna	13
Synedra ulna var. oxyrhynchus	8

 Station ID: REFACOF Collection Date: 10/10/91

Total Number of Taxa (TNT):	60
Total Number of Individuals (TNI):	526
Diversity (H):	0.84
Percent (%) Sensitive Individuals:	63.7
Pollution Tolerance Index (PTI):	3.4
Siltation Index**:	11.6

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCACOF (04050003) Stream: COLES FORK
 Mile Point: 0.60 Drainage Area: 6.4 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: BREATHITT Basin: KENTUCKY
 Map Number: 08-55 Latitude: 37-27-50 Longitude: 083-07-40
 Location Description: ROBINSON FOREST

Date Collected: 07/19/93 Comments:
 Sample ID: 19930719-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	98
Achnanthes detha	3
Achnanthes lanceolata	1
Achnanthes lanceolata var. dubia	*
Achnanthes lapponica var. ninckei	2
Achnanthes minutissima	231
Achnanthes stewartii	*
Amphora ovalis	*
Amphora perpusilla	*
Anomoeoneis serians var. brachysira	*
Cymbella aspera	1
Cymbella delicatula	5
Cymbella minuta	1
Cymbella naviculiformis	1
Cymbella silesiaca	13
Cymbella tumida	3
Denticula elegans	1
Diploneis elliptica	2
Eunotia curvata	1
Eunotia exigua	1
Eunotia maior	6
Eunotia pectinalis var. minor	4
Eunotia perpusilla	*
Eunotia serra var. diadema	4
Eunotia triodon	*
Fragilaria vaucheriae	5
Frustulia rhomboides var. crassinervia	4
Frustulia vulgaris	*
Gomphonema acuminatum	1
Gomphonema affine	2
Gomphonema angustatum	3
Gomphonema parvulum	12
Gomphonema sparsistriatum f. maculatum	*
Gomphonema subclavatum	1
Gomphonema truncatum	1
Hantzschia amphioxys	1
Meridion circulare	8
Navicula angusta	*
Navicula cocconeiformis	1

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula contenta	1
Navicula cryptocephala	7
Navicula cryptocephala var. veneta	7
Navicula menisculus var. upsaliensis	*
Navicula minima	42
Navicula palcentula	*
Navicula placenta	*
Navicula pupula	1
Navicula pupula var. capitata	*
Navicula radiosa var. parva	*
Navicula radiosa var. tenella	25
Navicula rhynchocephala	1
Navicula secreta var. apiculata	*
Neidium affine	*
Neidium affine var. longiceps	*
Neidium sp.	1
Nitzschia amphibia	1
Nitzschia filiformis	1
Nitzschia linearis	1
Nitzschia lorenziana var. subtilis	*
Nitzschia palea	7
Nitzschia recta	3
Pinnularia biceps	*
Pinnularia subcapitata var. paucistriata	2
Pinnularia viridis	1
Stauroneis anceps	*
Stauroneis anceps for. linearis	*
Stauroneis smithii	3
Surirella angustata	2
Surirella linearis	*
Synedra acus	*
Synedra rumpens	15
Synedra rumpens var. familiaris	3
Synedra ulna	21
Synedra ulna var. oxyrhynchus	*

 Station ID: REFCACOF Collection Date: 07/19/93

Total Number of Taxa (TNT):	74
Total Number of Individuals (TNI):	562
Diversity (H):	1.02
Percent (%) Sensitive Individuals:	25.8
Pollution Tolerance Index (PTI):	2.9
Siltation Index**:	17.4

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCACOF (04050003) Stream: COLES FORK
 Mile Point: 0.60 Drainage Area: 6.4 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: BREATHITT Basin: KENTUCKY
 Map Number: 08-55 Latitude: 37-27-50 Longitude: 083-07-40
 Location Description: ROBINSON FOREST

Date Collected: 10/12/93 Comments:
 Sample ID: 19931012-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	150
Achnanthes detha	*
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	*
Achnanthes minutissima	219
Amphipleura pellucida	1
Amphora ovalis	*
Caloneis bacillum	*
Cymbella aspera	1
Cymbella minuta	4
Cymbella silesiaca	40
Cymbella triargulum	1
Cymbella tumida	13
Diploneis elliptica	1
Eunotia curvata	*
Eunotia maior	*
Eunotia pectinalis var. minor	1
Fragilaria pinnata	*
Fragilaria vaucheriae	8
Frustulia rhomboides var. crassinervia	3
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	*
Frustulia weinholdii	*
Gomphonema acuminatum	*
Gomphonema angustatum	*
Gomphonema apuncto	1
Gomphonema gracile	1
Gomphonema parvulum	26
Gomphonema sparsistriatum f. maculatum	*
Gomphonema subclavatum	*
Meridion circulare	2
Navicula cryptocephala	*
Navicula cryptocephala var. veneta	3
Navicula decussis	1
Navicula exigua	*
Navicula lanceolata	*
Navicula minima	3
Navicula pupula	1
Navicula pupula var. mutata	*

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Navicula radiosa	1
Navicula radiosa var. tenella	30
Navicula rhynchocephala	1
Navicula tripunctata	1
Navicula viridula var. linearis	*
Neidium affine	1
Nitzschia clausii	2
Nitzschia communis	*
Nitzschia dissipata	*
Nitzschia palea	2
Nitzschia recta	*
Pinnularia biceps	1
Pinnularia mesolepta	*
Pinnularia subcapitata var. paucistriata	2
Pinnularia viridis	*
Stauroneis anceps	*
Stauroneis phoenicenteron	*
Stauroneis smithii	4
Surirella linearis	*
Surirella ovata	1
Synedra rumpens	1
Synedra rumpens var. familiaris	3
Synedra ulna	9
Synedra ulna var. ramesi	*

 Station ID: REFCACOF Collection Date: 10/12/93

Total Number of Taxa (TNT):	63
Total Number of Individuals (TNI):	539
Diversity (H):	0.83
Percent (%) Sensitive Individuals:	39.5
Pollution Tolerance Index (PTI):	3.2
Siltation Index**:	8.3

 * Qualitative data

** Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCACOF (04050003) Stream: COLES FORK
 Mile Point: 0.60 Drainage Area: 6.4 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: BREATHTITT Basin: KENTUCKY
 Map Number: 08-55 Latitude: 37-27-50 Longitude: 083-07-40
 Location Description: ROBINSON FOREST

Date Collected: 05/26/94 Comments:
 Sample ID: 19940526-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	108
Achnanthes detha	5
Achnanthes lanceolata	*
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	225
Achnanthes stewartii	1
Anomoeoneis serians var. brachysira	*
Anomoeoneis vitrea	*
Caloneis bacillum	*
Caloneis budensis	*
Cymbella aspera	*
Cymbella delicatula	4
Cymbella minuta	1
Cymbella naviculiformis	*
Cymbella silesiaca	9
Cymbella tumida	*
Diploneis elliptica	1
Eunotia curvata	*
Eunotia exigua	*
Eunotia maior	*
Eunotia pectinalis var. minor	3
Eunotia perpusilla	1
Fragilaria crotonensis	4
Fragilaria vaucheriae	88
Frustulia rhomboides var. crassinervia	1
Frustulia weinholdii	*
Gomphonema affine	1
Gomphonema angustatum	2
Gomphonema apuncto	*
Gomphonema gracile	1
Gomphonema parvulum	11
Gomphonema sparsistriatum f. maculatum	2
Gomphonema truncatum	*
Meridion circulare	7
Navicula angusta	*
Navicula bacillum	1
Navicula cryptocephala	*
Navicula cryptocephala var. veneta	*
Navicula decussis	*

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula exigua	*
Navicula menisculus var. upsaliensis	1
Navicula minima	17
Navicula notha	3
Navicula placenta	1
Navicula pupula	*
Navicula pupula var. capitata	*
Navicula radiosa	*
Navicula radiosa var. parva	*
Navicula radiosa var. tenella	*
Navicula viridula	*
Neidium bisulcatum	*
Nitzschia dissipata	1
Nitzschia palea	*
Nitzschia recta	3
Nitzschia vermicularis	*
Pinnularia biceps	*
Pinnularia subcapitata	2
Rhopalodia gibberula var. vanheurckii	*
Stauroneis anceps	*
Stauroneis smithii	*
Surirella angustata	*
Synedra rumpens var. familiaris	4
Synedra ulna	43
Synedra ulna var. oxyrhynchus	*

 Station ID: REFCACOF Collection Date: 05/26/94

Total Number of Taxa (TNT):	64
Total Number of Individuals (TNI):	551
Diversity (H):	0.83
Percent (%) Sensitive Individuals:	22.9
Pollution Tolerance Index (PTI):	2.9
Siltation Index**:	4.9

 * Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCACOF (04050003) Stream: COLES FORK
 Mile Point: 0.60 Drainage Area: 6.4 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: BREATHITT Basin: KENTUCKY
 Map Number: 08-55 Latitude: 37-27-50 Longitude: 083-07-40
 Location Description: ROBINSON FOREST

Date Collected: 05/23/95 Comments:
 Sample ID: 19950523-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	164
Achnanthes detha	1
Achnanthes lanceolata	1
Achnanthes lapponica var. ninckei	*
Achnanthes microcephala	19
Achnanthes minutissima	297
Achnanthes stewartii	*
Anomoeoneis vitrea	*
Caloneis bacillum	3
Cymbella aspera	*
Cymbella delicatula	*
Cymbella minuta	3
Cymbella silesiaca	5
Cymbella tumida	*
Denticula elegans	*
Diploneis elliptica	*
Diploneis oblongella	*
Epithemia argus	*
Eunotia curvata	*
Eunotia maior	*
Eunotia pectinalis var. minor	2
Eunotia perpusilla	*
Eunotia quaternaria	*
Fragilaria crotonensis	*
Fragilaria vaucheriae	6
Frustulia rhomboides var. crassinervia	*
Frustulia vulgaris	*
Frustulia weinholdii	*
Gomphonema acuminatum	*
Gomphonema affine	*
Gomphonema clevei	*
Gomphonema gracile	*
Gomphonema parvulum	7
Gomphonema sparsistriatum f. maculatum	4
Gomphonema subclavatum	*
Gomphonema truncatum	*
Meridion circulare	*
Navicula angusta	*
Navicula atomus	1

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula cryptocephala	*
Navicula cryptocephala var. veneta	*
Navicula minima	3
Navicula notha	4
Navicula radiosa	*
Navicula radiosa var. parva	*
Navicula radiosa var. tenella	*
Navicula rhynchocephala	*
Nitzschia dissipata	*
Nitzschia filiformis	*
Nitzschia linearis	*
Nitzschia palea	*
Nitzschia recta	*
Pinnularia biceps	*
Pinnularia obscurum	*
Pinnularia subcapitata	*
Pinnularia viridis	*
Stauroneis smithii	*
Surirella angustata	*
Synedra acus	5
Synedra rumpens var. familiaris	7
Synedra ulna	*
Synedra ulna var. oxyrhynchus	*

 Station ID: REFCACOF Collection Date: 05/23/95

Total Number of Taxa (TNT):	62
Total Number of Individuals (TNI):	532
Diversity (H):	0.55
Percent (%) Sensitive Individuals:	32.5
Pollution Tolerance Index (PTI):	3.2
Siltation Index**:	1.5

 * Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCAEC1 (02006026) Stream: EAGLE CREEK
 Mile Point: 3.00 Drainage Area: 4.6 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: MCCREARY Basin: UPPER CUMBERLAND
 Map Number: 03-46 Latitude: 36-52-05 Longitude: 084-22-05
 Location Description: KY 896 BRIDGE

Date Collected: 05/08/91 Comments:
 Sample ID: 19910508-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	12
Achnanthes detha	2
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	13
Amphipleura pellucida	1
Anomoeoneis serians var. brachysira	1
Anomoeoneis vitrea	1
Caloneis budensis	2
Cymbella aspera	*
Cymbella delicatula	79
Cymbella naviculiformis	1
Cymbella silesiaca	2
Cymbella sp. (K)	29
Denticula elegans	1
Diploneis elliptica	*
Eunotia curvata	*
Eunotia exigua	1
Eunotia maior	*
Eunotia pectinalis var. minor	6
Eunotia perpusilla	*
Eunotia praerupta	2
Eunotia triodon	*
Eunotia vanheurckii var. intermedia	*
Fragilaria vaucheriae	160
Frustulia rhomboides var. crassinervia	*
Frustulia vulgaris	*
Gomphonema affine	4
Gomphonema angustatum	18
Gomphonema parvulum	*
Meridion circulare	7
Navicula angusta	1
Navicula minima	*
Navicula pupula var. rectangularis	*
Navicula radiosa	1
Navicula rhychocephala	*
Navicula secreta var. apiculata	*
Neidium affine var. longiceps	*
Nitzschia clausii	*
Nitzschia linearis	*

 *Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*
 06/25/96

DIATOM COLLECTION DATA

Nitzschia palea	*
Nitzschia recta	4
Pinnularia biceps	*
Pinnularia subcapitata	1
Pinnularia viridis	*
Stauroneis phoenicenteron	*
Stauroneis smithii	*
Surirella angustata	*
Surirella linearis	*
Synedra acus	3
Synedra pulchella	73
Synedra rumpens	90
Synedra ulna	*
Synedra ulna var. oxyrhynchus	1
Tabellaria flocculosa	*

 Station ID: REFCAEC1 Collection Date: 05/08/91

Total Number of Taxa (TNT):	54
Total Number of Individuals (TNI):	516
Diversity (H):	0.92
Percent (%) Sensitive Individuals:	41.3
Pollution Tolerance Index (PTI):	2.7
Siltation Index**:	1.2

 *Qualitative data
 **Relative abundance of *Navicula+Nitzschia+Surirella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCAEC1 (02006026) Stream: EAGLE CREEK
 Mile Point: 3.00 Drainage Area: 4.6 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: MCCREARY Basin: UPPER CUMBERLAND
 Map Number: 03-46 Latitude: 36-52-05 Longitude: 084-22-05
 Location Description: KY 896 BRIDGE

Date Collected: 10/14/91 Comments:
 Sample ID: 19911014-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	30	
Achnanthes detha		*
Achnanthes exigua		*
Achnanthes lanceolata	1	
Achnanthes lapponica var. ninckei	3	
Achnanthes minutissima	131	
Achnanthes stewartii		*
Amphipleura pellucida	7	
Amphora ovalis		*
Anomoeoneis serians var. brachysira	11	
Anomoeoneis vitrea	11	
Caloneis budensis	7	
Cocconeis placentula		*
Cymbella aspera	3	
Cymbella delicatula	94	
Cymbella lunata	2	
Cymbella microcephala	4	
Cymbella naviculiformis	1	
Cymbella silesiaca	1	
Cymbella sp. (K)	14	
Denticula elegans	1	
Diploneis elliptica	7	
Diploneis oblongella		*
Eunotia curvata	2	
Eunotia incisa	1	
Eunotia maior	13	
Eunotia pectinalis var. minor	14	
Eunotia praerupta	1	
Eunotia vanheurckii var. intermedia		*
Fragilaria pinnata	2	
Fragilaria vaucheriae	27	
Frustulia rhomboides var. crassinervia	1	
Frustulia rhomboides var. amphipleuroides	1	
Frustulia vulgaris	6	
Frustulia weinholdii	1	
Gomphonema acuminatum	10	
Gomphonema acuminatum var. elongatum		*
Gomphonema affine	5	
Gomphonema apuncto	2	

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Gomphonema gracile	1
Gomphonema gracile	5
Gomphonema olivaceum	3
Gomphonema sparsistriatum f. maculatum	*
Melosira varians	*
Meridion circulare	1
Navicula angusta	*
Navicula capitata	*
Navicula cryptocephala var. veneta	3
Navicula elginensis	*
Navicula minima	3
Navicula pupula	*
Navicula pygmaea	2
Navicula radiosa	19
Navicula radiosa var. parva	*
Navicula radiosa var. tenella	19
Navicula rhynchocephala	1
Navicula viridula var. linearis	2
Neidium affine	*
Neidium affine var. longiceps	*
Nitzschia dissipata	1
Nitzschia gracilis	*
Nitzschia linearis	9
Nitzschia microcephala	*
Nitzschia palea	6
Nitzschia recta	6
Nitzschia romana	1
Nitzschia tryblionella var. victoriae	*
Nitzschia vermicularis	*
Pinnularia biceps	2
Pinnularia borealis	*
Pinnularia subcapitata var. paucistriata	*
Pinnularia viridis	5
Stauroneis anceps	1
Stauroneis smithii	1
Surirella angustata	*
Surirella linearis	4
Surirella linearis var. helvetica	1
Surirella robusta	*
Synedra acus	12
Synedra delicatissima	1
Synedra pulchella	30
Synedra rumpens var. familiaris	*
Synedra ulna	2
Synedra ulna var. amphirhynchus	*
Tabellaria fenestrata	1
Tabellaria flocculosa	*

 Station ID: REFCAEC1 Collection Date: 10/14/91

Total Number of Taxa (TNT): 86

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

Total Number of Individuals (TNI):	556
Diversity (H):	1.31
Percent (%) Sensitive Individuals:	29.5
Pollution Tolerance Index (PTI):	2.9
Siltation Index**:	12.9

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCAEC1 (02006026) Stream: EAGLE CREEK
 Mile Point: 3.00 Drainage Area: 4.6 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: MCCREARY Basin: UPPER CUMBERLAND
 Map Number: 03-46 Latitude: 36-52-05 Longitude: 084-22-05
 Location Description: KY 896 BRIDGE

Date Collected: 04/28/93 Comments:
 Sample ID: 19930428-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	33
Achnanthes detha	1
Achnanthes lanceolata	*
Achnanthes lapponica var. ninckei	6
Achnanthes minutissima	167
Amphipleura pellucida	1
Anomoeoneis serians var. brachysira	2
Anomoeoneis vitrea	3
Cocconeis placentula	1
Cymbella aspera	*
Cymbella delicatula	42
Cymbella minuta	*
Cymbella naviculiformis	*
Cymbella silesiaca	*
Cymbella sp. (K)	33
Diploneis elliptica	*
Diploneis oblongella	*
Eunotia curvata	2
Eunotia exigua	*
Eunotia maior	*
Eunotia pectinalis var. minor	1
Eunotia perpusilla	1
Fragilaria vaucheriae	194
Frustulia rhomboides var. crassinervia	1
Frustulia rhomboides var. amphipleuroides	1
Frustulia vulgaris	*
Frustulia weinholdii	*
Gomphonema acuminatum	*
Gomphonema affine	1
Gomphonema angustatum	7
Gomphonema gracile	2
Gomphonema parvulum	1
Gomphonema sparsistriatum f. maculatum	*
Meridion circulare	*
Navicula angusta	1
Navicula cryptocephala var. veneta	*
Navicula minima	2
Navicula pupula	*
Navicula radiosa	2

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Navicula radiosa var. tenella	3
Navicula secreta var. apiculata	*
Nitzschia dissipata	*
Nitzschia gracilis	1
Nitzschia linearis	*
Nitzschia palea	*
Nitzschia recta	3
Pinnularia mesolepta	*
Pinnularia obscurum	*
Pinnularia viridis	1
Stauroneis smithii	*
Surirella angustata	*
Surirella linearis	*
Synedra acus	1
Synedra pulchella	45
Synedra rumpens	6
Synedra rumpens var. familiaris	1
Synedra ulna	*
Tabellaria fenestrata	2

 Station ID: REFCAEC1 Collection Date: 04/28/93

Total Number of Taxa (TNT):	58
Total Number of Individuals (TNI):	568
Diversity (H):	0.85
Percent (%) Sensitive Individuals:	20.6
Pollution Tolerance Index (PTI):	2.6
Siltation Index**:	2.1

 * Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCAEC1 (02006026) Stream: EAGLE CREEK
 Mile Point: 3.00 Drainage Area: 4.6 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: MCCREARY Basin: UPPER CUMBERLAND
 Map Number: 03-46 Latitude: 36-52-05 Longitude: 084-22-05
 Location Description: KY 896 BRIDGE

Date Collected: 06/22/94 Comments:
 Sample ID: 19940622-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	33
Achnanthes detha	2
Achnanthes exigua	1
Achnanthes lapponica var. ninckei	7
Achnanthes minutissima	160
Amphipleura pellucida	10
Anomoeoneis serians var. brachysira	2
Anomoeoneis vitrea	6
Caloneis budensis	2
Caloneis ventricosa var. subundulata	*
Cocconeis placentula	1
Cymbella delicatula	18
Cymbella lunata	*
Cymbella naviculiformis	1
Cymbella silesiaca	9
Cymbella sp. (K)	36
Diploneis elliptica	2
Diploneis oblongella	*
Eunotia curvata	1
Eunotia exigua	3
Eunotia maior	*
Eunotia pectinalis var. minor	12
Eunotia perpusilla	1
Eunotia praerupta	*
Fragilaria vaucheriae	51
Frustulia rhomboides var. crassinervia	*
Frustulia vulgaris	*
Frustulia weinholdii	1
Gomphonema affine	2
Gomphonema angustatum	5
Gomphonema apuncto	1
Gomphonema gracile	*
Gomphonema parvulum	5
Meridion circulare	2
Navicula angusta	*
Navicula contenta	*
Navicula cryptocephala	*
Navicula cryptocephala var. veneta	6
Navicula hustedtii	1

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Navicula minima	1
Navicula mutica	1
Navicula notha	8
Navicula pupula	1
Navicula pygmaea	*
Navicula radiosa	3
Navicula radiosa var. parva	*
Navicula radiosa var. tenella	12
Navicula rhynchocephala	1
Navicula schroeteri var. escambia	1
Navicula secreta var. apiculata	*
Navicula subhamulata var. undulata	5
Neidium affine	*
Nitzschia agnita	*
Nitzschia dissipata	2
Nitzschia gracilis	2
Nitzschia linearis	5
Nitzschia palea	5
Nitzschia paleacea	2
Nitzschia recta	3
Nitzschia vermicularis	1
Pinnularia subcapitata var. paucistriata	1
Pinnularia viridis	*
Stauroneis smithii	*
Surirella angustata	3
Surirella linearis	2
Surirella ovata	1
Synedra acus	*
Synedra pulchella	53
Synedra ulna	13
Tabellaria flocculosa	1

 Station ID: REFCAEC1 Collection Date: 06/22/94

Total Number of Taxa (TNT):	70
Total Number of Individuals (TNI):	508
Diversity (H):	1.19
Percent (%) Sensitive Individuals:	19.5
Pollution Tolerance Index (PTI):	2.7
Siltation Index ^{**} :	11.8

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCAEC1 (02006026) Stream: EAGLE CREEK
 Mile Point: 3.00 Drainage Area: 4.6 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: MCCREARY Basin: UPPER CUMBERLAND
 Map Number: 03-46 Latitude: 36-52-05 Longitude: 084-22-05
 Location Description: KY 896 BRIDGE

Date Collected: 11/03/94 Comments:
 Sample ID: 19941103-10 Substrate Type: Natural
 ID By:

<i>Achnanthes deflexa</i>	33
<i>Achnanthes detha</i>	1
<i>Achnanthes exigua</i>	*
<i>Achnanthes lanceolata</i>	1
<i>Achnanthes lapponica</i> var. <i>ninckei</i>	4
<i>Achnanthes minutissima</i>	164
<i>Achnanthes stewartii</i>	2
<i>Amphipleura pellucida</i>	11
<i>Anomoeoneis serians</i> var. <i>brachysira</i>	*
<i>Anomoeoneis vitrea</i>	8
<i>Caloneis budensis</i>	7
<i>Cocconeis placentula</i>	11
<i>Cyclotella striata</i> var. <i>ambigua</i>	1
<i>Cymbella aspera</i>	5
<i>Cymbella delicatula</i>	6
<i>Cymbella lunata</i>	*
<i>Cymbella microcephala</i>	*
<i>Cymbella silesiaca</i>	1
<i>Cymbella</i> sp. (K)	10
<i>Denticula elegans</i>	1
<i>Diploneis elliptica</i>	18
<i>Diploneis oblongella</i>	2
<i>Eunotia curvata</i>	*
<i>Eunotia maior</i>	17
<i>Eunotia pectinalis</i> var. <i>minor</i>	21
<i>Eunotia praerupta</i>	*
<i>Fragilaria vaucheriae</i>	4
<i>Frustulia rhomboides</i> var. <i>crassinervia</i>	1
<i>Frustulia rhomboides</i> var. <i>amphipleuroides</i>	*
<i>Frustulia vulgaris</i>	6
<i>Gomphonema acuminatum</i>	*
<i>Gomphonema affine</i>	2
<i>Gomphonema angustatum</i>	1
<i>Gomphonema gracile</i>	1
<i>Gomphonema parvulum</i>	1
<i>Gomphonema sparsistriatum</i> f. <i>maculatum</i>	*
<i>Gyrosigma scalproides</i>	*
<i>Hantzschia amphioxys</i>	1
<i>Melosira varians</i>	2

* Qualitative data

** Relative abundance of *Navicula*+*Nitzschia*+*Surriella*

06/25/96

DIATOM COLLECTION DATA

Meridion circulare	*
Navicula angusta	4
Navicula cryptocephala	3
Navicula cryptocephala var. veneta	1
Navicula minima	5
Navicula notha	5
Navicula pygmaea	*
Navicula radiosa	6
Navicula radiosa var. tenella	5
Navicula rhynchocephala	1
Navicula schroeteri var. escambia	*
Navicula secreta var. apiculata	2
Navicula symmetrica	1
Navicula viridula	*
Nitzschia clausii	1
Nitzschia dissipata	17
Nitzschia fonticola	1
Nitzschia frustulum	1
Nitzschia gracilis	6
Nitzschia levidensis	*
Nitzschia linearis	6
Nitzschia palea	11
Nitzschia paleacea	5
Nitzschia perminuta	1
Nitzschia recta	20
Nitzschia vermicularis	3
Pinnularia biceps	*
Pinnularia subcapitata	*
Pinnularia viridis	2
Stauroneis phoenicenteron	*
Stauroneis smithii	*
Surirella angustata	1
Surirella linearis	3
Synedra acus	1
Synedra delicatissima	1
Synedra parasitica	1
Synedra pulchella	37
Synedra rumpens	1
Synedra rumpens var. familiaris	*
Synedra ulna	13

 Station ID: REFCAEC1 Collection Date: 11/03/94

Total Number of Taxa (TNT):	79
Total Number of Individuals (TNI):	508
Diversity (H):	1.29
Percent (%) Sensitive Individuals:	12.0
Pollution Tolerance Index (PTI):	2.6
Siltation Index**:	20.7

 *Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCAMAR (02014003) Stream: MARSH CREEK
 Mile Point: 12.60 Drainage Area: 6.0 square miles
 Order: 5 Ecoregion: CENTRAL APPALACHIAN
 County: MCCREARY Basin: UPPER CUMBERLAND
 Map Number: 02-46 Latitude: 36-42-55 Longitude: 084-21-10
 Location Description: KY 748 BRIDGE

Date Collected: 07/16/92 Comments:
 Sample ID: 19920716-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	2
Achnanthes detha	*
Achnanthes lanceolata var. dubia	1
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	282
Amphipleura pellucida	2
Anomoeoneis vitrea	49
Caloneis bacillum	1
Caloneis budensis	1
Cyclotella stelligera	*
Cyclotella striata var. ambigua	*
Cymbella aspera	*
Cymbella cuspidata	*
Cymbella delicatula	2
Cymbella lunata	1
Cymbella microcephala	*
Cymbella minuta	1
Cymbella naviculiformis	*
Cymbella silesiaca	11
Cymbella sp. (K)	*
Cymbella tumida	*
Denticula elegans	1
Diploneis elliptica	*
Eunotia curvata	6
Eunotia exigua	2
Eunotia maior	9
Eunotia pectinalis var. minor	1
Eunotia perpusilla	*
Fragilaria vaucheriae	34
Frustulia rhomboides var. crassinervia	9
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	2
Frustulia weinholdii	*
Gomphonema affine	*
Gomphonema angustatum	4
Gomphonema gracile	*
Gomphonema parvulum	2
Gomphonema sparsistriatum f. maculatum	*
Gomphonema truncatum	*

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Gyrosigma scalproides	1
Hantzschia amphioxys	*
Melosira varians	9
Meridion circulare	4
Navicula angusta	*
Navicula capitata	*
Navicula cryptocephala	4
Navicula decussis	*
Navicula minima	8
Navicula pygmaea	*
Navicula radiosa var. tenella	1
Navicula rhynchocephala	2
Navicula schroeteri var. escambia	*
Navicula secreta var. apiculata	1
Navicula viridula	1
Neidium affine var. longiceps	*
Nitzschia acicularis	3
Nitzschia clausii	*
Nitzschia coarctata	*
Nitzschia communis	1
Nitzschia dissipata	6
Nitzschia filiformis	10
Nitzschia gracilis	6
Nitzschia linearis	*
Nitzschia lorenziana var. subtilis	1
Nitzschia palea	10
Nitzschia recta	5
Nitzschia romana	*
Nitzschia tryblionella var. victoriae	1
Nitzschia vermicularis	1
Pinnularia biceps	*
Pinnularia mesolepta	*
Pinnularia obscurum	*
Pinnularia subcapitata	*
Pinnularia subcapitata var. paucistriata	1
Rhopalodia gibberula var. vanheurckii	*
Stauroneis smithii	2
Surirella angustata	1
Surirella linearis	2
Surirella linearis var. helvetica	*
Surirella ovata	*
Surirella ovata var. pinnata	*
Synedra acus	22
Synedra delicatissima	4
Synedra pulchella	12
Synedra rumpens	4
Synedra ulna	4
Synedra ulna var. oxyrhynchus	2
Tabellaria fenestrata	*
Tabellaria flocculosa	*

 * Qualitative data

** Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

Station ID: REFCAMAR Collection Date: 07/16/92

Total Number of Taxa (TNT): 89
Total Number of Individuals (TNI): 552
Diversity (H): 0.98
Percent (%) Sensitive Individuals: 6.3
Pollution Tolerance Index (PTI): 2.7
Siltation Index** : 11.1

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCAMAR (02014003) Stream: MARSH CREEK
 Mile Point: 12.60 Drainage Area: 6.0 square miles
 Order: 5 Ecoregion: CENTRAL APPALACHIAN
 County: MCCREARY Basin: UPPER CUMBERLAND
 Map Number: 02-46 Latitude: 36-42-55 Longitude: 084-21-10
 Location Description: KY 748 BRIDGE

Date Collected: 11/03/94 Comments:
 Sample ID: 19941103-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	4
Achnanthes detha	*
Achnanthes linearis	*
Achnanthes minutissima	292
Amphipleura pellucida	1
Anomoeoneis serians var. brachysira	4
Anomoeoneis vitrea	28
Bacillaria paradoxa	1
Cymbella microcephala	1
Cymbella minuta	1
Cymbella naviculiformis	*
Cymbella silesiaca	9
Cymbella sp. (K)	1
Denticula elegans	4
Diploneis elliptica	*
Diploneis puella	*
Eunotia pectinalis var. minor	5
Fragilaria vaucheriae	26
Frustulia assymetrica	*
Frustulia rhomboides var. crassinervia	13
Frustulia rhomboides var. amphipleuroides	2
Frustulia vulgaris	4
Frustulia weinholdii	*
Gomphonema affine	2
Gomphonema angustatum	*
Gomphonema parvulum	3
Gomphonema sparsistriatum f. maculatum	*
Gyrosigma spencerii	*
Melosira varians	33
Meridion circulare	2
Navicula cryptocephala	1
Navicula cryptocephala var. veneta	4
Navicula hustedtii	1
Navicula lanceolata	1
Navicula menisculus var. upsaliensis	*
Navicula minima	3
Navicula notha	1
Navicula pygmaea	*
Navicula radiosa var. tenella	2

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula rhynchocephala	*
Navicula salinarum var. intermedia	1
Navicula schroeteri var. escambia	1
Navicula secreta var. apiculata	1
Navicula symmetrica	*
Navicula viridula	3
Navicula viridula var. linearis	*
Neidium affine	*
Nitzschia acicularis	*
Nitzschia amphibia	1
Nitzschia angustata var. acuta	*
Nitzschia clausii	2
Nitzschia coarctata	1
Nitzschia dissipata	7
Nitzschia frustulum	1
Nitzschia gracilis	8
Nitzschia linearis	2
Nitzschia lorenziana var. subtilis	3
Nitzschia palea	20
Nitzschia paleacea	*
Nitzschia recta	4
Nitzschia sp.1	2
Nitzschia tryblionella var. victoriae	*
Nitzschia vermicularis	*
Pinnularia subcapitata	*
Stauroneis smithii	1
Surirella angustata	*
Surirella linearis	4
Surirella linearis var. helvetica	*
Surirella ovata	1
Surirella ovata var. pinnata	*
Synedra acus	*
Synedra pulchella	2
Synedra rumpens var. familiaris	*
Synedra ulna	6
Thalassiosira weissflogii	1

 Station ID: REFCAMAR Collection Date: 11/03/94

Total Number of Taxa (TNT):	75
Total Number of Individuals (TNI):	521
Diversity (H):	0.90
Percent (%) Sensitive Individuals:	5.6
Pollution Tolerance Index (PTI):	2.6
Siltation Index**:	13.4

 *Qualitative data

**Relative abundance of *Navicula*+*Nitzschia*+*Surirella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCABUF (04044001) Stream: RIGHT FORK BUFFALO CREEK
 Mile Point: 1.10 Drainage Area: 15.1 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: OWSLEY Basin: KENTUCKY
 Map Number: 07-51 Latitude: 37-20-56 Longitude: 083-37-32
 Location Description: OFF WHOOPFLAREA ROAD

Date Collected: 06/29/92 Comments:
 Sample ID: 19920629-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	214
Achnanthes detha	1
Achnanthes lanceolata	*
Achnanthes minutissima	155
Amphipleura pellucida	1
Amphora ovalis	*
Cocconeis placentula	*
Cymbella affinis	3
Cymbella cymbiformis	*
Cymbella delicatula	71
Cymbella minuta	2
Cymbella naviculiformis	*
Cymbella silesiaca	3
Cymbella sp. (K)	*
Cymbella tumida	*
Cymbella turgidula	8
Diploneis elliptica	*
Epithemia adnata	*
Epithemia argus	*
Eunotia exigua	1
Eunotia septentrionalis	*
Fragilaria vaucheriae	8
Frustulia assymetrica	*
Frustulia rhomboides var. crassinervia	*
Frustulia rhomboides var. amphipleuroides	*
Gomphonema affine	*
Gomphonema angustatum	*
Gomphonema apuncto	2
Gomphonema olivaceum	*
Gomphonema parvulum	2
Gomphonema sparsistriatum f. maculatum	*
Gomphonema sphaerophorum	*
Melosira varians	*
Meridion circulare	*
Navicula cryptocephala	3
Navicula cryptocephala var. veneta	*
Navicula decussis	*
Navicula minima	15
Navicula pupula	1

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula radiosa var. parva	6
Navicula radiosa var. tenella	13
Navicula rhychocephala	*
Navicula viridula	*
Nitzschia acicularis	*
Nitzschia dissipata	1
Nitzschia gracilis	1
Nitzschia linearis	1
Nitzschia palea	1
Nitzschia recta	2
Pinnularia biceps	*
Pinnularia subcapitata	1
Surirella angustata	1
Surirella linearis	*
Surirella ovata	*
Synedra acus	*
Synedra rumpens	8
Synedra rumpens var. familiaris	2
Synedra ulna	6
Synedra ulna var. oxyrhynchus	*

 Station ID: REFCABUF Collection Date: 06/29/92

Total Number of Taxa (TNT):	59
Total Number of Individuals (TNI):	533
Diversity (H):	0.78
Percent (%) Sensitive Individuals:	57.6
Pollution Tolerance Index (PTI):	3.4
Siltation Index**:	8.3

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCABUF (04044001) Stream: RIGHT FORK BUFFALO CREEK
 Mile Point: 1.10 Drainage Area: 15.1 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: OWSLEY Basin: KENTUCKY
 Map Number: 07-51 Latitude: 37-20-56 Longitude: 083-37-32
 Location Description: OFF WHOOPFLAREA ROAD

Date Collected: 10/23/92 Comments:
 Sample ID: 19921023-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	284
Achnanthes exigua	*
Achnanthes lanceolata	1
Achnanthes minutissima	114
Amphipleura pellucida	1
Amphora ovalis	1
Bacillaria paradoxa	*
Cymbella cymbiformis	*
Cymbella delicatula	41
Cymbella microcephala	*
Cymbella minuta	1
Cymbella silesiaca	10
Cymbella sinuata	1
Cymbella tumida	*
Cymbella turgidula	17
Denticula elegans	*
Diploneis elliptica	*
Epithemia adnata	3
Epithemia argus	1
Eunotia curvata	*
Eunotia incisa	*
Eunotia maior	1
Eunotia pectinalis var. minor	*
Eunotia perpusilla	1
Eunotia septentrionalis	*
Fragilaria vaucheriae	8
Frustulia rhomboides var. crassinervia	*
Frustulia rhomboides var. amphipleuroides	1
Frustulia vulgaris	*
Gomphonema affine	*
Gomphonema angustatum	*
Gomphonema apuncto	*
Gomphonema gracile	*
Gomphonema parvulum	3
Gomphonema sparsistriatum f. maculatum	1
Gomphonema sphaerophorum	2
Gomphonema subclavatum	*
Melosira varians	*
Meridion circulare	*

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula cryptocephala</i>	2
<i>Navicula cryptocephala</i> var. <i>veneta</i>	*
<i>Navicula lanceolata</i>	*
<i>Navicula minima</i>	8
<i>Navicula pupula</i> var. <i>rectangularis</i>	*
<i>Navicula radiosa</i>	*
<i>Navicula radiosa</i> var. <i>parva</i>	26
<i>Navicula radiosa</i> var. <i>tenella</i>	3
<i>Navicula rhynchocephala</i>	1
<i>Navicula schroeteri</i> var. <i>escambia</i>	1
<i>Navicula secreta</i> var. <i>apiculata</i>	*
<i>Navicula symmetrica</i>	*
<i>Navicula viridula</i>	1
<i>Navicula viridula</i> var. <i>linearis</i>	*
<i>Neidium binode</i>	*
<i>Nitzschia acicularis</i>	*
<i>Nitzschia clausii</i>	*
<i>Nitzschia filiformis</i>	6
<i>Nitzschia gracilis</i>	*
<i>Nitzschia linearis</i>	1
<i>Nitzschia microcephala</i>	1
<i>Nitzschia palea</i>	2
<i>Nitzschia recta</i>	2
<i>Nitzschia romana</i>	3
<i>Nitzschia vermicularis</i>	2
<i>Pinnularia biceps</i>	*
<i>Stauroneis smithii</i>	*
<i>Surirella angustata</i>	2
<i>Surirella linearis</i>	1
<i>Synedra acus</i>	1
<i>Synedra rumpens</i>	3
<i>Synedra rumpens</i> var. <i>familiaris</i>	1
<i>Synedra ulna</i>	2
<i>Synedra ulna</i> var. <i>oxyrhynchus</i>	1

 Station ID: REFCABUF Collection Date: 10/23/92

Total Number of Taxa (TNT):	73
Total Number of Individuals (TNI):	562
Diversity (H):	0.80
Percent (%) Sensitive Individuals:	63.9
Pollution Tolerance Index (PTI):	3.5
Siltation Index**:	10.5

 *Qualitative data
 **Relative abundance of *Navicula*+*Nitzschia*+*Surirella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCABUF (04044001) Stream: RIGHT FORK BUFFALO CREEK
 Mile Point: 1.10 Drainage Area: 15.1 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: OWSLEY Basin: KENTUCKY
 Map Number: 07-51 Latitude: 37-20-56 Longitude: 083-37-32
 Location Description: OFF WHOOPFLAREA ROAD

Date Collected: 10/25/93 Comments:
 Sample ID: 19931025-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	134	
Achnanthes detha		*
Achnanthes exigua		*
Achnanthes lanceolata		*
Achnanthes minutissima	260	
Amphipleura pellucida	1	
Amphora ovalis		*
Amphora submontana	1	
Bacillaria paradoxa	4	
Caloneis bacillum		*
Cocconeis placentula var. lineata		*
Cyclotella striata var. ambigua	1	
Cymbella affinis		*
Cymbella aspera		*
Cymbella cymbiformis		*
Cymbella delicatula	10	
Cymbella minuta	1	
Cymbella silesiaca	4	
Cymbella tumida	2	
Cymbella turgidula	16	
Diploneis elliptica	1	
Eunotia curvata	1	
Eunotia incisa		*
Eunotia maior		*
Eunotia perpusilla		*
Fragilaria vaucheriae	11	
Frustulia rhomboides var. crassinervia		*
Frustulia rhomboides var. amphipleuroides	2	
Gomphonema acuminatum		*
Gomphonema affine		*
Gomphonema angustatum		*
Gomphonema apuncto	1	
Gomphonema gracile		*
Gomphonema olivaceum	1	
Gomphonema parvulum	5	
Gomphonema sphaerophorum	3	
Gomphonema subclavatum	1	
Hantzschia amphioxys	1	
Melosira varians		*

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Meridion circulare	1
Navicula cryptocephala	28
Navicula cryptocephala var. veneta	*
Navicula decussis	2
Navicula minima	15
Navicula placenta	*
Navicula radiosa	1
Navicula radiosa var. tenella	3
Navicula salinarum var. intermedia	*
Navicula schroeteri var. escambia	4
Navicula secreta var. apiculata	*
Navicula viridula	1
Navicula viridula var. rostellata	*
Neidium affine	1
Nitzschia acicularis	1
Nitzschia clausii	2
Nitzschia dissipata	*
Nitzschia filiformis	3
Nitzschia gracilis	3
Nitzschia lorenziana var. subtilis	*
Nitzschia microcephala	3
Nitzschia palea	5
Nitzschia vermicularis	2
Pinnularia subcapitata	*
Pinnularia viridis	*
Rhopalodia gibba	*
Surirella angustata	2
Surirella linearis	*
Synedra rumpens	2
Synedra rumpens var. familiaris	*
Synedra ulna	3
Synedra ulna var. oxyrhynchus	2

 Station ID: REFCABUF Collection Date: 10/25/93

Total Number of Taxa (TNT):	71
Total Number of Individuals (TNI):	545
Diversity (H):	0.83
Percent (%) Sensitive Individuals:	31.4
Pollution Tolerance Index (PTI):	3.1
Siltation Index**:	13.4

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

Site ID: REFCABUF (04044001) Stream: RIGHT FORK BUFFALO CREEK
 Mile Point: 1.10 Drainage Area: 15.1 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: OWSLEY Basin: KENTUCKY
 Map Number: 07-51 Latitude: 37-20-56 Longitude: 083-37-32
 Location Description: OFF WHOOPFLAREA ROAD

Date Collected: 06/06/94 Comments:
 Sample ID: 19940606-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	141	*
Achnanthes detha		*
Achnanthes exigua		*
Achnanthes lanceolata		*
Achnanthes lapponica var. ninckei		*
Achnanthes minutissima	97	*
Amphipleura pellucida		*
Cocconeis placentula		*
Cymbella cymbiformis		*
Cymbella delicatula	230	*
Cymbella minuta		*
Cymbella silesiaca	14	*
Cymbella tumida		*
Cymbella turgidula	3	*
Epithemia adnata		*
Eunotia exigua		*
Eunotia pectinalis var. minor	1	
Fragilaria vaucheriae	19	
Frustulia rhomboides var. amphipleuroides		*
Gomphonema angustatum		*
Gomphonema clevei	1	
Gomphonema parvulum	2	
Gomphonema sphaerophorum		*
Gomphonema subclavatum		*
Hantzschia amphioxys		*
Meridion circulare		*
Navicula angusta		*
Navicula cryptocephala	6	
Navicula cryptocephala var. veneta	1	
Navicula decussis		*
Navicula menisculus var. upsaliensis		*
Navicula minima	1	
Navicula notha	4	
Navicula pelliculosa		*
Navicula pupula		*
Navicula pupula var. capitata	1	
Navicula radiosa		*
Navicula radiosa var. tenella		*
Navicula rhynchocephala		*

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Navicula sp.	*
Navicula viridula var. rostellata	*
Neidium affine	*
Nitzschia gracilis	1
Nitzschia linearis	*
Nitzschia palea	1
Nitzschia recta	2
Pinnularia viridis	*
Rhopalodia gibberula var. vanheurckii	*
Surirella angustata	*
Surirella linearis	*
Synedra rumpens var. familiaris	7
Synedra ulna	3
Synedra ulna var. oxyrhynchus	25

 Station ID: REFCABUF Collection Date: 06/06/94

Total Number of Taxa (TNT):	53
Total Number of Individuals (TNI):	560
Diversity (H):	0.73
Percent (%) Sensitive Individuals:	69.3
Pollution Tolerance Index (PTI):	3.6
Siltation Index**:	3.0

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCABUF (04044001) Stream: RIGHT FORK BUFFALO CREEK
 Mile Point: 1.10 Drainage Area: 15.1 square miles
 Order: 3 Ecoregion: CENTRAL APPALACHIAN
 County: OWSLEY Basin: KENTUCKY
 Map Number: 07-51 Latitude: 37-20-56 Longitude: 083-37-32
 Location Description: OFF WHOOPFLAREA ROAD

Date Collected: 10/05/94 Comments:
 Sample ID: 19941005-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	130
Achnanthes exigua	1
Achnanthes minutissima	209
Amphipleura pellucida	10
Amphora ovalis	*
Bacillaria paradoxa	2
Caloneis bacillum	4
Cocconeis placentula	*
Cyclotella striata var. ambigua	*
Cymbella affinis	*
Cymbella aspera	*
Cymbella cymbiformis	*
Cymbella delicatula	45
Cymbella lunata	*
Cymbella microcephala	*
Cymbella minuta	2
Cymbella naviculiformis	*
Cymbella silesiaca	14
Cymbella tumida	*
Cymbella turgidula	23
Denticula elegans	*
Diploneis elliptica	1
Diploneis oblongella	1
Epithemia adnata	1
Eunotia exigua	*
Eunotia pectinalis var. minor	1
Fragilaria vaucheriae	7
Frustulia rhomboides var. crassinervia	*
Frustulia rhomboides var. amphipleuroides	*
Frustulia weinholdii	*
Gomphonema apuncto	1
Gomphonema parvulum	*
Gomphonema sparsistriatum f. maculatum	*
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Melosira varians	1
Navicula angusta	*
Navicula cryptocephala var. veneta	3
Navicula decussis	1

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula menisculus var. upsaliensis	*
Navicula minima	3
Navicula notha	10
Navicula pupula	*
Navicula pupula var. capitata	*
Navicula radiosa	1
Navicula radiosa var. tenella	4
Navicula schroeteri var. escambia	*
Navicula symmetrica	2
Navicula viridula	*
Navicula viridula var. linearis	1
Navicula viridula var. rostellata	*
Nitzschia acicularis	2
Nitzschia clausii	*
Nitzschia coarctata	*
Nitzschia dissipata	2
Nitzschia fonticola	*
Nitzschia frustulum	4
Nitzschia gracilis	7
Nitzschia linearis	*
Nitzschia palea	15
Nitzschia paleacea	1
Nitzschia sigmoidea	1
Nitzschia sinuata var. tabellaria	*
Nitzschia tryblionella var. victoriae	*
Nitzschia vermicularis	2
Pinnularia subcapitata	*
Pinnularia viridis	2
Plagiotropis lepidoptera v. proboscidea	*
Stauroneis phoenicenteron	*
Stauroneis smithii	*
Surirella angustata	*
Surirella linearis	1
Surirella ovata	*
Synedra ulna	1
Synedra ulna var. oxyrhynchus	1

 Station ID: REFCABUF Collection Date: 10/05/94

Total Number of Taxa (TNT):	75
Total Number of Individuals (TNI):	517
Diversity (H):	0.89
Percent (%) Sensitive Individuals:	41.2
Pollution Tolerance Index (PTI):	3.2
Siltation Index**:	11.4

 * Qualitative data

** Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCASFD (02006025) Stream: SOUTH FORK DOG SLAUGHTER CR.
 Mile Point: 3.60 Drainage Area: 2.0 square miles
 Order: 2 Ecoregion: CENTRAL APPALACHIAN
 County: WHITLEY Basin: UPPER CUMBERLAND
 Map Number: 03-46 Latitude: 36-50-55 Longitude: 084-16-20
 Location Description: U.S.FOREST SERVICE ROAD 192 BRIDGE

Date Collected: 05/21/91 Comments:
 Sample ID: 19910521-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	2
Achnanthes detha	3
Achnanthes exigua	3
Achnanthes lanceolata var. dubia	6
Achnanthes linearis	1
Achnanthes minutissima	119
Achnanthes stewartii	3
Anomoeoneis serians var. brachysira	7
Bacillaria paradoxa	*
Caloneis bacillum	2
Caloneis budensis	1
Cocconeis placentula	*
Cymbella aspera	1
Cymbella delicatula	*
Cymbella naviculiformis	1
Cymbella silesiaca	36
Cymbella sp. (K)	*
Denticula elegans	*
Eunotia curvata	8
Eunotia exigua	8
Eunotia maior	10
Eunotia pectinalis var. minor	71
Eunotia perpusilla	1
Eunotia praerupta	6
Eunotia serra var. diadema	2
Eunotia triodon	1
Eunotia vanheurckii var. intermedia	16
Fragilaria vaucheriae	13
Frustulia rhomboides var. crassinervia	9
Frustulia rhomboides var. amphipleuroides	1
Frustulia vulgaris	3
Gomphonema acuminatum	1
Gomphonema affine	1
Gomphonema angustatum	27
Gomphonema apuncto	*
Gomphonema brasiliense	1
Gomphonema gracile	2
Gomphonema parvulum	1
Gomphonema sparsistriatum f. maculatum	5

 *Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Gomphonema subclavatum	*
Gyrosigma spencerii	*
Melosira granulata	*
Meridion circulare	18
Navicula angusta	24
Navicula bacillum	1
Navicula elginensis	1
Navicula lanceolata	1
Navicula radiosa	3
Navicula radiosa var. parva	*
Navicula radiosa var. tenella	4
Navicula viridula	2
Neidium affine var. longiceps	*
Neidium dubium	*
Nitzschia clausii	*
Nitzschia dissipata	5
Nitzschia filiformis	3
Nitzschia linearis	*
Nitzschia microcephala	*
Nitzschia recta	16
Pinnularia biceps	*
Pinnularia borealis var. rectangularis	*
Pinnularia nodosa	*
Pinnularia subcapitata	2
Pinnularia subcapitata var. paucistriata	2
Pinnularia viridis	11
Stauroneis anceps	1
Stauroneis phoenicenteron	*
Stauroneis smithii	1
Surirella angustata	*
Surirella linearis	10
Surirella ovata	1
Synedra acus	27
Synedra rumpens var. familiaris	*
Synedra ulna	*
Synedra ulna var. oxyrhynchus	1
Synedra ulna var. ramesi	*
Tabellaria fenestrata	4
Tabellaria flocculosa	10

 Station ID: REFCASFD Collection Date: 05/21/91

Total Number of Taxa (TNT):	78
Total Number of Individuals (TNI):	520
Diversity (H):	1.32
Percent (%) Sensitive Individuals:	15.2
Pollution Tolerance Index (PTI):	2.5
Siltation Index**:	11.5

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCASFD (02006025) Stream: SOUTH FORK DOG SLAUGHTER CR.
 Mile Point: 3.60 Drainage Area: 2.0 square miles
 Order: 2 Ecoregion: CENTRAL APPALACHIAN
 County: WHITLEY Basin: UPPER CUMBERLAND
 Map Number: 03-46 Latitude: 36-50-55 Longitude: 084-16-20
 Location Description: U.S.FOREST SERVICE ROAD 192 BRIDGE

Date Collected: 10/15/91 Comments:
 Sample ID: 19911015-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	14
Achnanthes detha	2
Achnanthes exigua	2
Achnanthes lanceolata var. dubia	3
Achnanthes minutissima	111
Achnanthes stewartii	3
Amphipleura pellucida	2
Anomoeoneis serians var. brachysira	19
Anomoeoneis vitrea	*
Caloneis bacillum	*
Cocconeis placentula	1
Cymbella aspera	6
Cymbella cymbiformis	1
Cymbella delicatula	*
Cymbella lunata	2
Cymbella naviculiformis	1
Cymbella silesiaca	17
Cymbella tumida	*
Diploneis elliptica	*
Entomoneis ornata	2
Eunotia curvata	18
Eunotia exigua	2
Eunotia maior	35
Eunotia pectinalis	2
Eunotia pectinalis var. minor	57
Eunotia perpusilla	9
Eunotia praerupta	17
Eunotia serra var. diadema	1
Eunotia vanheurckii var. intermedia	8
Fragilaria vaucheriae	13
Frustulia rhomboides var. crassinervia	46
Frustulia rhomboides var. saxonica	5
Frustulia rhomboides var. amphipleuroides	17
Frustulia vulgaris	1
Gomphonema affine	4
Gomphonema angustatum	5
Gomphonema apuncto	1
Gomphonema brasiliense	*
Gomphonema gracile	*

* Qualitative data

** Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Gomphonema parvulum	2
Gomphonema sparsistriatum f. maculatum	2
Gyrosigma scalproides	*
Meridion circulare	1
Navicula angusta	9
Navicula cryptocephala	2
Navicula cryptocephala var. veneta	2
Navicula elginensis	*
Navicula minima	2
Navicula mutica	1
Navicula placenta	*
Navicula pupula	2
Navicula pygmaea	1
Navicula radiosa	6
Navicula radiosa var. tenella	4
Navicula rhynchocephala	1
Navicula viridula	2
Nitzschia amphibia	*
Nitzschia clausii	*
Nitzschia filiformis	14
Nitzschia microcephala	1
Nitzschia recta	2
Pinnularia subcapitata	4
Pinnularia viridis	3
Rhopalodia gibberula var. vanheurckii	*
Stauroneis phoenicenteron	8
Stauroneis smithii	10
Surirella angustata	*
Surirella linearis	13
Synedra acus	11
Synedra delicatissima	*
Synedra rumpens	1
Synedra ulna	*
Tabellaria fenestrata	*
Tabellaria flocculosa	6

 Station ID: REFCASFD Collection Date: 10/15/91

Total Number of Taxa (TNT):	74
Total Number of Individuals (TNI):	537
Diversity (H):	1.38
Percent (%) Sensitive Individuals:	20.7
Pollution Tolerance Index (PTI):	2.5
Siltation Index**:	9.1

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCASFD (02006025) Stream: SOUTH FORK DOG SLAUGHTER CR.
 Mile Point: 3.60 Drainage Area: 2.0 square miles
 Order: 2 Ecoregion: CENTRAL APPALACHIAN
 County: WHITLEY Basin: UPPER CUMBERLAND
 Map Number: 03-46 Latitude: 36-50-55 Longitude: 084-16-20
 Location Description: U.S.FOREST SERVICE ROAD 192 BRIDGE

Date Collected: 04/28/93 Comments:
 Sample ID: 19930428-11 Substrate Type: Natural
 ID By:

Achnanthes detha	6
Achnanthes exigua	1
Achnanthes minutissima	153
Achnanthes stewartii	1
Amphipleura pellucida	*
Anomoeoneis serians var. brachysira	3
Caloneis bacillum	*
Cymbella aspera	1
Cymbella delicatula	10
Cymbella naviculiformis	*
Cymbella silesiaca	26
Cymbella sp. (K)	1
Denticula elegans	*
Eunotia curvata	1
Eunotia exigua	2
Eunotia incisa	2
Eunotia maior	4
Eunotia pectinalis var. minor	11
Eunotia perpusilla	*
Eunotia praerupta	*
Eunotia vanheurckii var. intermedia	2
Fragilaria vaucheriae	73
Fragilaria virescens	1
Frustulia rhomboides var. crassinervia	3
Frustulia rhomboides var. amphipleuroides	1
Frustulia vulgaris	*
Gomphonema affine	30
Gomphonema angustatum	56
Gomphonema brasiliense	1
Gomphonema gracile	*
Gomphonema olivaceum	1
Gomphonema parvulum	13
Gomphonema sparsistriatum f. maculatum	*
Gomphonema subclavatum	2
Hantzschia amphioxys	1
Melosira granulata	*
Meridion circulare	35
Navicula angusta	*
Navicula contenta	1

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula cryptocephala</i>	3	
<i>Navicula cryptocephala</i> var. <i>veneta</i>		*
<i>Navicula elginensis</i>		*
<i>Navicula lanceolata</i>		*
<i>Navicula menisculus</i> var. <i>upsaliensis</i>		*
<i>Navicula minima</i>	1	
<i>Navicula pelliculosa</i>		*
<i>Navicula pupula</i>		*
<i>Navicula pygmaea</i>	1	
<i>Navicula radiosa</i>	1	
<i>Navicula radiosa</i> var. <i>tenella</i>	5	
<i>Navicula rhynchocephala</i>	1	
<i>Navicula secreta</i> var. <i>apiculata</i>		*
<i>Neidium affine</i>	1	
<i>Nitzschia acicularis</i>		*
<i>Nitzschia dissipata</i>	3	
<i>Nitzschia filiformis</i>	1	
<i>Nitzschia gracilis</i>	4	
<i>Nitzschia linearis</i>		*
<i>Nitzschia microcephala</i>		*
<i>Nitzschia palea</i>	1	
<i>Nitzschia recta</i>	6	
<i>Nitzschia vermicularis</i>	2	
<i>Pinnularia biceps</i>		*
<i>Pinnularia subcapitata</i>	1	
<i>Pinnularia viridis</i>	3	
<i>Rhopalodia gibberula</i> var. <i>vanheurckii</i>		*
<i>Stauroneis anceps</i>		*
<i>Stauroneis anceps</i> f. <i>gracilis</i>		*
<i>Stauroneis phoenicenteron</i>		*
<i>Stauroneis smithii</i>	2	
<i>Surirella angustata</i>		*
<i>Surirella linearis</i>		*
<i>Synedra acus</i>	10	
<i>Synedra delicatissima</i>	8	
<i>Synedra ulna</i>	10	
<i>Tabellaria fenestrata</i>	14	
<i>Tabellaria flocculosa</i>	11	

 Station ID: REFCASFD Collection Date: 04/28/93

Total Number of Taxa (TNT):	77
Total Number of Individuals (TNI):	531
Diversity (H):	1.18
Percent (%) Sensitive Individuals:	14.9
Pollution Tolerance Index (PTI):	2.7
Siltation Index**:	5.6

 * Qualitative data

** Relative abundance of *Navicula+Nitzschia+Surirella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCASFD (02006025) Stream: SOUTH FORK DOG SLAUGHTER CR.
 Mile Point: 3.60 Drainage Area: 2.0 square miles
 Order: 2 Ecoregion: CENTRAL APPALACHIAN
 County: WHITLEY Basin: UPPER CUMBERLAND
 Map Number: 03-46 Latitude: 36-50-55 Longitude: 084-16-20
 Location Description: U.S.FOREST SERVICE ROAD 192 BRIDGE

Date Collected: 11/08/93 Comments:
 Sample ID: 19931108-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	23
Achnanthes detha	7
Achnanthes exigua	2
Achnanthes lanceolata	1
Achnanthes minutissima	149
Achnanthes stewartii	4
Amphipleura pellucida	3
Anomoeoneis serians var. brachysira	19
Cymbella aspera	2
Cymbella lunata	1
Cymbella minuta	*
Cymbella naviculiformis	*
Cymbella silesiaca	20
Cymbella sp. (K)	2
Diploneis elliptica	1
Eunotia curvata	5
Eunotia exigua	4
Eunotia maior	29
Eunotia pectinalis var. minor	56
Eunotia perpusilla	12
Eunotia vanheurckii var. intermedia	7
Fragilaria vaucheriae	13
Fragilaria virescens	3
Frustulia rhomboides var. crassinervia	8
Frustulia rhomboides var. amphipleuroides	4
Frustulia weinholdii	1
Gomphonema affine	*
Gomphonema angustatum	7
Gomphonema brasiliense	1
Gomphonema parvulum	25
Gyrosigma scalproides	*
Meridion circulare	5
Navicula angusta	6
Navicula cryptocephala	*
Navicula cryptocephala var. veneta	1
Navicula exigua	*
Navicula menisculus var. upsaliensis	1
Navicula minima	12
Navicula pelliculosa	1

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Navicula pupula	1	
Navicula pygmaea	2	
Navicula radiosa var. parva		*
Navicula radiosa var. tenella	5	
Navicula rhynchocephala	1	
Navicula subhamulata var. undulata	5	
Nitzschia amphibia	1	
Nitzschia communis		*
Nitzschia dissipata	5	
Nitzschia filiformis	1	
Nitzschia gracilis	1	
Nitzschia palea	8	
Nitzschia recta	8	
Nitzschia romana		*
Nitzschia vermicularis	2	
Pinnularia biceps	1	
Pinnularia borealis	1	
Pinnularia obscurum	1	
Pinnularia subcapitata	1	
Pinnularia subcapitata var. paucistriata		*
Pinnularia viridis	13	
Rhopalodia gibberula var. vanheurckii	1	
Stauroneis smithii	1	
Surirella angustata		*
Surirella linearis	3	
Synedra delicatissima	1	
Synedra ulna	14	
Synedra ulna var. oxyrhynchus		*
Tabellaria flocculosa	1	

 Station ID: REFCASFD Collection Date: 11/08/93

Total Number of Taxa (TNT): 68
 Total Number of Individuals (TNI): 513
 Diversity (H): 1.29
 Percent (%) Sensitive Individuals: 12.9
 Pollution Tolerance Index (PTI): 2.4
 Siltation Index** : 11.9

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFCASFD (02006025) Stream: SOUTH FORK DOG SLAUGHTER CR.
 Mile Point: 3.60 Drainage Area: 2.0 square miles
 Order: 2 Ecoregion: CENTRAL APPALACHIAN
 County: WHITLEY Basin: UPPER CUMBERLAND
 Map Number: 03-46 Latitude: 36-50-55 Longitude: 084-16-20
 Location Description: U.S.FOREST SERVICE ROAD 192 BRIDGE

Date Collected: 06/24/94 Comments:
 Sample ID: 19940624-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	26
Achnanthes detha	4
Achnanthes exigua	2
Achnanthes minutissima	180
Achnanthes stewartii	3
Anomoeoneis serians var. brachysira	10
Caloneis bacillum	*
Cymbella aspera	2
Cymbella lunata	4
Cymbella minuta	34
Cymbella naviculiformis	1
Cymbella silesiaca	38
Diploneis elliptica	*
Eunotia curvata	7
Eunotia exigua	5
Eunotia maior	1
Eunotia pectinalis var. minor	20
Eunotia perpusilla	10
Eunotia triodon	1
Eunotia vanheurckii var. intermedia	1
Fragilaria vaucheriae	10
Frustulia rhomboides var. crassinervia	17
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	*
Gomphonema abbreviatum	*
Gomphonema affine	*
Gomphonema angustatum	2
Gomphonema apuncto	*
Gomphonema brasiliense	*
Gomphonema parvulum	*
Gomphonema sparsistriatum f. maculatum	*
Meridion circulare	1
Navicula angusta	1
Navicula cryptocephala	3
Navicula cryptocephala var. veneta	10
Navicula exigua	1
Navicula hustedtii	3
Navicula minima	21
Navicula mutica	1

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Navicula notha	*
Navicula pupula	*
Navicula pupula var. capitata	2
Navicula pupula var. rectangularis	*
Navicula pygmaea	2
Navicula radiosa var. parva	3
Navicula radiosa var. tenella	17
Navicula rhynchocephala	*
Navicula subhamulata var. undulata	9
Navicula viridula var. rostellata	1
Neidium affine	*
Neidium ladogensense var. densestriatum	*
Nitzschia dissipata	8
Nitzschia gracilis	*
Nitzschia palea	5
Nitzschia recta	16
Nitzschia vermicularis	1
Pinnularia appendiculata	*
Pinnularia biceps	5
Pinnularia borealis var. rectangularis	*
Pinnularia mesolepta	*
Pinnularia microstauron	*
Pinnularia obscurum	*
Pinnularia subcapitata	3
Pinnularia subcapitata var. paucistriata	*
Pinnularia viridis	1
Stauroneis anceps	1
Stauroneis phoenicenteron	*
Stauroneis smithii	9
Surirella angustata	1
Surirella linearis	10
Surirella ovata	3
Synedra delicatissima	4
Synedra rumpens var. familiaris	*
Synedra ulna	10
Tabellaria flocculosa	*

 Station ID: REFCASFD Collection Date: 06/24/94

Total Number of Taxa (TNT): 75
 Total Number of Individuals (TNI): 529
 Diversity (H): 1.23
 Percent (%) Sensitive Individuals: 20.2
 Pollution Tolerance Index (PTI): 2.7
 Siltation Index^{**}: 19.7

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWAARB (06010003) Stream: ARABS FORK BIG SINKING CREEK
 Mile Point: 0.10 Drainage Area: 5.4 square miles
 Order: 3 Ecoregion: WESTERN ALLEGHENY
 County: ELLIOTT Basin: LITTLE SANDY
 Map Number: 14-55 Latitude: 38-13-20 Longitude: 083-09-20
 Location Description: KY 1620 BRIDGE

Date Collected: 04/29/92 Comments:
 Sample ID: 19920429-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	1
Achnanthes deflexa	101
Achnanthes detha	2
Achnanthes lanceolata	3
Achnanthes lanceolata var. dubia	*
Achnanthes lapponica var. ninckei	11
Achnanthes minutissima	208
Amphora ovalis	*
Amphora perpusilla	1
Cocconeis placentula	*
Cymbella cymbiformis	2
Cymbella delicatula	1
Cymbella minuta	5
Cymbella naviculiformis	1
Cymbella prostrata	*
Cymbella prostrata var. auerswaldii	1
Cymbella silesiaca	*
Cymbella sinuata	1
Cymbella sp. (K)	44
Cymbella tumida	*
Cymbella turgidula	*
Eunotia pectinalis var. minor	1
Fragilaria vaucheriae	28
Frustulia rhomboides var. crassinervia	*
Frustulia vulgaris	*
Gomphonema affine	1
Gomphonema angustatum	6
Gomphonema parvulum	11
Gomphonema subclavatum var. mexicanum	*
Gomphonema truncatum	*
Melosira varians	*
Meridion circulare	*
Navicula cryptocephala	5
Navicula lanceolata	1
Navicula meniscus var. upsaliensis	3
Navicula minima	10
Navicula pupula	*
Navicula radiosa var. tenella	*
Navicula salinarum var. intermedia	*

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula secreta</i> var. <i>apiculata</i>	1
<i>Nitzschia acicularis</i>	7
<i>Nitzschia dissipata</i>	9
<i>Nitzschia filiformis</i>	8
<i>Nitzschia gracilis</i>	*
<i>Nitzschia linearis</i>	12
<i>Nitzschia palea</i>	4
<i>Nitzschia recta</i>	1
<i>Nitzschia romana</i>	1
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	*
<i>Surirella angustata</i>	*
<i>Surirella linearis</i>	*
<i>Surirella ovata</i>	*
<i>Surirella ovata</i> var. <i>pinnata</i>	*
<i>Synedra acus</i>	*
<i>Synedra delicatissima</i>	6
<i>Synedra rumpens</i>	5
<i>Synedra rumpens</i> var. <i>familiaris</i>	7
<i>Synedra ulna</i>	4
<i>Synedra ulna</i> var. <i>oxyrhynchus</i>	*

 Station ID: REFWAARB Collection Date: 04/29/92

Total Number of Taxa (TNT): 59
 Total Number of Individuals (TNI): 513
 Diversity (H): 0.96
 Percent (%) Sensitive Individuals: 31.8
 Pollution Tolerance Index (PTI): 3.0
 Siltation Index^{**}: 12.1

 *Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surirella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWAARB (06010003) Stream: ARABS FORK BIG SINKING CREEK
 Mile Point: 0.10 Drainage Area: 5.4 square miles
 Order: 3 Ecoregion: WESTERN ALLEGHENY
 County: ELLIOTT Basin: LITTLE SANDY
 Map Number: 14-55 Latitude: 38-13-20 Longitude: 083-09-20
 Location Description: KY 1620 BRIDGE

Date Collected: 10/12/92 Comments:
 Sample ID: 19921012-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	144
Achnanthes lanceolata var. dubia	3
Achnanthes minutissima	243
Amphipleura pellucida	*
Amphora ovalis	*
Amphora perpusilla	1
Caloneis bacillum	*
Cocconeis pediculus	*
Cocconeis placentula var. euglypta	1
Cocconeis placentula var. lineata	1
Cyclotella striata var. ambigua	2
Cymatopleura solea	*
Cymbella affinis	4
Cymbella aspera	*
Cymbella cistula	3
Cymbella cymbiformis	*
Cymbella delicatula	49
Cymbella minuta	1
Cymbella naviculiformis	*
Cymbella prostrata	1
Cymbella silesiaca	1
Cymbella sinuata	1
Cymbella sp. (K)	2
Cymbella tumida	*
Cymbella turgidula	21
Denticula elegans	*
Diploneis elliptica	*
Diploneis oblongella	*
Fragilaria vaucheriae	*
Frustulia vulgaris	*
Gomphonema acuminatum	*
Gomphonema angustatum	*
Gomphonema parvulum	3
Gomphonema sphaerophorum	*
Gomphonema subclavatum var. mexicanum	*
Gyrosigma scalproides	*
Gyrosigma spencerii	*
Melosira granulata	*

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Melosira varians	6
Meridion circulare	*
Navicula bacillum	*
Navicula cryptocephala	3
Navicula cryptocephala var. veneta	*
Navicula decussis	*
Navicula elginensis	*
Navicula lanceolata	*
Navicula mutica	*
Navicula pupula	3
Navicula pupula var. capitata	*
Navicula pupula var. rectangularis	*
Navicula radiosa	*
Navicula radiosa var. tenella	2
Navicula salinarum var. intermedia	2
Navicula secreta var. apiculata	3
Navicula symmetrica	1
Navicula tripunctata	*
Navicula viridula	1
Navicula viridula var. rostellata	*
Neidium affine var. longiceps	*
Neidium binode	*
Neidium dubium	*
Nitzschia acicularis	*
Nitzschia amphibia	*
Nitzschia clausii	*
Nitzschia constricta	1
Nitzschia dissipata	8
Nitzschia gracilis	*
Nitzschia levidensis	*
Nitzschia linearis	4
Nitzschia palea	2
Nitzschia recta	2
Nitzschia romana	2
Nitzschia sigmoidea	*
Nitzschia sinuata var. tabellaria	*
Pinnularia biceps	*
Pinnularia subcapitata var. paucistriata	*
Rhoicosphenia curvata	*
Stauroneis anceps	*
Surirella angustata	2
Surirella linearis	*
Surirella ovata	1
Surirella ovata var. pinnata	*
Synedra acus	1
Synedra rumpens	3
Synedra rumpens var. familiaris	4
Synedra ulna	*
Synedra ulna var. oxyrhynchus	*

 Station ID: REFWAARB Collection Date: 10/12/92

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

Total Number of Taxa (TNT):	88
Total Number of Individuals (TNI):	532
Diversity (H):	0.78
Percent (%) Sensitive Individuals:	43.0
Pollution Tolerance Index (PTI):	3.4
Siltation Index**:	6.4

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWAARB (06010003) Stream: ARABS FORK BIG SINKING CREEK
 Mile Point: 0.10 Drainage Area: 5.4 square miles
 Order: 3 Ecoregion: WESTERN ALLEGHENY
 County: ELLIOTT Basin: LITTLE SANDY
 Map Number: 14-55 Latitude: 38-13-20 Longitude: 083-09-20
 Location Description: KY 1620 BRIDGE

Date Collected: 06/09/93 Comments:
 Sample ID: 19930609-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	188	
Achnanthes detha		*
Achnanthes lanceolata	1	
Achnanthes lanceolata var. dubia		*
Achnanthes lapponica var. ninckei	1	
Achnanthes minutissima	97	
Amphipleura pellucida	1	
Amphora perpusilla	1	
Cocconeis pediculus	2	
Cyclotella stelligera		*
Cyclotella striata var. ambigua	4	
Cymatopleura solea		*
Cymbella aspera	1	
Cymbella cistula		*
Cymbella cymbiformis	7	
Cymbella delicatula	85	
Cymbella minuta	5	
Cymbella prostrata		*
Cymbella silesiaca	13	
Cymbella sinuata	1	
Cymbella sp. (K)	5	
Cymbella tumida	1	
Cymbella turgidula	19	
Diploneis elliptica		*
Diploneis oblongella		*
Eunotia curvata		*
Eunotia perpusilla		*
Fragilaria vaucheriae	5	
Frustulia vulgaris		*
Gomphonema acuminatum		*
Gomphonema angustatum	3	
Gomphonema parvulum		*
Gyrosigma scalpoides		*
Hantzschia amphioxys		*
Melosira varians		*
Meridion circulare	2	
Navicula capitata		*
Navicula cryptocephala	12	
Navicula cryptocephala var. veneta	1	

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula decussis	*
Navicula lanceolata	*
Navicula menisculus var. upsaliensis	*
Navicula minima	7
Navicula mutica	2
Navicula mutica var. ventricosa	*
Navicula radiosa	*
Navicula radiosa var. tenella	4
Navicula rhynchocephala	*
Navicula salinarum var. intermedia	13
Navicula schroeteri var. escambia	1
Navicula secreta var. apiculata	10
Navicula symmetrica	*
Navicula viridula	*
Neidium affine	*
Nitzschia acicularis	3
Nitzschia dissipata	14
Nitzschia filiformis	5
Nitzschia gracilis	2
Nitzschia linearis	2
Nitzschia palea	*
Nitzschia sp.	1
Pinnularia biceps	1
Pinnularia subcapitata var. paucistriata	*
Pinnularia viridis	*
Rhoicosphenia curvata	*
Surirella angustata	1
Surirella ovata	*
Synedra delicatissima	1
Synedra rumpens	*
Synedra ulna	4

 Station ID: REFWAARB Collection Date: 06/09/93

Total Number of Taxa (TNT):	70
Total Number of Individuals (TNI):	526
Diversity (H):	0.98
Percent (%) Sensitive Individuals:	61.0
Pollution Tolerance Index (PTI):	3.5
Siltation Index **:	14.6

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWAARB (06010003) Stream: ARABS FORK BIG SINKING CREEK
 Mile Point: 0.10 Drainage Area: 5.4 square miles
 Order: 3 Ecoregion: WESTERN ALLEGHENY
 County: ELLIOTT Basin: LITTLE SANDY
 Map Number: 14-55 Latitude: 38-13-20 Longitude: 083-09-20
 Location Description: KY 1620 BRIDGE

Date Collected: 10/27/93 Comments:
 Sample ID: 19931027-11 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	66
Achnanthes hungarica	3
Achnanthes lanceolata	13
Achnanthes lanceolata var. dubia	8
Achnanthes lapponica var. ninckei	1
Achnanthes minutissima	181
Achnanthes stewartii	1
Amphipleura pellucida	*
Amphora ovalis	*
Amphora perpusilla	1
Caloneis bacillum	*
Cocconeis placentula	2
Cocconeis placentula var. euglypta	2
Cyclotella striata var. ambigua	7
Cymatopleura solea	*
Cymbella affinis	*
Cymbella cymbiformis	38
Cymbella delicatula	53
Cymbella minuta	2
Cymbella silesiaca	30
Cymbella sinuata	2
Cymbella sp. (K)	9
Cymbella tumida	2
Cymbella turgidula	2
Diploneis elliptica	3
Eunotia pectinalis var. minor	*
Fragilaria vaucheriae	5
Frustulia vulgaris	1
Gomphonema angustatum	*
Gomphonema gracile	*
Gomphonema parvulum	2
Gomphonema sphaerophorum	2
Gomphonema subclavatum	*
Gomphonema subclavatum var. mexicanum	*
Gyrosigma scalpoides	*
Hantzschia amphioxys	*
Melosira varians	16
Meridion circulare	2

*Qualitative data
 **Relative abundance of *Navicula+Nitzschia+Surriella*
 06/25/96

DIATOM COLLECTION DATA

Navicula capitata	*
Navicula contenta	*
Navicula cryptocephala	7
Navicula cryptocephala var. veneta	7
Navicula decussis	3
Navicula menisculus var. upsaliensis	7
Navicula minima	10
Navicula mutica	*
Navicula pelliculosa	*
Navicula pupula	1
Navicula pygmaea	2
Navicula radiosa var. tenella	4
Navicula salinarum var. intermedia	3
Navicula schroeteri var. escambia	2
Navicula secreta var. apiculata	6
Navicula viridula	11
Navicula viridula var. linearis	*
Neidium affine	1
Neidium binode	*
Nitzschia acicularis	*
Nitzschia constricta	*
Nitzschia dissipata	5
Nitzschia filiformis	*
Nitzschia gracilis	2
Nitzschia linearis	2
Nitzschia palea	22
Nitzschia recta	*
Nitzschia vermicularis	2
Pinnularia biceps	*
Pinnularia viridis	*
Rhoicosphenia curvata	*
Stauroneis smithii	1
Surirella angustata	*
Surirella ovata	*
Synedra delicatissima	1
Synedra rumpens var. familiaris	1
Synedra ulna	4

 Station ID: REFWAARB Collection Date: 10/27/93

Total Number of Taxa (TNT):	76
Total Number of Individuals (TNI):	558
Diversity (H):	1.17
Percent (%) Sensitive Individuals:	37.6
Pollution Tolerance Index (PTI):	3.1
Siltation Index**:	17.2

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWAARB (06010003) Stream: ARABS FORK BIG SINKING CREEK
 Mile Point: 0.10 Drainage Area: 5.4 square miles
 Order: 3 Ecoregion: WESTERN ALLEGHENY
 County: ELLIOTT Basin: LITTLE SANDY
 Map Number: 14-55 Latitude: 38-13-20 Longitude: 083-09-20
 Location Description: KY 1620 BRIDGE

Date Collected: 06/16/94 Comments:
 Sample ID: 19940616-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	96
Achnanthes detha	*
Achnanthes lanceolata	2
Achnanthes lanceolata var. dubia	1
Achnanthes lapponica var. ninckei	3
Achnanthes minutissima	215
Achnanthes stewartii	2
Amphora ovalis	*
Amphora perpusilla	*
Amphora submontana	1
Cocconeis placentula var. lineata	1
Cyclotella meneghiniana	*
Cyclotella striata var. ambigua	2
Cymbella aspera	*
Cymbella cymbiformis	*
Cymbella delicatula	2
Cymbella lunata	*
Cymbella minuta	4
Cymbella naviculiformis	*
Cymbella prostrata	*
Cymbella silesiaca	52
Cymbella sinuata	4
Cymbella sp. (K)	4
Cymbella triangulum	*
Cymbella tumida	2
Cymbella turgidula	*
Diploneis elliptica	*
Eunotia maior	*
Eunotia perpusilla	*
Eunotia vanheurckii var. intermedia	*
Fragilaria pinnata	*
Fragilaria vaucheriae	9
Frustulia rhomboides var. crassinervia	*
Frustulia vulgaris	1
Gomphonema angustatum	2
Gomphonema olivaceum	*
Gomphonema parvulum	3
Melosira varians	18
Meridion circulare	*

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula capitata</i>	*
<i>Navicula cryptocephala</i>	1
<i>Navicula cryptocephala</i> var. <i>veneta</i>	2
<i>Navicula decussis</i>	9
<i>Navicula exigua</i>	*
<i>Navicula hustedtii</i>	1
<i>Navicula lanceolata</i>	1
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	1
<i>Navicula minima</i>	2
<i>Navicula mutica</i>	1
<i>Navicula notha</i>	*
<i>Navicula pupula</i>	2
<i>Navicula pupula</i> var. <i>capitata</i>	*
<i>Navicula radiosa</i> var. <i>tenella</i>	*
<i>Navicula salinarum</i> var. <i>intermedia</i>	1
<i>Navicula secreta</i> var. <i>apiculata</i>	15
<i>Navicula viridula</i> var. <i>rostellata</i>	*
<i>Neidium affine</i>	*
<i>Neidium dubium</i>	*
<i>Nitzschia acicularis</i>	*
<i>Nitzschia clausii</i>	*
<i>Nitzschia communis</i>	*
<i>Nitzschia dissipata</i>	13
<i>Nitzschia gracilis</i>	2
<i>Nitzschia linearis</i>	19
<i>Nitzschia palea</i>	8
<i>Nitzschia paleacea</i>	*
<i>Nitzschia recta</i>	3
<i>Pinnularia obscurum</i>	2
<i>Pinnularia viridis</i>	1
<i>Surirella angustata</i>	2
<i>Surirella ovata</i>	13
<i>Synedra acus</i>	*
<i>Synedra delicatissima</i>	1
<i>Synedra rumpens</i> var. <i>familiaris</i>	2
<i>Synedra ulna</i>	4
<i>Synedra ulna</i> var. <i>oxyrhynchus</i>	1

 Station ID: REFWAARB Collection Date: 06/16/94

Total Number of Taxa (TNT):	76
Total Number of Individuals (TNI):	531
Diversity (H):	0.99
Percent (%) Sensitive Individuals:	30.7
Pollution Tolerance Index (PTI):	3.1
Siltation Index**:	15.3

 * Qualitative data
 ** Relative abundance of *Navicula+Nitzschia+Surirella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWAARB (06010003) Stream: ARABS FORK BIG SINKING CREEK
 Mile Point: 0.10 Drainage Area: 5.4 square miles
 Order: 3 Ecoregion: WESTERN ALLEGHENY
 County: ELLIOTT Basin: LITTLE SANDY
 Map Number: 14-55 Latitude: 38-13-20 Longitude: 083-09-20
 Location Description: KY 1620 BRIDGE

Date Collected: 11/02/94 Comments:
 Sample ID: 19941102-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	19	
Achnanthes lanceolata var. dubia		*
Achnanthes minutissima	91	
Amphora perpusilla		*
Anomoeoneis vitrea		*
Caloneis bacillum	1	
Cymbella aspera	1	
Cymbella lunata	4	
Cymbella naviculiformis	1	
Cymbella silesiaca	47	
Cymbella tumida		*
Diploneis puella		*
Eunotia curvata	8	
Eunotia exigua	1	
Eunotia maior	6	
Eunotia pectinalis var. minor	21	
Fragilaria pinnata		*
Fragilaria vaucheriae	29	
Frustulia rhomboides var. crassinervia	19	
Frustulia rhomboides var. saxonica	10	
Frustulia rhomboides var. amphipleuroides	1	
Frustulia vulgaris	32	
Frustulia weinholdii	8	
Gomphonema affine	2	
Gomphonema angustatum	1	
Gomphonema apuncto	1	
Gomphonema gracile	3	
Gomphonema parvulum	31	
Gyrosigma scalproides		*
Gyrosigma spencerii	2	
Meridion circulare		*
Navicula atomus	1	
Navicula capitata		*
Navicula cryptocephala	13	
Navicula cryptocephala var. veneta	4	
Navicula elginensis	1	
Navicula menisculus var. upsaliensis	9	
Navicula minima	44	
Navicula mutica	1	

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 05/01/97

DIATOM COLLECTION DATA

Navicula notha	1
Navicula placenta	*
Navicula pupula	1
Navicula pupula var. capitata	1
Navicula pygmaea	*
Navicula radiosa var. parva	1
Navicula radiosa var. tenella	27
Navicula rhynchocephala	2
Navicula salinarum var. intermedia	*
Navicula schroeteri var. escambia	9
Navicula symmetrica	*
Navicula viridula	2
Neidium affine	*
Neidium affine var. longiceps	*
Nitzschia acicularis	1
Nitzschia agnita	*
Nitzschia amphibia	*
Nitzschia clausii	4
Nitzschia dissipata	2
Nitzschia fonticola	2
Nitzschia gracilis	3
Nitzschia linearis	*
Nitzschia lorenziana var. subtilis	*
Nitzschia palea	12
Nitzschia paleacea	2
Nitzschia pelliculosa	1
Nitzschia recta	3
Nitzschia rostellata	1
Nitzschia vermicularis	4
Pinnularia mesogonglya	2
Pinnularia mesolepta	1
Pinnularia obscurum	2
Pinnularia subcapitata	4
Pinnularia viridis	*
Stauroneis anceps	1
Stauroneis phoenicenteron	1
Stauroneis smithii	2
Surirella angustata	1
Surirella linearis	*
Surirella linearis var. helvetica	*
Surirella ovata	*
Surirella ovata var. pinnata	1
Synedra delicatissima	4
Synedra rumpens var. familiaris	1
Synedra ulna	10
Tabellaria fenestrata	1
Tabellaria flocculosa	*

 Station ID: REFWAARB Collection Date: 11/02/94

Total Number of Taxa (TNT): 86

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surirella
 05/01/97

DIATOM COLLECTION DATA

Total Number of Individuals (TNI):	522
Diversity (H):	1.40
Percent (%) Sensitive Individuals:	19.0
Pollution Tolerance Index (PTI):	2.6
Siltation Index**:	29.1

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*

05/01/97

DIATOM COLLECTION DATA

 Site ID: REFWABC1 (06013003) Stream: BIG CANEY CREEK UPPER
 Mile Point: 7.90 Drainage Area: 11.2 square miles
 Order: 3 Ecoregion: WESTERN ALLEGHENY
 County: ELLIOTT Basin: LITTLE SANDY
 Map Number: 14-55 Latitude: 38-09-22 Longitude: 083-09-46
 Location Description: OFF KY 32, BIION FORD ROAD

Date Collected: 04/30/92 Comments:
 Sample ID: 19920430-10 Substrate Type: Natural
 ID By: BRUMLEY

Achnanthes clevei	*
Achnanthes deflexa	70
Achnanthes detha	20
Achnanthes lanceolata	2
Achnanthes lanceolata var. dubia	2
Achnanthes lapponica var. ninckei	2
Achnanthes minutissima	131
Achnanthes stewartii	1
Amphipleura pellucida	1
Amphora perpusilla	2
Caloneis bacillum	2
Cocconeis pediculus	1
Cocconeis placentula	*
Cymatopleura solea	*
Cymbella affinis	2
Cymbella cistula	*
Cymbella cymbiformis	2
Cymbella delicatula	35
Cymbella microcephala	4
Cymbella minuta	43
Cymbella naviculiformis	1
Cymbella prostrata	*
Cymbella prostrata var. auerswaldii	5
Cymbella silesiaca	31
Cymbella sinuata	*
Cymbella sp. (K)	38
Cymbella tumida	*
Diatoma vulgare	*
Eunotia pectinalis var. minor	*
Fragilaria vaucheriae	2
Gomphonema angustatum	2
Gomphonema parvulum	4
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Gyrosigma spencerii	*
Melosira varians	3
Meridion circulare	*
Navicula cryptocephala	4
Navicula cryptocephala var. veneta	1

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula decussis</i>	2	
<i>Navicula menisculus</i> var. <i>upsaliensis</i>		*
<i>Navicula minima</i>	19	
<i>Navicula radiosa</i>		*
<i>Navicula radiosa</i> var. <i>parva</i>		*
<i>Navicula radiosa</i> var. <i>tenella</i>	2	
<i>Navicula rhynchocephala</i>		*
<i>Navicula salinarum</i> var. <i>intermedia</i>		*
<i>Navicula secreta</i> var. <i>apiculata</i>	1	
<i>Navicula tripunctata</i>		*
<i>Neidium affine</i> var. <i>longiceps</i>		*
<i>Nitzschia acicularis</i>	1	
<i>Nitzschia constricta</i>		*
<i>Nitzschia dissipata</i>	20	
<i>Nitzschia filiformis</i>	9	
<i>Nitzschia linearis</i>	1	
<i>Nitzschia microcephala</i>	12	
<i>Nitzschia palea</i>	2	
<i>Nitzschia recta</i>	18	
<i>Nitzschia romana</i>	2	
<i>Nitzschia tryblionella</i> var. <i>victoriae</i>		*
<i>Surirella angustata</i>		*
<i>Surirella ovata</i>	1	
<i>Synedra delicatissima</i>	5	
<i>Synedra parasitica</i>		*
<i>Synedra rumpens</i>	3	
<i>Synedra rumpens</i> var. <i>familiaris</i>	3	
<i>Synedra ulna</i> var. <i>ramesi</i>	1	

 Station ID: REFWABC1 Collection Date: 04/30/92

Total Number of Taxa (TNT):	67
Total Number of Individuals (TNI):	513
Diversity (H):	1.18
Percent (%) Sensitive Individuals:	38.4
Pollution Tolerance Index (PTI):	3.0
Siltation Index**:	18.3

 *Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWABC1 (06013003) Stream: BIG CANEY CREEK UPPER
 Mile Point: 7.90 Drainage Area: 11.2 square miles
 Order: 3 Ecoregion: WESTERN ALLEGHENY
 County: ELLIOTT Basin: LITTLE SANDY
 Map Number: 14-55 Latitude: 38-09-22 Longitude: 083-09-46
 Location Description: OFF KY 32, BIION FORD ROAD

Date Collected: 06/08/93 Comments:
 Sample ID: 19930608-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	1
Achnanthes deflexa	93
Achnanthes detha	14
Achnanthes lanceolata	1
Achnanthes lanceolata var. dubia	3
Achnanthes lapponica var. ninckei	1
Achnanthes minutissima	194
Amphora ovalis	*
Caloneis bacillum	*
Cocconeis pediculus	6
Cocconeis placentula	1
Cymatopleura solea	*
Cymbella affinis	1
Cymbella cistula	*
Cymbella cymbiformis	3
Cymbella delicatula	15
Cymbella microcephala	1
Cymbella minuta	1
Cymbella naviculiformis	*
Cymbella prostrata	*
Cymbella silesiaca	29
Cymbella sinuata	1
Cymbella sp. (K)	5
Cymbella turgidula	1
Diploneis elliptica	*
Eunotia pectinalis var. minor	1
Eunotia perpusilla	1
Fragilaria vaucheriae	3
Frustulia rhomboides var. amphipleuroides	*
Gomphonema angustatum	*
Gomphonema olivaceoides	*
Gomphonema olivaceum	*
Gomphonema parvulum	*
Gomphonema subclavatum	*
Hantzschia amphioxys	1
Melosira granulata	*
Melosira varians	31
Meridion circulare	1
Navicula angusta	*

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Navicula cryptocephala	3
Navicula cryptocephala var. veneta	3
Navicula decussis	1
Navicula lanceolata	*
Navicula menisculus var. upsaliensis	3
Navicula minima	8
Navicula mutica	2
Navicula radiosa var. parva	*
Navicula radiosa var. tenella	5
Navicula rhynchocephala	*
Navicula salinarum var. intermedia	3
Navicula schroeteri var. escambia	*
Navicula secreta var. apiculata	7
Navicula tripunctata	*
Nitzschia acicularis	2
Nitzschia amphibia	25
Nitzschia filiformis	8
Nitzschia gracilis	4
Nitzschia linearis	5
Nitzschia palea	7
Nitzschia romana	1
Pinnularia subcapitata var. paucistriata	1
Pinnularia viridis	*
Surirella angustata	3
Surirella ovata	2
Synedra delicatissima	1
Synedra rumpens var. familiaris	1
Synedra ulna	9

 Station ID: REFWABC1 Collection Date: 06/08/93

Total Number of Taxa (TNT):	67
Total Number of Individuals (TNI):	513
Diversity (H):	1.05
Percent (%) Sensitive Individuals:	29.4
Pollution Tolerance Index (PTI):	2.9
Siltation Index**:	17.0

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWABC1 (06013003) Stream: BIG CANEY CREEK UPPER
 Mile Point: 7.90 Drainage Area: 11.2 square miles
 Order: 3 Ecoregion: WESTERN ALLEGHENY
 County: ELLIOTT Basin: LITTLE SANDY
 Map Number: 14-55 Latitude: 38-09-22 Longitude: 083-09-46
 Location Description: OFF KY 32, BIION FORD ROAD

Date Collected: 06/16/94 Comments:
 Sample ID: 19940616-11 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	216
Achnanthes detha	*
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	2
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	117
Amphipleura pellucida	*
Amphora ovalis	1
Amphora perpusilla	3
Amphora submontana	*
Caloneis bacillum	2
Caloneis ventricosa var. truncatula	*
Cocconeis pediculus	1
Cocconeis placentula var. euglypta	*
Cyclotella striata var. ambigua	3
Cymbella affinis	*
Cymbella delicatula	88
Cymbella minuta	6
Cymbella prostrata	*
Cymbella silesiaca	9
Cymbella sinuata	*
Cymbella sp. (K)	1
Cymbella tumida	*
Cymbella turgidula	*
Denticula elegans	*
Eunotia pectinalis var. minor	*
Eunotia perpusilla	*
Eunotia sp.	*
Fragilaria pinnata	1
Fragilaria vaucheriae	2
Frustulia vulgaris	*
Gomphonema angustatum	*
Gomphonema parvulum	1
Gomphonema subclavatum	*
Gyrosigma scalproides	*
Melosira varians	2
Navicula cryptocephala	2
Navicula cryptocephala var. veneta	5

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

Navicula decussis	20	*
Navicula lanceolata		*
Navicula menisculus var. upsaliensis	12	
Navicula minima	16	
Navicula mutica		*
Navicula notha	2	
Navicula pelliculosa		*
Navicula pupula		*
Navicula radiosa		*
Navicula radiosa var. parva		*
Navicula radiosa var. tenella	1	
Navicula rhynchocephala		*
Navicula salinarum var. intermedia		*
Navicula secreta var. apiculata		*
Navicula viridula var. rostellata	1	
Nitzschia acicularis	2	
Nitzschia angustata var. acuta	2	
Nitzschia clausii		*
Nitzschia constricta		*
Nitzschia dissipata	21	
Nitzschia fonticola		*
Nitzschia frustulum	3	
Nitzschia gracilis	1	
Nitzschia linearis	1	
Nitzschia palea	7	
Nitzschia paleacea		*
Nitzschia vermicularis		*
Pinnularia biceps		*
Pinnularia viridis		*
Stauroneis smithii		*
Surirella angustata	2	
Surirella ovata	1	
Synedra rumpens		*
Synedra rumpens var. familiaris		*
Synedra ulna	1	
Synedra ulna var. oxyrhynchus	1	

 Station ID: REFWABC1 Collection Date: 06/16/94

Total Number of Taxa (TNT):	75
Total Number of Individuals (TNI):	556
Diversity (H):	0.88
Percent (%) Sensitive Individuals:	56.5
Pollution Tolerance Index (PTI):	3.4
Siltation Index**:	17.3

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWABC1 (06013003) Stream: BIG CANEY CREEK UPPER
 Mile Point: 7.90 Drainage Area: 11.2 square miles
 Order: 3 Ecoregion: WESTERN ALLEGHENY
 County: ELLIOTT Basin: LITTLE SANDY
 Map Number: 14-55 Latitude: 38-09-22 Longitude: 083-09-46
 Location Description: OFF KY 32, BIION FORD ROAD

Date Collected: 11/02/94 Comments:
 Sample ID: 19941102-11 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	75
Achnanthes detha	3
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	12
Achnanthes lapponica var. ninckei	1
Achnanthes minutissima	144
Amphipleura pellucida	1
Amphora perpusilla	5
Amphora submontana	*
Caloneis bacillum	2
Caloneis ventricosa var. truncatula	*
Cocconeis pediculus	*
Cocconeis placentula	4
Cocconeis placentula var. euglypta	*
Cyclotella meneghiniana	*
Cyclotella striata var. ambigua	1
Cymbella affinis	*
Cymbella aspera	*
Cymbella cistula	*
Cymbella cymbiformis	3
Cymbella delicatula	10
Cymbella lunata	1
Cymbella microcephala	2
Cymbella minuta	3
Cymbella prostrata	*
Cymbella silesiaca	4
Cymbella sinuata	*
Cymbella sp. (K)	*
Cymbella tumida	2
Cymbella turgidula	4
Denticula elegans	12
Diploneis elliptica	1
Fragilaria vaucheriae	4
Frustulia rhomboides var. amphipleuroides	*
Gomphonema angustatum	*
Gomphonema parvulum	*
Gyrosigma scalproides	1
Melosira varians	*

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Meridion circulare	*
Navicula atomus	1
Navicula bacillum	*
Navicula cryptocephala	*
Navicula cryptocephala var. veneta	6
Navicula decussis	9
Navicula lanceolata	1
Navicula menisculus var. upsaliensis	10
Navicula minima	15
Navicula notha	3
Navicula pupula	1
Navicula pupula var. capitata	1
Navicula pygmaea	*
Navicula radiosa	1
Navicula radiosa var. parva	*
Navicula radiosa var. tenella	4
Navicula salinarum var. intermedia	2
Navicula secreta var. apiculata	2
Navicula subhamulata var. undulata	8
Navicula symmetrica	*
Navicula tripunctata	*
Navicula viridula	3
Neidium dubium	*
Nitzschia acicularis	1
Nitzschia angustata var. acuta	*
Nitzschia constricta	2
Nitzschia dissipata	7
Nitzschia fonticola	1
Nitzschia frustulum	14
Nitzschia gracilis	20
Nitzschia hungarica	*
Nitzschia linearis	31
Nitzschia palea	31
Nitzschia paleacea	5
Nitzschia perminuta	1
Nitzschia recta	4
Nitzschia sigmoidea	3
Nitzschia sinuata var. tabellaria	26
Nitzschia tryblionella var. victoriae	*
Nitzschia vermicularis	*
Rhoicosphenia curvata	1
Stauroneis smithii	2
Surirella angustata	*
Surirella linearis	2
Surirella ovata	1
Synedra parasitica	18
Synedra rumpens var. familiaris	*
Synedra ulna	1
Synedra ulna var. oxyrhynchus	1
Tetracyclus glans	1

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

Station ID: REFWABC1 Collection Date: 11/02/94

Total Number of Taxa (TNT): 89
Total Number of Individuals (TNI): 535
Diversity (H): 1.29
Percent (%) Sensitive Individuals: 22.6
Pollution Tolerance Index (PTI): 2.7
Siltation Index^{**}: 39.8

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWABKT (05036002) Stream: BUCKET BRANCH N.F. LICKING R.
 Mile Point: 0.10 Drainage Area: 1.6 square miles
 Order: 2 Ecoregion: WESTERN ALLEGHENY
 County: MORGAN Basin: LICKING
 Map Number: 13-54 Latitude: 38-03-12 Longitude: 083-19-00
 Location Description: LEISURE-PARAGON ROAD BRIDGE

Date Collected: 04/28/92 Comments:
 Sample ID: 19920428-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	42
Achnanthes detha	7
Achnanthes lanceolata	3
Achnanthes lanceolata var. dubia	1
Achnanthes minutissima	294
Amphipleura pellucida	*
Amphora perpussilla	*
Cocconeis placentula var. euglypta	*
Cymbella cymbiformis	2
Cymbella delicatula	9
Cymbella minuta	*
Cymbella naviculiformis	*
Cymbella silesiaca	3
Cymbella sinuata	2
Cymbella sp. (K)	73
Cymbella tumida	*
Cymbella turgidula	*
Denticula elegans	1
Eunotia pectinalis var. minor	*
Fragilaria pinnata	*
Fragilaria vaucheriae	1
Frustulia vulgaris	2
Gomphonema abbreviatum	*
Gomphonema acuminatum	*
Gomphonema affine	*
Gomphonema angustatum	*
Gomphonema parvulum	7
Melosira varians	3
Meridion circulare	1
Navicula cryptocephala	*
Navicula cryptocephala var. veneta	1
Navicula decussis	1
Navicula lanceolata	*
Navicula meniscus var. upsaliensis	*
Navicula pupula var. elliptica	6
Navicula pupula var. rectangularis	*
Navicula pygmaea	*
Navicula radiosa	1

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula secreta</i> var. <i>apiculata</i>	*
<i>Neidium affine</i> var. <i>longiceps</i>	*
<i>Nitzschia acicularis</i>	17
<i>Nitzschia constricta</i>	*
<i>Nitzschia dissipata</i>	1
<i>Nitzschia filiformis</i>	3
<i>Nitzschia gracilis</i>	1
<i>Nitzschia linearis</i>	1
<i>Nitzschia microcephala</i>	*
<i>Nitzschia palea</i>	2
<i>Nitzschia recta</i>	1
<i>Nitzschia romana</i>	3
<i>Nitzschia sigmoidea</i>	*
<i>Pinnularia subcapitata</i> var. <i>paucistriata</i>	1
<i>Stauroneis anceps</i>	*
<i>Stauroneis anceps</i> f. <i>gracilis</i>	*
<i>Surirella angustata</i>	1
<i>Surirella ovata</i>	*
<i>Surirella ovata</i> var. <i>pinnata</i>	*
<i>Synedra acus</i>	1
<i>Synedra delicatissima</i>	10
<i>Synedra rumpens</i> var. <i>familiaris</i>	5
<i>Synedra ulna</i>	2
<i>Tabellaria flocculosa</i>	8

 Station ID: REFWABKT Collection Date: 04/28/92

Total Number of Taxa (TNT):	63
Total Number of Individuals (TNI):	517
Diversity (H):	0.77
Percent (%) Sensitive Individuals:	28.8
Pollution Tolerance Index (PTI):	3.1
Siltation Index ^{**} :	7.4

 *Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWABKT (05036002) Stream: BUCKET BRANCH N.F. LICKING R.
 Mile Point: 0.10 Drainage Area: 1.6 square miles
 Order: 2 Ecoregion: WESTERN ALLEGHENY
 County: MORGAN Basin: LICKING
 Map Number: 13-54 Latitude: 38-03-12 Longitude: 083-19-00
 Location Description: LEISURE-PARAGON ROAD BRIDGE

Date Collected: 10/21/92 Comments:
 Sample ID: 19921021-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	287
Achnanthes detha	*
Achnanthes lanceolata	2
Achnanthes lanceolata var. dubia	6
Achnanthes lapponica var. ninckei	2
Achnanthes minutissima	139
Amphipleura pellucida	4
Amphora ovalis	6
Amphora perpusilla	1
Caloneis bacillum	2
Cocconeis placentula	2
Cocconeis placentula var. euglypta	5
Cymbella aspera	1
Cymbella delicatula	*
Cymbella minuta	2
Cymbella prostrata var. auerswaldii	*
Cymbella silesiaca	*
Cymbella sinuata	3
Cymbella sp. (K)	7
Cymbella tumida	*
Cymbella turgidula	*
Denticula elegans	12
Diploneis elliptica	2
Diploneis oblongella	*
Eunotia perpusilla	*
Fragilaria vaucheriae	1
Frustulia rhomboides var. amphipleuroides	1
Frustulia vulgaris	1
Gomphonema acuminatum	1
Gomphonema affine	*
Gomphonema angustatum	2
Gomphonema apuncto	2
Gomphonema clevei	3
Gomphonema parvulum	5
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Hantzschia amphioxys	*
Melosira varians	2

* Qualitative data

** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Meridion circulare	*
Navicula capitata	*
Navicula cryptocephala	4
Navicula cryptocephala var. veneta	3
Navicula cuspidata	*
Navicula decussis	*
Navicula lanceolata	*
Navicula menisculus var. upsaliensis	2
Navicula pelliculosa	*
Navicula pupula	*
Navicula radiosa	*
Navicula radiosa var. parva	1
Navicula radiosa var. tenella	*
Navicula salinarum var. intermedia	*
Navicula schroeteri var. escambia	*
Navicula secreta var. apiculata	1
Navicula viridula	1
Neidium binode	*
Nitzschia acicularis	1
Nitzschia clausii	*
Nitzschia constricta	6
Nitzschia dissipata	3
Nitzschia filiformis	12
Nitzschia gracilis	*
Nitzschia linearis	9
Nitzschia microcephala	4
Nitzschia palea	2
Nitzschia recta	3
Nitzschia romana	*
Nitzschia sigmoidea	*
Pinnularia subcapitata var. paucistriata	*
Stauroneis smithii	4
Surirella angustata	1
Surirella linearis	*
Synedra rumpens var. familiaris	1
Synedra ulna	2

 Station ID: REFWABKT Collection Date: 10/21/92

Total Number of Taxa (TNT):	75
Total Number of Individuals (TNI):	561
Diversity (H):	0.81
Percent (%) Sensitive Individuals:	54.0
Pollution Tolerance Index (PTI):	3.3
Siltation Index**:	9.3

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWABKT (05036002) Stream: BUCKET BRANCH N.F. LICKING R.
 Mile Point: 0.10 Drainage Area: 1.6 square miles
 Order: 2 Ecoregion: WESTERN ALLEGHENY
 County: MORGAN Basin: LICKING
 Map Number: 13-54 Latitude: 38-03-12 Longitude: 083-19-00
 Location Description: LEISURE-PARAGON ROAD BRIDGE

Date Collected: 05/10/93 Comments:
 Sample ID: 19930510-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	*	
Achnanthes deflexa	59	
Achnanthes detha	7	
Achnanthes lanceolata	4	
Achnanthes lanceolata var. dubia	*	
Achnanthes lapponica var. ninckei	3	
Achnanthes minutissima	309	
Amphipleura pellucida	*	
Amphora ovalis	*	
Amphora perpusilla	*	
Cocconeis pediculus	*	
Cymbella cistula	*	
Cymbella cymbiformis	5	
Cymbella delicatula	15	
Cymbella minuta	*	
Cymbella naviculiformis	*	
Cymbella silesiaca	2	
Cymbella sinuata	3	
Cymbella sp. (K)	75	
Cymbella tumida	*	
Denticula elegans	*	
Diatoma vulgare	*	
Diploneis elliptica	1	
Eunotia perpusilla	*	
Fragilaria pinnata	1	
Fragilaria vaucheriae	21	
Frustulia rhomboides var. amphipleuroides	*	
Gomphonema acuminatum	*	
Gomphonema affine	1	
Gomphonema angustatum	3	
Gomphonema apuncto	*	
Gomphonema parvulum	*	
Gomphonema subclavatum	*	
Melosira varians	8	
Meridion circulare	9	
Navicula minima	2	
Navicula radiosa var. tenella	*	
Nitzschia acicularis	2	
Nitzschia dissipata	1	

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Nitzschia filiformis	*
Nitzschia fonticola	1
Nitzschia gracilis	1
Nitzschia linearis	2
Nitzschia sinuata var. tabellaria	1
Nitzschia vermicularis	8
Pinnularia subcapitata var. paucistriata	*
Rhoicosphenia curvata	*
Stauroneis phoenicenteron	*
Surirella angustata	*
Surirella ovata	*
Synedra acus	*
Synedra delicatissima	1
Synedra rumpens	*
Synedra rumpens var. familiaris	2
Synedra ulna	*
Tabellaria fenestrata	*
Tabellaria flocculosa	*

 Station ID: REFWABKT Collection Date: 05/10/93

Total Number of Taxa (TNT):	57
Total Number of Individuals (TNI):	547
Diversity (H):	0.72
Percent (%) Sensitive Individuals:	29.3
Pollution Tolerance Index (PTI):	3.1
Siltation Index**:	3.3

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWABKT (05036002) Stream: BUCKET BRANCH N.F. LICKING R.
 Mile Point: 0.10 Drainage Area: 1.6 square miles
 Order: 2 Ecoregion: WESTERN ALLEGHENY
 County: MORGAN Basin: LICKING
 Map Number: 13-54 Latitude: 38-03-12 Longitude: 083-19-00
 Location Description: LEISURE-PARAGON ROAD BRIDGE

Date Collected: 10/26/93 Comments:
 Sample ID: 19931026-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	5
Achnanthes deflexa	195
Achnanthes detha	1
Achnanthes exigua	1
Achnanthes lanceolata	5
Achnanthes lanceolata var. dubia	5
Achnanthes lapponica var. ninckei	3
Achnanthes minutissima	205
Amphipleura pellucida	4
Amphora perpusilla	16
Amphora submontana	1
Caloneis bacillum	5
Caloneis budensis	*
Caloneis ventricosa var. truncatula	*
Cocconeis placentula	3
Cymbella aspera	*
Cymbella cistula	*
Cymbella cymbiformis	*
Cymbella delicatula	*
Cymbella hustedtii	3
Cymbella minuta	1
Cymbella prostrata	*
Cymbella silesiaca	9
Cymbella sinuata	4
Cymbella sp. (K)	2
Cymbella tumida	*
Cymbella turgidula	*
Denticula elegans	3
Diploneis elliptica	5
Diploneis oblongella	*
Epithemia adnata	*
Eunotia curvata	1
Eunotia exigua	*
Eunotia maior	1
Eunotia pectinalis var. minor	2
Fragilaria pinnata	*
Frustulia rhomboides var. crassinervia	1
Gomphonema acuminatum	*
Gomphonema apuncto	*

 *Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Gomphonema clevei	4
Gomphonema parvulum	2
Gomphonema subclavatum var. mexicanum	1
Gyrosigma scalproides	*
Hantzschia amphioxys	*
Melosira varians	8
Navicula cryptocephala	*
Navicula cryptocephala var. veneta	3
Navicula cuspidata	1
Navicula decussis	2
Navicula lanceolata	*
Navicula menisculus var. upsaliensis	*
Navicula minima	*
Navicula pelliculosa	*
Navicula pupula	*
Navicula pupula var. capitata	*
Navicula pygmaea	1
Navicula radiosa var. tenella	11
Navicula rhynchocephala	*
Navicula schroeteri var. escambia	1
Navicula secreta var. apiculata	*
Navicula symmetrica	1
Navicula viridula	*
Navicula viridula var. rostellata	*
Neidium affine	1
Neidium binode	1
Nitzschia amphibia	*
Nitzschia clausii	*
Nitzschia communis	*
Nitzschia constricta	2
Nitzschia dissipata	3
Nitzschia linearis	6
Nitzschia microcephala	*
Nitzschia palea	1
Nitzschia recta	7
Nitzschia vermicularis	2
Pinnularia viridis	*
Pinnularia viridis var. minor	*
Surirella angustata	*
Surirella ovata	*
Synedra rumpens var. familiaris	5
Synedra ulna	1
Synedra ulna var. oxyrhynchus	*

 Station ID: REFWABKT Collection Date: 10/26/93

Total Number of Taxa (TNT): 82
 Total Number of Individuals (TNI): 545
 Diversity (H): 0.87
 Percent (%) Sensitive Individuals: 39.8
 Pollution Tolerance Index (PTI): 3.2

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

Siltation Index^{**}: 7.5

*Qualitative data
**Relative abundance of *Navicula+Nitzschia+Surriella*
06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWABKT (05036002) Stream: BUCKET BRANCH N.F. LICKING R.
 Mile Point: 0.10 Drainage Area: 1.6 square miles
 Order: 2 Ecoregion: WESTERN ALLEGHENY
 County: MORGAN Basin: LICKING
 Map Number: 13-54 Latitude: 38-03-12 Longitude: 083-19-00
 Location Description: LEISURE-PARAGON ROAD BRIDGE

Date Collected: 06/21/94 Comments:
 Sample ID: 19940621-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	87
Achnanthes detha	3
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	*
Achnanthes lapponica var. ninckei	1
Achnanthes minutissima	225
Amphora ovalis	*
Amphora perpusilla	2
Caloneis ventricosa var. truncatula	*
Cocconeis placentula	3
Cocconeis placentula var. euglypta	*
Cymbella aspera	*
Cymbella cymbiformis	6
Cymbella delicatula	89
Cymbella minuta	4
Cymbella prostrata	*
Cymbella silesiaca	26
Cymbella sinuata	15
Cymbella sp. (K)	8
Cymbella tumida	1
Denticula elegans	*
Fragilaria crotonensis	*
Fragilaria vaucheriae	1
Frustulia vulgaris	*
Gomphonema acuminatum	*
Gomphonema affine	*
Gomphonema angustatum	1
Gomphonema olivaceum	*
Gomphonema parvulum	6
Gomphonema subclavatum	*
Melosira varians	70
Meridion circulare	2
Navicula cryptocephala	1
Navicula cryptocephala var. veneta	*
Navicula decussis	*
Navicula exigua	*
Navicula menisculus var. upsaliensis	*
Navicula minima	2

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula schroeteri var. escambia	*
Nitzschia amphibia	1
Nitzschia dissipata	*
Nitzschia linearis	1
Nitzschia palea	2
Nitzschia paleacea	*
Surirella angustata	*
Surirella ovata	*
Synedra rumpens var. familiaris	2
Synedra ulna	3
Tabellaria flocculosa	*

 Station ID: REFWABKT Collection Date: 06/21/94

Total Number of Taxa (TNT):	50
Total Number of Individuals (TNI):	562
Diversity (H):	0.83
Percent (%) Sensitive Individuals:	41.3
Pollution Tolerance Index (PTI):	3.2
Siltation Index**:	1.2

 *Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWABKT (05036002) Stream: BUCKET BRANCH N.F. LICKING R.
 Mile Point: 0.10 Drainage Area: 1.6 square miles
 Order: 2 Ecoregion: WESTERN ALLEGHENY
 County: MORGAN Basin: LICKING
 Map Number: 13-54 Latitude: 38-03-12 Longitude: 083-19-00
 Location Description: LEISURE-PARAGON ROAD BRIDGE

Date Collected: 10/24/94 Comments:
 Sample ID: 19941024-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	2
Achnanthes deflexa	174
Achnanthes detha	1
Achnanthes exigua	*
Achnanthes lanceolata	1
Achnanthes lanceolata var. dubia	4
Achnanthes lapponica var. ninckei	1
Achnanthes minutissima	202
Amphipleura pellucida	8
Amphora perpusilla	5
Caloneis bacillum	1
Cocconeis placentula	20
Cocconeis placentula var. euglypta	2
Cyclotella meneghiniana	*
Cymbella aspera	2
Cymbella cymbiformis	1
Cymbella delicatula	9
Cymbella hustedtii	1
Cymbella microcephala	*
Cymbella prostrata	2
Cymbella silesiaca	8
Cymbella sinuata	6
Cymbella sp. (K)	*
Cymbella tumida	*
Denticula elegans	8
Diploneis elliptica	1
Eunotia curvata	1
Eunotia pectinalis var. minor	1
Eunotia perpusilla	*
Fragilaria pinnata	1
Fragilaria vaucheriae	2
Frustulia vulgaris	*
Gomphonema acuminatum	*
Gomphonema affine	*
Gomphonema angustatum	*
Gomphonema apuncto	*
Gomphonema parvulum	2
Melosira varians	10
Meridion circulare	*

* Qualitative data

** Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

<i>Navicula cryptocephala</i>	1
<i>Navicula cryptocephala</i> var. <i>veneta</i>	1
<i>Navicula decussis</i>	2
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	2
<i>Navicula minima</i>	10
<i>Navicula pelliculosa</i>	*
<i>Navicula pupula</i>	*
<i>Navicula pygmaea</i>	*
<i>Navicula radiosa</i>	1
<i>Navicula symmetrica</i>	*
<i>Navicula viridula</i> var. <i>rostellata</i>	*
<i>Neidium affine</i>	*
<i>Neidium binode</i>	*
<i>Nitzschia constricta</i>	*
<i>Nitzschia dissipata</i>	3
<i>Nitzschia fonticola</i>	3
<i>Nitzschia frustulum</i>	1
<i>Nitzschia gracilis</i>	1
<i>Nitzschia linearis</i>	3
<i>Nitzschia palea</i>	4
<i>Nitzschia paleacea</i>	2
<i>Nitzschia perminuta</i>	1
<i>Nitzschia recta</i>	2
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	4
<i>Nitzschia vermicularis</i>	1
<i>Stauroneis anceps</i>	1
<i>Surirella angustata</i>	*
<i>Surirella linearis</i> var. <i>helvetica</i>	*
<i>Synedra acus</i>	*
<i>Synedra rumpens</i>	1
<i>Synedra ulna</i>	3

 Station ID: REFWABKT Collection Date: 10/24/94

Total Number of Taxa (TNT):	70
Total Number of Individuals (TNI):	523
Diversity (H):	0.88
Percent (%) Sensitive Individuals:	39.4
Pollution Tolerance Index (PTI):	3.1
Siltation Index**:	8.0

 *Qualitative data
 **Relative abundance of *Navicula+Nitzschia+Surirella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWADEV (05036003) Stream: DEVILS FORK N.F. LICKING RIVER
 Mile Point: 0.20 Drainage Area: 17.9 square miles
 Order: 4 Ecoregion: WESTERN ALLEGHENY
 County: MORGAN Basin: LICKING
 Map Number: 13-54 Latitude: 38-02-38 Longitude: 083-18-00
 Location Description: KY 711 BRIDGE

Date Collected: 04/28/92 Comments:
 Sample ID: 19920428-12 Substrate Type: Natural
 ID By:

<i>Achnanthes clevei</i>	*
<i>Achnanthes deflexa</i>	14
<i>Achnanthes lanceolata</i>	1
<i>Achnanthes lanceolata</i> var. <i>dubia</i>	*
<i>Achnanthes minutissima</i>	235
<i>Amphipleura pellucida</i>	1
<i>Cymbella cymbiformis</i>	*
<i>Cymbella delicatula</i>	30
<i>Cymbella minuta</i>	2
<i>Cymbella naviculiformis</i>	*
<i>Cymbella silesiaca</i>	14
<i>Cymbella</i> sp. (K)	54
<i>Cymbella tumida</i>	*
<i>Diploneis elliptica</i>	*
<i>Eunotia exigua</i>	*
<i>Eunotia pectinalis</i>	*
<i>Eunotia pectinalis</i> var. <i>minor</i>	*
<i>Fragilaria vaucheriae</i>	71
<i>Frustulia rhomboides</i> var. <i>amphipleuroides</i>	*
<i>Frustulia vulgaris</i>	1
<i>Gomphonema affine</i>	*
<i>Gomphonema angustatum</i>	*
<i>Gomphonema olivaceum</i>	1
<i>Gomphonema parvulum</i>	11
<i>Gomphonema sphaerophorum</i>	*
<i>Gyrosigma scalproides</i>	*
<i>Gyrosigma spencerii</i>	*
<i>Melosira varians</i>	2
<i>Meridion circulare</i>	1
<i>Navicula cryptocephala</i>	*
<i>Navicula cryptocephala</i> var. <i>veneta</i>	5
<i>Navicula cuspidata</i>	*
<i>Navicula decussis</i>	*
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	1
<i>Navicula pelliculosa</i>	2
<i>Navicula pupula</i>	*
<i>Navicula pupula</i> var. <i>elliptica</i>	9
<i>Navicula radiosa</i>	1
<i>Navicula radiosa</i> var. <i>tenella</i>	1

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula salinarum</i> var. <i>intermedia</i>	1
<i>Navicula secreta</i> var. <i>apiculata</i>	4
<i>Navicula symmetrica</i>	*
<i>Navicula viridula</i>	*
<i>Nitzschia acicularis</i>	3
<i>Nitzschia amphibia</i>	*
<i>Nitzschia clausii</i>	*
<i>Nitzschia dissipata</i>	6
<i>Nitzschia linearis</i>	2
<i>Nitzschia palea</i>	*
<i>Nitzschia recta</i>	*
<i>Nitzschia romana</i>	2
<i>Nitzschia tryblionella</i> var. <i>victoriae</i>	*
<i>Pinnularia biceps</i>	*
<i>Pinnularia subcapitata</i> var. <i>paucistriata</i>	*
<i>Stauroneis smithii</i>	*
<i>Surirella angustata</i>	1
<i>Surirella linearis</i>	1
<i>Surirella ovata</i>	1
<i>Synedra acus</i>	5
<i>Synedra rumpens</i> var. <i>familiaris</i>	14
<i>Synedra ulna</i>	23
<i>Tabellaria flocculosa</i>	*

 Station ID: REFWADEV Collection Date: 04/28/92

Total Number of Taxa (TNT):	62
Total Number of Individuals (TNI):	520
Diversity (H):	0.90
Percent (%) Sensitive Individuals:	21.5
Pollution Tolerance Index (PTI):	2.9
Siltation Index**:	7.1

 *Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surirella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWADEV (05036003) Stream: DEVILS FORK N.F. LICKING RIVER
 Mile Point: 0.20 Drainage Area: 17.9 square miles
 Order: 4 Ecoregion: WESTERN ALLEGHENY
 County: MORGAN Basin: LICKING
 Map Number: 13-54 Latitude: 38-02-38 Longitude: 083-18-00
 Location Description: KY 711 BRIDGE

Date Collected: 10/21/92 Comments:
 Sample ID: 19921021-12 Substrate Type: Natural
 ID By:

Achnanthes deflexa	152
Achnanthes detha	*
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	*
Achnanthes minutissima	196
Achnanthes stewartii	*
Amphipleura pellucida	7
Amphora ovalis	1
Amphora submontana	*
Bacillaria paradoxa	3
Caloneis budensis	1
Cyclotella striata var. ambigua	*
Cymbella aspera	*
Cymbella cymbiformis	*
Cymbella delicatula	30
Cymbella microcephala	*
Cymbella minuta	1
Cymbella naviculiformis	*
Cymbella silesiaca	6
Cymbella sp. (K)	2
Cymbella tumida	1
Cymbella turgidula	5
Denticula elegans	*
Diploneis elliptica	8
Diploneis oblongella	*
Eunotia curvata	*
Fragilaria vaucheriae	9
Frustulia assymetrica	*
Frustulia rhomboides var. crassinervia	*
Frustulia rhomboides var. amphipleuroides	1
Gomphonema acuminatum	*
Gomphonema affine	1
Gomphonema angustatum	*
Gomphonema apuncto	*
Gomphonema gracile	*
Gomphonema parvulum	*
Gomphonema sphaerophorum	1
Gomphonema subclavatum	*
Gomphonema subclavatum var. mexicanum	*

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Melosira italica	*
Melosira varians	5
Meridion circulare	*
Navicula cryptocephala	1
Navicula decussis	5
Navicula lanceolata	*
Navicula menisculus var. upsaliensis	1
Navicula minima	11
Navicula mutica	*
Navicula pupula	*
Navicula pygmaea	*
Navicula radiosa	3
Navicula radiosa var. parva	4
Navicula radiosa var. tenella	7
Navicula rhynchocephala	*
Navicula salinarum var. intermedia	1
Navicula schroeteri var. escambia	*
Navicula secreta var. apiculata	3
Navicula viridula	*
Neidium binode	*
Nitzschia acicularis	1
Nitzschia amphibia	*
Nitzschia clausii	*
Nitzschia dissipata	11
Nitzschia filiformis	6
Nitzschia gracilis	*
Nitzschia linearis	3
Nitzschia microcephala	6
Nitzschia palea	8
Nitzschia recta	7
Nitzschia romana	3
Nitzschia sinuata var. tabellaria	*
Nitzschia tryblionella var. victoriae	*
Pinnularia biceps	*
Stauroneis phoenicenteron	*
Stauroneis smithii	2
Surirella angustata	*
Surirella linearis	2
Surirella linearis var. helvetica	*
Surirella ovata	*
Synedra acus	*
Synedra delicatissima	*
Synedra rumpens	2
Synedra rumpens var. familiaris	1
Synedra ulna	3

 Station ID: REFWADEV Collection Date: 10/21/92

Total Number of Taxa (TNT): 84
 Total Number of Individuals (TNI): 521
 Diversity (H): 0.94

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

Percent (%) Sensitive Individuals:	38.6
Pollution Tolerance Index (PTI):	3.2
Siltation Index**:	15.5

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*
06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWADEV (05036003) Stream: DEVILS FORK N.F. LICKING RIVER
 Mile Point: 0.20 Drainage Area: 17.9 square miles
 Order: 4 Ecoregion: WESTERN ALLEGHENY
 County: MORGAN Basin: LICKING
 Map Number: 13-54 Latitude: 38-02-38 Longitude: 083-18-00
 Location Description: KY 711 BRIDGE

Date Collected: 05/10/93 Comments:
 Sample ID: 19930510-12 Substrate Type: Natural
 ID By:

Achnanthes deflexa	80
Achnanthes detha	2
Achnanthes exigua	*
Achnanthes lanceolata	*
Achnanthes lapponica var. ninckeii	1
Achnanthes minutissima	226
Amphipleura pellucida	*
Amphora ovalis	*
Amphora perpusilla	1
Bacillaria paradoxa	*
Caloneis bacillum	3
Caloneis budensis	*
Cyclotella striata var. ambigua	*
Cymbella delicatula	47
Cymbella microcephala	*
Cymbella minuta	2
Cymbella naviculiformis	*
Cymbella silesiaca	30
Cymbella sp. (K)	7
Cymbella tumida	*
Denticula elegans	*
Diploneis elliptica	*
Eunotia perpusilla	*
Fragilaria vaucheriae	54
Frustulia rhomboides var. crassinervia	1
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	*
Frustulia weinholdii	*
Gomphonema affine	2
Gomphonema angustatum	*
Gomphonema apuncto	*
Gomphonema parvulum	2
Gomphonema sphaerophorum	*
Gomphonema subclavatum var. mexicanum	*
Gyrosigma scalproides	*
Hantzschia amphioxys	1
Melosira varians	*
Meridion circulare	1
Navicula cryptocephala	2

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

<i>Navicula cryptocephala</i> var. <i>veneta</i>	1
<i>Navicula decussis</i>	1
<i>Navicula lanceolata</i>	*
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	*
<i>Navicula minima</i>	9
<i>Navicula pupula</i>	*
<i>Navicula pupula</i> var. <i>capitata</i>	*
<i>Navicula pygmaea</i>	*
<i>Navicula radiosa</i>	*
<i>Navicula radiosa</i> var. <i>tenella</i>	3
<i>Navicula rhynchocephala</i>	*
<i>Navicula secreta</i> var. <i>apiculata</i>	*
<i>Navicula tripunctata</i>	1
<i>Navicula viridula</i> var. <i>rostellata</i>	*
<i>Nitzschia acicularis</i>	8
<i>Nitzschia coarctata</i>	*
<i>Nitzschia dissipata</i>	2
<i>Nitzschia filiformis</i>	1
<i>Nitzschia gracilis</i>	1
<i>Nitzschia linearis</i>	2
<i>Nitzschia microcephala</i>	*
<i>Nitzschia palea</i>	1
<i>Nitzschia tryblionella</i> var. <i>victoriae</i>	*
<i>Nitzschia vermicularis</i>	*
<i>Pinnularia biceps</i>	*
<i>Pinnularia subcapitata</i> var. <i>paucistriata</i>	1
<i>Pinnularia viridis</i>	*
<i>Rhoicosphenia curvata</i>	*
<i>Stauroneis smithii</i>	*
<i>Surirella angustata</i>	*
<i>Surirella linearis</i>	*
<i>Surirella linearis</i> var. <i>helvetica</i>	*
<i>Surirella ovata</i>	1
<i>Synedra acus</i>	*
<i>Synedra delicatissima</i>	7
<i>Synedra rumpens</i>	5
<i>Synedra rumpens</i> var. <i>familiaris</i>	4
<i>Synedra ulna</i>	7
<i>Synedra ulna</i> var. <i>oxyrhynchus</i>	1
<i>Tabellaria fenestrata</i>	*

 Station ID: REFWADEV Collection Date: 05/10/93

Total Number of Taxa (TNT):	79
Total Number of Individuals (TNI):	518
Diversity (H):	0.89
Percent (%) Sensitive Individuals:	34.2
Pollution Tolerance Index (PTI):	3.1
Siltation Index**:	6.2

 *Qualitative data

**Relative abundance of *Navicula*+*Nitzschia*+*Surirella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWADEV (05036003) Stream: DEVILS FORK N.F. LICKING RIVER
 Mile Point: 0.20 Drainage Area: 17.9 square miles
 Order: 4 Ecoregion: WESTERN ALLEGHENY
 County: MORGAN Basin: LICKING
 Map Number: 13-54 Latitude: 38-02-38 Longitude: 083-18-00
 Location Description: KY 711 BRIDGE

Date Collected: 10/26/93 Comments:
 Sample ID: 19931026-12 Substrate Type: Natural
 ID By:

Achnanthes clevei	6
Achnanthes deflexa	261
Achnanthes detha	3
Achnanthes exigua	4
Achnanthes lanceolata	*
Achnanthes lapponica var. ninckei	1
Achnanthes minutissima	143
Achnanthes stewartii	2
Amphipleura pellucida	1
Amphora ovalis	*
Amphora perpusilla	2
Amphora submontana	*
Bacillaria paradoxa	6
Caloneis bacillum	1
Cyclotella striata var. ambigua	*
Cymbella delicatula	11
Cymbella lunata	*
Cymbella minuta	2
Cymbella naviculiformis	*
Cymbella silesiaca	13
Cymbella sp. (K)	2
Cymbella tumida	*
Cymbella turgidula	1
Diploneis elliptica	2
Eunotia maior	*
Eunotia serra var. diadema	1
Fragilaria vaucheriae	14
Frustulia rhomboides var. crassinervia	5
Frustulia vulgaris	*
Gomphonema angustatum	2
Gomphonema gracile	*
Gomphonema parvulum	9
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Gomphonema subclavatum var. mexicanum	3
Gyrosigma scalproides	*
Melosira varians	*
Meridion circulare	3
Navicula cryptocephala	2

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula cryptocephala</i> var. <i>veneta</i>	15
<i>Navicula decussis</i>	*
<i>Navicula elginensis</i>	*
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	1
<i>Navicula minima</i>	21
<i>Navicula mutica</i>	*
<i>Navicula pupula</i>	1
<i>Navicula pygmaea</i>	*
<i>Navicula radiosa</i> var. <i>parva</i>	*
<i>Navicula radiosa</i> var. <i>tenella</i>	10
<i>Navicula rhynchocephala</i>	*
<i>Navicula salinarum</i> var. <i>intermedia</i>	*
<i>Navicula schroeteri</i> var. <i>escambia</i>	4
<i>Navicula secreta</i> var. <i>apiculata</i>	1
<i>Navicula tripunctata</i>	*
<i>Navicula viridula</i> var. <i>linearis</i>	*
<i>Navicula viridula</i> var. <i>rostellata</i>	*
<i>Neidium affine</i>	*
<i>Nitzschia acicularis</i>	2
<i>Nitzschia amphibia</i>	*
<i>Nitzschia clausii</i>	4
<i>Nitzschia coarctata</i>	*
<i>Nitzschia communis</i>	*
<i>Nitzschia dissipata</i>	2
<i>Nitzschia linearis</i>	*
<i>Nitzschia lorenziana</i> var. <i>subtilis</i>	1
<i>Nitzschia microcephala</i>	*
<i>Nitzschia palea</i>	6
<i>Nitzschia recta</i>	1
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	*
<i>Nitzschia</i> sp.1	*
<i>Nitzschia tryblionella</i> var. <i>victoriae</i>	*
<i>Nitzschia vermicularis</i>	2
<i>Pinnularia borealis</i> var. <i>rectangularis</i>	*
<i>Pinnularia subcapitata</i> var. <i>paucistriata</i>	1
<i>Pinnularia viridis</i>	*
<i>Stauroneis smithii</i>	4
<i>Surirella angustata</i>	*
<i>Surirella linearis</i>	2
<i>Surirella ovata</i>	1
<i>Synedra rumpens</i> var. <i>familiaris</i>	4
<i>Synedra ulna</i>	4

 Station ID: REFWADEV Collection Date: 10/26/93

Total Number of Taxa (TNT):	81
Total Number of Individuals (TNI):	587
Diversity (H):	0.92
Percent (%) Sensitive Individuals:	52.6
Pollution Tolerance Index (PTI):	3.2
Siltation Index**:	12.4

* Qualitative data

** Relative abundance of *Navicula*+*Nitzschia*+*Surirella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWADEV (05036003) Stream: DEVILS FORK N.F. LICKING RIVER
 Mile Point: 0.20 Drainage Area: 17.9 square miles
 Order: 4 Ecoregion: WESTERN ALLEGHENY
 County: MORGAN Basin: LICKING
 Map Number: 13-54 Latitude: 38-02-38 Longitude: 083-18-00
 Location Description: KY 711 BRIDGE

Date Collected: 06/21/94 Comments:
 Sample ID: 19940621-12 Substrate Type: Natural
 ID By:

Achnanthes deflexa	177
Achnanthes detha	*
Achnanthes lanceolata	*
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	142
Achnanthes stewartii	1
Amphipleura pellucida	*
Amphora ovalis	*
Amphora perpusilla	*
Cocconeis placentula	*
Cyclotella stelligera	*
Cyclotella striata var. ambigua	*
Cymbella aspera	1
Cymbella cymbiformis	*
Cymbella delicatula	177
Cymbella minuta	2
Cymbella naviculiformis	*
Cymbella silesiaca	5
Cymbella sp. (K)	*
Cymbella tumida	1
Cymbella turgidula	2
Denticula elegans	*
Diploneis elliptica	*
Diploneis puella	*
Eunotia maior	2
Eunotia pectinalis var. minor	*
Fragilaria vaucheriae	4
Frustulia rhomboides var. crassinervia	*
Frustulia rhomboides var. amphipleuroides	*
Gomphonema acuminatum	*
Gomphonema angustatum	1
Gomphonema apuncto	*
Gomphonema parvulum	*
Gomphonema sparsistriatum f. maculatum	*
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Melosira varians	1
Meridion circulare	*
Navicula cryptocephala	*

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula cryptocephala var. veneta	1
Navicula decussis	*
Navicula lanceolata	*
Navicula menisculus var. upsaliensis	1
Navicula minima	2
Navicula pelliculosa	*
Navicula pupula	*
Navicula radiosa	*
Navicula radiosa var. tenella	*
Navicula rhynchocephala	*
Navicula secreta var. apiculata	*
Navicula viridula var. rostellata	*
Nitzschia acicularis	*
Nitzschia dissipata	*
Nitzschia gracilis	*
Nitzschia linearis	*
Nitzschia palea	*
Pinnularia biceps	*
Rhoicosphenia curvata	*
Stauroneis anceps	*
Surirella angustata	*
Surirella ovata	1
Synedra acus	*
Synedra delicatissima	6
Synedra rumpens	*
Synedra rumpens var. familiaris	*
Synedra ulna	*
Synedra ulna var. oxyrhynchus	2
Tabellaria flocculosa	*

 Station ID: REFWADEV Collection Date: 06/21/94

Total Number of Taxa (TNT):	68
Total Number of Individuals (TNI):	529
Diversity (H):	0.62
Percent (%) Sensitive Individuals:	69.9
Pollution Tolerance Index (PTI):	3.7
Siltation Index**:	0.8

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

Site ID: REFWADEV (05036003)	Stream: DEVILS FORK N.F. LICKING RIVER
Mile Point: 0.20	Drainage Area: 17.9 square miles
Order: 4	Ecoregion: WESTERN ALLEGHENY
County: MORGAN	Basin: LICKING
Map Number: 13-54	Latitude: 38-02-38 Longitude: 083-18-00
Location Description: KY 711 BRIDGE	

Date Collected: 10/24/94	Comments:
Sample ID: 19941024-12	Substrate Type: Natural
ID By:	

Achnanthes clevei	1
Achnanthes deflexa	91
Achnanthes detha	*
Achnanthes exigua	*
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	126
Achnanthes stewartii	*
Amphipleura pellucida	4
Amphora ovalis	*
Amphora perpusilla	1
Amphora submontana	*
Anomoeoneis vitrea	31
Bacillaria paradoxa	4
Caloneis bacillum	2
Caloneis budensis	1
Cyclotella striata var. ambigua	2
Cymbella aspera	*
Cymbella delicatula	10
Cymbella lunata	*
Cymbella microcephala	2
Cymbella minuta	10
Cymbella naviculiformis	*
Cymbella prostrata var. auerswaldii	*
Cymbella silesiaca	10
Cymbella sp. (K)	*
Cymbella tumida	*
Cymbella turgidula	1
Denticula elegans	3
Diploneis elliptica	10
Diploneis oblongella	*
Entomoneis ornata	*
Eunotia curvata	*
Eunotia maior	2
Eunotia pectinalis var. minor	1
Eunotia perpusilla	*
Fragilaria vaucheriae	7
Frustulia rhomboides var. crassinervia	3
Frustulia rhomboides var. amphipleuroides	2
Frustulia vulgaris	1

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Frustulia weinholdii</i>	1
<i>Gomphonema acuminatum</i>	*
<i>Gomphonema angustatum</i>	*
<i>Gomphonema apuncto</i>	*
<i>Gomphonema gracile</i>	1
<i>Gomphonema parvulum</i>	3
<i>Gomphonema sphaerophorum</i>	1
<i>Gomphonema subclavatum</i>	*
<i>Gomphonema truncatum</i>	*
<i>Gyrosigma scalproides</i>	1
<i>Gyrosigma spencerii</i>	1
<i>Melosira varians</i>	*
<i>Meridion circulare</i>	1
<i>Navicula cryptocephala</i>	4
<i>Navicula cryptocephala</i> var. <i>veneta</i>	21
<i>Navicula decussis</i>	19
<i>Navicula hustedtii</i>	*
<i>Navicula lanceolata</i>	3
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	1
<i>Navicula minima</i>	24
<i>Navicula pelliculosa</i>	1
<i>Navicula pupula</i>	1
<i>Navicula pygmaea</i>	*
<i>Navicula radiosa</i>	*
<i>Navicula radiosa</i> var. <i>tenella</i>	10
<i>Navicula rhynchocephala</i>	*
<i>Navicula schroeteri</i> var. <i>escambia</i>	1
<i>Navicula secreta</i> var. <i>apiculata</i>	*
<i>Navicula symmetrica</i>	4
<i>Navicula tenera</i>	*
<i>Navicula viridula</i>	9
<i>Neidium dubium</i>	*
<i>Nitzschia acicularis</i>	3
<i>Nitzschia amphibia</i>	1
<i>Nitzschia angustata</i> var. <i>acuta</i>	1
<i>Nitzschia clausii</i>	1
<i>Nitzschia coarctata</i>	5
<i>Nitzschia communis</i>	1
<i>Nitzschia dissipata</i>	14
<i>Nitzschia frustulum</i>	4
<i>Nitzschia gracilis</i>	7
<i>Nitzschia linearis</i>	1
<i>Nitzschia lorenziana</i> var. <i>subtilis</i>	*
<i>Nitzschia palea</i>	34
<i>Nitzschia paleacea</i>	2
<i>Nitzschia recta</i>	*
<i>Nitzschia sigmoidea</i>	2
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	7
<i>Nitzschia</i> sp.1	*
<i>Nitzschia tryblionella</i> var. <i>victoriae</i>	1
<i>Nitzschia vermicularis</i>	*

 *Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

Pinnularia biceps	*
Pinnularia viridis	2
Plagiotropis lepidoptera v. proboscidea	*
Rhoicosphenia curvata	*
Stauroneis phoenicenteron	1
Stauroneis smithii	6
Surirella angustata	*
Surirella linearis	3
Surirella ovata	*
Synedra acus	*
Synedra delicatissima	2
Synedra ulna	6
Synedra ulna var. oxyrhynchus	*

Station ID: REFWADEV Collection Date: 10/24/94

Total Number of Taxa (TNT):	103
Total Number of Individuals (TNI):	536
Diversity (H):	1.32
Percent (%) Sensitive Individuals:	23.7
Pollution Tolerance Index (PTI):	2.7
Siltation Index**:	34.0

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWAHLC (02023002) Stream: HORSE LICK CREEK
 Mile Point: 1.90 Drainage Area: 56.2 square miles
 Order: 4 Ecoregion: WESTERN ALLEGHENY
 County: JACKSON Basin: UPPER CUMBERLAND
 Map Number: 07-47 Latitude: 37-20-03 Longitude: 084-08-10
 Location Description: HORSE LICK CREEK ROAD AT FIRST FORD

Date Collected: 10/09/92 Comments:
 Sample ID: 19921009-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	2
Achnanthes deflexa	297
Achnanthes detha	*
Achnanthes exigua	*
Achnanthes lanceolata var. dubia	1
Achnanthes minutissima	83
Amphipleura pellucida	3
Amphora ovalis	*
Amphora perpusilla	4
Amphora submontana	*
Anomoeoneis serians var. brachysira	*
Caloneis budensis	*
Caloneis ventricosa var. truncatula	*
Cocconeis pediculus	7
Cocconeis placentula	5
Cocconeis placentula var. euglypta	4
Cymatopleura solea	*
Cymbella affinis	5
Cymbella aspera	1
Cymbella cymbiformis	*
Cymbella delicatula	15
Cymbella microcephala	*
Cymbella minuta	2
Cymbella prostrata	1
Cymbella prostrata var. auerswaldii	*
Cymbella silesiaca	*
Cymbella sinuata	*
Cymbella sp. (K)	*
Cymbella tumida	1
Denticula elegans	1
Diatoma vulgare	*
Diploneis elliptica	1
Diploneis oblongella	*
Epithemia adnata	*
Eunotia exigua	*
Eunotia incisa	*
Eunotia maior	1
Eunotia perpusilla	*
Fragilaria vaucheriae	2

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Frustulia rhomboides var. amphipleuroides	6	
Frustulia vulgaris		*
Gomphonema acuminatum		*
Gomphonema affine		*
Gomphonema angustatum	2	
Gomphonema apuncto	5	
Gomphonema brasiliense		*
Gomphonema olivaceum	2	
Gomphonema parvulum		*
Gomphonema sphaerophorum		*
Gomphonema subclavatum var. mexicanum		*
Gyrosigma attenuatum		*
Gyrosigma nodiferum		*
Gyrosigma scalproides	1	
Gyrosigma spencerii		*
Melosira varians	2	
Meridion circulare		*
Navicula capitata		*
Navicula cryptocephala	3	
Navicula cryptocephala var. veneta	1	
Navicula decussis		*
Navicula menisculus var. upsaliensis		*
Navicula minima	5	
Navicula pupula	1	
Navicula radiosa	4	
Navicula radiosa var. parva	7	
Navicula radiosa var. tenella	7	
Navicula salinarum var. intermedia	7	
Navicula schroeteri var. escambia		*
Navicula tripunctata	2	
Navicula viridula	1	
Navicula viridula var. linearis		*
Neidium affine		*
Neidium binode		*
Neidium dubium		*
Nitzschia acicularis	4	
Nitzschia amphibia		*
Nitzschia angustata var. acuta		*
Nitzschia dissipata	10	
Nitzschia filiformis	5	
Nitzschia gracilis	1	
Nitzschia linearis	5	
Nitzschia microcephala	1	
Nitzschia palea	4	
Nitzschia recta	8	
Nitzschia romana	1	
Nitzschia sinuata var. tabellaria		*
Nitzschia vermicularis		*
Rhoicosphenia curvata		*
Stauroneis smithii		*
Stephanodiscus hantzschii		*

 *Qualitative data

**Relative abundance of *Navicula*+*Nitzschia*+*Surriella*

06/25/96

DIATOM COLLECTION DATA

Surirella angustata	*
Surirella linearis	1
Surirella ovata	1
Surirella ovata var. pinnata	*
Synedra acus	4
Synedra delicatissima	3
Synedra parasitica	*
Synedra rumpens var. familiaris	1
Synedra ulna	1

 Station ID: REFWAHLC Collection Date: 10/09/92

Total Number of Taxa (TNT):	99
Total Number of Individuals (TNI):	542
Diversity (H):	0.89
Percent (%) Sensitive Individuals:	60.0
Pollution Tolerance Index (PTI):	3.4
Siltation Index **:	14.2

 * Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWAHLC (02023002) Stream: HORSE LICK CREEK
 Mile Point: 1.90 Drainage Area: 56.2 square miles
 Order: 4 Ecoregion: WESTERN ALLEGHENY
 County: JACKSON Basin: UPPER CUMBERLAND
 Map Number: 07-47 Latitude: 37-20-03 Longitude: 084-08-10
 Location Description: HORSE LICK CREEK ROAD AT FIRST FORD

Date Collected: 07/06/93 Comments:
 Sample ID: 19930706-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	1
Achnanthes deflexa	140
Achnanthes detha	1
Achnanthes exigua	*
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	3
Achnanthes minutissima	168
Achnanthes stewartii	*
Amphipleura pellucida	4
Amphora perpusilla	1
Caloneis bacillum	1
Caloneis ventricosa var. truncatula	*
Cocconeis pediculus	5
Cocconeis placentula	2
Cocconeis placentula var. euglypta	*
Cyclotella striata var. ambigua	*
Cymbella affinis	14
Cymbella aspera	*
Cymbella cymbiformis	*
Cymbella delicatula	26
Cymbella microcephala	1
Cymbella minuta	1
Cymbella naviculiformis	*
Cymbella prostrata	*
Cymbella prostrata var. auerswaldii	1
Cymbella silesiaca	2
Cymbella sinuata	2
Cymbella sp. (K)	*
Cymbella triangulum	*
Cymbella turgidula	1
Denticula elegans	*
Diatoma vulgare	1
Diploneis elliptica	1
Eunotia maior	*
Eunotia pectinalis var. minor	1
Fragilaria vaucheriae	21
Frustulia rhomboides var. crassinervia	*
Frustulia rhomboides var. amphipleuroides	3
Frustulia weinholdii	*

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Gomphonema affine	1
Gomphonema apuncto	37
Gomphonema olivaceum	1
Gomphonema parvulum	*
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Gyrosigma spencerii	*
Melosira varians	32
Navicula capitata	*
Navicula cryptocephala	3
Navicula cryptocephala var. veneta	6
Navicula decussis	*
Navicula menisculus var. upsaliensis	2
Navicula minima	10
Navicula radiosa	1
Navicula radiosa var. tenella	1
Navicula salinarum var. intermedia	6
Navicula viridula	*
Nitzschia acicularis	1
Nitzschia amphibia	*
Nitzschia angustata var. acuta	2
Nitzschia communis	*
Nitzschia dissipata	8
Nitzschia filiformis	*
Nitzschia gracilis	1
Nitzschia linearis	3
Nitzschia palea	13
Nitzschia recta	2
Nitzschia sigmoidea	*
Nitzschia sinuata var. tabellaria	*
Nitzschia vermicularis	8
Rhoicosphenia curvata	*
Stauroneis smithii	1
Surirella angustata	*
Surirella linearis	*
Surirella ovata	3
Synedra acus	*
Synedra pulchella	*
Synedra rumpens var. familiaris	3
Synedra ulna	*
Synedra ulna var. oxyrhynchus	6

 Station ID: REFWAHL Collection Date: 07/06/93

Total Number of Taxa (TNT):	80
Total Number of Individuals (TNI):	552
Diversity (H):	1.05
Percent (%) Sensitive Individuals:	34.2
Pollution Tolerance Index (PTI):	3.0
Siltation Index**:	12.1

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWAHLC (02023002) Stream: HORSE LICK CREEK
 Mile Point: 1.90 Drainage Area: 56.2 square miles
 Order: 4 Ecoregion: WESTERN ALLEGHENY
 County: JACKSON Basin: UPPER CUMBERLAND
 Map Number: 07-47 Latitude: 37-20-03 Longitude: 084-08-10
 Location Description: HORSE LICK CREEK ROAD AT FIRST FORD

Date Collected: 11/10/93 Comments:
 Sample ID: 19931110-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	92
Achnanthes exigua	*
Achnanthes lanceolata	*
Achnanthes minutissima	262
Achnanthes pinnata	*
Amphipleura pellucida	6
Amphora perpusilla	*
Amphora submontana	1
Cocconeis pediculus	*
Cocconeis placentula var. lineata	*
Cymbella affinis	44
Cymbella cymbiformis	*
Cymbella delicatula	46
Cymbella microcephala	2
Cymbella minuta	1
Cymbella prostrata	1
Cymbella prostrata var. auerswaldii	2
Cymbella silesiaca	3
Cymbella sp. (K)	4
Cymbella triangulum	*
Cymbella tumida	1
Cymbella turgidula	*
Denticula elegans	*
Diatoma vulgare	*
Diploneis elliptica	1
Diploneis oblongella	*
Fragilaria vaucheriae	26
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	*
Gomphonema angustatum	1
Gomphonema apuncto	*
Gomphonema olivaceum	*
Gomphonema parvulum	9
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Gomphonema subclavatum var. mexicanum	*
Gyrosigma scalpoides	*
Gyrosigma spencerii	*
Melosira varians	9

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Meridion circulare	*
Navicula capitata	*
Navicula cryptocephala	*
Navicula cryptocephala var. veneta	*
Navicula menisculus var. upsaliensis	*
Navicula minima	2
Navicula pelliculosa	*
Navicula pelliculosa	*
Navicula radiosa	1
Navicula radiosa var. tenella	1
Navicula salinarum var. intermedia	*
Navicula secreta var. apiculata	1
Navicula symmetrica	2
Navicula tripunctata	*
Navicula viridula	*
Navicula viridula var. rostellata	*
Neidium affine	*
Nitzschia acicularis	1
Nitzschia amphibia	*
Nitzschia clausii	1
Nitzschia communis	2
Nitzschia dissipata	20
Nitzschia fonticola	1
Nitzschia gracilis	*
Nitzschia linearis	*
Nitzschia palea	3
Nitzschia recta	2
Nitzschia vermicularis	*
Pinnularia viridis	*
Surirella ovata	*
Surirella ovata var. pinnata	*
Synedra acus	7
Synedra delicatissima	2
Synedra rumpens	2
Synedra rumpens var. familiaris	3
Synedra ulna	10
Synedra ulna var. oxyrhynchus	*
Synedra ulna var. ramesi	*

 Station ID: REFVAHLC Collection Date: 11/10/93

Total Number of Taxa (TNT):	77
Total Number of Individuals (TNI):	572
Diversity (H):	0.88
Percent (%) Sensitive Individuals:	34.8
Pollution Tolerance Index (PTI):	3.2
Siltation Index**:	6.5

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWALAC (06013017) Stream: LAUREL CREEK
 Mile Point: 7.60 Drainage Area: 14.6 square miles
 Order: 4 Ecoregion: WESTERN ALLEGHENY
 County: ELLIOTT Basin: LITTLE SANDY
 Map Number: 14-55 Latitude: 38-07-43 Longitude: 083-11-25
 Location Description: CARTER SCHOOL ROAD BRIDGE

Date Collected: 04/30/92 Comments:
 Sample ID: 19920430-11 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	115
Achnanthes detha	2
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	1
Achnanthes lapponica var. ninckei	2
Achnanthes minutissima	109
Amphipleura pellucida	2
Amphora ovalis	*
Amphora perpusilla	1
Caloneis budensis	*
Caloneis ventricosa	*
Caloneis ventricosa var. truncatula	*
Cocconeis pediculus	*
Cocconeis placentula	*
Cyclotella stelligera	*
Cymatopleura solea	1
Cymbella cistula	2
Cymbella cymbiformis	36
Cymbella delicatula	80
Cymbella microcephala	2
Cymbella minuta	3
Cymbella naviculiformis	*
Cymbella prostrata var. auerswaldii	1
Cymbella silesiaca	6
Cymbella sinuata	3
Cymbella sp. (K)	45
Cymbella tumida	*
Cymbella turgidula	1
Denticula elegans	*
Eunotia curvata	*
Fragilaria vaucheriae	46
Frustulia rhomboides var. amphipleuroides	1
Frustulia vulgaris	1
Gomphonema acuminatum	*
Gomphonema angustatum	*
Gomphonema olivaceum	2
Gomphonema parvulum	4
Gomphonema sphaerophorum	*

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Gomphonema subclavatum	*
Gomphonema truncatum	*
Hantzschia amphioxys	*
Melosira varians	1
Meridion circulare	1
Navicula bacillum	*
Navicula cryptocephala	3
Navicula cryptocephala var. veneta	1
Navicula decussis	3
Navicula lanceolata	*
Navicula menisculus var. upsaliensis	2
Navicula minima	3
Navicula pupula	*
Navicula pupula var. rectangularis	*
Navicula radiosa	1
Navicula radiosa var. parva	1
Navicula radiosa var. tenella	*
Navicula salinarum var. intermedia	2
Navicula secreta var. apiculata	2
Navicula tripunctata	*
Navicula viridula	*
Neidium affine var. longiceps	*
Neidium binode	*
Neidium dubium	*
Nitzschia acicularis	9
Nitzschia clausii	*
Nitzschia dissipata	7
Nitzschia filiformis	9
Nitzschia gracilis	3
Nitzschia linearis	10
Nitzschia microcephala	2
Nitzschia palea	1
Nitzschia recta	8
Nitzschia romana	1
Rhoicosphenia curvata	*
Stauroneis anceps	*
Stauroneis smithii	*
Surirella angustata	*
Surirella linearis	*
Surirella ovata	*
Synedra acus	4
Synedra parasitica	*
Synedra pulchella	*
Synedra rumpens var. familiaris	5
Synedra ulna	1

 Station ID: REFWALAC Collection Date: 04/30/92

Total Number of Taxa (TNT): 84
 Total Number of Individuals (TNI): 546
 Diversity (H): 1.11

* Qualitative data
 ** Relative abundance of *Navicula+Nitzschia+Surirella*
 06/25/96

DIATOM COLLECTION DATA

Percent (%) Sensitive Individuals:	53.3
Pollution Tolerance Index (PTI):	3.3
Siltation Index**:	12.5

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*
06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWALAC (06013017) Stream: LAUREL CREEK
 Mile Point: 7.60 Drainage Area: 14.6 square miles
 Order: 4 Ecoregion: WESTERN ALLEGHENY
 County: ELLIOTT Basin: LITTLE SANDY
 Map Number: 14-55 Latitude: 38-07-43 Longitude: 083-11-25
 Location Description: CARTER SCHOOL ROAD BRIDGE

Date Collected: 10/22/92 Comments:
 Sample ID: 19921022-11 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	101
Achnanthes detha	3
Achnanthes lanceolata var. dubia	7
Achnanthes minutissima	201
Amphipleura pellucida	10
Amphora ovalis	*
Amphora perpusilla	3
Caloneis bacillum	2
Caloneis ventricosa var. truncatula	*
Cocconeis placentula var. lineata	5
Cyclotella striata var. ambigua	1
Cymatopleura solea	*
Cymbella affinis	4
Cymbella aspera	2
Cymbella cymbiformis	2
Cymbella delicatula	13
Cymbella microcephala	1
Cymbella minuta	2
Cymbella naviculiformis	*
Cymbella prostrata	1
Cymbella prostrata var. auerswaldii	*
Cymbella silesiaca	3
Cymbella sinuata	*
Cymbella sp. (K)	4
Cymbella tumida	1
Denticula elegans	12
Diploneis elliptica	2
Fragilaria vaucheriae	1
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	*
Gomphonema angustatum	*
Gomphonema apuncto	*
Gomphonema parvulum	2
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Gomphonema subclavatum var. mexicanum	*
Gyrosigma scalproides	*
Gyrosigma spencerii	*

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Melosira varians	13
Meridion circulare	1
Navicula bacillum	*
Navicula capitata	*
Navicula cryptocephala	*
Navicula cryptocephala var. veneta	6
Navicula decussis	2
Navicula elginensis var. neglecta	*
Navicula lanceolata	5
Navicula menisculus var. upsaliensis	1
Navicula minima	7
Navicula pelliculosa	*
Navicula pupula var. elliptica	2
Navicula pygmaea	*
Navicula radiosa	2
Navicula radiosa var. parva	3
Navicula radiosa var. tenella	5
Navicula salinarum var. intermedia	2
Navicula secreta var. apiculata	3
Navicula symmetrica	2
Navicula tripunctata	1
Navicula viridula	1
Navicula viridula var. linearis	2
Neidium binode	1
Neidium dubium	*
Nitzschia acicularis	2
Nitzschia clausii	*
Nitzschia constricta	3
Nitzschia dissipata	18
Nitzschia filiformis	20
Nitzschia gracilis	*
Nitzschia linearis	17
Nitzschia microcephala	6
Nitzschia palea	12
Nitzschia recta	7
Nitzschia romana	3
Nitzschia sinuata var. tabellaria	1
Nitzschia tryblionella var. victoriae	*
Pinnularia borealis	1
Pinnularia subcapitata var. paucistriata	*
Plagiotropis lepidoptera v. proboscidea	*
Rhoicosphenia curvata	*
Stauroneis phoenicenteron	*
Surirella angustata	1
Surirella linearis	1
Surirella ovata	*
Synedra acus	*
Synedra parasitica	2
Synedra rumpens	1
Synedra rumpens var. familiaris	3
Synedra ulna	1

* Qualitative data

** Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

Station ID: REFWALAC Collection Date: 10/22/92

Total Number of Taxa (TNT):	90
Total Number of Individuals (TNI):	541
Diversity (H):	1.14
Percent (%) Sensitive Individuals:	25.0
Pollution Tolerance Index (PTI):	2.9
Siltation Index**:	24.6

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWALAC (06013017) Stream: LAUREL CREEK
 Mile Point: 7.60 Drainage Area: 14.6 square miles
 Order: 4 Ecoregion: WESTERN ALLEGHENY
 County: ELLIOTT Basin: LITTLE SANDY
 Map Number: 14-55 Latitude: 38-07-43 Longitude: 083-11-25
 Location Description: CARTER SCHOOL ROAD BRIDGE

Date Collected: 06/29/93 Comments:
 Sample ID: 19930629-11 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	168
Achnanthes detha	3
Achnanthes lanceolata	3
Achnanthes lanceolata var. dubia	*
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	157
Amphipleura pellucida	*
Amphora ovalis	1
Amphora perpusilla	1
Caloneis ventricosa	*
Caloneis ventricosa var. truncatula	*
Cocconeis pediculus	*
Cocconeis placentula	3
Cyclotella striata var. ambigua	*
Cymbella cistula	4
Cymbella cymbiformis	8
Cymbella delicatula	129
Cymbella microcephala	2
Cymbella minuta	19
Cymbella prostrata	*
Cymbella silesiaca	14
Cymbella sinuata	2
Cymbella sp. (K)	3
Cymbella tumida	1
Cymbella turgidula	1
Denticula elegans	2
Eunotia pectinalis var. minor	*
Eunotia perpusilla	*
Fragilaria vaucheriae	17
Frustulia rhomboides var. crassinervia	*
Frustulia rhomboides var. amphipleuroides	*
Gomphonema angustatum	*
Gomphonema parvulum	3
Gomphonema sphaerophorum	*
Gomphonema subclavatum	1
Gyrosigma scalproides	*
Melosira varians	5
Meridion circulare	*

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula bacillum	*
Navicula cryptocephala	9
Navicula cryptocephala var. veneta	2
Navicula decussis	2
Navicula elginensis	1
Navicula lanceolata	1
Navicula menisculus var. upsaliensis	1
Navicula minima	4
Navicula pupula	*
Navicula pupula var. rectangularis	*
Navicula pygmaea	*
Navicula radiosa	*
Navicula radiosa var. parva	1
Navicula radiosa var. tenella	*
Navicula salinarum var. intermedia	1
Navicula secreta var. apiculata	3
Navicula viridula	*
Neidium dubium	*
Nitzschia acicularis	3
Nitzschia amphibia	*
Nitzschia communis	*
Nitzschia dissipata	5
Nitzschia filiformis	*
Nitzschia frustulum	2
Nitzschia gracilis	3
Nitzschia linearis	5
Nitzschia palea	4
Nitzschia recta	3
Nitzschia vermicularis	13
Pinnularia subcapitata var. paucistriata	1
Pinnularia viridis	*
Stauroneis anceps	*
Surirella angustata	1
Surirella linearis	*
Surirella ovata	*
Synedra rumpens var. familiaris	*
Synedra ulna	1

 Station ID: REFWALAC Collection Date: 06/29/93

Total Number of Taxa (TNT):	76
Total Number of Individuals (TNI):	613
Diversity (H):	0.97
Percent (%) Sensitive Individuals:	54.2
Pollution Tolerance Index (PTI):	3.3
Siltation Index**:	10.3

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFVALAC (06013017) Stream: LAUREL CREEK
 Mile Point: 7.60 Drainage Area: 14.6 square miles
 Order: 4 Ecoregion: WESTERN ALLEGHENY
 County: ELLIOTT Basin: LITTLE SANDY
 Map Number: 14-55 Latitude: 38-07-43 Longitude: 083-11-25
 Location Description: CARTER SCHOOL ROAD BRIDGE

Date Collected: 10/27/93 Comments:
 Sample ID: 19931027-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	144
Achnanthes detha	1
Achnanthes lanceolata	1
Achnanthes lanceolata var. dubia	2
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	123
Amphipleura pellucida	5
Amphora ovalis	2
Amphora perpusilla	1
Caloneis bacillum	1
Caloneis ventricosa var. truncatula	1
Cocconeis pediculus	*
Cocconeis placentula	*
Cyclotella striata var. ambigua	1
Cymatopleura solea	*
Cymbella affinis	1
Cymbella delicatula	31
Cymbella lunata	2
Cymbella microcephala	1
Cymbella minuta	2
Cymbella naviculiformis	1
Cymbella prostrata	*
Cymbella silesiaca	10
Cymbella sinuata	*
Cymbella sp. (K)	4
Cymbella tumida	1
Cymbella turgidula	*
Denticula elegans	2
Diploneis elliptica	7
Eunotia curvata	1
Eunotia pectinalis var. minor	1
Eunotia perpusilla	*
Fragilaria vaucheriae	2
Frustulia rhomboides var. crassinervia	1
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	*
Gomphonema angustatum	1
Gomphonema parvulum	1
Gomphonema sphaerophorum	*

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Gomphonema subclavatum	*
Gyrosigma scalpoides	1
Gyrosigma spencerii	*
Hantzschia amphioxys	2
Melosira varians	*
Meridion circulare	*
Navicula angusta	2
Navicula cryptocephala	7
Navicula cryptocephala var. veneta	49
Navicula decussis	*
Navicula elginensis	*
Navicula lanceolata	*
Navicula menisculus var. upsaliensis	12
Navicula minima	27
Navicula mutica	*
Navicula pelliculosa	*
Navicula pupula	*
Navicula pupula var. capitata	*
Navicula radiosa	2
Navicula radiosa var. tenella	5
Navicula rhynchocephala	*
Navicula salinarum var. intermedia	3
Navicula schroeteri var. escambia	3
Navicula secreta var. apiculata	1
Navicula viridula	*
Neidium affine	*
Nitzschia acicularis	*
Nitzschia amphibia	15
Nitzschia angustata var. acuta	*
Nitzschia coarctata	*
Nitzschia constricta	1
Nitzschia dissipata	18
Nitzschia filiformis	9
Nitzschia linearis	1
Nitzschia palea	6
Nitzschia recta	*
Nitzschia sinuata var. tabellaria	*
Nitzschia tryblionella var. victoriae	1
Pinnularia subcapitata var. paucistriata	*
Pinnularia viridis	*
Stauroneis smithii	1
Surirella angustata	*
Surirella linearis	*
Surirella ovata	2
Synedra ulna	3

 Station ID: REFWALAC Collection Date: 10/27/93

Total Number of Taxa (TNT): 84
 Total Number of Individuals (TNI): 522
 Diversity (H): 1.10

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

Percent (%) Sensitive Individuals:	37.7
Pollution Tolerance Index (PTI):	2.9
Siltation Index**:	31.0

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*
06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWALAC (06013017) Stream: LAUREL CREEK
 Mile Point: 7.60 Drainage Area: 14.6 square miles
 Order: 4 Ecoregion: WESTERN ALLEGHENY
 County: ELLIOTT Basin: LITTLE SANDY
 Map Number: 14-55 Latitude: 38-07-43 Longitude: 083-11-25
 Location Description: CARTER SCHOOL ROAD BRIDGE

Date Collected: 06/17/94 Comments:
 Sample ID: 19940617-11 Substrate Type: Natural
 ID By:

Achnanthes clevei		*
Achnanthes deflexa	196	
Achnanthes detha		*
Achnanthes lanceolata		*
Achnanthes lanceolata var. dubia		*
Achnanthes lapponica var. ninckei		*
Achnanthes minutissima	115	
Achnanthes stewartii		*
Amphipleura pellucida		*
Amphora perpusilla		*
Caloneis bacillum	1	
Caloneis budensis	1	
Caloneis ventricosa var. truncatula		*
Cocconeis pediculus	35	
Cocconeis placentula		*
Cocconeis placentula var. euglypta		*
Cyclotella meneghiniana		*
Cyclotella striata var. ambigua		*
Cymbella aspera		*
Cymbella cymbiformis		*
Cymbella delicatula	35	
Cymbella microcephala	1	
Cymbella minuta	11	
Cymbella naviculiformis		*
Cymbella prostrata	1	
Cymbella prostrata var. auerswaldii	2	
Cymbella silesiaca	9	
Cymbella sinuata	2	
Cymbella sp. (K)	2	
Cymbella tumida	1	
Cymbella turgidula		*
Denticula elegans	4	
Diploneis elliptica		*
Eunotia exigua		*
Eunotia perpusilla		*
Fragilaria vaucheriae	5	
Frustulia rhomboides var. amphipleuroides		*
Frustulia vulgaris		*
Gomphonema acuminatum		*

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Gomphonema affine	*
Gomphonema angustatum	*
Gomphonema parvulum	1
Gomphonema sphaerophorum	1
Gomphonema subclavatum	*
Gomphonema subclavatum var. mexicanum	*
Gomphonema truncatum	*
Hantzschia amphioxys	8
Melosira varians	1
Meridion circulare	*
Navicula capitata	3
Navicula cryptocephala	3
Navicula cryptocephala var. veneta	1
Navicula decussis	3
Navicula menisculus var. upsaliensis	11
Navicula minima	2
Navicula notha	*
Navicula pelliculosa	*
Navicula pupula var. capitata	*
Navicula radiosa	4
Navicula radiosa var. tenella	*
Navicula salinarum var. intermedia	2
Navicula secreta var. apiculata	*
Navicula viridula var. rostellata	5
Nitzschia acicularis	*
Nitzschia amphibia	*
Nitzschia clausii	7
Nitzschia dissipata	2
Nitzschia frustulum	8
Nitzschia gracilis	5
Nitzschia linearis	8
Nitzschia palea	3
Nitzschia paleacea	6
Nitzschia recta	*
Nitzschia sinuata var. tabellaria	*
Nitzschia vermicularis	1
Pinnularia viridis	*
Stauroneis anceps	*
Stauroneis smithii	*
Surirella angustata	1
Surirella linearis	3
Surirella ovata	2
Synedra pulchella	*
Synedra rumpens var. familiaris	*
Synedra ulna	*
Synedra ulna var. oxyrhynchus	*

 Station ID: REFWALAC Collection Date: 06/17/94

Total Number of Taxa (TNT): 85
 Total Number of Individuals (TNI): 512

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

Diversity (H):	0.98
Percent (%) Sensitive Individuals:	48.8
Pollution Tolerance Index (PTI):	3.3
Siltation Index**:	14.3

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*
06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWALAC (06013017) Stream: LAUREL CREEK
 Mile Point: 7.60 Drainage Area: 14.6 square miles
 Order: 4 Ecoregion: WESTERN ALLEGHENY
 County: ELLIOTT Basin: LITTLE SANDY
 Map Number: 14-55 Latitude: 38-07-43 Longitude: 083-11-25
 Location Description: CARTER SCHOOL ROAD BRIDGE

Date Collected: 10/28/94 Comments:
 Sample ID: 19941028-11 Substrate Type: Natural
 ID By:

Achnanthes clevei	2
Achnanthes deflexa	60
Achnanthes detha	1
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	20
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	162
Amphipleura pellucida	10
Amphora ovalis	2
Amphora perpusilla	4
Amphora submontana	2
Caloneis bacillum	1
Caloneis budensis	1
Caloneis ventricosa var. truncatula	*
Cocconeis pediculus	*
Cocconeis placentula	2
Cocconeis placentula var. euglypta	1
Cyclotella meneghiniana	3
Cyclotella striata var. ambigua	1
Cymatopleura solea	*
Cymbella aspera	1
Cymbella cymbiformis	*
Cymbella delicatula	3
Cymbella microcephala	4
Cymbella minuta	1
Cymbella prostrata	*
Cymbella silesiaca	6
Cymbella sinuata	*
Cymbella sp. (K)	*
Cymbella tumida	1
Cymbella turgidula	1
Denticula elegans	17
Diploneis elliptica	2
Diploneis puella	1
Fragilaria vaucheriae	3
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	1
Frustulia weinholdii	*
Gomphonema angustatum	*

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Gomphonema parvulum	2
Gyrosigma scalproides	1
Gyrosigma spencerii	1
Melosira varians	4
Navicula cryptocephala	5
Navicula cryptocephala var. veneta	13
Navicula decussis	2
Navicula elginensis	*
Navicula lanceolata	2
Navicula menisculus var. upsaliensis	9
Navicula minima	14
Navicula notha	*
Navicula pelliculosa	*
Navicula pupula	*
Navicula pygmaea	*
Navicula radiosa	1
Navicula radiosa var. tenella	5
Navicula salinarum var. intermedia	6
Navicula secreta var. apiculata	7
Navicula symmetrica	3
Navicula tripunctata	*
Navicula viridula	*
Navicula viridula var. linearis	*
Nitzschia acicularis	2
Nitzschia amphibia	1
Nitzschia angustata var. acuta	1
Nitzschia clausii	*
Nitzschia constricta	3
Nitzschia dissipata	5
Nitzschia fonticola	1
Nitzschia frustulum	6
Nitzschia gracilis	6
Nitzschia levidensis	*
Nitzschia linearis	1
Nitzschia microcephala	1
Nitzschia palea	30
Nitzschia paleacea	5
Nitzschia perminuta	*
Nitzschia recta	8
Nitzschia sigmoidea	*
Nitzschia sinuata var. tabellaria	55
Nitzschia vermicularis	1
Stauroneis smithii	1
Surirella angustata	*
Surirella linearis	2
Surirella ovata	1
Synedra acus	1
Synedra delicatissima	1
Synedra parasitica	1
Synedra rumpens var. familiaris	*
Synedra ulna	3

* Qualitative data

** Relative abundance of *Navicula*+*Nitzschia*+*Surirella*

06/25/96

DIATOM COLLECTION DATA

Station ID: REFWALAC Collection Date: 10/28/94

Total Number of Taxa (TNT):	90
Total Number of Individuals (TNI):	524
Diversity (H):	1.25
Percent (%) Sensitive Individuals:	15.5
Pollution Tolerance Index (PTI):	2.6
Siltation Index**:	36.8

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWANFL (05036001) Stream: NORTH FORK LICKING RIVER
 Mile Point: 13.00 Drainage Area: 36.1 square miles
 Order: 5 Ecoregion: WESTERN ALLEGHENY
 County: MORGAN Basin: LICKING
 Map Number: 13-54 Latitude: 38-03-04 Longitude: 083-19-03
 Location Description: OFF LEISURE-PARAGON ROAD

Date Collected: 04/28/92 Comments:
 Sample ID: 19920428-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	125
Achnanthes detha	2
Achnanthes lanceolata	*
Achnanthes lapponica var. ninckei	3
Achnanthes minutissima	182
Achnanthes stewartii	1
Amphipleura pellucida	3
Amphora ovalis	*
Amphora perpusilla	1
Bacillaria paradoxa	*
Cocconeis placentula	*
Cymbella delicatula	5
Cymbella microcephala	*
Cymbella minuta	1
Cymbella naviculiformis	1
Cymbella prostrata var. auerswaldii	*
Cymbella silesiaca	16
Cymbella sinuata	*
Cymbella sp. (K)	24
Cymbella tumida	2
Cymbella turgidula	1
Denticula elegans	*
Diploneis elliptica	*
Eunotia exigua	*
Eunotia pectinalis var. minor	1
Eunotia perpusilla	*
Fragilaria vaucheriae	30
Frustulia rhomboides var. crassinervia	*
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	1
Gomphonema affine	*
Gomphonema angustatum	1
Gomphonema parvulum	6
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Melosira italica	*
Meridion circulare	9
Navicula bacillum	*
Navicula cryptocephala	2

* Qualitative data
 ** Relative abundance of *Navicula+Nitzschia+Surriella*
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula cryptocephala</i> var. <i>veneta</i>	*
<i>Navicula decussis</i>	*
<i>Navicula lanceolata</i>	*
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	1
<i>Navicula minima</i>	9
<i>Navicula pupula</i>	1
<i>Navicula pupula</i> var. <i>capitata</i>	1
<i>Navicula pupula</i> var. <i>rectangularis</i>	1
<i>Navicula pygmaea</i>	*
<i>Navicula radiosa</i> var. <i>parva</i>	*
<i>Navicula radiosa</i> var. <i>tenella</i>	2
<i>Navicula rhynchocephala</i>	2
<i>Navicula schroeteri</i> var. <i>escambia</i>	1
<i>Navicula secreta</i> var. <i>apiculata</i>	4
<i>Navicula symmetrica</i>	1
<i>Navicula viridula</i>	*
<i>Neidium affine</i> var. <i>longiceps</i>	*
<i>Nitzschia acicularis</i>	3
<i>Nitzschia amphibia</i>	*
<i>Nitzschia clausii</i>	*
<i>Nitzschia dissipata</i>	11
<i>Nitzschia filiformis</i>	6
<i>Nitzschia gracilis</i>	1
<i>Nitzschia linearis</i>	1
<i>Nitzschia lorenziana</i> var. <i>subtilis</i>	*
<i>Nitzschia microcephala</i>	*
<i>Nitzschia palea</i>	4
<i>Nitzschia recta</i>	5
<i>Nitzschia romana</i>	2
<i>Nitzschia sigmoidea</i>	2
<i>Rhoicosphenia curvata</i>	*
<i>Surirella angustata</i>	*
<i>Surirella linearis</i>	1
<i>Surirella ovata</i>	3
<i>Synedra acus</i>	18
<i>Synedra delicatissima</i>	8
<i>Synedra pulchella</i>	*
<i>Synedra rumpens</i>	2
<i>Synedra rumpens</i> var. <i>familiaris</i>	6
<i>Synedra ulna</i>	2
<i>Synedra ulna</i> var. <i>ramesi</i>	*

 Station ID: REFWANFL Collection Date: 04/28/92

Total Number of Taxa (TNT): 80
 Total Number of Individuals (TNI): 515
 Diversity (H): 1.03
 Percent (%) Sensitive Individuals: 35.9
 Pollution Tolerance Index (PTI): 3.1
 Siltation Index^{**}: 11.7

 * Qualitative data

** Relative abundance of *Navicula*+*Nitzschia*+*Surirella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWANFL (05036001) Stream: NORTH FORK LICKING RIVER
 Mile Point: 13.00 Drainage Area: 36.1 square miles
 Order: 5 Ecoregion: WESTERN ALLEGHENY
 County: MORGAN Basin: LICKING
 Map Number: 13-54 Latitude: 38-03-04 Longitude: 083-19-03
 Location Description: OFF LEISURE-PARAGON ROAD

Date Collected: 10/21/92 Comments:
 Sample ID: 19921021-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	91
Achnanthes detha	1
Achnanthes lanceolata	2
Achnanthes lanceolata var. dubia	*
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	114
Amphipleura pellucida	27
Amphora ovalis	2
Amphora perpusilla	*
Amphora submontana	*
Bacillaria paradoxa	5
Caloneis bacillum	*
Caloneis ventricosa var. truncatula	*
Cocconeis placentula	*
Cyclotella striata var. ambigua	1
Cymatopleura solea	*
Cymbella aspera	1
Cymbella delicatula	*
Cymbella microcephala	4
Cymbella minuta	4
Cymbella naviculiformis	2
Cymbella prostrata	*
Cymbella prostrata var. auerswaldii	1
Cymbella silesiaca	10
Cymbella sinuata	*
Cymbella sp. (K)	3
Cymbella tumida	3
Cymbella turgidula	4
Denticula elegans	*
Diploneis elliptica	4
Diploneis oblongella	*
Eunotia perpusilla	*
Fragilaria pinnata	*
Fragilaria vaucheriae	23
Frustulia assymetrica	1
Frustulia rhomboides var. crassinervia	*
Frustulia rhomboides var. amphipleuroides	1
Frustulia vulgaris	3
Gomphonema acuminatum	*

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Gomphonema acuminatum var. elongatum	*
Gomphonema affine	2
Gomphonema gracile	*
Gomphonema parvulum	2
Gomphonema sphaerophorum	*
Gomphonema subclavatum	2
Gomphonema subclavatum var. mexicanum	1
Gyrosigma scalproides	2
Hantzschia amphioxys	*
Melosira varians	5
Meridion circulare	1
Navicula bacillum	*
Navicula cryptocephala	4
Navicula cryptocephala var. veneta	7
Navicula decussis	*
Navicula menisculus var. upsaliensis	*
Navicula mutica	*
Navicula pelliculosa	*
Navicula pupula	2
Navicula pupula var. rectangularis	*
Navicula pygmaea	2
Navicula radiosa	1
Navicula radiosa var. parva	5
Navicula radiosa var. tenella	7
Navicula salinarum var. intermedia	3
Navicula schroeteri var. escambia	9
Navicula secreta var. apiculata	9
Navicula symmetrica	5
Navicula tripunctata	*
Navicula viridula	3
Navicula viridula var. linearis	*
Neidium affine var. longiceps	*
Neidium binode	*
Nitzschia acicularis	*
Nitzschia amphibia	4
Nitzschia clausii	5
Nitzschia coarctata	*
Nitzschia constricta	1
Nitzschia dissipata	27
Nitzschia filiformis	16
Nitzschia gracilis	6
Nitzschia linearis	1
Nitzschia microcephala	3
Nitzschia palea	31
Nitzschia recta	4
Nitzschia romana	4
Nitzschia sigmoidea	*
Nitzschia sinuata var. tabellaria	*
Nitzschia sp.1	5
Nitzschia tryblionella var. victoriae	*
Pinnularia biceps	*

 * Qualitative data

** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Pinnularia borealis</i>	*
<i>Pinnularia subcapitata</i> var. <i>paucistriata</i>	*
<i>Plagiotropis lepidoptera</i> v. <i>proboscidea</i>	1
<i>Rhopalodia gibberula</i> var. <i>vanheurckii</i>	*
<i>Stauroneis smithii</i>	1
<i>Surirella angustata</i>	3
<i>Surirella linearis</i>	10
<i>Surirella ovata</i>	2
<i>Surirella ovata</i> var. <i>pinnata</i>	*
<i>Synedra acus</i>	7
<i>Synedra delicatissima</i>	1
<i>Synedra pulchella</i>	*
<i>Synedra rumpens</i>	*
<i>Synedra rumpens</i> var. <i>familiaris</i>	6
<i>Synedra ulna</i>	10

 Station ID: REFWANFL Collection Date: 10/21/92

Total Number of Taxa (TNT):	105
Total Number of Individuals (TNI):	527
Diversity (H):	1.36
Percent (%) Sensitive Individuals:	23.0
Pollution Tolerance Index (PTI):	2.7
Siltation Index**:	31.1

 * Qualitative data
 ** Relative abundance of *Navicula*+*Nitzschia*+*Surirella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWANFL (05036001) Stream: NORTH FORK LICKING RIVER
 Mile Point: 13.00 Drainage Area: 36.1 square miles
 Order: 5 Ecoregion: WESTERN ALLEGHENY
 County: MORGAN Basin: LICKING
 Map Number: 13-54 Latitude: 38-03-04 Longitude: 083-19-03
 Location Description: OFF LEISURE-PARAGON ROAD

Date Collected: 05/10/93 Comments:
 Sample ID: 19930510-11 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	198
Achnanthes detha	*
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	*
Achnanthes lapponica var. ninckei	3
Achnanthes minutissima	113
Achnanthes stewartii	1
Amphipleura pellucida	*
Amphora ovalis	1
Bacillaria paradoxa	*
Caloneis bacillum	*
Cyclotella striata var. ambigua	*
Cymbella delicatula	31
Cymbella minuta	1
Cymbella naviculiformis	*
Cymbella silesiaca	23
Cymbella sp. (K)	1
Cymbella turgidula	*
Denticula elegans	*
Diploneis elliptica	*
Eunotia curvata	*
Eunotia maior	*
Fragilaria vaucheriae	82
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	*
Gomphonema angustatum	*
Gomphonema brasiliense	*
Gomphonema parvulum	2
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Gomphonema subclavatum var. mexicanum	*
Gyrosigma scalproides	*
Hantzschia amphioxys	*
Melosira varians	1
Meridion circulare	5
Navicula cryptocephala	2
Navicula cryptocephala var. veneta	2
Navicula decussis	1

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula lanceolata</i>	*
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	2
<i>Navicula minima</i>	1
<i>Navicula mutica</i>	1
<i>Navicula pupula</i>	*
<i>Navicula pupula</i> var. <i>capitata</i>	*
<i>Navicula radiosa</i>	*
<i>Navicula radiosa</i> var. <i>tenella</i>	1
<i>Navicula rhynchocephala</i>	*
<i>Navicula salinarum</i> var. <i>intermedia</i>	*
<i>Navicula schroeteri</i> var. <i>escambia</i>	*
<i>Navicula secreta</i> var. <i>apiculata</i>	4
<i>Navicula viridula</i>	*
<i>Neidium binode</i>	*
<i>Nitzschia acicularis</i>	7
<i>Nitzschia dissipata</i>	5
<i>Nitzschia filiformis</i>	*
<i>Nitzschia gracilis</i>	*
<i>Nitzschia linearis</i>	4
<i>Nitzschia palea</i>	1
<i>Nitzschia romana</i>	*
<i>Pinnularia viridis</i>	*
<i>Stauroneis smithii</i>	*
<i>Surirella angustata</i>	*
<i>Surirella linearis</i>	*
<i>Surirella ovata</i>	1
<i>Synedra acus</i>	2
<i>Synedra delicatissima</i>	7
<i>Synedra pulchella</i>	*
<i>Synedra rumpens</i>	25
<i>Synedra rumpens</i> var. <i>familiaris</i>	*
<i>Synedra ulna</i>	9

 Station ID: REFWANFL Collection Date: 05/10/93

Total Number of Taxa (TNT):	71
Total Number of Individuals (TNI):	537
Diversity (H):	0.88
Percent (%) Sensitive Individuals:	53.3
Pollution Tolerance Index (PTI):	3.3
Siltation Index**:	5.8

 *Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWANFL (05036001) Stream: NORTH FORK LICKING RIVER
 Mile Point: 13.00 Drainage Area: 36.1 square miles
 Order: 5 Ecoregion: WESTERN ALLEGHENY
 County: MORGAN Basin: LICKING
 Map Number: 13-54 Latitude: 38-03-04 Longitude: 083-19-03
 Location Description: OFF LEISURE-PARAGON ROAD

Date Collected: 10/26/93 Comments:
 Sample ID: 19931026-11 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	193
Achnanthes detha	1
Achnanthes exigua	*
Achnanthes lanceolata	2
Achnanthes lanceolata var. dubia	*
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	162
Achnanthes stewartii	*
Amphipleura pellucida	5
Amphora ovalis	1
Amphora perpusilla	*
Amphora submontana	*
Anomoeoneis vitrea	*
Bacillaria paradoxa	8
Cyclotella striata var. ambigua	*
Cymbella affinis	*
Cymbella aspera	*
Cymbella delicatula	10
Cymbella minuta	2
Cymbella silesiaca	6
Cymbella sinuata	*
Cymbella sp. (K)	1
Cymbella tumida	1
Cymbella turgidula	5
Diploneis elliptica	*
Eunotia exigua	*
Eunotia maior	*
Eunotia pectinalis var. minor	*
Eunotia serra var. diadema	1
Fragilaria pinnata	*
Fragilaria vaucheriae	12
Frustulia rhomboides var. crassinervia	1
Frustulia vulgaris	*
Gomphonema affine	1
Gomphonema apuncto	2
Gomphonema parvulum	12
Gomphonema sphaerophorum	*
Gomphonema subclavatum	1

* Qualitative data

** Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Gomphonema subclavatum var. mexicanum	*
Gyrosigma scalproides	*
Melosira varians	4
Meridion circulare	1
Navicula capitata	1
Navicula cryptocephala	4
Navicula cryptocephala var. veneta	3
Navicula decussis	3
Navicula menisculus var. upsaliensis	1
Navicula minima	22
Navicula mutica	*
Navicula pelliculosa	*
Navicula placenta	*
Navicula pupula	1
Navicula pygmaea	*
Navicula radiosa	*
Navicula radiosa var. parva	*
Navicula radiosa var. tenella	8
Navicula rhynchocephala	*
Navicula salinarum var. intermedia	*
Navicula schroeteri var. escambia	3
Navicula secreta var. apiculata	6
Navicula viridula	*
Navicula viridula var. linearis	*
Navicula viridula var. rostellata	1
Nitzschia acicularis	3
Nitzschia amphibia	*
Nitzschia brevissima	*
Nitzschia clausii	1
Nitzschia coarctata	1
Nitzschia communis	1
Nitzschia constricta	*
Nitzschia dissipata	9
Nitzschia filiformis	2
Nitzschia fonticola	*
Nitzschia gracilis	1
Nitzschia linearis	*
Nitzschia palea	13
Nitzschia recta	3
Nitzschia sinuata var. tabellaria	*
Nitzschia sp.1	1
Nitzschia tryblionella var. victoriae	*
Nitzschia vermicularis	1
Pinnularia borealis	*
Pinnularia mesolepta	*
Pinnularia subcapitata var. paucistriata	*
Pinnularia viridis	1
Stauroneis smithii	*
Surirella angustata	*
Surirella linearis	1
Surirella linearis var. helvetica	*

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

Surirella ovata	*
Synedra delicatissima	1
Synedra rumpens	6
Synedra ulna	3
Synedra ulna var. oxyrhynchus	*

Station ID: REFWANFL Collection Date: 10/26/93

Total Number of Taxa (TNT):	95
Total Number of Individuals (TNI):	533
Diversity (H):	0.97
Percent (%) Sensitive Individuals:	42.0
Pollution Tolerance Index (PTI):	3.1
Siltation Index**:	16.7

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWANFL (05036001) Stream: NORTH FORK LICKING RIVER
 Mile Point: 13.00 Drainage Area: 36.1 square miles
 Order: 5 Ecoregion: WESTERN ALLEGHENY
 County: MORGAN Basin: LICKING
 Map Number: 13-54 Latitude: 38-03-04 Longitude: 083-19-03
 Location Description: OFF LEISURE-PARAGON ROAD

Date Collected: 06/21/94 Comments:
 Sample ID: 19940621-11 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	96
Achnanthes detha	2
Achnanthes exigua	*
Achnanthes lanceolata	1
Achnanthes lanceolata var. dubia	*
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	222
Achnanthes stewartii	1
Amphipleura pellucida	*
Amphora ovalis	*
Amphora perpusilla	1
Anomoeoneis vitrea	*
Bacillaria paradoxa	*
Caloneis bacillum	1
Caloneis ventricosa var. truncatula	*
Cocconeis placentula	*
Cyclotella striata var. ambigua	2
Cymbella aspera	*
Cymbella delicatula	113
Cymbella minuta	1
Cymbella naviculiformis	*
Cymbella prostrata	*
Cymbella silesiaca	20
Cymbella sinuata	*
Cymbella sp. (K)	*
Cymbella tumida	1
Cymbella turgidula	4
Denticula elegans	*
Diploneis elliptica	1
Eunotia curvata	*
Eunotia maior	2
Eunotia pectinalis var. minor	*
Fragilaria vaucheriae	11
Frustulia rhomboides var. crassinervia	*
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	*
Gomphonema acuminatum	*
Gomphonema affine	*

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Gomphonema angustatum	*
Gomphonema parvulum	4
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Gomphonema subclavatum var. mexicanum	*
Gyrosigma scalproides	1
Melosira varians	1
Meridion circulare	*
Navicula cryptocephala	5
Navicula cryptocephala var. veneta	6
Navicula decussis	6
Navicula gottlandica	2
Navicula lanceolata	*
Navicula menisculus var. upsaliensis	9
Navicula minima	5
Navicula pelliculosa	*
Navicula placenta	*
Navicula pupula	*
Navicula pupula var. capitata	*
Navicula radiosa	*
Navicula radiosa var. tenella	6
Navicula rhynchocephala	1
Navicula salinarum var. intermedia	*
Navicula secreta var. apiculata	1
Navicula symmetrica	*
Navicula viridula	*
Navicula viridula var. linearis	*
Navicula viridula var. rostellata	2
Neidium affine	*
Neidium binode	*
Nitzschia acicularis	2
Nitzschia clausii	*
Nitzschia coarctata	*
Nitzschia dissipata	7
Nitzschia frustulum	*
Nitzschia gracilis	3
Nitzschia linearis	2
Nitzschia palea	19
Nitzschia paleacea	*
Nitzschia recta	4
Nitzschia sinuata var. tabellaria	2
Nitzschia vermicularis	*
Pinnularia viridis	*
Rhoicosphenia curvata	*
Stauroneis smithii	*
Surirella angustata	1
Surirella linearis	1
Surirella ovata	1
Synedra acus	*
Synedra delicatissima	4
Synedra pulchella	*

 *Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surirella*

06/25/96

DIATOM COLLECTION DATA

Synedra rumpens var. familiaris	*
Synedra ulna	3
Synedra ulna var. oxyrhynchus	*

Station ID: REFWANFL Collection Date: 06/21/94

Total Number of Taxa (TNT):	93
Total Number of Individuals (TNI):	577
Diversity (H):	0.93
Percent (%) Sensitive Individuals:	41.4
Pollution Tolerance Index (PTI):	3.2
Siltation Index**:	14.2

* Qualitative data
** Relative abundance of *Navicula+Nitzschia+Surriella*
06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWANFL (05036001) Stream: NORTH FORK LICKING RIVER
 Mile Point: 13.00 Drainage Area: 36.1 square miles
 Order: 5 Ecoregion: WESTERN ALLEGHENY
 County: MORGAN Basin: LICKING
 Map Number: 13-54 Latitude: 38-03-04 Longitude: 083-19-03
 Location Description: OFF LEISURE-PARAGON ROAD

Date Collected: 10/24/94 Comments:
 Sample ID: 19941024-11 Substrate Type: Natural
 ID By:

Achnanthes clevei		*
Achnanthes deflexa	86	
Achnanthes detha	1	
Achnanthes lanceolata var. dubia	4	
Achnanthes minutissima	99	
Amphipleura pellucida	19	
Amphora ovalis		*
Amphora perpusilla	1	
Amphora submontana		*
Bacillaria paradoxa	1	
Caloneis bacillum	1	
Caloneis ventricosa var. truncatula		*
Cyclotella striata var. ambigua	1	
Cymatopleura solea		*
Cymbella affinis		*
Cymbella aspera		*
Cymbella delicatula	23	
Cymbella microcephala	1	
Cymbella minuta	4	
Cymbella naviculiformis		*
Cymbella prostrata		*
Cymbella silesiaca	13	
Cymbella sp. (K)		*
Cymbella triangulum	1	
Cymbella tumida	1	
Cymbella turgidula	3	
Denticula elegans	1	
Diploneis elliptica	1	
Diploneis puella	1	
Eunotia maior	1	
Eunotia perpusilla		*
Fragilaria vaucheriae	17	
Frustulia rhomboides var. crassinervia	1	
Frustulia rhomboides var. amphipleuroides	9	
Frustulia vulgaris		*
Gomphonema apuncto		*
Gomphonema parvulum	1	
Gyrosigma scalpoides	2	
Melosira varians	3	

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Meridion circulare	*
Navicula anglica var. subsalsa	*
Navicula atomus	1
Navicula capitata	1
Navicula cryptocephala	3
Navicula cryptocephala var. veneta	17
Navicula decussis	11
Navicula menisculus var. upsaliensis	2
Navicula minima	14
Navicula pelliculosa	*
Navicula pupula	1
Navicula pupula var. rectangularis	*
Navicula pygmaea	3
Navicula radiosa	1
Navicula radiosa var. tenella	32
Navicula rhynchocephala	*
Navicula salinarum var. intermedia	3
Navicula schroeteri var. escambia	*
Navicula secreta var. apiculata	3
Navicula symmetrica	6
Navicula viridula	2
Navicula viridula var. rostellata	2
Neidium binode	*
Neidium dubium	1
Nitzschia acicularis	3
Nitzschia amphibia	9
Nitzschia angustata var. acuta	4
Nitzschia clausii	*
Nitzschia coarctata	2
Nitzschia communis	1
Nitzschia constricta	1
Nitzschia dissipata	16
Nitzschia filiformis	1
Nitzschia frustulum	18
Nitzschia gracilis	6
Nitzschia linearis	4
Nitzschia lorenziana var. subtilis	1
Nitzschia palea	30
Nitzschia recta	*
Nitzschia sigmoidea	1
Nitzschia sinuata var. tabellaria	13
Nitzschia sp.1	*
Nitzschia tryblionella var. victoriae	1
Nitzschia vermicularis	11
Pinnularia biceps	1
Rhopalodia gibberula var. vanheurckii	*
Stauroneis smithii	*
Surirella angustata	*
Surirella linearis	2
Synedra acus	2
Synedra delicatissima	3

 * Qualitative data

** Relative abundance of *Navicula+Nitzschia+Surirella*

06/25/96

DIATOM COLLECTION DATA

Synedra pulchella	2
Synedra rumpens var. familiaris	1
Synedra ulna	4

Station ID: REFWANFL Collection Date: 10/24/94

Total Number of Taxa (TNT):	93
Total Number of Individuals (TNI):	536
Diversity (H):	1.39
Percent (%) Sensitive Individuals:	24.6
Pollution Tolerance Index (PTI):	2.6
Siltation Index**:	41.8

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWASFS (04036004) Stream: SOUTH FORK STATION CAMP CREEK
 Mile Point: 5.30 Drainage Area: 41.4 square miles
 Order: 4 Ecoregion: WESTERN ALLEGHENY
 County: JACKSON Basin: KENTUCKY
 Map Number: 09-49 Latitude: 37-33-35 Longitude: 083-58-00
 Location Description: KY 89 BRIDGE

Date Collected: 07/14/92 Comments:
 Sample ID: 19920714-11 Substrate Type: Natural
 ID By:

<i>Achnanthes deflexa</i>	311	
<i>Achnanthes lanceolata</i>		*
<i>Achnanthes minutissima</i>	80	
<i>Amphipleura pellucida</i>		*
<i>Cocconeis pediculus</i>	2	
<i>Cocconeis placentula</i>		*
<i>Cocconeis placentula</i> var. <i>euglypta</i>		*
<i>Cymbella affinis</i>	32	
<i>Cymbella cymbiformis</i>	2	
<i>Cymbella delicatula</i>	57	
<i>Cymbella microcephala</i>	8	
<i>Cymbella minuta</i>		*
<i>Cymbella prostrata</i> var. <i>auerswaldii</i>		*
<i>Cymbella silesiaca</i>	1	
<i>Cymbella sinuata</i>	1	
<i>Cymbella turgidula</i>	1	
<i>Denticula elegans</i>	4	
<i>Diatoma vulgare</i>		*
<i>Diploneis elliptica</i>		*
<i>Epithemia adnata</i>		*
<i>Fragilaria vaucheriae</i>	1	
<i>Frustulia vulgaris</i>		*
<i>Gomphonema abbreviatum</i>	4	
<i>Gomphonema apuncto</i>		*
<i>Gomphonema clevei</i>	1	
<i>Gomphonema olivaceum</i>	1	
<i>Gomphonema parvulum</i>	1	
<i>Gomphonema sphaerophorum</i>		*
<i>Gomphonema subclavatum</i>		*
<i>Melosira varians</i>		*
<i>Navicula cryptocephala</i>	2	
<i>Navicula decussis</i>		*
<i>Navicula lanceolata</i>	1	
<i>Navicula radiosa</i> var. <i>tenella</i>	1	
<i>Navicula salinarum</i> var. <i>intermedia</i>		*
<i>Nitzschia acicularis</i>		*
<i>Nitzschia dissipata</i>	1	
<i>Nitzschia filiformis</i>	4	
<i>Nitzschia gracilis</i>		*

 * Qualitative data
 ** Relative abundance of *Navicula*+*Nitzschia*+*Surriella*
 06/25/96

DIATOM COLLECTION DATA

<i>Nitzschia linearis</i>	*
<i>Nitzschia microcephala</i>	*
<i>Nitzschia palea</i>	1
<i>Nitzschia recta</i>	1
<i>Nitzschia recta</i>	*
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	*
<i>Surirella ovata</i>	*
<i>Synedra acus</i>	*
<i>Synedra delicatissima</i>	*
<i>Synedra rumpens</i> var. <i>familiaris</i>	1
<i>Synedra ulna</i>	1
<i>Synedra ulna</i> var. <i>oxyrhynchus</i>	*
<i>Synedra ulna</i> var. <i>ramesi</i>	*

 Station ID: REFWASFS Collection Date: 07/14/92

Total Number of Taxa (TNT):	52
Total Number of Individuals (TNI):	520
Diversity (H):	0.62
Percent (%) Sensitive Individuals:	79.4
Pollution Tolerance Index (PTI):	3.7
Siltation Index**:	2.1

 *Qualitative data
 **Relative abundance of *Navicula+Nitzschia+Surriella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWASFS (04036004) Stream: SOUTH FORK STATION CAMP CREEK
 Mile Point: 5.30 Drainage Area: 41.4 square miles
 Order: 4 Ecoregion: WESTERN ALLEGHENY
 County: JACKSON Basin: KENTUCKY
 Map Number: 09-49 Latitude: 37-33-35 Longitude: 083-58-00
 Location Description: KY 89 BRIDGE

Date Collected: 09/17/92 Comments:
 Sample ID: 19920917-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	98
Achnanthes lanceolata var. dubia	*
Achnanthes minutissima	275
Amphipleura pellucida	1
Amphora ovalis	1
Amphora perpusilla	2
Cocconeis pediculus	*
Cocconeis placentula var. euglypta	*
Cocconeis placentula var. lineata	1
Cymbella affinis	35
Cymbella cistula	*
Cymbella delicatula	60
Cymbella microcephala	3
Cymbella minuta	2
Cymbella prostrata	*
Cymbella silesiaca	*
Cymbella sp. (K)	1
Cymbella turgidula	*
Denticula elegans	1
Diatoma vulgare	*
Diploneis elliptica	*
Eunotia pectinalis var. minor	*
Fragilaria vaucheriae	4
Frustulia rhomboides var. amphipleuroides	*
Gomphonema abbreviatum	8
Gomphonema affine	*
Gomphonema brasiliense	1
Gomphonema olivaceum	1
Gomphonema parvulum	1
Gomphonema sphaerophorum	2
Gomphonema subclavatum	1
Gomphonema subclavatum var. mexicanum	*
Melosira varians	*
Meridion circulare	*
Navicula cryptocephala	*
Navicula cryptocephala var. veneta	*
Navicula meniscus var. upsaliensis	1
Navicula minima	*
Navicula radiosa	*

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula radiosa</i> var. <i>tenella</i>	2
<i>Navicula salinarum</i> var. <i>intermedia</i>	*
<i>Navicula viridula</i> var. <i>linearis</i>	1
<i>Nitzschia acicularis</i>	*
<i>Nitzschia constricta</i>	*
<i>Nitzschia dissipata</i>	*
<i>Nitzschia gracilis</i>	*
<i>Nitzschia linearis</i>	*
<i>Nitzschia microcephala</i>	*
<i>Nitzschia palea</i>	1
<i>Surirella linearis</i>	*
<i>Synedra acus</i>	2
<i>Synedra rumpens</i> var. <i>familiaris</i>	*
<i>Synedra ulna</i> var. <i>oxyrhynchus</i>	*

 Station ID: REFWASFS Collection Date: 09/17/92

Total Number of Taxa (TNT):	53
Total Number of Individuals (TNI):	505
Diversity (H):	0.64
Percent (%) Sensitive Individuals:	39.6
Pollution Tolerance Index (PTI):	3.4
Siltation Index**:	1.0

 *Qualitative data
 **Relative abundance of *Navicula+Nitzschia+Surriella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWASFS (04036004) Stream: SOUTH FORK STATION CAMP CREEK
 Mile Point: 5.30 Drainage Area: 41.4 square miles
 Order: 4 Ecoregion: WESTERN ALLEGHENY
 County: JACKSON Basin: KENTUCKY
 Map Number: 09-49 Latitude: 37-33-35 Longitude: 083-58-00
 Location Description: KY 89 BRIDGE

Date Collected: 06/30/93 Comments:
 Sample ID: 19930630-11 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	246
Achnanthes lanceolata	1
Achnanthes lanceolata var. dubia	*
Achnanthes minutissima	104
Amphipleura pellucida	1
Amphora ovalis	*
Amphora perpusilla	*
Caloneis bacillum	1
Caloneis ventricosa var. truncatula	*
Cocconeis pediculus	1
Cocconeis placentula	2
Cocconeis placentula var. euglypta	*
Cymatopleura solea	*
Cymbella affinis	24
Cymbella cistula	*
Cymbella delicatula	67
Cymbella hebridica	*
Cymbella microcephala	31
Cymbella minuta	1
Cymbella prostrata var. auerswaldii	*
Cymbella silesiaca	4
Cymbella sinuata	*
Cymbella sp. (K)	*
Cymbella turgidula	*
Denticula elegans	3
Diatoma vulgare	1
Diploneis elliptica	*
Diploneis oblongella	*
Epithemia adnata	*
Fragilaria vaucheriae	8
Frustulia rhomboides var. amphipleuroides	*
Gomphonema angustatum	*
Gomphonema apuncto	33
Gomphonema olivaceum	*
Gomphonema parvulum	2
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Melosira varians	*

 *Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Meridion circulare	*
Navicula cryptocephala var. veneta	1
Navicula gottlandica	*
Navicula lanceolata	*
Navicula meniscus var. upsaliensis	*
Navicula minima	6
Navicula radiosa	*
Navicula radiosa var. tenella	3
Navicula salinarum var. intermedia	1
Navicula tripunctata	*
Navicula viridula var. linearis	*
Nitzschia acicularis	1
Nitzschia amphibia	1
Nitzschia constricta	*
Nitzschia dissipata	2
Nitzschia gracilis	*
Nitzschia linearis	*
Nitzschia palea	*
Nitzschia vermicularis	2
Pinnularia obscurum	1
Pinnularia viridis	*
Surirella linearis	*
Surirella ovalis	*
Surirella ovata	*
Synedra acus	*
Synedra ulna	3
Synedra ulna var. oxyrhynchus	*

 Station ID: REFWASFS Collection Date: 06/30/93

Total Number of Taxa (TNT):	66
Total Number of Individuals (TNI):	551
Diversity (H):	0.80
Percent (%) Sensitive Individuals:	67.5
Pollution Tolerance Index (PTI):	3.5
Siltation Index**:	3.1

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWASFS (04036004) Stream: SOUTH FORK STATION CAMP CREEK
 Mile Point: 5.30 Drainage Area: 41.4 square miles
 Order: 4 Ecoregion: WESTERN ALLEGHENY
 County: JACKSON Basin: KENTUCKY
 Map Number: 09-49 Latitude: 37-33-35 Longitude: 083-58-00
 Location Description: KY 89 BRIDGE

Date Collected: 06/14/94 Comments:
 Sample ID: 19940614-11 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	356
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	1
Achnanthes minutissima	58
Amphipleura pellucida	1
Amphora perpusilla	1
Caloneis ventricosa var. truncatula	*
Cocconeis pediculus	2
Cocconeis placentula	3
Cocconeis placentula var. euglypta	*
Cymbella affinis	3
Cymbella delicatula	41
Cymbella microcephala	2
Cymbella silesiaca	4
Cymbella sp. (K)	*
Cymbella turgidula	*
Diatoma vulgare	*
Fragilaria vaucheriae	13
Gomphonema angustatum	1
Gomphonema apuncto	2
Gomphonema olivaceum	1
Gomphonema parvulum	*
Gyrosigma scalproides	*
Meridion circulare	*
Navicula angusta	*
Navicula cryptocephala	1
Navicula cryptocephala var. veneta	*
Navicula lanceolata	*
Navicula meniscus var. upsaliensis	1
Navicula radiosa var. tenella	*
Navicula salinarum var. intermedia	1
Navicula secreta var. apiculata	1
Navicula viridula	*
Nitzschia acicularis	*
Nitzschia amphibia	1
Nitzschia constricta	1
Nitzschia dissipata	1
Nitzschia fonticola	2

 * Qualitative data

** Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Nitzschia gracilis	3
Nitzschia linearis	6
Nitzschia palea	1
Nitzschia paleacea	*
Nitzschia sigmoidea	*
Nitzschia vermicularis	*
Pinnularia subcapitata var. paucistriata	*
Pinnularia viridis	*
Surirella angustata	*
Surirella ovata	1
Synedra acus	*
Synedra ulna	4

 Station ID: REFWASFS Collection Date: 06/14/94

Total Number of Taxa (TNT):	51
Total Number of Individuals (TNI):	513
Diversity (H):	0.55
Percent (%) Sensitive Individuals:	79.1
Pollution Tolerance Index (PTI):	3.7
Siltation Index**:	3.7

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWASFS (04036004) Stream: SOUTH FORK STATION CAMP CREEK
 Mile Point: 5.30 Drainage Area: 41.4 square miles
 Order: 4 Ecoregion: WESTERN ALLEGHENY
 County: JACKSON Basin: KENTUCKY
 Map Number: 09-49 Latitude: 37-33-35 Longitude: 083-58-00
 Location Description: KY 89 BRIDGE

Date Collected: 10/18/94 Comments:
 Sample ID: 19941018-11 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	218
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	1
Achnanthes linearis	2
Achnanthes minutissima	98
Amphipleura pellucida	2
Amphora perpusilla	*
Amphora submontana	*
Anomoeoneis vitrea	1
Caloneis bacillum	*
Caloneis ventricosa var. truncatula	*
Cocconeis pediculus	*
Cocconeis placentula	1
Cocconeis placentula var. euglypta	*
Cymbella affinis	6
Cymbella cymbiformis	3
Cymbella delicatula	178
Cymbella hustedtii	*
Cymbella microcephala	6
Cymbella minuta	1
Cymbella silesiaca	1
Cymbella sinuata	*
Cymbella sp. (K)	*
Cymbella turgidula	*
Denticula elegans	2
Diatoma vulgare	*
Diploneis elliptica	1
Diploneis oblongella	*
Diploneis puella	*
Epithemia adnata	*
Fragilaria vaucheriae	2
Frustulia rhomboides var. amphipleuroides	*
Gomphonema apuncto	2
Gomphonema parvulum	*
Gomphonema sparsistriatum f. maculatum	*
Gomphonema sphaerophorum	1
Gomphonema subclavatum	*
Melosira varians	*

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula cryptocephala	1
Navicula cryptocephala var. veneta	*
Navicula elginensis	*
Navicula menisculus var. upsaliensis	*
Navicula mutica	*
Navicula pupula	*
Navicula radiosa	*
Navicula radiosa var. tenella	2
Navicula salinarum var. intermedia	*
Navicula viridula	1
Nitzschia acicularis	*
Nitzschia amphibia	*
Nitzschia angustata var. acuta	*
Nitzschia dissipata	*
Nitzschia gracilis	*
Nitzschia linearis	*
Nitzschia palea	*
Nitzschia paleacea	1
Nitzschia perminuta	4
Nitzschia recta	*
Nitzschia sigmoidea	*
Nitzschia tropica	3
Surirella angustata	2
Surirella linearis	*
Synedra rumpens var. familiaris	*
Synedra ulna	*

 Station ID: REFWASFS Collection Date: 10/18/94

Total Number of Taxa (TNT):	65
Total Number of Individuals (TNI):	540
Diversity (H):	0.65
Percent (%) Sensitive Individuals:	76.5
Pollution Tolerance Index (PTI):	3.7
Siltation Index**:	2.2

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWASFS (04036004) Stream: SOUTH FORK STATION CAMP CREEK
 Mile Point: 5.30 Drainage Area: 41.4 square miles
 Order: 4 Ecoregion: WESTERN ALLEGHENY
 County: JACKSON Basin: KENTUCKY
 Map Number: 09-49 Latitude: 37-33-35 Longitude: 083-58-00
 Location Description: KY 89 BRIDGE

Date Collected: 07/21/95 Comments:
 Sample ID: 19950721-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	155	
Achnanthes lanceolata		*
Achnanthes lanceolata var. dubia		*
Achnanthes lapponica var. ninckei		*
Achnanthes linearis		*
Achnanthes minutissima	193	
Amphipleura pellucida	1	
Amphora ovalis		*
Amphora perpusilla		*
Amphora submontana		*
Anomoeoneis vitrea	4	
Caloneis bacillum	4	
Caloneis budensis		*
Cocconeis pediculus	2	
Cocconeis placentula	2	
Cocconeis placentula var. euglypta	1	
Cyclotella meneghiniana		*
Cymatopleura solea		*
Cymbella affinis	1	
Cymbella cymbiformis	1	
Cymbella delicatula	47	
Cymbella hustedtii	2	
Cymbella lunata		*
Cymbella microcephala	17	
Cymbella minuta		*
Cymbella prostrata var. auerswaldii		*
Cymbella silesiaca	3	
Cymbella sinuata	1	
Cymbella sp. (K)		*
Denticula elegans	3	
Diploneis elliptica		*
Diploneis oblongella		*
Epithemia adnata		*
Eunotia maior		*
Eunotia pectinalis var. minor		*
Fragilaria vaucheriae	15	
Gomphonema apuncto	61	
Gomphonema sphaerophorum		*
Gomphonema subclavatum		*

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula atomus	1
Navicula cryptocephala	1
Navicula cryptocephala var. veneta	*
Navicula decussis	*
Navicula lanceolata	*
Navicula menisculus var. upsaliensis	2
Navicula minima	6
Navicula notha	*
Navicula radiosa	*
Navicula radiosa var. tenella	1
Navicula salinarum var. intermedia	1
Navicula savannahiana	*
Navicula subhamulata var. undulata	*
Navicula viridula var. linearis	*
Navicula viridula var. rostellata	*
Nitzschia acicularis	1
Nitzschia amphibia	10
Nitzschia angustata var. acuta	*
Nitzschia constricta	*
Nitzschia dissipata	*
Nitzschia gracilis	4
Nitzschia linearis	*
Nitzschia palea	7
Nitzschia paleacea	*
Nitzschia perminuta	1
Nitzschia recta	1
Nitzschia sigmoidea	*
Nitzschia sinuata var. tabellaria	*
Nitzschia tryblionella var. victoriae	*
Nitzschia vermicularis	*
Pinnularia biceps	*
Rhopalodia gibberula var. vanheurckii	*
Stauroneis smithii	*
Surirella robusta	*
Synedra delicatissima	*
Synedra rumpens var. familiaris	*
Synedra ulna	2

 Station ID: REFWASFS Collection Date: 07/21/95

Total Number of Taxa (TNT): 76
 Total Number of Individuals (TNI): 551
 Diversity (H): 0.85
 Percent (%) Sensitive Individuals: 40.8
 Pollution Tolerance Index (PTI): 3.1
 Siltation Index^{**}: 6.5

 *Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWAOSC (04036003) Stream: STATION CAMP CREEK
 Mile Point: 19.00 Drainage Area: 92.5 square miles
 Order: 5 Ecoregion: WESTERN ALLEGHENY
 County: ESTILL/JACKSON Basin: KENTUCKY
 Map Number: 09-49 Latitude: 37-33-42 Longitude: 083-55-18
 Location Description: OFF KY 1209 AT ESTILL/JACKSON BORDER

Date Collected: 07/09/92 Comments:
 Sample ID: 19920709-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	197
Achnanthes detha	*
Achnanthes exigua	*
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	*
Achnanthes lapponica var. ninckei	2
Achnanthes minutissima	144
Amphipleura pellucida	1
Caloneis ventricosa var. truncatula	1
Cocconeis pediculus	*
Cocconeis placentula	2
Cocconeis placentula var. euglypta	*
Cymbella affinis	28
Cymbella cymbiformis	1
Cymbella delicatula	10
Cymbella microcephala	7
Cymbella minuta	1
Cymbella prostrata var. auerswaldii	2
Cymbella silesiaca	2
Cymbella sinuata	2
Cymbella sp. (K)	1
Cymbella turgidula	2
Denticula elegans	1
Diatoma vulgare	1
Diploneis elliptica	*
Eunotia exigua	*
Fragilaria vaucheriae	19
Frustulia rhomboides var. amphipleuroides	1
Frustulia vulgaris	*
Gomphonema angustatum	2
Gomphonema apuncto	*
Gomphonema olivaceum	2
Gomphonema parvulum	*
Gomphonema sparsistriatum f. maculatum	*
Gomphonema sphaerophorum	1
Hantzschia amphioxys	*
Melosira varians	2
Meridion circulare	*

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Navicula cryptocephala	1
Navicula cryptocephala var. veneta	2
Navicula decussis	*
Navicula lanceolata	*
Navicula menisculus var. upsaliensis	2
Navicula minima	21
Navicula mutica	*
Navicula placenta	*
Navicula pupula	2
Navicula pupula var. capitata	1
Navicula radiosa	1
Navicula radiosa var. parva	*
Navicula radiosa var. tenella	3
Navicula salinarum var. intermedia	1
Navicula secreta var. apiculata	*
Navicula viridula	*
Neidium binode	*
Nitzschia acicularis	3
Nitzschia amphibia	*
Nitzschia dissipata	4
Nitzschia filiformis	3
Nitzschia linearis	2
Nitzschia microcephala	3
Nitzschia palea	6
Nitzschia recta	1
Nitzschia romana	1
Nitzschia sinuata var. tabellaria	*
Pinnularia biceps	*
Rhoicosphenia curvata	1
Stauroneis anceps	*
Surirella angustata	1
Surirella ovata	*
Synedra acus	5
Synedra delicatissima	5
Synedra parasitica	*
Synedra rumpens	6
Synedra rumpens var. familiaris	1
Synedra ulna	1
Synedra ulna var. oxyrhynchus	1
Synedra ulna var. ramesi	1

 Station ID: REFWAOSC Collection Date: 07/09/92

Total Number of Taxa (TNT): 79
 Total Number of Individuals (TNI): 511
 Diversity (H): 0.94
 Percent (%) Sensitive Individuals: 51.7
 Pollution Tolerance Index (PTI): 3.3
 Siltation Index^{**}: 11.2

 *Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWAOSC (04036003) Stream: STATION CAMP CREEK
 Mile Point: 19.00 Drainage Area: 92.5 square miles
 Order: 5 Ecoregion: WESTERN ALLEGHENY
 County: ESTILL/JACKSON Basin: KENTUCKY
 Map Number: 09-49 Latitude: 37-33-42 Longitude: 083-55-18
 Location Description: OFF KY 1209 AT ESTILL/JACKSON BORDER

Date Collected: 09/15/92 Comments:
 Sample ID: 19920915-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	291
Achnanthes lanceolata var. dubia	3
Achnanthes minutissima	152
Amphipleura pellucida	4
Amphora ovalis	*
Cocconeis placentula var. euglypta	*
Cocconeis placentula var. lineata	1
Cymatopleura solea	*
Cymbella affinis	33
Cymbella cymbiformis	*
Cymbella delicatula	19
Cymbella hustedtii	1
Cymbella microcephala	1
Cymbella minuta	*
Cymbella prostrata	*
Cymbella prostrata var. auerswaldii	*
Cymbella silesiaca	1
Cymbella sinuata	*
Cymbella sp. (K)	*
Cymbella turgidula	*
Denticula elegans	1
Diatoma vulgare	*
Diploneis elliptica	*
Diploneis oblongella	*
Fragilaria vaucheriae	2
Frustulia rhomboides var. amphipleuroides	*
Gomphonema abbreviatum	2
Gomphonema olivaceum	*
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Gyrosigma scalproides	*
Gyrosigma spencerii	1
Melosira varians	*
Meridion circulare	*
Navicula capitata	*
Navicula cryptocephala	2
Navicula cryptocephala var. veneta	*
Navicula decussis	*
Navicula pupula	*

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula pupula var. elliptica	*
Navicula radiosa	*
Navicula radiosa var. tenella	*
Navicula salinarum var. intermedia	3
Navicula secreta var. apiculata	*
Navicula viridula	*
Navicula viridula var. linearis	*
Navicula viridula var. rostellata	*
Nitzschia acicularis	*
Nitzschia dissipata	2
Nitzschia filiformis	2
Nitzschia gracilis	1
Nitzschia linearis	2
Nitzschia palea	2
Nitzschia recta	1
Nitzschia sinuata var. tabellaria	*
Stauroneis anceps	*
Stauroneis anceps f. gracilis	*
Surirella angustata	*
Surirella ovata	*
Synedra acus	*
Synedra ulna	2
Synedra ulna var. oxyrhynchus	6

 Station ID: REFWAOSC Collection Date: 09/15/92

Total Number of Taxa (TNT):	62
Total Number of Individuals (TNI):	535
Diversity (H):	0.60
Percent (%) Sensitive Individuals:	64.5
Pollution Tolerance Index (PTI):	3.6
Siltation Index**:	2.8

 *Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWAOSC (04036003) Stream: STATION CAMP CREEK
 Mile Point: 19.00 Drainage Area: 92.5 square miles
 Order: 5 Ecoregion: WESTERN ALLEGHENY
 County: ESTILL/JACKSON Basin: KENTUCKY
 Map Number: 09-49 Latitude: 37-33-42 Longitude: 083-55-18
 Location Description: OFF KY 1209 AT ESTILL/JACKSON BORDER

Date Collected: 05/28/93 Comments:
 Sample ID: 19930528-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	265
Achnanthes detha	*
Achnanthes exigua	*
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	*
Achnanthes lapponica var. ninckei	2
Achnanthes minutissima	99
Amphipleura pellucida	*
Amphora ovalis	*
Amphora perpusilla	*
Anomoeoneis vitrea	*
Caloneis budensis	*
Caloneis ventricosa	1
Cocconeis pediculus	*
Cocconeis placentula	*
Cocconeis placentula var. euglypta	*
Cymbella affinis	28
Cymbella cistula	*
Cymbella cymbiformis	6
Cymbella delicatula	78
Cymbella hustedtii	*
Cymbella microcephala	3
Cymbella minuta	*
Cymbella naviculiformis	1
Cymbella prostrata var. auerswaldii	1
Cymbella silesiaca	1
Cymbella sinuata	*
Cymbella sp. (K)	*
Cymbella turgidula	1
Denticula elegans	*
Diatoma vulgare	2
Diploneis elliptica	*
Epithemia adnata	1
Eunotia curvata	*
Eunotia maior	*
Eunotia pectinalis var. minor	*
Fragilaria vaucheriae	22
Frustulia rhomboides var. amphipleuroides	*

* Qualitative data

** Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Gomphonema acuminatum	*
Gomphonema apuncto	*
Gomphonema olivaceum	1
Gomphonema parvulum	*
Gomphonema sparsistriatum f. maculatum	2
Gomphonema sphaerophorum	*
Melosira varians	*
Meridion circulare	1
Navicula bacillum	*
Navicula cryptocephala	*
Navicula cryptocephala var. veneta	1
Navicula exigua	*
Navicula menisculus var. upsaliensis	3
Navicula minima	2
Navicula pupula	1
Navicula pygmaea	*
Navicula radiosa	*
Navicula radiosa var. tenella	3
Navicula rhynchocephala	*
Navicula salinarum var. intermedia	1
Navicula secreta var. apiculata	*
Navicula viridula var. rostellata	*
Nitzschia acicularis	6
Nitzschia amphibia	1
Nitzschia dissipata	*
Nitzschia gracilis	1
Nitzschia linearis	3
Nitzschia microcephala	*
Nitzschia palea	4
Nitzschia romana	*
Nitzschia vermicularis	*
Surirella angustata	*
Surirella ovata	2
Synedra acus	*
Synedra delicatissima	1
Synedra rumpens	*
Synedra ulna	*
Synedra ulna var. oxyrhynchus	*

 Station ID: REFWAOSC Collection Date: 05/28/93

Total Number of Taxa (TNT):	77
Total Number of Individuals (TNI):	544
Diversity (H):	0.75
Percent (%) Sensitive Individuals:	71.1
Pollution Tolerance Index (PTI):	3.6
Siltation Index**:	4.8

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWAOSC (04036003) Stream: STATION CAMP CREEK
 Mile Point: 19.00 Drainage Area: 92.5 square miles
 Order: 5 Ecoregion: WESTERN ALLEGHENY
 County: ESTILL/JACKSON Basin: KENTUCKY
 Map Number: 09-49 Latitude: 37-33-42 Longitude: 083-55-18
 Location Description: OFF KY 1209 AT ESTILL/JACKSON BORDER

Date Collected: 06/14/94 Comments:
 Sample ID: 19940614-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	339
Achnanthes lanceolata var. dubia	*
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	115
Amphipleura pellucida	*
Amphora perpusilla	*
Anomoeoneis vitrea	*
Cocconeis pediculus	*
Cocconeis placentula	2
Cocconeis placentula var. euglypta	*
Cymbella affinis	14
Cymbella cymbiformis	*
Cymbella delicatula	18
Cymbella hustedtii	*
Cymbella microcephala	5
Cymbella minuta	*
Cymbella prostrata	*
Cymbella prostrata var. auerswaldii	*
Cymbella silesiaca	4
Cymbella sinuata	1
Cymbella sp. (K)	1
Cymbella tumida	*
Denticula elegans	*
Diploneis oblongella	*
Epithemia adnata	1
Eunotia curvata	*
Eunotia maior	*
Eunotia pectinalis var. minor	*
Eunotia vanheurckii var. intermedia	1
Fragilaria vaucheriae	12
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	*
Gomphonema angustatum	*
Gomphonema apuncto	2
Gomphonema olivaceum	*
Gomphonema parvulum	*
Gomphonema sphaerophorum	*
Melosira varians	*

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Meridion circulare	*
Navicula cryptocephala	1
Navicula lanceolata	*
Navicula menisculus var. upsaliensis	1
Navicula minima	1
Navicula radiosa	1
Navicula radiosa var. parva	*
Navicula radiosa var. tenella	*
Navicula salinarum var. intermedia	*
Navicula secreta var. apiculata	*
Navicula symmetrica	*
Nitzschia acicularis	1
Nitzschia dissipata	1
Nitzschia gracilis	*
Nitzschia linearis	*
Nitzschia palea	1
Nitzschia paleacea	*
Nitzschia recta	*
Nitzschia sinuata var. tabellaria	*
Nitzschia vermicularis	*
Pinnularia viridis	*
Surirella angustata	*
Surirella ovata	*
Synedra acus	*
Synedra pulchella	*
Synedra rumpens var. familiaris	*
Synedra ulna	2
Synedra ulna var. oxyrhynchus	1

 Station ID: REFWAOSC Collection Date: 06/14/94

Total Number of Taxa (TNT):	67
Total Number of Individuals (TNI):	525
Diversity (H):	0.52
Percent (%) Sensitive Individuals:	72.8
Pollution Tolerance Index (PTI):	3.7
Siltation Index**:	1.3

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWAOSC (04036003) Stream: STATION CAMP CREEK
 Mile Point: 19.00 Drainage Area: 92.5 square miles
 Order: 5 Ecoregion: WESTERN ALLEGHENY
 County: ESTILL/JACKSON Basin: KENTUCKY
 Map Number: 09-49 Latitude: 37-33-42 Longitude: 083-55-18
 Location Description: OFF KY 1209 AT ESTILL/JACKSON BORDER

Date Collected: 10/18/94 Comments:
 Sample ID: 19941018-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	2
Achnanthes deflexa	237
Achnanthes lanceolata var. dubia	*
Achnanthes lapponica var. ninckei	1
Achnanthes microcephala	*
Achnanthes minutissima	156
Amphipleura pellucida	1
Amphora perpusilla	*
Anomoeoneis vitrea	7
Caloneis ventricosa var. truncatula	*
Cocconeis placentula	1
Cymbella affinis	*
Cymbella cymbiformis	*
Cymbella delicatula	83
Cymbella microcephala	16
Cymbella minuta	*
Cymbella silesiaca	*
Cymbella sinuata	*
Cymbella sp. (K)	*
Cymbella turgidula	*
Denticula elegans	1
Diploneis elliptica	*
Diploneis oblongella	*
Eunotia maior	*
Eunotia pectinalis var. minor	*
Fragilaria vaucheriae	8
Frustulia rhomboides var. amphipleuroides	*
Gomphonema angustatum	*
Gomphonema apuncto	30
Gomphonema sparsistriatum f. maculatum	*
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Navicula atomus	*
Navicula cryptocephala	*
Navicula cryptocephala var. veneta	3
Navicula lanceolata	1
Navicula meniscus var. upsaliensis	*
Navicula minima	5
Navicula pupula	*

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula radiosa	*
Navicula radiosa var. tenella	*
Navicula salinarum var. intermedia	*
Navicula viridula var. linearis	*
Nitzschia acicularis	*
Nitzschia amphibia	*
Nitzschia angustata var. acuta	*
Nitzschia dissipata	2
Nitzschia fonticola	*
Nitzschia gracilis	2
Nitzschia linearis	1
Nitzschia palea	*
Nitzschia paleacea	*
Nitzschia sinuata var. tabellaria	*
Nitzschia tropica	*
Rhoicosphenia curvata	*
Stauroneis obscura	*
Stauroneis phoenicenteron	*
Synedra acus	1
Synedra delicatissima	4
Synedra ulna	*
Synedra ulna var. oxyrhynchus	1

 Station ID: REFWAOSC Collection Date: 10/18/94

Total Number of Taxa (TNT):	61
Total Number of Individuals (TNI):	563
Diversity (H):	0.71
Percent (%) Sensitive Individuals:	60.7
Pollution Tolerance Index (PTI):	3.5
Siltation Index**:	2.5

 *Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWAOSC (04036003) Stream: STATION CAMP CREEK
 Mile Point: 19.00 Drainage Area: 92.5 square miles
 Order: 5 Ecoregion: WESTERN ALLEGHENY
 County: ESTILL/JACKSON Basin: KENTUCKY
 Map Number: 09-49 Latitude: 37-33-42 Longitude: 083-55-18
 Location Description: OFF KY 1209 AT ESTILL/JACKSON BORDER

Date Collected: 07/13/95 Comments:
 Sample ID: 19950713-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	251
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	3
Achnanthes lapponica var. ninckei	*
Achnanthes microcephala	*
Achnanthes minutissima	144
Amphipleura pellucida	1
Amphora ovalis	*
Amphora perpusilla	*
Amphora submontana	*
Anomoeoneis vitrea	1
Caloneis bacillum	1
Cocconeis pediculus	2
Cocconeis placentula	*
Cymbella affinis	7
Cymbella cymbiformis	1
Cymbella delicatula	56
Cymbella hustedtii	*
Cymbella microcephala	7
Cymbella minuta	1
Cymbella naviculiformis	*
Cymbella prostrata	*
Cymbella prostrata var. auerswaldii	*
Cymbella silesiaca	5
Cymbella sinuata	*
Cymbella sp. (K)	*
Cymbella tumida	1
Denticula elegans	1
Diploneis elliptica	*
Epithemia adnata	*
Eunotia pectinalis var. minor	*
Fragilaria crotonensis	*
Fragilaria vaucheriae	17
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	*
Gomphonema angustatum	*
Gomphonema apuncto	24
Gomphonema brasiliense	*

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Gomphonema clevei	3	*
Gomphonema sphaerophorum		*
Gomphonema subclavatum	2	*
Melosira varians		*
Meridion circulare		*
Navicula atomus	2	
Navicula cryptocephala	1	
Navicula cryptocephala var. veneta	3	
Navicula decussis	1	
Navicula laevissima		*
Navicula lanceolata		*
Navicula minima	4	
Navicula mutica		*
Navicula notha		*
Navicula placenta		*
Navicula pupula		*
Navicula pupula var. capitata		*
Navicula radiosa		*
Navicula radiosa var. tenella	1	
Navicula salinarum var. intermedia		*
Navicula viridula var. linearis		*
Nitzschia acicularis		*
Nitzschia amphibia	1	
Nitzschia clausii		*
Nitzschia constricta		*
Nitzschia dissipata	1	
Nitzschia gracilis	3	
Nitzschia linearis		*
Nitzschia palea	2	
Nitzschia paleacea	1	
Nitzschia recta		*
Nitzschia sinuata var. tabellaria		*
Pinnularia subcapitata		*
Stauroneis phoenicenteron		*
Surirella ovata		*
Surirella robusta		*
Synedra acus	2	
Synedra delicatissima	2	
Synedra filiformis var. exilis	3	
Synedra rumpens var. familiaris	7	
Synedra ulna	1	
Synedra ulna var. oxyrhynchus		*

 Station ID: REFWAOSC Collection Date: 07/13/95

Total Number of Taxa (TNT):	81
Total Number of Individuals (TNI):	563
Diversity (H):	0.80
Percent (%) Sensitive Individuals:	59.1
Pollution Tolerance Index (PTI):	3.4
Siltation Index**:	3.6

* Qualitative data

** Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWASTU (04038001) Stream: STURGEON CREEK
 Mile Point: 4.00 Drainage Area: 92.2 square miles
 Order: 5 Ecoregion: WESTERN ALLEGHENY
 County: LEE Basin: KENTUCKY
 Map Number: 09-50 Latitude: 37-33-08 Longitude: 083-48-35
 Location Description: OFF STURGEON CREEK ROAD

Date Collected: 06/29/92 Comments:
 Sample ID: 19920629-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	167
Achnanthes lanceolata var. dubia	*
Achnanthes minutissima	251
Achnanthes stewartii	*
Amphipleura pellucida	2
Amphora perpusilla	*
Cyclotella stelligera	*
Cyclotella striata var. ambigua	*
Cymbella affinis	2
Cymbella aspera	*
Cymbella delicatula	30
Cymbella minuta	4
Cymbella naviculiformis	*
Cymbella prostrata	*
Cymbella silesiaca	*
Cymbella sinuata	*
Cymbella sp. (K)	*
Cymbella tumida	5
Cymbella turgidula	6
Eunotia pectinalis var. minor	*
Fragilaria vaucheriae	5
Frustulia rhomboides var. amphipleuroides	*
Gomphonema affine	1
Gomphonema olivaceum	*
Gomphonema parvulum	2
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Melosira varians	3
Meridion circulare	*
Navicula cryptocephala	*
Navicula cryptocephala var. veneta	2
Navicula lanceolata	*
Navicula minima	8
Navicula pupula var. elliptica	*
Navicula radiosa var. parva	*
Navicula radiosa var. tenella	1
Navicula salinarum var. intermedia	4
Navicula secreta var. apiculata	1
Navicula symmetrica	1

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

<i>Nitzschia acicularis</i>	2
<i>Nitzschia clausii</i>	*
<i>Nitzschia coarctata</i>	*
<i>Nitzschia dissipata</i>	4
<i>Nitzschia filiformis</i>	*
<i>Nitzschia linearis</i>	1
<i>Nitzschia microcephala</i>	*
<i>Nitzschia palea</i>	1
<i>Nitzschia recta</i>	*
<i>Nitzschia romana</i>	1
<i>Nitzschia sp.1</i>	*
<i>Pinnularia biceps</i>	*
<i>Surirella angustata</i>	1
<i>Surirella ovata</i>	1
<i>Surirella ovata var. pinnata</i>	*
<i>Synedra acus</i>	1
<i>Synedra rumpens</i>	9
<i>Synedra rumpens var. familiaris</i>	1
<i>Synedra ulna</i>	*
<i>Synedra ulna var. ramesi</i>	*

 Station ID: REFWASTU Collection Date: 06/29/92

Total Number of Taxa (TNT):	59
Total Number of Individuals (TNI):	517
Diversity (H):	0.67
Percent (%) Sensitive Individuals:	42.4
Pollution Tolerance Index (PTI):	3.3
Siltation Index**:	5.0

 *Qualitative data
 **Relative abundance of *Navicula+Nitzschia+Surriella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWASTU (04038001) Stream: STURGEON CREEK
 Mile Point: 4.00 Drainage Area: 92.2 square miles
 Order: 5 Ecoregion: WESTERN ALLEGHENY
 County: LEE Basin: KENTUCKY
 Map Number: 09-50 Latitude: 37-33-08 Longitude: 083-48-35
 Location Description: OFF STURGEON CREEK ROAD

Date Collected: 10/23/92 Comments:
 Sample ID: 19921023-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	206	
Achnanthes lanceolata		*
Achnanthes minutissima	182	
Amphipleura pellucida	1	
Amphora perpusilla		*
Bacillaria paradoxa	4	
Caloneis bacillum		*
Cocconeis placentula		*
Cocconeis placentula var. euglypta		*
Cyclotella stelligera		*
Cyclotella striata var. ambigua		*
Cymbella affinis		*
Cymbella cistula	1	
Cymbella delicatula	42	
Cymbella microcephala		*
Cymbella minuta	2	
Cymbella prostrata		*
Cymbella silesiaca		*
Cymbella sp. (K)	8	
Cymbella tumida	1	
Cymbella turgidula	1	
Denticula elegans		*
Diatoma vulgare		*
Diploneis elliptica		*
Eunotia pectinalis var. minor		*
Fragilaria pinnata		*
Fragilaria vaucheriae	11	
Frustulia rhomboides var. amphipleuroides		*
Gomphonema affine	1	
Gomphonema angustatum		*
Gomphonema apuncto	2	
Gomphonema parvulum	2	
Gomphonema sparsistriatum f. maculatum	1	
Gomphonema sphaerophorum		*
Gomphonema subclavatum	1	
Gomphonema subclavatum var. mexicanum		*
Gyrosigma scalproides		*
Gyrosigma spencerii		*
Melosira italica		*

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Melosira varians	3
Navicula cryptocephala var. veneta	4
Navicula decussis	*
Navicula lanceolata	*
Navicula minima	11
Navicula radiosa	*
Navicula radiosa var. parva	*
Navicula radiosa var. tenella	*
Navicula salinarum var. intermedia	*
Navicula schroeteri var. escambia	6
Navicula secreta var. apiculata	*
Navicula symmetrica	1
Navicula viridula	1
Nitzschia acicularis	*
Nitzschia amphibia	1
Nitzschia clausii	*
Nitzschia coarctata	2
Nitzschia constricta	*
Nitzschia dissipata	2
Nitzschia filiformis	5
Nitzschia gracilis	*
Nitzschia levidensis	*
Nitzschia linearis	1
Nitzschia lorenziana var. subtilis	*
Nitzschia microcephala	*
Nitzschia palea	*
Nitzschia recta	2
Nitzschia sigmoidea	*
Nitzschia sp.1	1
Nitzschia tryblionella var. victoriae	*
Rhoicosphenia curvata	*
Stauroneis smithii	*
Surirella angustata	*
Surirella linearis	*
Surirella ovata	*
Surirella ovata var. pinnata	*
Synedra delicatissima	2
Synedra rumpens	*
Synedra ulna	2
Synedra ulna var. oxyrhynchus	*

 Station ID: REFWASTU Collection Date: 10/23/92

Total Number of Taxa (TNT): 79
 Total Number of Individuals (TNI): 510
 Diversity (H): 0.74
 Percent (%) Sensitive Individuals: 51.4
 Pollution Tolerance Index (PTI): 3.4
 Siltation Index** : 7.3

 *Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWASTU (04038001) Stream: STURGEON CREEK
 Mile Point: 4.00 Drainage Area: 92.2 square miles
 Order: 5 Ecoregion: WESTERN ALLEGHENY
 County: LEE Basin: KENTUCKY
 Map Number: 09-50 Latitude: 37-33-08 Longitude: 083-48-35
 Location Description: OFF STURGEON CREEK ROAD

Date Collected: 06/28/93 Comments:
 Sample ID: 19930628-10 Substrate Type: Natural
 ID By:

<i>Achnanthes deflexa</i>	95
<i>Achnanthes lanceolata</i>	*
<i>Achnanthes lapponica</i> var. <i>ninckei</i>	1
<i>Achnanthes minutissima</i>	239
<i>Amphipleura pellucida</i>	1
<i>Amphora perpusilla</i>	1
<i>Anomoeoneis vitrea</i>	*
<i>Bacillaria paradoxa</i>	1
<i>Caloneis bacillum</i>	1
<i>Cymbella affinis</i>	*
<i>Cymbella delicatula</i>	35
<i>Cymbella minuta</i>	*
<i>Cymbella naviculiformis</i>	*
<i>Cymbella prostrata</i>	*
<i>Cymbella silesiaca</i>	11
<i>Cymbella</i> sp. (K)	1
<i>Cymbella triangulum</i>	*
<i>Cymbella tumida</i>	4
<i>Cymbella turgidula</i>	*
<i>Denticula elegans</i>	1
<i>Diatoma vulgare</i>	*
<i>Diploneis elliptica</i>	*
<i>Eunotia exigua</i>	*
<i>Eunotia maior</i>	*
<i>Eunotia pectinalis</i> var. <i>minor</i>	*
<i>Fragilaria vaucheriae</i>	22
<i>Frustulia rhomboides</i> var. <i>amphipleuroides</i>	*
<i>Frustulia vulgaris</i>	*
<i>Gomphonema angustatum</i>	*
<i>Gomphonema apuncto</i>	15
<i>Gomphonema gracile</i>	*
<i>Gomphonema parvulum</i>	10
<i>Gomphonema sphaerophorum</i>	*
<i>Gomphonema subclavatum</i>	*
<i>Gomphonema subclavatum</i> var. <i>mexicanum</i>	*
<i>Melosira varians</i>	17
<i>Meridion circulare</i>	*
<i>Navicula capitata</i>	*
<i>Navicula cryptocephala</i>	1

 *Qualitative data

**Relative abundance of *Navicula*+*Nitzschia*+*Surriella*

06/25/96

DIATOM COLLECTION DATA

<i>Navicula cryptocephala</i> var. <i>veneta</i>	4
<i>Navicula minima</i>	16
<i>Navicula pupula</i> var. <i>capitata</i>	1
<i>Navicula radiosa</i> var. <i>parva</i>	*
<i>Navicula radiosa</i> var. <i>tenella</i>	1
<i>Navicula rhynchocephala</i>	*
<i>Navicula salinarum</i> var. <i>intermedia</i>	6
<i>Navicula schroeteri</i> var. <i>escambia</i>	5
<i>Navicula secreta</i> var. <i>apiculata</i>	5
<i>Navicula symmetrica</i>	*
<i>Navicula viridula</i> var. <i>rostellata</i>	*
<i>Nitzschia acicularis</i>	2
<i>Nitzschia amphibia</i>	1
<i>Nitzschia clausii</i>	*
<i>Nitzschia coarctata</i>	*
<i>Nitzschia constricta</i>	*
<i>Nitzschia dissipata</i>	1
<i>Nitzschia filiformis</i>	7
<i>Nitzschia gracilis</i>	2
<i>Nitzschia linearis</i>	*
<i>Nitzschia lorenziana</i> var. <i>subtilis</i>	2
<i>Nitzschia palea</i>	6
<i>Nitzschia recta</i>	*
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	*
<i>Nitzschia tryblionella</i> var. <i>victoriae</i>	*
<i>Nitzschia vermicularis</i>	*
<i>Surirella angustata</i>	*
<i>Surirella linearis</i>	*
<i>Surirella ovata</i>	*
<i>Surirella ovata</i> var. <i>pinnata</i>	5
<i>Synedra acus</i>	2
<i>Synedra rumpens</i>	16
<i>Synedra rumpens</i> var. <i>familiaris</i>	2
<i>Synedra ulna</i>	3
<i>Synedra ulna</i> var. <i>oxyrhynchus</i>	5
<i>Synedra ulna</i> var. <i>ramesi</i>	*
<i>Thalassiosira weissflogii</i>	1

 Station ID: REFWASTU Collection Date: 06/28/93

Total Number of Taxa (TNT):	76
Total Number of Individuals (TNI):	549
Diversity (H):	0.96
Percent (%) Sensitive Individuals:	29.5
Pollution Tolerance Index (PTI):	3.0
Siltation Index**:	10.9

 * Qualitative data
 ** Relative abundance of *Navicula*+*Nitzschia*+*Surirella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWASTU (04038001) Stream: STURGEON CREEK
 Mile Point: 4.00 Drainage Area: 92.2 square miles
 Order: 5 Ecoregion: WESTERN ALLEGHENY
 County: LEE Basin: KENTUCKY
 Map Number: 09-50 Latitude: 37-33-08 Longitude: 083-48-35
 Location Description: OFF STURGEON CREEK ROAD

Date Collected: 10/25/93 Comments:
 Sample ID: 19931025-10 Substrate Type: Natural
 ID By:

<i>Achnanthes clevei</i>		*
<i>Achnanthes deflexa</i>	35	
<i>Achnanthes lanceolata</i>	2	
<i>Achnanthes lapponica</i> var. <i>ninckei</i>		*
<i>Achnanthes minutissima</i>	136	
<i>Amphipleura pellucida</i>		*
<i>Amphora ovalis</i>		*
<i>Amphora submontana</i>		*
<i>Bacillaria paradoxa</i>	16	
<i>Caloneis budensis</i>	1	
<i>Cocconeis pediculus</i>		*
<i>Cocconeis placentula</i>	1	
<i>Cocconeis placentula</i> var. <i>euglypta</i>	1	
<i>Cymbella aspera</i>	1	
<i>Cymbella delicatula</i>	28	
<i>Cymbella lunata</i>		*
<i>Cymbella minuta</i>	3	
<i>Cymbella naviculiformis</i>		*
<i>Cymbella prostrata</i>		*
<i>Cymbella silesiaca</i>	9	
<i>Cymbella</i> sp. (K)		*
<i>Cymbella tumida</i>	2	
<i>Cymbella turgidula</i>	4	
<i>Diploneis elliptica</i>	1	
<i>Entomoneis ornata</i>		*
<i>Eunotia maior</i>	1	
<i>Eunotia vanheurckii</i> var. <i>intermedia</i>		*
<i>Fragilaria vaucheriae</i>	26	
<i>Frustulia rhomboides</i> var. <i>crassinervia</i>		*
<i>Frustulia rhomboides</i> var. <i>amphipleuroides</i>		*
<i>Frustulia vulgaris</i>	1	
<i>Gomphonema affine</i>	1	
<i>Gomphonema apuncto</i>	1	
<i>Gomphonema gracile</i>	3	
<i>Gomphonema olivaceum</i>		*
<i>Gomphonema parvulum</i>	7	
<i>Gomphonema sphaerophorum</i>	1	
<i>Gomphonema subclavatum</i> var. <i>mexicanum</i>	4	
<i>Gyrosigma scalpoides</i>	1	

* Qualitative data
 ** Relative abundance of *Navicula*+*Nitzschia*+*Surriella*
 06/25/96

DIATOM COLLECTION DATA

<i>Gyrosigma spencerii</i>	1
<i>Hantzschia amphioxys</i>	1
<i>Melosira varians</i>	17
<i>Meridion circulare</i>	*
<i>Navicula capitata</i>	*
<i>Navicula cryptocephala</i>	4
<i>Navicula cryptocephala</i> var. <i>veneta</i>	7
<i>Navicula decussis</i>	*
<i>Navicula lanceolata</i>	*
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	1
<i>Navicula minima</i>	2
<i>Navicula pupula</i>	*
<i>Navicula pygmaea</i>	2
<i>Navicula radiosa</i> var. <i>tenella</i>	3
<i>Navicula rhynchocephala</i>	*
<i>Navicula salinarum</i> var. <i>intermedia</i>	15
<i>Navicula secreta</i> var. <i>apiculata</i>	6
<i>Navicula symmetrica</i>	60
<i>Navicula viridula</i>	8
<i>Navicula viridula</i> var. <i>linearis</i>	2
<i>Navicula viridula</i> var. <i>rostellata</i>	*
<i>Nitzschia acicularis</i>	2
<i>Nitzschia amphibia</i>	3
<i>Nitzschia angustata</i> var. <i>acuta</i>	*
<i>Nitzschia brevissima</i>	*
<i>Nitzschia clausii</i>	10
<i>Nitzschia coarctata</i>	3
<i>Nitzschia communis</i>	1
<i>Nitzschia dissipata</i>	30
<i>Nitzschia frustulum</i>	4
<i>Nitzschia gracilis</i>	2
<i>Nitzschia linearis</i>	2
<i>Nitzschia lorenziana</i> var. <i>subtilis</i>	*
<i>Nitzschia palea</i>	31
<i>Nitzschia sigmoidea</i>	1
<i>Nitzschia</i> sp.1	7
<i>Nitzschia tryblionella</i> var. <i>victoriae</i>	1
<i>Nitzschia vermicularis</i>	8
<i>Pinnularia biceps</i>	1
<i>Pinnularia obscurum</i>	*
<i>Pinnularia subcapitata</i> var. <i>paucistriata</i>	*
<i>Pinnularia viridis</i>	*
<i>Rhopalodia gibba</i>	*
<i>Rhopalodia gibberula</i> var. <i>vanheurckii</i>	*
<i>Stauroneis anceps</i>	1
<i>Stauroneis smithii</i>	2
<i>Stenopterobia delicatissima</i>	2
<i>Surirella angustata</i>	1
<i>Surirella linearis</i>	1
<i>Surirella ovata</i>	*
<i>Surirella ovata</i> var. <i>pinnata</i>	1

 *Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surirella*

06/25/96

DIATOM COLLECTION DATA

Synedra rumpens	*
Synedra ulna	9
Synedra ulna var. oxyrhynchus	3

Station ID: REFWASTU Collection Date: 10/25/93

Total Number of Taxa (TNT):	93
Total Number of Individuals (TNI):	541
Diversity (H):	1.32
Percent (%) Sensitive Individuals:	15.7
Pollution Tolerance Index (PTI):	2.5
Siltation Index**:	39.7

* Qualitative data

** Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Site ID: REFWASTU (04038001)	Stream: STURGEON CREEK	
Mile Point: 4.00	Drainage Area: 92.2 square miles	
Order: 5	Ecoregion: WESTERN ALLEGHENY	
County: LEE	Basin: KENTUCKY	
Map Number: 09-50	Latitude: 37-33-08	Longitude: 083-48-35
Location Description: OFF STURGEON CREEK ROAD		

Date Collected: 06/06/94	Comments:
Sample ID: 19940606-10	Substrate Type: Natural
ID By:	

Achnanthes clevei	*
Achnanthes deflexa	152
Achnanthes lanceolata	1
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	189
Amphipleura pellucida	1
Amphora perpusilla	*
Anomoeoneis vitrea	*
Caloneis bacillum	*
Cocconeis placentula	1
Cyclotella striata var. ambigua	*
Cymbella affinis	*
Cymbella aspera	*
Cymbella delicatula	66
Cymbella minuta	*
Cymbella naviculiformis	*
Cymbella prostrata	*
Cymbella silesiaca	11
Cymbella sp. (K)	1
Cymbella tumida	2
Cymbella turgidula	*
Denticula elegans	*
Diatoma vulgare	*
Diploneis elliptica	*
Eunotia maior	*
Fragilaria vaucheriae	31
Frustulia rhomboides var. crassinervia	*
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	*
Gomphonema affine	*
Gomphonema angustatum	*
Gomphonema apuncto	29
Gomphonema parvulum	3
Gomphonema sphaerophorum	*
Gyrosigma scalproides	*
Melosira varians	3
Meridion circulare	*
Navicula cryptocephala	1
Navicula cryptocephala var. veneta	1

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula decussis	*
Navicula menisculus var. upsaliensis	*
Navicula minima	2
Navicula notha	*
Navicula radiosa	*
Navicula radiosa var. tenella	1
Navicula rhynchocephala	*
Navicula salinarum var. intermedia	1
Navicula schroeteri var. escambia	*
Navicula secreta var. apiculata	2
Navicula symmetrica	*
Navicula viridula	*
Navicula viridula var. rostellata	*
Nitzschia acicularis	5
Nitzschia dissipata	8
Nitzschia fonticola	*
Nitzschia frustulum	1
Nitzschia gracilis	5
Nitzschia linearis	4
Nitzschia palea	5
Nitzschia paleacea	1
Nitzschia recta	2
Nitzschia sp.1	*
Nitzschia vermicularis	*
Pinnularia biceps	*
Pinnularia nodosa	*
Pinnularia subcapitata	*
Stauroneis smithii	*
Surirella angustata	*
Surirella ovata	3
Surirella ovata var. pinnata	*
Synedra acus	*
Synedra rumpens	2
Synedra rumpens var. familiaris	5
Synedra ulna	*
Synedra ulna var. oxyrhynchus	*
Tabellaria flocculosa	*

 Station ID: REFWASTU Collection Date: 06/06/94

Total Number of Taxa (TNT): 76
 Total Number of Individuals (TNI): 539
 Diversity (H): 0.85
 Percent (%) Sensitive Individuals: 43.4
 Pollution Tolerance Index (PTI): 3.2
 Siltation Index^{**}: 7.2

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWASTU (04038001) Stream: STURGEON CREEK
 Mile Point: 4.00 Drainage Area: 92.2 square miles
 Order: 5 Ecoregion: WESTERN ALLEGHENY
 County: LEE Basin: KENTUCKY
 Map Number: 09-50 Latitude: 37-33-08 Longitude: 083-48-35
 Location Description: OFF STURGEON CREEK ROAD

Date Collected: 10/05/94 Comments:
 Sample ID: 19941005-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	1
Achnanthes deflexa	168
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	*
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	234
Amphipleura pellucida	1
Bacillaria paradoxa	6
Cocconeis placentula	*
Cyclotella meneghiniana	*
Cyclotella stelligera	*
Cyclotella striata var. ambigua	*
Cymbella delicatula	11
Cymbella minuta	7
Cymbella silesiaca	7
Cymbella triangulum	*
Cymbella tumida	3
Cymbella turgidula	5
Denticula elegans	*
Diploneis elliptica	*
Diploneis puella	*
Epithemia adnata	*
Eunotia pectinalis var. minor	*
Fragilaria vaucheriae	6
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	*
Gomphonema angustatum	1
Gomphonema apuncto	14
Gomphonema parvulum	3
Gomphonema sparsistriatum f. maculatum	1
Gomphonema sphaerophorum	*
Gomphonema subclavatum var. mexicanum	*
Gyrosigma nodiferum	1
Hantzschia amphioxys	1
Melosira varians	4
Navicula capitata	*
Navicula cocconeiformis	1
Navicula cryptocephala	*
Navicula cryptocephala var. veneta	*

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula decussis	*
Navicula gottlandica	*
Navicula minima	4
Navicula notha	1
Navicula pupula	*
Navicula pygmaea	*
Navicula radiosa var. tenella	1
Navicula rhychocephala	*
Navicula salinarum var. intermedia	*
Navicula schroeteri var. escambia	4
Navicula secreta var. apiculata	*
Navicula symmetrica	8
Navicula viridula	3
Navicula viridula var. linearis	1
Navicula viridula var. rostellata	*
Nitzschia acicularis	1
Nitzschia amphibia	*
Nitzschia angustata var. acuta	*
Nitzschia brevissima	*
Nitzschia clausii	*
Nitzschia coarctata	*
Nitzschia dissipata	4
Nitzschia filiformis	3
Nitzschia frustulum	*
Nitzschia gracilis	2
Nitzschia linearis	*
Nitzschia lorenziana var. subtilis	*
Nitzschia palea	6
Nitzschia paleacea	*
Nitzschia perminuta	*
Nitzschia recta	2
Nitzschia sinuata var. tabellaria	*
Nitzschia sp.1	2
Nitzschia tryblionella var. victoriae	*
Nitzschia vermicularis	*
Stephanodiscus hantzschii	*
Surirella ovata	1
Surirella ovata var. pinnata	1
Surirella robusta	*
Synedra rumpens	*
Synedra ulna	5
Synedra ulna var. oxyrhynchus	1

 Station ID: REFWASTU Collection Date: 10/05/94

Total Number of Taxa (TNT):	81
Total Number of Individuals (TNI):	525
Diversity (H):	0.79
Percent (%) Sensitive Individuals:	37.5
Pollution Tolerance Index (PTI):	3.2
Siltation Index**:	8.2

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFWASTU (04038001) Stream: STURGEON CREEK
 Mile Point: 4.00 Drainage Area: 92.2 square miles
 Order: 5 Ecoregion: WESTERN ALLEGHENY
 County: LEE Basin: KENTUCKY
 Map Number: 09-50 Latitude: 37-33-08 Longitude: 083-48-35
 Location Description: OFF STURGEON CREEK ROAD

Date Collected: 07/12/95 Comments:
 Sample ID: 19950712-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	146
Achnanthes exigua	*
Achnanthes lanceolata	*
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	296
Amphipleura pellucida	1
Amphora ovalis	*
Amphora perpusilla	*
Anomoeoneis vitrea	*
Cocconeis placentula	*
Cyclotella meneghiniana	*
Cyclotella striata var. ambigua	*
Cymbella affinis	*
Cymbella delicatula	50
Cymbella lunata	*
Cymbella minuta	1
Cymbella prostrata var. auerswaldii	*
Cymbella silesiaca	3
Cymbella sp. (K)	*
Cymbella tumida	*
Cymbella turgidula	*
Eunotia maior	*
Eunotia pectinalis var. minor	*
Fragilaria crotonensis	*
Fragilaria vaucheriae	5
Frustulia rhomboides var. amphipleuroides	*
Gomphonema angustatum	1
Gomphonema apuncto	1
Gomphonema gracile	*
Gomphonema olivaceoides	*
Gomphonema parvulum	*
Gomphonema sparsistriatum f. maculatum	8
Gyrosigma spencerii	*
Melosira varians	*
Navicula atomus	1
Navicula cryptocephala	1
Navicula cryptocephala var. veneta	1
Navicula decussis	*

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula minima	*
Navicula miniscula	*
Navicula notha	*
Navicula radiosa var. tenella	2
Navicula rhynchocephala	*
Navicula salinarum var. intermedia	*
Navicula schroeteri var. escambia	*
Navicula secreta var. apiculata	*
Navicula symmetrica	*
Navicula viridula	*
Navicula viridula var. rostellata	*
Nitzschia acicularis	*
Nitzschia angustata var. acuta	*
Nitzschia clausii	*
Nitzschia dissipata	*
Nitzschia gracilis	3
Nitzschia levidensis	*
Nitzschia palea	4
Nitzschia paleacea	1
Nitzschia recta	2
Nitzschia sinuata var. tabellaria	*
Nitzschia sp.1	*
Nitzschia tryblionella var. victoriae	*
Nitzschia vermicularis	*
Stauroneis smithii	*
Surirella angustata	*
Surirella linearis	*
Surirella ovata	*
Surirella ovata var. pinnata	*
Surirella robusta	*
Synedra acus	*
Synedra rumpens	*
Synedra rumpens var. familiaris	1
Synedra ulna	2
Synedra ulna var. oxyrhynchus	1
Thalassiosira weissflogii	*

 Station ID: REFWASTU Collection Date: 07/12/95

Total Number of Taxa (TNT):	75
Total Number of Individuals (TNI):	531
Diversity (H):	0.56
Percent (%) Sensitive Individuals:	39.0
Pollution Tolerance Index (PTI):	3.3
Siltation Index**:	2.8

 * Qualitative data

** Relative abundance of *Navicula+Nitzschia+Surirella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPBDC (03016002) Stream: BEAVERDAM CREEK
 Mile Point: 7.60 Drainage Area: 10.9 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: EDMONSON Basin: GREEN
 Map Number: 06-31 Latitude: 37-09-16 Longitude: 086-13-36
 Location Description: KY 101-259 BRIDGE

Date Collected: 07/08/92 Comments:
 Sample ID: 19920708-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	1
Achnanthes deflexa	14
Achnanthes lanceolata	1
Achnanthes lanceolata var. dubia	3
Achnanthes minutissima	200
Amphora ovalis	*
Amphora perpusilla	10
Amphora submontana	*
Caloneis bacillum	*
Cocconeis pediculus	*
Cocconeis placentula var. lineata	9
Cyclotella striata var. ambigua	*
Cymbella affinis	10
Cymbella minuta	2
Cymbella silesiaca	1
Cymbella sinuata	*
Cymbella triangulum	1
Cymbella tumida	1
Cymbella turgidula	*
Diploneis elliptica	*
Eunotia tenella	*
Fragilaria vaucheriae	41
Frustulia vulgaris	*
Gomphonema abbreviatum	*
Gomphonema acuminatum	*
Gomphonema affine	*
Gomphonema angustatum	5
Gomphonema clevei	*
Gomphonema gracile	*
Gomphonema parvulum	1
Gomphonema subclavatum	1
Gyrosigma scalproides	*
Gyrosigma spencerii	3
Melosira granulata	*
Melosira varians	6
Meridion circulare	*
Navicula capitata	1
Navicula cryptocephala	8
Navicula cryptocephala var. veneta	24

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

<i>Navicula decussis</i>	*
<i>Navicula lanceolata</i>	3
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	8
<i>Navicula minima</i>	96
<i>Navicula mutica</i>	*
<i>Navicula pupula</i>	*
<i>Navicula pupula</i> var. <i>capitata</i>	1
<i>Navicula radiosa</i>	*
<i>Navicula radiosa</i> var. <i>parva</i>	4
<i>Navicula radiosa</i> var. <i>tenella</i>	9
<i>Navicula salinarum</i> var. <i>intermedia</i>	4
<i>Navicula secreta</i> var. <i>apiculata</i>	2
<i>Navicula symmetrica</i>	2
<i>Navicula tripunctata</i>	1
<i>Navicula viridula</i>	*
<i>Navicula viridula</i> var. <i>rostellata</i>	2
<i>Neidium dubium</i>	*
<i>Nitzschia acicularis</i>	2
<i>Nitzschia amphibia</i>	2
<i>Nitzschia clausii</i>	*
<i>Nitzschia constricta</i>	*
<i>Nitzschia dissipata</i>	6
<i>Nitzschia linearis</i>	1
<i>Nitzschia palea</i>	53
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	*
<i>Nitzschia tryblionella</i> var. <i>victoriae</i>	*
<i>Pinnularia subcapitata</i> var. <i>paucistriata</i>	1
<i>Pinnularia viridis</i>	*
<i>Rhoicosphenia curvata</i>	26
<i>Stauroneis smithii</i>	*
<i>Surirella angustata</i>	3
<i>Surirella linearis</i>	*
<i>Surirella ovata</i>	7
<i>Surirella ovata</i> var. <i>pinnata</i>	1
<i>Synedra acus</i>	*
<i>Synedra rumpens</i> var. <i>familiaris</i>	1
<i>Synedra ulna</i>	1
<i>Synedra ulna</i> var. <i>oxyrhynchus</i>	1

 Station ID: REFIPBDC Collection Date: 07/08/92

Total Number of Taxa (TNT):	77
Total Number of Individuals (TNI):	580
Diversity (H):	1.08
Percent (%) Sensitive Individuals:	4.8
Pollution Tolerance Index (PTI):	2.3
Siltation Index**:	39.5

 *Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surirella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPBDC (03016002) Stream: BEAVERDAM CREEK
 Mile Point: 7.60 Drainage Area: 10.9 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: EDMONSON Basin: GREEN
 Map Number: 06-31 Latitude: 37-09-16 Longitude: 086-13-36
 Location Description: KY 101-259 BRIDGE

Date Collected: 07/21/93 Comments:
 Sample ID: 19930721-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	26
Achnanthes exigua	*
Achnanthes lanceolata	4
Achnanthes lanceolata var. dubia	1
Achnanthes minutissima	27
Amphora ovalis	2
Amphora perpusilla	11
Amphora submontana	*
Caloneis bacillum	*
Caloneis ventricosa var. truncatula	1
Cocconeis pediculus	10
Cocconeis placentula	21
Cocconeis placentula var. euglypta	8
Cymatopleura solea	*
Cymbella affinis	60
Cymbella aspera	*
Cymbella prostrata	1
Cymbella silesiaca	3
Cymbella sinuata	*
Cymbella tumida	*
Cymbella turgidula	98
Diploneis elliptica	4
Eunotia pectinalis var. minor	*
Fragilaria pinnata	5
Frustulia rhomboides var. amphipleuroides	2
Gomphonema abbreviatum	*
Gomphonema affine	*
Gomphonema apuncto	*
Gomphonema gracile	*
Gomphonema parvulum	3
Gomphonema sphaerophorum	*
Gyrosigma scalproides	*
Gyrosigma spencerii	*
Hantzschia amphioxys	1
Melosira varians	101
Navicula capitata	*
Navicula cryptocephala	9
Navicula cryptocephala var. veneta	13
Navicula decussis	*

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula elginensis</i>	*
<i>Navicula laevissima</i>	*
<i>Navicula lanceolata</i>	*
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	1
<i>Navicula minima</i>	32
<i>Navicula mutica</i>	1
<i>Navicula placenta</i>	*
<i>Navicula pupula</i>	*
<i>Navicula pupula</i> var. <i>capitata</i>	3
<i>Navicula radiosa</i> var. <i>tenella</i>	11
<i>Navicula rhynchocephala</i>	*
<i>Navicula salinarum</i> var. <i>intermedia</i>	9
<i>Navicula schroeteri</i> var. <i>escambia</i>	15
<i>Navicula secreta</i> var. <i>apiculata</i>	*
<i>Navicula tripunctata</i>	1
<i>Navicula viridula</i>	6
<i>Nitzschia acicularis</i>	4
<i>Nitzschia amphibia</i>	20
<i>Nitzschia coarctata</i>	*
<i>Nitzschia communis</i>	*
<i>Nitzschia constricta</i>	*
<i>Nitzschia dissipata</i>	3
<i>Nitzschia filiformis</i>	5
<i>Nitzschia gracilis</i>	*
<i>Nitzschia levidensis</i>	*
<i>Nitzschia linearis</i>	2
<i>Nitzschia palea</i>	36
<i>Nitzschia recta</i>	1
<i>Nitzschia sigmoidea</i>	*
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	17
<i>Nitzschia tryblionella</i> var. <i>victoriae</i>	1
<i>Nitzschia vermicularis</i>	*
<i>Pinnularia viridis</i>	*
<i>Rhoicosphenia curvata</i>	9
<i>Stauroneis smithii</i>	2
<i>Surirella angustata</i>	*
<i>Surirella linearis</i>	2
<i>Surirella ovata</i>	6
<i>Surirella ovata</i> var. <i>pinnata</i>	1
<i>Synedra acus</i>	3
<i>Synedra delicatissima</i>	*
<i>Synedra rumpens</i> var. <i>familiaris</i>	1
<i>Tabellaria flocculosa</i>	*

 Station ID: REFIPBDC Collection Date: 07/21/93

Total Number of Taxa (TNT): 82
 Total Number of Individuals (TNI): 603
 Diversity (H): 1.30
 Percent (%) Sensitive Individuals: 31.5
 Pollution Tolerance Index (PTI): 2.6

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surirella*

06/25/96

DIATOM COLLECTION DATA

Siltation Index^{**}: 31.5

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPBDC (03016002) Stream: BEAVERDAM CREEK
 Mile Point: 7.60 Drainage Area: 10.9 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: EDMONSON Basin: GREEN
 Map Number: 06-31 Latitude: 37-09-16 Longitude: 086-13-36
 Location Description: KY 101-259 BRIDGE

Date Collected: 11/04/93 Comments:
 Sample ID: 19931104-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	1
Achnanthes deflexa	17
Achnanthes exigua	*
Achnanthes lanceolata	4
Achnanthes lanceolata var. dubia	3
Achnanthes minutissima	21
Amphipleura pellucida	*
Amphora ovalis	1
Amphora perpusilla	11
Amphora submontana	2
Caloneis bacillum	*
Caloneis ventricosa	*
Cocconeis pediculus	*
Cocconeis placentula	8
Cocconeis placentula var. euglypta	12
Cyclotella striata var. ambigua	1
Cymatopleura solea	*
Cymbella affinis	*
Cymbella microcephala	1
Cymbella minuta	1
Cymbella prostrata	*
Cymbella silesiaca	3
Cymbella tumida	*
Diploneis elliptica	1
Fragilaria pinnata	3
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	*
Gomphonema acuminatum	*
Gomphonema angustatum	*
Gomphonema apuncto	1
Gomphonema brasiliense	2
Gomphonema olivaceum	*
Gomphonema parvulum	4
Gomphonema subclavatum	*
Gyrosigma scalproides	2
Gyrosigma spencerii	1
Melosira varians	16
Navicula capitata	*
Navicula cryptocephala	1

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula cryptocephala</i> var. <i>veneta</i>	14
<i>Navicula decussis</i>	1
<i>Navicula elginensis</i>	*
<i>Navicula lanceolata</i>	1
<i>Navicula laterorostrata</i>	8
<i>Navicula minima</i>	35
<i>Navicula mutica</i>	2
<i>Navicula pygmaea</i>	*
<i>Navicula radiosa</i> var. <i>tenella</i>	10
<i>Navicula salinarum</i> var. <i>intermedia</i>	8
<i>Navicula secreta</i> var. <i>apiculata</i>	25
<i>Navicula symmetrica</i>	8
<i>Navicula tripunctata</i>	17
<i>Navicula viridula</i>	1
<i>Navicula viridula</i> var. <i>rostellata</i>	*
<i>Neidium binode</i>	2
<i>Nitzschia acicularis</i>	4
<i>Nitzschia amphibia</i>	33
<i>Nitzschia angustata</i> var. <i>acuta</i>	*
<i>Nitzschia clausii</i>	1
<i>Nitzschia coarctata</i>	*
<i>Nitzschia communis</i>	5
<i>Nitzschia constricta</i>	16
<i>Nitzschia dissipata</i>	31
<i>Nitzschia filiformis</i>	3
<i>Nitzschia frustulum</i>	*
<i>Nitzschia gracilis</i>	21
<i>Nitzschia levidensis</i>	*
<i>Nitzschia linearis</i>	10
<i>Nitzschia palea</i>	47
<i>Nitzschia recta</i>	9
<i>Nitzschia sigmoidea</i>	25
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	1
<i>Nitzschia</i> sp.1	5
<i>Nitzschia vermicularis</i>	43
<i>Pinnularia mesolepta</i>	*
<i>Pinnularia subcapitata</i> var. <i>paucistriata</i>	*
<i>Rhoicosphenia curvata</i>	1
<i>Stauroneis smithii</i>	6
<i>Surirella angustata</i>	17
<i>Surirella linearis</i>	*
<i>Surirella linearis</i> var. <i>helvetica</i>	*
<i>Surirella ovata</i>	9
<i>Surirella ovata</i> var. <i>pinnata</i>	11
<i>Synedra acus</i>	*
<i>Synedra parasitica</i> var. <i>subconstricta</i>	6
<i>Synedra ulna</i>	1

 Station ID: REFIPBDC Collection Date: 11/04/93

Total Number of Taxa (TNT): 86

* Qualitative data
 ** Relative abundance of *Navicula*+*Nitzschia*+*Surirella*
 06/25/96

DIATOM COLLECTION DATA

Total Number of Individuals (TNI):	554
Diversity (H):	1.52
Percent (%) Sensitive Individuals:	5.4
Pollution Tolerance Index (PTI):	1.9
Siltation Index**:	69.5

*Qualitative data
**Relative abundance of *Navicula+Nitzschia+Surriella*
06/25/96

DIATOM COLLECTION DATA

Site ID: REFIPBDC (03016002)	Stream: BEAVERDAM CREEK
Mile Point: 7.60	Drainage Area: 10.9 square miles
Order: 3	Ecoregion: INTERIOR PLATEAU
County: EDMONSON	Basin: GREEN
Map Number: 06-31	Latitude: 37-09-16 Longitude: 086-13-36
Location Description: KY 101-259 BRIDGE	

Date Collected: 05/10/94	Comments:
Sample ID: 19940510-10	Substrate Type: Natural
ID By:	

Achnanthes clevei	1
Achnanthes deflexa	*
Achnanthes exigua	2
Achnanthes lanceolata	7
Achnanthes lanceolata var. dubia	3
Achnanthes minutissima	3
Amphora ovalis	1
Amphora perpusilla	20
Caloneis bacillum	3
Cocconeis placentula	11
Cocconeis placentula var. euglypta	2
Cyclotella meneghiniana	*
Cyclotella striata var. ambigua	*
Cymatopleura solea	*
Cymbella affinis	*
Cymbella minuta	*
Cymbella prostrata	2
Cymbella silesiaca	11
Cymbella sinuata	1
Cymbella sp. (K)	*
Cymbella triangulum	*
Cymbella tumida	*
Cymbella turgidula	*
Diatoma vulgare	8
Diploneis elliptica	*
Diploneis puella	*
Diploneis subovalis	*
Fragilaria pinnata	11
Fragilaria vaucheriae	2
Frustulia rhomboides var. amphipleuroides	2
Frustulia vulgaris	1
Gomphonema angustatum	2
Gomphonema apuncto	*
Gomphonema brasiliense	*
Gomphonema clevei	*
Gomphonema gracile	1
Gomphonema olivaceum	*
Gomphonema parvulum	4
Gomphonema sphaerophorum	*

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Gomphonema subclavatum var. mexicanum	*
Gyrosigma spencerii	*
Melosira varians	43
Meridion circulare	*
Navicula anglica var. subsalsa	*
Navicula atomus	8
Navicula capitata	*
Navicula cocconeiformis	*
Navicula cryptocephala	10
Navicula cryptocephala var. veneta	7
Navicula gottlandica	2
Navicula hasta	1
Navicula hustedtii	*
Navicula lanceolata	3
Navicula meniscus var. upsaliensis	7
Navicula minima	44
Navicula miniscula	1
Navicula mutica	1
Navicula pelliculosa	*
Navicula pupula	*
Navicula radiosa	1
Navicula radiosa var. parva	1
Navicula radiosa var. tenella	16
Navicula salinarum var. intermedia	5
Navicula secreta var. apiculata	43
Navicula subminuscula	1
Navicula symmetrica	*
Navicula tripunctata	29
Navicula tripunctata var. schizonemoides	*
Navicula viridula	1
Navicula viridula var. rostellata	1
Neidium bisulcatum	*
Nitzschia acicularis	*
Nitzschia angustata var. acuta	1
Nitzschia clausii	*
Nitzschia constricta	*
Nitzschia dissipata	43
Nitzschia frustulum	24
Nitzschia gracilis	2
Nitzschia inconspicua	*
Nitzschia linearis	5
Nitzschia palea	12
Nitzschia paleacea	3
Nitzschia perminuta	42
Nitzschia recta	3
Nitzschia sinuata var. tabellaria	*
Nitzschia vermicularis	2
Pinnularia microstauron	*
Rhoicosphenia curvata	22
Stauroneis anceps	*
Stauroneis phoenicenteron v. gracile	*

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Stephanodiscus hantzschii	*
Surirella angustata	4
Surirella ovata	28
Surirella ovata var. pinnata	4
Synedra parasitica var. subconstricta	*
Synedra rumpens	1
Synedra rumpens var. familiaris	*
Synedra ulna	5

Station ID: REFIPBDC Collection Date: 05/10/94

Total Number of Taxa (TNT):	98
Total Number of Individuals (TNI):	524
Diversity (H):	1.45
Percent (%) Sensitive Individuals:	3.4
Pollution Tolerance Index (PTI):	2.2
Siltation Index**:	60.9

*Qualitative data
**Relative abundance of Navicula+Nitzschia+Surriella
06/25/96

DIATOM COLLECTION DATA

Site ID: REFIPBDC (03016002)	Stream: BEAVERDAM CREEK
Mile Point: 7.60	Drainage Area: 10.9 square miles
Order: 3	Ecoregion: INTERIOR PLATEAU
County: EDMONSON	Basin: GREEN
Map Number: 06-31	Latitude: 37-09-16 Longitude: 086-13-36
Location Description: KY 101-259 BRIDGE	

Date Collected: 11/01/94	Comments:
Sample ID: 19941101-10	Substrate Type: Natural
ID By:	

Achnanthes clevei	1
Achnanthes deflexa	21
Achnanthes exigua	*
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	3
Achnanthes minutissima	2
Amphipleura pellucida	1
Amphora perpusilla	25
Caloneis bacillum	1
Cocconeis pediculus	1
Cocconeis placentula	6
Cocconeis placentula var. euglypta	1
Cyclotella meneghiniana	1
Cyclotella striata var. ambigua	*
Cymatopleura solea	*
Cymbella cistula	*
Cymbella minuta	*
Cymbella silesiaca	*
Cymbella triangulum	*
Cymbella tumida	1
Cymbella turgidula	*
Diatoma vulgare	*
Diploneis elliptica	*
Diploneis puella	*
Fragilaria pinnata	1
Frustulia rhomboides var. amphipleuroides	1
Gomphonema angustatum	*
Gomphonema apuncto	2
Gomphonema brasiliense	*
Gomphonema parvulum	4
Gomphonema sparsistriatum f. maculatum	1
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Gomphonema subclavatum var. mexicanum	*
Gyrosigma scalproides	6
Melosira varians	20
Meridion circulare	*
Navicula capitata	2
Navicula cryptocephala	*

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula cryptocephala</i> var. <i>veneta</i>	2	
<i>Navicula cuspidata</i>		*
<i>Navicula elginensis</i>		*
<i>Navicula hustedtii</i>	11	
<i>Navicula lanceolata</i>		*
<i>Navicula menisculus</i> var. <i>upsaliensis</i>		*
<i>Navicula minima</i>	223	
<i>Navicula notha</i>	3	
<i>Navicula pelliculosa</i>		*
<i>Navicula placenta</i>	1	
<i>Navicula pupula</i>		*
<i>Navicula pygmaea</i>		*
<i>Navicula radiosa</i> var. <i>parva</i>		*
<i>Navicula radiosa</i> var. <i>tenella</i>	1	
<i>Navicula rhynchocephala</i>		*
<i>Navicula salinarum</i> var. <i>intermedia</i>	8	
<i>Navicula schroeteri</i> var. <i>escambia</i>		*
<i>Navicula secreta</i> var. <i>apiculata</i>		*
<i>Navicula symmetrica</i>	4	
<i>Navicula tripunctata</i>	8	
<i>Navicula tripunctata</i> var. <i>schizonemoides</i>		*
<i>Navicula viridula</i>	2	
<i>Neidium binode</i>		*
<i>Nitzschia acicularis</i>	1	
<i>Nitzschia amphibia</i>		*
<i>Nitzschia angustata</i> var. <i>acuta</i>	4	
<i>Nitzschia constricta</i>	9	
<i>Nitzschia dissipata</i>	7	
<i>Nitzschia fonticola</i>		*
<i>Nitzschia gracilis</i>	5	
<i>Nitzschia hungarica</i>		*
<i>Nitzschia linearis</i>	49	
<i>Nitzschia palea</i>	20	
<i>Nitzschia paleacea</i>	16	
<i>Nitzschia parvula</i>		*
<i>Nitzschia perminuta</i>	13	
<i>Nitzschia recta</i>	2	
<i>Nitzschia sigmoidea</i>		*
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	1	
<i>Nitzschia</i> sp.1	1	
<i>Nitzschia tropica</i>	1	
<i>Nitzschia tryblionella</i> var. <i>victoriae</i>		*
<i>Nitzschia vermicularis</i>	1	
<i>Pinnularia subcapitata</i>		*
<i>Rhoicosphenia curvata</i>	32	
<i>Stauroneis smithii</i>	3	
<i>Surirella angustata</i>	21	
<i>Surirella linearis</i>		*
<i>Surirella linearis</i> var. <i>helvetica</i>		*
<i>Surirella ovata</i>	1	
<i>Surirella ovata</i> var. <i>pinnata</i>		*

 *Qualitative data

**Relative abundance of *Navicula*+*Nitzschia*+*Surirella*

06/25/96

DIATOM COLLECTION DATA

Synedra parasitica var. subconstricta 1

Station ID: REFIPBDC Collection Date: 11/01/94

Total Number of Taxa (TNT):	91
Total Number of Individuals (TNI):	552
Diversity (H):	1.11
Percent (%) Sensitive Individuals:	4.9
Pollution Tolerance Index (PTI):	1.9
Siltation Index**:	71.6

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPBDC (03016002) Stream: BEAVERDAM CREEK
 Mile Point: 7.60 Drainage Area: 10.9 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: EDMONSON Basin: GREEN
 Map Number: 06-31 Latitude: 37-09-16 Longitude: 086-13-36
 Location Description: KY 101-259 BRIDGE

Date Collected: 04/27/95 Comments:
 Sample ID: 19950427-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	10
Achnanthes lanceolata	4
Achnanthes lanceolata var. dubia	3
Achnanthes minutissima	15
Amphora ovalis	*
Amphora perpusilla	14
Amphora submontana	*
Caloneis bacillum	3
Caloneis budensis	1
Cocconeis pediculus	1
Cocconeis placentula	3
Cocconeis placentula var. euglypta	6
Cyclotella striata var. ambigua	2
Cymatopleura solea	*
Cymbella lunata	*
Cymbella minuta	5
Cymbella prostrata	*
Cymbella silesiaca	28
Cymbella sinuata	1
Cymbella sp. (K)	1
Cymbella triangulum	1
Cymbella tumida	*
Cymbella turgidula	1
Diatoma vulgare	3
Diploneis puella	*
Eunotia maior	*
Fragilaria pinnata	2
Fragilaria vaucheriae	3
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	2
Gomphonema abbreviatum	1
Gomphonema angustatum	*
Gomphonema apuncto	1
Gomphonema clevei	1
Gomphonema olivaceum	*
Gomphonema parvulum	5
Gyrosigma scalproides	*
Gyrosigma spencerii	*
Melosira varians	49

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Meridion circulare	1
Navicula atomus	4
Navicula contenta	*
Navicula cryptocephala	33
Navicula cryptocephala var. veneta	14
Navicula elginensis	*
Navicula gottlandica	3
Navicula hustedtii	*
Navicula lanceolata	3
Navicula menisculus var. upsaliensis	16
Navicula minima	18
Navicula notha	*
Navicula pelliculosa	*
Navicula pupula	*
Navicula pygmaea	1
Navicula radiosa var. parva	*
Navicula radiosa var. tenella	2
Navicula rhynchocephala	*
Navicula salinarum var. intermedia	50
Navicula secreta var. apiculata	47
Navicula seminulum	*
Navicula tripunctata	37
Navicula tripunctata var. schizonemoides	4
Navicula viridula	1
Navicula viridula var. rostellata	1
Neidium affine	*
Nitzschia acicularis	1
Nitzschia amphibia	4
Nitzschia angustata var. acuta	3
Nitzschia brevissima	1
Nitzschia dissipata	25
Nitzschia filiformis	2
Nitzschia fonticola	3
Nitzschia inconspicua	2
Nitzschia linearis	2
Nitzschia palea	17
Nitzschia paleacea	1
Nitzschia perminuta	1
Nitzschia recta	5
Nitzschia sinuata var. tabellaria	*
Pinnularia biceps	1
Pinnularia obscurum	1
Pinnularia viridis	*
Rhoicosphenia curvata	13
Stauroneis anceps f. gracilis	*
Stauroneis phoenicenteron	*
Stauroneis smithii	*
Surirella angustata	2
Surirella linearis	1
Surirella ovata	29
Surirella ovata var. pinnata	4

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

Synedra parasitica	*
Synedra rumpens	*
Synedra rumpens var. familiaris	1
Synedra ulna	2

Station ID: REFIPBDC Collection Date: 04/27/95

Total Number of Taxa (TNT):	94
Total Number of Individuals (TNI):	522
Diversity (H):	1.46
Percent (%) Sensitive Individuals:	8.0
Pollution Tolerance Index (PTI):	2.3
Siltation Index**:	57.7

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPBUC (02012001) Stream: BUCK CREEK
 Mile Point: 28.90 Drainage Area: 172.2 square miles
 Order: 5 Ecoregion: INTERIOR PLATEAU
 County: PULASKI Basin: UPPER CUMBERLAND
 Map Number: 06-45 Latitude: 37-10-39 Longitude: 084-27-23
 Location Description: OFF BUD RAINEY ROAD

Date Collected: 05/21/92 Comments:
 Sample ID: 19920521-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	8
Achnanthes lanceolata	2
Achnanthes lanceolata var. dubia	5
Achnanthes minutissima	186
Amphora perpusilla	14
Amphora submontana	*
Caloneis bacillum	3
Cocconeis pediculus	45
Cocconeis placentula var. euglypta	3
Cocconeis placentula var. lineata	2
Cyclotella striata var. ambigua	1
Cymbella affinis	51
Cymbella minuta	1
Cymbella prostrata	*
Cymbella silesiaca	13
Cymbella sinuata	5
Cymbella sp. (K)	1
Cymbella tumida	*
Cymbella turgidula	*
Diatoma vulgare	11
Fragilaria pinnata	1
Fragilaria vaucheriae	14
Frustulia vulgaris	*
Gomphonema affine	*
Gomphonema angustatum	1
Gomphonema clevei	1
Gomphonema olivaceum	1
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Gomphonema subclavatum var. mexicanum	*
Gomphonema truncatum	*
Gyrosigma spencerii	*
Melosira varians	*
Meridion circulare	*
Navicula cryptocephala	5
Navicula cryptocephala var. veneta	16
Navicula lanceolata	1
Navicula menisculus var. upsaliensis	5
Navicula minima	10

* Qualitative data

** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula pelliculosa	*
Navicula pupula var. elliptica	*
Navicula radiosa	2
Navicula radiosa var. parva	1
Navicula radiosa var. tenella	*
Navicula salinarum var. intermedia	41
Navicula secreta var. apiculata	*
Navicula tripunctata	3
Navicula viridula var. rostellata	1
Nitzschia acicularis	11
Nitzschia amphibia	8
Nitzschia dissipata	21
Nitzschia frustulum	*
Nitzschia linearis	3
Nitzschia microcephala	6
Nitzschia palea	3
Nitzschia recta	1
Nitzschia romana	3
Nitzschia sinuata var. tabellaria	1
Rhoicosphenia curvata	11
Stephanodiscus hantzschii	*
Surirella angustata	*
Surirella ovata	*
Surirella ovata var. pinnata	*
Synedra acus	*
Synedra delicatissima	5
Synedra ulna	3
Synedra ulna var. oxyrhynchus	*

 Station ID: REFIPBUC Collection Date: 05/21/92

Total Number of Taxa (TNT):	67
Total Number of Individuals (TNI):	530
Diversity (H):	1.15
Percent (%) Sensitive Individuals:	15.7
Pollution Tolerance Index (PTI):	2.9
Siltation Index**:	26.8

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPBUC (02012001) Stream: BUCK CREEK
 Mile Point: 28.90 Drainage Area: 172.2 square miles
 Order: 5 Ecoregion: INTERIOR PLATEAU
 County: PULASKI Basin: UPPER CUMBERLAND
 Map Number: 06-45 Latitude: 37-10-39 Longitude: 084-27-23
 Location Description: OFF BUD RAINEY ROAD

Date Collected: 10/02/92 Comments:
 Sample ID: 19921002-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	1	
Achnanthes lanceolata		*
Achnanthes lanceolata var. dubia	2	
Achnanthes minutissima	265	
Amphipleura pellucida		*
Amphora ovalis	1	
Amphora perpusilla	18	
Amphora submontana	1	
Caloneis bacillum	3	
Caloneis ventricosa var. subundulata		*
Cocconeis pediculus	2	
Cocconeis placentula var. euglypta		*
Cocconeis placentula var. lineata	28	
Cyclotella striata var. ambigua	3	
Cymatopleura solea		*
Cymbella affinis	75	
Cymbella minuta	1	
Cymbella prostrata		*
Cymbella silesiaca	2	
Cymbella sinuata	5	
Cymbella triangulum	1	
Cymbella tumida	3	
Cymbella turgidula	9	
Diatoma vulgare	1	
Diploneis elliptica	1	
Eunotia pectinalis var. minor		*
Fragilaria vaucheriae	1	
Frustulia rhomboides var. amphipleuroides		*
Frustulia vulgaris		*
Gomphonema angustatum	10	
Gomphonema clevei	4	
Gomphonema gracile		*
Gomphonema olivaceum	1	
Gomphonema parvulum		*
Gomphonema sphaerophorum		*
Gomphonema subclavatum		*
Gyrosigma scalproides	1	
Gyrosigma spencerii	3	
Hantzschia amphioxys		*

 *Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Melosira varians	15
Navicula cryptocephala	4
Navicula cryptocephala var. veneta	1
Navicula cuspidata	*
Navicula decussis	*
Navicula lanceolata	4
Navicula pupula var. capitata	1
Navicula radiosa	*
Navicula radiosa var. parva	4
Navicula radiosa var. tenella	9
Navicula salinarum var. intermedia	4
Navicula secreta var. apiculata	2
Navicula symmetrica	2
Navicula tripunctata	1
Navicula viridula	*
Navicula viridula var. rostellata	2
Neidium dubium	*
Nitzschia acicularis	2
Nitzschia amphibia	2
Nitzschia clausii	*
Nitzschia constricta	*
Nitzschia dissipata	6
Nitzschia linearis	1
Nitzschia palea	53
Nitzschia sinuata var. tabellaria	*
Nitzschia tryblionella var. victoriae	*
Pinnularia subcapitata var. paucistriata	1
Pinnularia viridis	*
Rhoicosphenia curvata	26
Stauroneis smithii	*
Surirella angustata	3
Surirella linearis	*
Surirella ovata	7
Surirella ovata var. pinnata	1
Synedra acus	*
Synedra rumpens var. familiaris	1
Synedra ulna	1
Synedra ulna var. oxyrhynchus	1

 Station ID: REFIPBUC Collection Date: 10/02/92

Total Number of Taxa (TNT):	77
Total Number of Individuals (TNI):	596
Diversity (H):	1.00
Percent (%) Sensitive Individuals:	16.1
Pollution Tolerance Index (PTI):	2.9
Siltation Index**:	16.4

 * Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPBUC (02012001) Stream: BUCK CREEK
 Mile Point: 28.90 Drainage Area: 172.2 square miles
 Order: 5 Ecoregion: INTERIOR PLATEAU
 County: PULASKI Basin: UPPER CUMBERLAND
 Map Number: 06-45 Latitude: 37-10-39 Longitude: 084-27-23
 Location Description: OFF BUD RAINEY ROAD

Date Collected: 05/17/93 Comments:
 Sample ID: 19930517-10 Substrate Type: Natural
 ID By:

<i>Achnanthes deflexa</i>	20
<i>Achnanthes lanceolata</i>	3
<i>Achnanthes minutissima</i>	118
<i>Achnanthes stewartii</i>	*
<i>Amphora perpusilla</i>	16
<i>Amphora submontana</i>	*
<i>Caloneis bacillum</i>	1
<i>Caloneis ventricosa</i> var. <i>truncatula</i>	*
<i>Cocconeis pediculus</i>	3
<i>Cocconeis placentula</i>	8
<i>Cocconeis placentula</i> var. <i>euglypta</i>	3
<i>Cyclotella striata</i> var. <i>ambigua</i>	*
<i>Cymatopleura solea</i>	*
<i>Cymbella affinis</i>	33
<i>Cymbella cymbiformis</i>	*
<i>Cymbella minuta</i>	*
<i>Cymbella prostrata</i>	*
<i>Cymbella silesiaca</i>	36
<i>Cymbella sinuata</i>	27
<i>Cymbella</i> sp. (K)	*
<i>Cymbella tumida</i>	*
<i>Diatoma vulgare</i>	5
<i>Fragilaria vaucheriae</i>	3
<i>Gomphonema acuminatum</i>	1
<i>Gomphonema affine</i>	*
<i>Gomphonema olivaceum</i>	7
<i>Gomphonema subclavatum</i>	*
<i>Gyrosigma spencerii</i>	*
<i>Melosira varians</i>	38
<i>Meridion circulare</i>	*
<i>Navicula capitata</i>	*
<i>Navicula cryptocephala</i>	*
<i>Navicula cryptocephala</i> var. <i>veneta</i>	34
<i>Navicula decussis</i>	*
<i>Navicula lanceolata</i>	1
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	6
<i>Navicula minima</i>	8
<i>Navicula placenta</i>	*
<i>Navicula radiosa</i> var. <i>parva</i>	*

* Qualitative data
 ** Relative abundance of *Navicula*+*Nitzschia*+*Surriella*
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula radiosa</i> var. <i>tenella</i>	7
<i>Navicula salinarum</i> var. <i>intermedia</i>	86
<i>Navicula secreta</i> var. <i>apiculata</i>	1
<i>Navicula tripunctata</i>	11
<i>Navicula viridula</i> var. <i>rostellata</i>	1
<i>Nitzschia acicularis</i>	*
<i>Nitzschia amphibia</i>	11
<i>Nitzschia communis</i>	3
<i>Nitzschia dissipata</i>	10
<i>Nitzschia filiformis</i>	1
<i>Nitzschia gracilis</i>	*
<i>Nitzschia linearis</i>	3
<i>Nitzschia microcephala</i>	*
<i>Nitzschia palea</i>	12
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	1
<i>Rhoicosphenia curvata</i>	4
<i>Surirella angustata</i>	*
<i>Surirella ovata</i>	2
<i>Surirella ovata</i> var. <i>pinnata</i>	*
<i>Synedra ulna</i>	2
<i>Synedra ulna</i> var. <i>oxyrhynchus</i>	*

 Station ID: REFIPBUC Collection Date: 05/17/93

Total Number of Taxa (TNT):	60
Total Number of Individuals (TNI):	526
Diversity (H):	1.19
Percent (%) Sensitive Individuals:	22.2
Pollution Tolerance Index (PTI):	2.6
Siltation Index**:	37.3

 *Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPBUC (02012001) Stream: BUCK CREEK
 Mile Point: 28.90 Drainage Area: 172.2 square miles
 Order: 5 Ecoregion: INTERIOR PLATEAU
 County: PULASKI Basin: UPPER CUMBERLAND
 Map Number: 06-45 Latitude: 37-10-39 Longitude: 084-27-23
 Location Description: OFF BUD RAINEY ROAD

Date Collected: 10/14/93 Comments:
 Sample ID: 19931014-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	18
Achnanthes lanceolata	4
Achnanthes lanceolata var. dubia	1
Achnanthes minutissima	329
Amphora perpusilla	12
Amphora submontana	*
Anomoeoneis vitrea	3
Cocconeis pediculus	*
Cocconeis placentula	6
Cocconeis placentula var. euglypta	21
Cyclotella meneghiniana	*
Cyclotella striata var. ambigua	1
Cymbella affinis	3
Cymbella minuta	*
Cymbella prostrata	*
Cymbella silesiaca	*
Cymbella sinuata	7
Cymbella tumida	1
Cymbella turgidula	7
Diatoma vulgare	*
Diploneis elliptica	*
Fragilaria pinnata	*
Fragilaria vaucheriae	1
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	*
Gomphonema acuminatum	*
Gomphonema affine	*
Gomphonema angustatum	3
Gomphonema apuncto	*
Gomphonema clevei	1
Gomphonema olivaceum	1
Gomphonema parvulum	5
Gomphonema subclavatum	1
Gomphonema subclavatum var. mexicanum	1
Gyrosigma scalproides	*
Gyrosigma spencerii	2
Melosira varians	6
Navicula atomus	3

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula capitata	*
Navicula cryptocephala	1
Navicula cryptocephala var. veneta	2
Navicula decussis	*
Navicula lanceolata	1
Navicula laterorostrata	4
Navicula menisculus var. upsaliensis	*
Navicula minima	44
Navicula placenta	*
Navicula pupula	1
Navicula radiosa	*
Navicula radiosa var. tenella	7
Navicula salinarum var. intermedia	8
Navicula schroeteri var. escambia	*
Navicula secreta var. apiculata	1
Navicula symmetrica	7
Navicula tripunctata	*
Navicula tripunctata var. schizonemoides	*
Navicula viridula	5
Navicula viridula var. linearis	*
Navicula viridula var. rostellata	1
Nitzschia acicularis	1
Nitzschia amphibia	2
Nitzschia angustata var. acuta	*
Nitzschia clausii	*
Nitzschia dissipata	4
Nitzschia frustulum	6
Nitzschia gracilis	3
Nitzschia linearis	*
Nitzschia palea	14
Nitzschia romana	*
Nitzschia sigmoidea	*
Nitzschia sinuata var. tabellaria	2
Nitzschia tryblionella var. victoriae	*
Nitzschia vermicularis	1
Rhoicosphenia curvata	8
Surirella angustata	3
Surirella linearis	*
Surirella ovata	1
Surirella ovata var. pinnata	1
Synedra rumpens var. familiaris	*
Synedra ulna	1
Synedra ulna var. oxyrhynchus	*
Thalassiosira weissflogii	1

 Station ID: REFIPBUC Collection Date: 10/14/93

Total Number of Taxa (TNT): 83
 Total Number of Individuals (TNI): 567
 Diversity (H): 0.89
 Percent (%) Sensitive Individuals: 6.3

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

Pollution Tolerance Index (PTI): 2.6
Siltation Index^{**}: 20.8

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPBUC (02012001) Stream: BUCK CREEK
 Mile Point: 28.90 Drainage Area: 172.2 square miles
 Order: 5 Ecoregion: INTERIOR PLATEAU
 County: PULASKI Basin: UPPER CUMBERLAND
 Map Number: 06-45 Latitude: 37-10-39 Longitude: 084-27-23
 Location Description: OFF BUD RAINEY ROAD

Date Collected: 06/13/94 Comments:
 Sample ID: 19940613-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	70
Achnanthes lanceolata	4
Achnanthes minutissima	28
Amphora ovalis	*
Amphora perpusilla	14
Caloneis bacillum	14
Caloneis budensis	*
Caloneis ventricosa var. truncatula	*
Cocconeis pediculus	5
Cocconeis placentula	7
Cocconeis placentula var. euglypta	13
Cyclotella stelligera	1
Cyclotella striata var. ambigua	1
Cymbella affinis	7
Cymbella delicatula	*
Cymbella minuta	*
Cymbella prostrata	1
Cymbella silesiaca	1
Cymbella sinuata	15
Cymbella sp. (K)	*
Cymbella tumida	2
Cymbella turgidula	1
Diatoma vulgare	5
Fragilaria pinnata	1
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	*
Gomphonema affine	*
Gomphonema angustatum	*
Gomphonema apuncto	1
Gomphonema olivaceum	1
Gomphonema parvulum	2
Gyrosigma spencerii	*
Hantzschia amphioxys	*
Melosira varians	79
Meridion circulare	*
Navicula atomus	*
Navicula cryptocephala	3
Navicula cryptocephala var. veneta	23

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula decussis</i>	1
<i>Navicula exigua</i>	*
<i>Navicula lanceolata</i>	*
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	10
<i>Navicula minima</i>	9
<i>Navicula pupula</i>	*
<i>Navicula pygmaea</i>	*
<i>Navicula radiosa</i> var. <i>tenella</i>	4
<i>Navicula salinarum</i> var. <i>intermedia</i>	88
<i>Navicula secreta</i> var. <i>apiculata</i>	*
<i>Navicula symmetrica</i>	2
<i>Navicula tripunctata</i>	4
<i>Navicula tripunctata</i> var. <i>schizonemoides</i>	*
<i>Navicula viridula</i>	1
<i>Navicula viridula</i> var. <i>rostellata</i>	3
<i>Nitzschia acicularis</i>	4
<i>Nitzschia amphibia</i>	*
<i>Nitzschia clausii</i>	*
<i>Nitzschia communis</i>	6
<i>Nitzschia dissipata</i>	4
<i>Nitzschia fonticola</i>	6
<i>Nitzschia frustulum</i>	9
<i>Nitzschia gracilis</i>	*
<i>Nitzschia linearis</i>	3
<i>Nitzschia palea</i>	56
<i>Nitzschia paleacea</i>	2
<i>Nitzschia recta</i>	1
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	1
<i>Nitzschia vermicularis</i>	1
<i>Pinnularia subcapitata</i>	*
<i>Rhoicosphenia curvata</i>	*
<i>Surirella angustata</i>	*
<i>Surirella ovata</i>	2
<i>Synedra rumpens</i> var. <i>familiaris</i>	*
<i>Synedra ulna</i>	1
<i>Synedra ulna</i> var. <i>oxyrhynchus</i>	*

 Station ID: REFIPBUC Collection Date: 06/13/94

Total Number of Taxa (TNT):	75
Total Number of Individuals (TNI):	517
Diversity (H):	1.25
Percent (%) Sensitive Individuals:	18.8
Pollution Tolerance Index (PTI):	2.3
Siltation Index**:	46.6

 *Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surirella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPBUC (02012001) Stream: BUCK CREEK
 Mile Point: 28.90 Drainage Area: 172.2 square miles
 Order: 5 Ecoregion: INTERIOR PLATEAU
 County: PULASKI Basin: UPPER CUMBERLAND
 Map Number: 06-45 Latitude: 37-10-39 Longitude: 084-27-23
 Location Description: OFF BUD RAINEY ROAD

Date Collected: 10/14/94 Comments:
 Sample ID: 19941014-10 Substrate Type: Natural
 ID By:

<i>Achnanthes clevei</i>	*
<i>Achnanthes deflexa</i>	15
<i>Achnanthes lanceolata</i>	1
<i>Achnanthes lanceolata</i> var. <i>dubia</i>	1
<i>Achnanthes minutissima</i>	292
<i>Amphora ovalis</i>	1
<i>Amphora perpusilla</i>	8
<i>Amphora submontana</i>	*
<i>Caloneis bacillum</i>	*
<i>Cocconeis pediculus</i>	1
<i>Cocconeis placentula</i>	13
<i>Cocconeis placentula</i> var. <i>euglypta</i>	20
<i>Cyclotella meneghiniana</i>	2
<i>Cyclotella striata</i> var. <i>ambigua</i>	1
<i>Cymatopleura solea</i>	*
<i>Cymbella affinis</i>	17
<i>Cymbella minuta</i>	*
<i>Cymbella prostrata</i>	*
<i>Cymbella silesiaca</i>	*
<i>Cymbella sinuata</i>	2
<i>Cymbella</i> sp. (K)	*
<i>Cymbella tumida</i>	*
<i>Cymbella turgidula</i>	4
<i>Diploneis elliptica</i>	*
<i>Diploneis puella</i>	*
<i>Fragilaria pinnata</i>	2
<i>Fragilaria vaucheriae</i>	1
<i>Frustulia rhomboides</i> var. <i>amphipleuroides</i>	1
<i>Gomphonema angustatum</i>	1
<i>Gomphonema apuncto</i>	6
<i>Gomphonema olivaceum</i>	2
<i>Gomphonema parvulum</i>	*
<i>Gomphonema subclavatum</i>	*
<i>Gyrosigma scalproides</i>	*
<i>Gyrosigma spencerii</i>	1
<i>Melosira varians</i>	5
<i>Navicula capitata</i>	*
<i>Navicula cryptocephala</i>	2
<i>Navicula cryptocephala</i> var. <i>veneta</i>	1

 *Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*
 06/25/96

DIATOM COLLECTION DATA

Navicula decussis	1
Navicula elginensis	2
Navicula gottlandica	*
Navicula hustedtii	9
Navicula lanceolata	*
Navicula menisculus var. upsaliensis	7
Navicula minima	30
Navicula notha	2
Navicula pelliculosa	*
Navicula pupula	2
Navicula radiosa var. parva	*
Navicula radiosa var. tenella	7
Navicula salinarum var. intermedia	7
Navicula schroeteri var. escambia	*
Navicula symmetrica	4
Navicula tripunctata	*
Navicula viridula	14
Navicula viridula var. linearis	*
Nitzschia angustata var. acuta	*
Nitzschia coarctata	*
Nitzschia dissipata	5
Nitzschia frustulum	*
Nitzschia gracilis	2
Nitzschia microcephala	*
Nitzschia palea	12
Nitzschia paleacea	1
Nitzschia perminuta	7
Nitzschia recta	4
Nitzschia sinuata var. tabellaria	4
Nitzschia tryblionella var. victoriae	*
Nitzschia vermicularis	*
Rhoicosphenia curvata	1
Surirella angustata	*
Surirella linearis	*
Surirella ovata	1
Surirella ovata var. pinnata	*
Synedra acus	*
Synedra ulna	*

 Station ID: REFIPBUC Collection Date: 10/14/94

Total Number of Taxa (TNT):	77
Total Number of Individuals (TNI):	522
Diversity (H):	0.92
Percent (%) Sensitive Individuals:	7.3
Pollution Tolerance Index (PTI):	2.7
Siltation Index**:	23.6

 * Qualitative data

** Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPBUC (02012001) Stream: BUCK CREEK
 Mile Point: 28.90 Drainage Area: 172.2 square miles
 Order: 5 Ecoregion: INTERIOR PLATEAU
 County: PULASKI Basin: UPPER CUMBERLAND
 Map Number: 06-45 Latitude: 37-10-39 Longitude: 084-27-23
 Location Description: OFF BUD RAINEY ROAD

Date Collected: 07/11/95 Comments:
 Sample ID: 19950711-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	40
Achnanthes exigua	*
Achnanthes lanceolata	7
Achnanthes lanceolata var. dubia	*
Achnanthes minutissima	105
Amphora perpusilla	83
Amphora submontana	1
Caloneis bacillum	2
Cocconeis pediculus	1
Cocconeis placentula	6
Cocconeis placentula var. euglypta	5
Cyclotella atomus	*
Cyclotella meneghiniana	1
Cymbella affinis	75
Cymbella minuta	*
Cymbella prostrata	*
Cymbella silesiaca	*
Cymbella sinuata	4
Cymbella tumida	2
Cymbella turgidula	1
Diatoma vulgare	*
Fragilaria pinnata	2
Fragilaria vaucheriae	*
Frustulia rhomboides var. amphipleuroides	*
Frustulia weinholdii	*
Gomphonema angustatum	2
Gomphonema clevei	1
Gomphonema olivaceum	1
Gomphonema parvulum	1
Gomphonema subclavatum	*
Gyrosigma nodiferum	*
Gyrosigma spencerii	1
Melosira varians	6
Meridion circulare	*
Navicula atomus	*
Navicula cryptocephala var. veneta	2
Navicula decussis	*
Navicula gottlandica	*

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula hustedtii</i>	4
<i>Navicula lanceolata</i>	*
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	2
<i>Navicula minima</i>	97
<i>Navicula mutica</i>	*
<i>Navicula radiosa</i> var. <i>tenella</i>	1
<i>Navicula salinarum</i> var. <i>intermedia</i>	24
<i>Navicula schroeteri</i> var. <i>escambia</i>	1
<i>Navicula seminulum</i>	13
<i>Navicula symmetrica</i>	1
<i>Navicula viridula</i>	3
<i>Navicula viridula</i> var. <i>linearis</i>	*
<i>Navicula viridula</i> var. <i>rostellata</i>	5
<i>Nitzschia acicularis</i>	1
<i>Nitzschia amphibia</i>	2
<i>Nitzschia dissipata</i>	8
<i>Nitzschia frustulum</i>	1
<i>Nitzschia gracilis</i>	*
<i>Nitzschia inconspicua</i>	5
<i>Nitzschia levidensis</i>	1
<i>Nitzschia palea</i>	16
<i>Nitzschia paleacea</i>	*
<i>Nitzschia perminuta</i>	*
<i>Nitzschia recta</i>	3
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	1
<i>Nitzschia vermicularis</i>	*
<i>Pinnularia biceps</i>	*
<i>Rhoicosphenia curvata</i>	4
<i>Surirella angustata</i>	*
<i>Surirella ovata</i> var. <i>pinnata</i>	2
<i>Synedra rumpens</i>	*
<i>Synedra rumpens</i> var. <i>familiaris</i>	*
<i>Synedra ulna</i> var. <i>oxyrhynchus</i>	*

 Station ID: REFIPBUC Collection Date: 07/11/95

Total Number of Taxa (TNT):	72
Total Number of Individuals (TNI):	544
Diversity (H):	1.11
Percent (%) Sensitive Individuals:	22.4
Pollution Tolerance Index (PTI):	2.6
Siltation Index**:	35.1

 *Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPCLC (04014017) Stream: CLEAR CREEK
 Mile Point: 4.10 Drainage Area: 61.6 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: WOODFORD Basin: KENTUCKY
 Map Number: 12-42 Latitude: 37-56-40 Longitude: 084-45-53
 Location Description: HIFNER MILL ROAD AT BRIDGE

Date Collected: 05/12/92 Comments:
 Sample ID: 19920512-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	23
Achnanthes lanceolata	4
Achnanthes lanceolata var. dubia	3
Achnanthes minutissima	24
Amphora perpusilla	12
Caloneis bacillum	4
Caloneis ventricosa var. subundulata	*
Cocconeis pediculus	37
Cocconeis placentula var. euglypta	15
Cyclotella striata var. ambigua	*
Cymatopleura solea	*
Cymbella affinis	1
Cymbella minuta	2
Cymbella prostrata	1
Cymbella prostrata var. auerswaldii	*
Cymbella sinuata	*
Cymbella sp. (K)	*
Diatoma vulgare	3
Epithemia adnata	*
Fragilaria vaucheriae	13
Gomphonema affine	12
Gomphonema angustatum	6
Gomphonema olivaceum	1
Gomphonema parvulum	3
Gomphonema tergestinum	*
Gyrosigma spencerii	1
Melosira varians	8
Meridion circulare	*
Navicula cryptocephala	1
Navicula cryptocephala var. veneta	41
Navicula decussis	*
Navicula lanceolata	1
Navicula menisculus var. upsaliensis	8
Navicula minima	121
Navicula mutica	*
Navicula pelliculosa	1
Navicula pupula	1
Navicula radiosa	2
Navicula radiosa var. parva	1

* Qualitative data

** Relative abundance of *Navicula*+*Nitzschia*+*Surriella*

06/25/96

DIATOM COLLECTION DATA

Navicula radiosa var. tenella	11
Navicula salinarum var. intermedia	27
Navicula secreta var. apiculata	3
Navicula tripunctata	2
Neidium dubium	*
Nitzschia acicularis	*
Nitzschia amphibia	1
Nitzschia clausii	*
Nitzschia constricta	*
Nitzschia dissipata	12
Nitzschia linearis	2
Nitzschia microcephala	7
Nitzschia palea	37
Nitzschia recta	1
Nitzschia romana	30
Rhoicosphenia curvata	32
Surirella angustata	*
Surirella ovata	3
Surirella ovata var. pinnata	*
Synedra ulna	2

 Station ID: REFIPCLC Collection Date: 05/12/92

Total Number of Taxa (TNT):	59
Total Number of Individuals (TNI):	520
Diversity (H):	1.27
Percent (%) Sensitive Individuals:	4.8
Pollution Tolerance Index (PTI):	2.1
Siltation Index**:	59.6

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPCLC (04014017) Stream: CLEAR CREEK
 Mile Point: 4.10 Drainage Area: 61.6 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: WOODFORD Basin: KENTUCKY
 Map Number: 12-42 Latitude: 37-56-40 Longitude: 084-45-53
 Location Description: HIFNER MILL ROAD AT BRIDGE

Date Collected: 09/14/92 Comments:
 Sample ID: 19920914-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	43
Achnanthes lanceolata var. dubia	6
Achnanthes minutissima	28
Amphora ovalis	2
Amphora perpusilla	7
Amphora submontana	2
Caloneis ventricosa var. truncatula	*
Cocconeis placentula var. lineata	26
Cyclotella striata var. ambigua	1
Cymatopleura solea	2
Cymbella affinis	2
Cymbella minuta	*
Cymbella prostrata	1
Cymbella silesiaca	2
Cymbella sinuata	2
Cymbella tumida	2
Cymbella turgidula	4
Diatoma vulgare	1
Epithemia adnata	*
Gomphonema angustatum	*
Gomphonema clevei	9
Gomphonema gracile	*
Gomphonema olivaceum	1
Gomphonema parvulum	*
Gomphonema sphaerophorum	*
Gomphonema subclavatum	2
Gyrosigma attenuatum	*
Gyrosigma nodiferum	*
Hantzschia amphioxys	*
Melosira varians	9
Navicula cryptocephala	8
Navicula menisculus var. upsaliensis	11
Navicula minima	220
Navicula pygmaea	1
Navicula radiosa	5
Navicula radiosa var. tenella	55
Navicula salinarum var. intermedia	12
Navicula tripunctata	1
Navicula viridula var. rostellata	1

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Neidium affine	1
Nitzschia amphibia	25
Nitzschia constricta	2
Nitzschia dissipata	14
Nitzschia linearis	2
Nitzschia palea	18
Nitzschia recta	*
Nitzschia tryblionella var. victoriae	*
Rhoicosphenia curvata	4
Surirella angustata	*
Surirella linearis var. helvetica	1
Surirella ovata	*
Surirella ovata var. pinnata	1
Synedra ulna	*

 Station ID: REFIPCLC Collection Date: 09/14/92

Total Number of Taxa (TNT):	53
Total Number of Individuals (TNI):	534
Diversity (H):	1.03
Percent (%) Sensitive Individuals:	10.5
Pollution Tolerance Index (PTI):	1.9
Siltation Index**:	70.2

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPCLC (04014017) Stream: CLEAR CREEK
 Mile Point: 4.10 Drainage Area: 61.6 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: WOODFORD Basin: KENTUCKY
 Map Number: 12-42 Latitude: 37-56-40 Longitude: 084-45-53
 Location Description: HIFNER MILL ROAD AT BRIDGE

Date Collected: 05/05/93 Comments:
 Sample ID: 19930505-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	40
Achnanthes lanceolata	7
Achnanthes lanceolata var. dubia	*
Achnanthes linearis	2
Amphora ovalis	1
Amphora perpusilla	12
Amphora submontana	*
Caloneis bacillum	*
Cocconeis pediculus	16
Cocconeis placentula	6
Cocconeis placentula var. euglypta	1
Cyclotella stelligera	*
Cymatopleura solea	1
Cymbella minuta	*
Cymbella prostrata	2
Cymbella prostrata var. auerswaldii	*
Cymbella silesiaca	*
Cymbella sinuata	*
Diatoma vulgare	6
Fragilaria pinnata	*
Gomphonema angustatum	24
Gomphonema olivaceum	1
Gomphonema parvulum	5
Gyrosigma nodiferum	*
Gyrosigma scalproides	1
Melosira varians	5
Meridion circulare	*
Navicula atomus	3
Navicula cryptocephala	3
Navicula cryptocephala var. veneta	65
Navicula gottlandica	*
Navicula lanceolata	2
Navicula menisculus var. upsaliensis	6
Navicula minima	55
Navicula miniscula	12
Navicula mutica	*
Navicula radiosa var. parva	1
Navicula radiosa var. tenella	52

 *Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula salinarum</i> var. <i>intermedia</i>	53
<i>Navicula secreta</i> var. <i>apiculata</i>	*
<i>Navicula seminulum</i>	2
<i>Navicula tripunctata</i>	47
<i>Navicula tripunctata</i> var. <i>schizonemoides</i>	3
<i>Nitzschia acicularis</i>	1
<i>Nitzschia angustata</i> var. <i>acuta</i>	*
<i>Nitzschia dissipata</i>	54
<i>Nitzschia dubia</i>	*
<i>Nitzschia gracilis</i>	*
<i>Nitzschia inconspicua</i>	1
<i>Nitzschia palea</i>	20
<i>Nitzschia paleacea</i>	*
<i>Nitzschia perminuta</i>	4
<i>Nitzschia recta</i>	4
<i>Nitzschia sigmoidea</i>	*
<i>Nitzschia tropica</i>	*
<i>Rhoicosphenia curvata</i>	2
<i>Stephanodiscus hantzschii</i>	*
<i>Stephanodiscus minutulus</i>	1
<i>Surirella angustata</i>	1
<i>Surirella ovata</i>	5
<i>Surirella ovata</i> var. <i>pinnata</i>	1
<i>Synedra delicatissima</i>	*
<i>Synedra rumpens</i> var. <i>familiaris</i>	1
<i>Synedra ulna</i>	2

 Station ID: REFIPCLC Collection Date: 05/05/93

Total Number of Taxa (TNT):	65
Total Number of Individuals (TNI):	531
Diversity (H):	1.26
Percent (%) Sensitive Individuals:	7.9
Pollution Tolerance Index (PTI):	2.1
Siltation Index**:	73.1

 *Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surirella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPCLC (04014017) Stream: CLEAR CREEK
 Mile Point: 4.10 Drainage Area: 61.6 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: WOODFORD Basin: KENTUCKY
 Map Number: 12-42 Latitude: 37-56-40 Longitude: 084-45-53
 Location Description: HIFNER MILL ROAD AT BRIDGE

Date Collected: 05/12/94 Comments:
 Sample ID: 19940512-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	54
Achnanthes lanceolata	32
Achnanthes minutissima	5
Amphora ovalis	*
Amphora perpusilla	12
Amphora submontana	*
Bacillaria paradoxa	1
Caloneis bacillum	4
Caloneis budensis	*
Caloneis ventricosa var. truncatula	*
Cocconeis pediculus	24
Cocconeis placentula	5
Cocconeis placentula var. euglypta	10
Cyclotella meneghiniana	*
Cyclotella pseudostelligera	1
Cyclotella stelligera	*
Cymatopleura solea	*
Cymbella microcephala	*
Cymbella minuta	2
Cymbella prostrata	1
Cymbella silesiaca	1
Cymbella sinuata	*
Cymbella sp. (K)	*
Diatoma vulgare	2
Fragilaria pinnata	1
Fragilaria vaucheriae	*
Frustulia vulgaris	*
Gomphonema angustatum	8
Gomphonema olivaceum	1
Gomphonema parvulum	2
Gomphonema subclavatum	*
Gyrosigma nodiferum	*
Gyrosigma scalpoides	*
Hantzschia amphioxys	*
Melosira varians	12
Meridion circulare	*
Navicula atomus	2
Navicula cryptocephala	1
Navicula cryptocephala var. veneta	44

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Navicula cuspidata	*
Navicula gottlandica	2
Navicula hustedtii	*
Navicula lanceolata	8
Navicula menisculus var. upsaliensis	15
Navicula minima	53
Navicula mutica	1
Navicula pelliculosa	*
Navicula radiosa var. parva	1
Navicula radiosa var. tenella	40
Navicula salinarum var. intermedia	49
Navicula secreta var. apiculata	*
Navicula tripunctata	25
Navicula viridula	1
Nitzschia acicularis	*
Nitzschia clausii	*
Nitzschia dissipata	20
Nitzschia fonticola	43
Nitzschia linearis	2
Nitzschia palea	6
Nitzschia paleacea	*
Nitzschia perminuta	14
Nitzschia recta	6
Nitzschia sp.1	*
Rhoicosphenia curvata	8
Stephanodiscus hantzschii	5
Surirella angustata	*
Surirella linearis	*
Surirella ovata	11
Surirella ovata var. pinnata	*
Synedra acus	*
Synedra ulna	*

 Station ID: REFIPCLC Collection Date: 05/12/94

Total Number of Taxa (TNT):	71
Total Number of Individuals (TNI):	535
Diversity (H):	1.34
Percent (%) Sensitive Individuals:	10.5
Pollution Tolerance Index (PTI):	2.3
Siltation Index**:	62.2

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPGAS (03018011) Stream: GASPER RIVER
 Mile Point: 32.35 Drainage Area: 26.3 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: LOGAN Basin: GREEN
 Map Number: 04-27 Latitude: 36-56-07 Longitude: 086-43-27
 Location Description: BUCKSVILLE ROAD BRIDGE

Date Collected: 10/08/92 Comments:
 Sample ID: 19921008-10 Substrate Type: Natural
 ID By:

Achnanthes lanceolata var. dubia	14
Achnanthes minutissima	3
Amphipleura pellucida	*
Amphora perpusilla	8
Amphora submontana	*
Caloneis bacillum	2
Caloneis ventricosa	*
Cocconeis pediculus	6
Cocconeis placentula var. euglypta	1
Cocconeis placentula var. lineata	31
Cymatopleura solea	2
Cymbella affinis	1
Cymbella silesiaca	*
Cymbella sinuata	3
Diploneis elliptica	1
Epithemia adnata	*
Gomphonema angustatum	13
Gomphonema brasiliense	2
Gomphonema clevei	*
Gomphonema olivaceum	*
Gomphonema parvulum	*
Gomphonema sphaerophorum	1
Gomphonema subclavatum	*
Gyrosigma attenuatum	5
Gyrosigma nodiferum	*
Gyrosigma scalproides	9
Gyrosigma spencerii	10
Melosira varians	1
Navicula capitata	3
Navicula cryptocephala	13
Navicula cryptocephala var. veneta	6
Navicula decussis	4
Navicula elginensis	8
Navicula elginensis var. neglecta	1
Navicula lanceolata	2
Navicula menisculus var. upsaliensis	6
Navicula minima	3
Navicula mutica	2
Navicula placenta	1

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula pupula	22
Navicula pupula var. elliptica	1
Navicula pygmaea	*
Navicula radiosa	4
Navicula radiosa var. tenella	24
Navicula salinarum var. intermedia	3
Navicula schroeteri var. escambia	3
Navicula secreta var. apiculata	*
Navicula symmetrica	13
Navicula tripunctata	8
Navicula viridula	2
Navicula viridula var. rostellata	6
Neidium affine var. longiceps	1
Neidium binode	3
Neidium dubium	2
Nitzschia amphibia	2
Nitzschia clausii	1
Nitzschia coarctata	2
Nitzschia constricta	39
Nitzschia dissipata	19
Nitzschia linearis	97
Nitzschia palea	4
Nitzschia recta	37
Nitzschia tryblionella var. victoriae	29
Pinnularia borealis var. rectangularis	*
Pinnularia subcapitata var. paucistriata	1
Rhoicosphenia curvata	2
Stauroneis smithii	7
Surirella angustata	3
Surirella linearis	11
Surirella linearis var. helvetica	8
Surirella ovata	1
Surirella ovata var. pinnata	3
Synedra parasitica	*
Synedra ulna	1

 Station ID: REFIPGAS Collection Date: 10/08/92

Total Number of Taxa (TNT):	74
Total Number of Individuals (TNI):	521
Diversity (H):	1.45
Percent (%) Sensitive Individuals:	2.7
Pollution Tolerance Index (PTI):	2.6
Siltation Index**:	70.1

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

Site ID: REFIPGAS (03018011)	Stream: GASPER RIVER
Mile Point: 32.35	Drainage Area: 26.3 square miles
Order: 3	Ecoregion: INTERIOR PLATEAU
County: LOGAN	Basin: GREEN
Map Number: 04-27	Latitude: 36-56-07 Longitude: 086-43-27
Location Description: BUCKSVILLE ROAD BRIDGE	

Date Collected: 11/04/93	Comments:
Sample ID: 19931104-11	Substrate Type: Natural
ID By:	

Achnanthes deflexa	11
Achnanthes lanceolata	8
Achnanthes lanceolata var. dubia	3
Achnanthes minutissima	34
Amphipleura pellucida	1
Amphora ovalis	*
Amphora perpusilla	14
Amphora submontana	1
Cocconeis pediculus	5
Cocconeis placentula	3
Cocconeis placentula var. euglypta	1
Cyclotella striata var. ambigua	*
Cymatopleura solea	*
Cymbella silesiaca	1
Cymbella tumida	*
Diatoma vulgare	*
Diploneis elliptica	2
Diploneis oblongella	1
Diploneis puella	*
Eunotia maior	2
Eunotia praerupta	*
Fragilaria pinnata	1
Fragilaria vaucheriae	*
Frustulia vulgaris	2
Gomphonema abbreviatum	*
Gomphonema acuminatum	11
Gomphonema affine	*
Gomphonema brasiliense	*
Gomphonema gracile	*
Gomphonema parvulum	1
Gomphonema sphaerophorum	*
Gomphonema subclavatum	2
Gyrosigma acuminatum	*
Gyrosigma obtusatum	*
Gyrosigma scalproides	1
Gyrosigma spencerii	*
Melosira varians	5
Navicula capitata	3
Navicula cryptocephala var. veneta	4

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula elginensis</i>	*
<i>Navicula elginensis</i> var. <i>rostrata</i>	*
<i>Navicula exigua</i>	*
<i>Navicula lanceolata</i>	1
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	7
<i>Navicula minima</i>	93
<i>Navicula mutica</i>	*
<i>Navicula pelliculosa</i>	2
<i>Navicula pupula</i> var. <i>capitata</i>	6
<i>Navicula pygmaea</i>	2
<i>Navicula radiosa</i>	*
<i>Navicula radiosa</i> var. <i>tenella</i>	3
<i>Navicula rhynchocephala</i>	*
<i>Navicula salinarum</i> var. <i>intermedia</i>	*
<i>Navicula schroeteri</i> var. <i>escambia</i>	10
<i>Navicula secreta</i> var. <i>apiculata</i>	59
<i>Navicula subhamulata</i> var. <i>undulata</i>	11
<i>Navicula tripunctata</i>	3
<i>Navicula viridula</i>	8
<i>Nitzschia acicularis</i>	*
<i>Nitzschia amphibia</i>	12
<i>Nitzschia coarctata</i>	*
<i>Nitzschia communis</i>	2
<i>Nitzschia constricta</i>	16
<i>Nitzschia dissipata</i>	10
<i>Nitzschia filiformis</i>	3
<i>Nitzschia fonticola</i>	1
<i>Nitzschia gracilis</i>	7
<i>Nitzschia linearis</i>	4
<i>Nitzschia palea</i>	87
<i>Nitzschia recta</i>	9
<i>Nitzschia sigmoidea</i>	*
<i>Nitzschia</i> sp.1	19
<i>Nitzschia tryblionella</i>	*
<i>Nitzschia tryblionella</i> var. <i>victoriae</i>	*
<i>Nitzschia vermicularis</i>	1
<i>Pinnularia subcapitata</i>	*
<i>Pinnularia viridis</i>	*
<i>Rhoicosphenia curvata</i>	4
<i>Stauroneis smithii</i>	1
<i>Surirella angustata</i>	*
<i>Surirella linearis</i>	1
<i>Surirella linearis</i> var. <i>helvetica</i>	*
<i>Surirella ovata</i>	5
<i>Surirella ovata</i> var. <i>pinnata</i>	1
<i>Surirella robusta</i> f. <i>lata</i>	*
<i>Synedra parasitica</i>	1
<i>Synedra parasitica</i> var. <i>subconstricta</i>	2
<i>Synedra ulna</i>	2

 Station ID: REFIPGAS Collection Date: 11/04/93

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surirella*

06/25/96

DIATOM COLLECTION DATA

Total Number of Taxa (TNT):	88
Total Number of Individuals (TNI):	510
Diversity (H):	1.32
Percent (%) Sensitive Individuals:	4.9
Pollution Tolerance Index (PTI):	1.8
Siltation Index**:	75.1

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPGAS (03018011) Stream: GASPER RIVER
 Mile Point: 32.35 Drainage Area: 26.3 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: LOGAN Basin: GREEN
 Map Number: 04-27 Latitude: 36-56-07 Longitude: 086-43-27
 Location Description: BUCKSVILLE ROAD BRIDGE

Date Collected: 11/01/94 Comments:
 Sample ID: 19941101-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	18
Achnanthes lanceolata	4
Achnanthes lanceolata var. dubia	8
Achnanthes minutissima	3
Amphora ovalis	*
Amphora perpusilla	12
Caloneis bacillum	4
Cocconeis pediculus	2
Cocconeis placentula	5
Cocconeis placentula var. euglypta	2
Cyclotella meneghiniana	*
Cyclotella striata var. ambigua	3
Cymatopleura solea	1
Cymbella hustedtii	*
Cymbella tumida	*
Diploneis elliptica	1
Diploneis puella	*
Fragilaria pinnata	*
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	3
Frustulia weinholdii	2
Gomphonema brasiliense	*
Gomphonema olivaceum	3
Gomphonema parvulum	*
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Gomphonema subclavatum var. mexicanum	*
Gomphonema truncatum	*
Gyrosigma acuminatum	*
Gyrosigma nodiferum	18
Gyrosigma scalpoides	*
Gyrosigma spencerii	*
Melosira varians	7
Navicula capitata	*
Navicula cryptocephala	1
Navicula cryptocephala var. veneta	8
Navicula decussis	*
Navicula elginensis	1
Navicula gottlandica	*

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

<i>Navicula hustedtii</i>	5	
<i>Navicula lanceolata</i>		*
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	9	
<i>Navicula minima</i>	245	
<i>Navicula mutica</i>		*
<i>Navicula notha</i>	4	
<i>Navicula pelliculosa</i>	2	
<i>Navicula placenta</i>		*
<i>Navicula pupula</i>		*
<i>Navicula pygmaea</i>	5	
<i>Navicula radiosa</i> var. <i>tenella</i>	1	
<i>Navicula salinarum</i> var. <i>intermedia</i>	1	
<i>Navicula secreta</i> var. <i>apiculata</i>	21	
<i>Navicula subhamulata</i> var. <i>undulata</i>	9	
<i>Navicula symmetrica</i>		*
<i>Navicula tripunctata</i>		*
<i>Navicula viridula</i>	6	
<i>Navicula viridula</i> var. <i>linearis</i>		*
<i>Navicula viridula</i> var. <i>rostellata</i>	1	
<i>Neidium affine</i>		*
<i>Neidium binode</i>		*
<i>Nitzschia acicularis</i>	2	
<i>Nitzschia amphibia</i>	4	
<i>Nitzschia angustata</i> var. <i>acuta</i>		*
<i>Nitzschia clausii</i>		*
<i>Nitzschia coarctata</i>	1	
<i>Nitzschia constricta</i>	3	
<i>Nitzschia dissipata</i>	11	
<i>Nitzschia dubia</i>		*
<i>Nitzschia fonticola</i>	2	
<i>Nitzschia frustulum</i>	1	
<i>Nitzschia gracilis</i>	9	
<i>Nitzschia linearis</i>	1	
<i>Nitzschia palea</i>	44	
<i>Nitzschia paleacea</i>	4	
<i>Nitzschia recta</i>	15	
<i>Nitzschia sigmoidea</i>	2	
<i>Nitzschia</i> sp.1	11	
<i>Nitzschia tryblionella</i> var. <i>victoriae</i>		*
<i>Nitzschia vermicularis</i>		*
<i>Pinnularia borealis</i>		*
<i>Rhoicosphenia curvata</i>		*
<i>Stauroneis smithii</i>		*
<i>Surirella angustata</i>		*
<i>Surirella linearis</i>	3	
<i>Surirella linearis</i> var. <i>helvetica</i>	2	
<i>Surirella ovata</i>	1	
<i>Surirella ovata</i> var. <i>pinnata</i>	1	
<i>Surirella robusta</i> f. <i>lata</i>		*
<i>Synedra parasitica</i>	1	
<i>Synedra ulna</i>	1	

 *Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surirella*

06/25/96

DIATOM COLLECTION DATA

Station ID: REFIPGAS Collection Date: 11/01/94

Total Number of Taxa (TNT):	90
Total Number of Individuals (TNI):	534
Diversity (H):	1.10
Percent (%) Sensitive Individuals:	6.9
Pollution Tolerance Index (PTI):	1.6
Siltation Index**:	80.3

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPGAS (03018011) Stream: GASPER RIVER
 Mile Point: 32.35 Drainage Area: 26.3 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: LOGAN Basin: GREEN
 Map Number: 04-27 Latitude: 36-56-07 Longitude: 086-43-27
 Location Description: BUCKSVILLE ROAD BRIDGE

Date Collected: 04/26/95 Comments:
 Sample ID: 19950426-11 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	4
Achnanthes lanceolata	3
Achnanthes lanceolata var. dubia	8
Achnanthes linearis	1
Achnanthes minutissima	13
Amphora ovalis	*
Amphora perpusilla	17
Amphora submontana	*
Caloneis bacillum	1
Caloneis budensis	*
Caloneis ventricosa var. truncatula	*
Cocconeis pediculus	21
Cocconeis placentula	4
Cocconeis placentula var. euglypta	4
Cyclotella meneghiniana	*
Cyclotella striata var. ambigua	1
Cymatopleura solea	1
Cymbella affinis	*
Cymbella minuta	1
Cymbella prostrata	1
Cymbella silesiaca	4
Cymbella sinuata	*
Cymbella sp. (K)	2
Cymbella tumida	*
Diatoma vulgare	48
Fragilaria pinnata	*
Frustulia vulgaris	3
Gomphonema affine	*
Gomphonema angustatum	1
Gomphonema clevei	2
Gomphonema parvulum	8
Gyrosigma nodiferum	1
Gyrosigma scalproides	*
Gyrosigma spencerii	*
Hantzschia amphioxys	1
Melosira varians	68
Meridion circulare	1
Navicula atomus	2

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Navicula capitata	2
Navicula cryptocephala	4
Navicula cryptocephala var. veneta	15
Navicula decussis	2
Navicula elginensis	*
Navicula gottlandica	2
Navicula hustedtii	1
Navicula lanceolata	2
Navicula menisculus var. upsaliensis	5
Navicula minima	36
Navicula mutica	*
Navicula notha	1
Navicula pelliculosa	*
Navicula pupula	2
Navicula pupula var. capitata	*
Navicula pygmaea	1
Navicula radiosa var. tenella	17
Navicula salinarum var. intermedia	5
Navicula secreta var. apiculata	7
Navicula seminulum	2
Navicula subhamulata var. undulata	2
Navicula tripunctata	11
Navicula tripunctata var. schizonemoides	*
Navicula viridula	2
Navicula viridula var. rostellata	*
Neidium affine	*
Nitzschia acicularis	1
Nitzschia amphibia	1
Nitzschia angustata var. acuta	1
Nitzschia constricta	1
Nitzschia dissipata	46
Nitzschia dubia	4
Nitzschia filiformis	8
Nitzschia fonticola	1
Nitzschia gracilis	2
Nitzschia hungarica	*
Nitzschia linearis	9
Nitzschia palea	*
Nitzschia paleacea	1
Nitzschia perminuta	*
Nitzschia recta	9
Nitzschia tryblionella var. victoriae	*
Rhoicosphenia curvata	4
Stauroneis smithii	*
Surirella angustata	1
Surirella linearis	*
Surirella ovata	47
Surirella ovata var. pinnata	1
Synedra parasitica var. subconstricta	*
Synedra rumpens var. familiaris	*
Synedra ulna	12

 *Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surirella*

06/25/96

DIATOM COLLECTION DATA

Station ID: REFIPGAS Collection Date: 04/26/95

Total Number of Taxa (TNT):	90
Total Number of Individuals (TNI):	489
Diversity (H):	1.42
Percent (%) Sensitive Individuals:	2.5
Pollution Tolerance Index (PTI):	2.3
Siltation Index**:	41.9

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*
06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPGOC (03031001) Stream: GOOSE CREEK
 Mile Point: 5.60 Drainage Area: 40.1 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: CASEY Basin: GREEN
 Map Number: 06-41 Latitude: 37-08-37 Longitude: 084-59-54
 Location Description: OFF BROCK ROAD

Date Collected: 05/21/92 Comments:
 Sample ID: 19920521-11 Substrate Type: Natural
 ID By:

Achnanthes clevei	1
Achnanthes deflexa	20
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	21
Achnanthes minutissima	192
Amphora perpusilla	5
Amphora submontana	1
Caloneis bacillum	1
Cocconeis pediculus	6
Cocconeis placentula var. lineata	11
Cyclotella striata var. ambigua	*
Cymatopleura solea	1
Cymbella affinis	94
Cymbella minuta	1
Cymbella prostrata	*
Cymbella prostrata var. auerswaldii	*
Cymbella silesiaca	8
Cymbella sinuata	10
Cymbella triangulum	*
Cymbella tumida	1
Cymbella turgidula	9
Diatoma vulgare	*
Diploneis elliptica	1
Fragilaria pinnata	2
Fragilaria vaucheriae	7
Frustulia vulgaris	*
Gomphonema angustatum	5
Gomphonema clevei	*
Gomphonema parvulum	*
Gomphonema subclavatum	*
Gomphonema subclavatum var. mexicanum	*
Gomphonema truncatum	*
Gyrosigma scalproides	*
Melosira varians	9
Meridion circulare	*
Navicula cryptocephala	4
Navicula cryptocephala var. veneta	4
Navicula decussis	*
Navicula lanceolata	7

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula menisculus var. upsaliensis	4
Navicula minima	8
Navicula pupula	2
Navicula radiosa	1
Navicula radiosa var. parva	*
Navicula radiosa var. tenella	1
Navicula salinarum var. intermedia	25
Navicula secreta var. apiculata	2
Navicula tripunctata	*
Navicula viridula var. rostellata	*
Nitzschia acicularis	4
Nitzschia amphibia	21
Nitzschia clausii	1
Nitzschia dissipata	11
Nitzschia linearis	5
Nitzschia palea	17
Nitzschia sinuata var. tabellaria	2
Pinnularia subcapitata var. paucistriata	*
Rhoicosphenia curvata	12
Stauroneis anceps f. gracilis	*
Surirella angustata	1
Surirella ovata	*
Surirella ovata var. pinnata	*
Synedra rumpens	2
Synedra rumpens var. familiaris	2
Synedra ulna	*

 Station ID: REFIPGOC Collection Date: 05/21/92

Total Number of Taxa (TNT):	65
Total Number of Individuals (TNI):	542
Diversity (H):	1.11
Percent (%) Sensitive Individuals:	26.8
Pollution Tolerance Index (PTI):	3.0
Siltation Index**:	22.0

 *Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPGOC (03031001) Stream: GOOSE CREEK
 Mile Point: 5.60 Drainage Area: 40.1 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: CASEY Basin: GREEN
 Map Number: 06-41 Latitude: 37-08-37 Longitude: 084-59-54
 Location Description: OFF BROCK ROAD

Date Collected: 10/27/92 Comments:
 Sample ID: 19921027-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	11
Achnanthes lanceolata var. dubia	15
Achnanthes minutissima	86
Amphora perpusilla	14
Amphora submontana	*
Caloneis ventricosa var. truncatula	1
Cocconeis placentula	35
Cyclotella striata var. ambigua	8
Cymatopleura solea	2
Cymbella affinis	55
Cymbella aspera	*
Cymbella cistula	*
Cymbella minuta	4
Cymbella prostrata	4
Cymbella silesiaca	5
Cymbella sinuata	4
Cymbella tumida	7
Cymbella turgidula	4
Diatoma vulgare	1
Diploneis elliptica	1
Frustulia rhomboides var. amphipleuroides	2
Frustulia vulgaris	1
Gomphonema abbreviatum	3
Gomphonema acuminatum	*
Gomphonema angustatum	7
Gomphonema parvulum	2
Gomphonema sphaerophorum	2
Gomphonema subclavatum	3
Gomphonema truncatum	*
Gyrosigma attenuatum	3
Gyrosigma nodiferum	5
Melosira varians	13
Meridion circulare	1
Navicula cryptocephala	11
Navicula cryptocephala var. veneta	23
Navicula pupula	*
Navicula radiosa	11
Navicula radiosa var. tenella	3
Navicula salinarum var. intermedia	22

* Qualitative data

** Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Navicula tripunctata	6
Navicula viridula var. rostellata	19
Neidium affine	1
Nitzschia amphibia	13
Nitzschia constricta	1
Nitzschia dissipata	34
Nitzschia linearis	10
Nitzschia palea	12
Nitzschia sinuata var. tabellaria	11
Pinnularia viridis var. minor	*
Rhoicosphenia curvata	22
Stauroneis smithii	*
Surirella angustata	*
Surirella linearis var. helvetica	3
Surirella ovata	1
Synedra acus	1
Synedra rumpens var. familiaris	*
Synedra ulna	1
Synedra ulna var. oxyrhynchus	*

 Station ID: REFIPGOC Collection Date: 10/27/92

Total Number of Taxa (TNT):	58
Total Number of Individuals (TNI):	504
Diversity (H):	1.38
Percent (%) Sensitive Individuals:	19.2
Pollution Tolerance Index (PTI):	2.6
Siltation Index**:	34.9

 *Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPGOC (03031001) Stream: GOOSE CREEK
 Mile Point: 5.60 Drainage Area: 40.1 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: CASEY Basin: GREEN
 Map Number: 06-41 Latitude: 37-08-37 Longitude: 084-59-54
 Location Description: OFF BROCK ROAD

Date Collected: 05/11/93 Comments:
 Sample ID: 19930511-11 Substrate Type: Natural
 ID By:

Achnanthes clevei	1
Achnanthes deflexa	61
Achnanthes hungarica	1
Achnanthes lanceolata	14
Achnanthes lanceolata var. dubia	*
Achnanthes minutissima	74
Amphora perpusilla	12
Caloneis bacillum	4
Caloneis limosa	*
Cocconeis pediculus	3
Cocconeis placentula	14
Cocconeis placentula var. euglypta	6
Cyclotella meneghiniana	*
Cyclotella stelligera	1
Cyclotella striata var. ambigua	4
Cymatopleura solea	*
Cymbella affinis	5
Cymbella cymbiformis	1
Cymbella minuta	25
Cymbella prostrata	1
Cymbella silesiaca	26
Cymbella sinuata	8
Cymbella sp. (K)	*
Cymbella tumida	1
Cymbella turgidula	*
Diatoma vulgare	2
Fragilaria pinnata	1
Fragilaria vaucheriae	14
Frustulia vulgaris	1
Gomphonema angustatum	8
Gomphonema apuncto	2
Gomphonema olivaceum	5
Gomphonema parvulum	4
Gyrosigma scalproides	1
Gyrosigma spencerii	*
Melosira varians	4
Meridion circulare	2
Navicula atomus	14
Navicula capitata	1

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula cryptocephala</i>	14
<i>Navicula cryptocephala</i> var. <i>veneta</i>	10
<i>Navicula decussis</i>	*
<i>Navicula gottlandica</i>	6
<i>Navicula lanceolata</i>	4
<i>Navicula laterorostrata</i>	1
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	4
<i>Navicula minima</i>	35
<i>Navicula pelliculosa</i>	*
<i>Navicula pupula</i>	*
<i>Navicula pupula</i> var. <i>rectangularis</i>	*
<i>Navicula radiosa</i>	*
<i>Navicula radiosa</i> var. <i>parva</i>	*
<i>Navicula radiosa</i> var. <i>tenella</i>	3
<i>Navicula rhynchocephala</i>	1
<i>Navicula salinarum</i> var. <i>intermedia</i>	42
<i>Navicula secreta</i> var. <i>apiculata</i>	8
<i>Navicula symmetrica</i>	*
<i>Navicula tripunctata</i>	3
<i>Navicula viridula</i>	*
<i>Nitzschia acicularis</i>	4
<i>Nitzschia amphibia</i>	8
<i>Nitzschia brevissima</i>	*
<i>Nitzschia communis</i>	22
<i>Nitzschia constricta</i>	*
<i>Nitzschia dissipata</i>	9
<i>Nitzschia filiformis</i>	2
<i>Nitzschia fonticola</i>	15
<i>Nitzschia gracilis</i>	*
<i>Nitzschia linearis</i>	1
<i>Nitzschia palea</i>	24
<i>Nitzschia recta</i>	6
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	*
<i>Nitzschia vermicularis</i>	*
<i>Pinnularia subcapitata</i> var. <i>paucistriata</i>	*
<i>Rhoicosphenia curvata</i>	21
<i>Stauroneis phoenicenteron</i>	2
<i>Stephanodiscus invisitatus</i>	*
<i>Surirella angustata</i>	2
<i>Surirella ovata</i>	8
<i>Synedra acus</i>	1
<i>Synedra ulna</i>	3
<i>Synedra ulna</i> var. <i>oxyrhynchus</i>	*

 Station ID: REFIPGOC Collection Date: 05/11/93

Total Number of Taxa (TNT):	82
Total Number of Individuals (TNI):	580
Diversity (H):	1.48
Percent (%) Sensitive Individuals:	18.1
Pollution Tolerance Index (PTI):	2.4

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surirella*

06/25/96

DIATOM COLLECTION DATA

Siltation Index** : 40.9

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*
06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPGOC (03031001) Stream: GOOSE CREEK
 Mile Point: 5.60 Drainage Area: 40.1 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: CASEY Basin: GREEN
 Map Number: 06-41 Latitude: 37-08-37 Longitude: 084-59-54
 Location Description: OFF BROCK ROAD

Date Collected: 10/14/93 Comments:
 Sample ID: 19931014-11 Substrate Type: Natural
 ID By:

Achnanthes clevei	6
Achnanthes deflexa	26
Achnanthes detha	3
Achnanthes lanceolata	17
Achnanthes lanceolata var. dubia	*
Achnanthes minutissima	46
Amphora perpusilla	23
Amphora submontana	3
Caloneis bacillum	7
Cocconeis placentula	8
Cocconeis placentula var. euglypta	17
Cyclotella striata var. ambigua	2
Cymbella affinis	5
Cymbella cymbiformis	*
Cymbella minuta	4
Cymbella silesiaca	1
Cymbella sinuata	4
Cymbella sp. (K)	*
Cymbella tumida	1
Cymbella turgidula	*
Denticula elegans	*
Diatoma vulgare	1
Diploneis elliptica	*
Eunotia pectinalis var. minor	*
Fragilaria pinnata	5
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	2
Gomphonema acuminatum	*
Gomphonema angustatum	1
Gomphonema clevei	4
Gomphonema olivaceum	4
Gomphonema parvulum	4
Gomphonema sphaerophorum	*
Gomphonema subclavatum var. mexicanum	*
Gyrosigma scalproides	*
Gyrosigma spencerii	*
Hantzschia amphioxys	1
Melosira varians	7
Meridion circulare	*

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula capitata</i>	1
<i>Navicula cryptocephala</i>	4
<i>Navicula cryptocephala</i> var. <i>veneta</i>	3
<i>Navicula decussis</i>	2
<i>Navicula hustedtii</i>	18
<i>Navicula lanceolata</i>	1
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	4
<i>Navicula minima</i>	114
<i>Navicula mutica</i>	*
<i>Navicula pelliculosa</i>	*
<i>Navicula pupula</i>	1
<i>Navicula radiosa</i> var. <i>tenella</i>	4
<i>Navicula salinarum</i> var. <i>intermedia</i>	11
<i>Navicula schroeteri</i> var. <i>escambia</i>	13
<i>Navicula symmetrica</i>	1
<i>Navicula tripunctata</i>	*
<i>Navicula viridula</i>	8
<i>Nitzschia acicularis</i>	*
<i>Nitzschia amphibia</i>	*
<i>Nitzschia angustata</i> var. <i>acuta</i>	*
<i>Nitzschia communis</i>	20
<i>Nitzschia dissipata</i>	1
<i>Nitzschia filiformis</i>	7
<i>Nitzschia gracilis</i>	9
<i>Nitzschia linearis</i>	2
<i>Nitzschia microcephala</i>	28
<i>Nitzschia palea</i>	22
<i>Nitzschia recta</i>	2
<i>Nitzschia romana</i>	2
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	13
<i>Nitzschia tryblionella</i> var. <i>victoriae</i>	1
<i>Rhoicosphenia curvata</i>	48
<i>Surirella angustata</i>	3
<i>Surirella linearis</i>	2
<i>Surirella ovata</i> var. <i>pinnata</i>	1
<i>Synedra acus</i>	*
<i>Synedra parasitica</i> var. <i>subconstricta</i>	*
<i>Synedra ulna</i>	1
<i>Synedra ulna</i> var. <i>oxyrhynchus</i>	1

 Station ID: REFIPGOC Collection Date: 10/14/93

Total Number of Taxa (TNT):	78
Total Number of Individuals (TNI):	550
Diversity (H):	1.39
Percent (%) Sensitive Individuals:	7.8
Pollution Tolerance Index (PTI):	2.2
Siltation Index**:	53.1

 *Qualitative data

**Relative abundance of *Navicula*+*Nitzschia*+*Surirella*

06/25/96

DIATOM COLLECTION DATA

Site ID: REFIPGOC (03031001)	Stream: GOOSE CREEK	Drainage Area: 40.1 square miles
Mile Point: 5.60	Ecoregion: INTERIOR PLATEAU	Basin: GREEN
Order: 4	Latitude: 37-08-37 Longitude: 084-59-54	
County: CASEY	Map Number: 06-41	
Location Description: OFF BROCK ROAD		

Date Collected: 05/19/94	Comments:
Sample ID: 19940519-11	Substrate Type: Natural
ID By:	

Achnanthes clevei	*
Achnanthes deflexa	26
Achnanthes lanceolata	4
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	78
Achnanthes stewartii	*
Amphora perpusilla	12
Caloneis bacillum	*
Cocconeis placentula	1
Cocconeis placentula var. euglypta	1
Cyclotella meneghiniana	*
Cyclotella striata var. ambigua	*
Cymbella affinis	2
Cymbella minuta	*
Cymbella prostrata	*
Cymbella silesiaca	2
Cymbella sinuata	6
Cymbella sp. (K)	1
Cymbella tumida	2
Cymbella turgidula	*
Denticula elegans	*
Diatoma vulgare	*
Eunotia exigua	1
Fragilaria pinnata	10
Fragilaria vaucheriae	*
Frustulia vulgaris	10
Gomphonema angustatum	*
Gomphonema parvulum	*
Gyrosigma spencerii	11
Melosira varians	1
Meridion circulare	8
Navicula atomus	10
Navicula cryptocephala	9
Navicula cryptocephala var. veneta	*
Navicula exigua	2
Navicula gottlandica	2
Navicula lanceolata	3
Navicula menisculus var. upsaliensis	43
Navicula minima	

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula radiosa</i>	*
<i>Navicula radiosa</i> var. <i>parva</i>	1
<i>Navicula radiosa</i> var. <i>tenella</i>	4
<i>Navicula salinarum</i> var. <i>intermedia</i>	59
<i>Navicula secreta</i> var. <i>apiculata</i>	10
<i>Navicula tripunctata</i>	5
<i>Navicula viridula</i>	3
<i>Navicula viridula</i> var. <i>rostellata</i>	*
<i>Nitzschia acicularis</i>	4
<i>Nitzschia amphibia</i>	4
<i>Nitzschia dissipata</i>	43
<i>Nitzschia fonticola</i>	38
<i>Nitzschia frustulum</i>	10
<i>Nitzschia gracilis</i>	3
<i>Nitzschia inconspicua</i>	40
<i>Nitzschia linearis</i>	1
<i>Nitzschia palea</i>	18
<i>Nitzschia paleacea</i>	6
<i>Nitzschia recta</i>	11
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	*
<i>Pinnularia subcapitata</i>	*
<i>Pinnularia viridis</i>	*
<i>Rhoicosphenia curvata</i>	1
<i>Surirella angustata</i>	6
<i>Surirella ovata</i>	6
<i>Surirella ovata</i> var. <i>pinnata</i>	*
<i>Synedra acus</i>	*
<i>Synedra parasitica</i> var. <i>subconstricta</i>	*
<i>Synedra rumpens</i> var. <i>familiaris</i>	*
<i>Synedra ulna</i>	6
<i>Synedra ulna</i> var. <i>oxyrhynchus</i>	*

 Station ID: REFIPGOC Collection Date: 05/19/94

Total Number of Taxa (TNT):	70
Total Number of Individuals (TNI):	524
Diversity (H):	1.34
Percent (%) Sensitive Individuals:	7.4
Pollution Tolerance Index (PTI):	2.1
Siltation Index**:	64.3

 *Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surirella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPGOC (03031001) Stream: GOOSE CREEK
 Mile Point: 5.60 Drainage Area: 40.1 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: CASEY Basin: GREEN
 Map Number: 06-41 Latitude: 37-08-37 Longitude: 084-59-54
 Location Description: OFF BROCK ROAD

Date Collected: 10/14/94 Comments:
 Sample ID: 19941014-11 Substrate Type: Natural
 ID By:

Achnanthes clevei	1
Achnanthes deflexa	13
Achnanthes lanceolata	1
Achnanthes lanceolata var. dubia	*
Achnanthes linearis	7
Achnanthes minutissima	202
Amphora perpusilla	4
Amphora submontana	*
Bacillaria paradoxa	5
Caloneis bacillum	*
Cocconeis pediculus	*
Cocconeis placentula	14
Cocconeis placentula var. euglypta	2
Cyclotella meneghiniana	1
Cyclotella striata var. ambigua	2
Cymatopleura solea	*
Cymbella affinis	5
Cymbella minuta	*
Cymbella silesiaca	*
Cymbella sinuata	4
Cymbella sp. (K)	1
Cymbella tumida	3
Cymbella turgidula	1
Denticula elegans	*
Diatoma vulgare	*
Diploneis oblongella	*
Diploneis puella	1
Fragilaria leptostauron	*
Fragilaria pinnata	5
Fragilaria vaucheriae	*
Frustulia vulgaris	*
Gomphonema abbreviatum	*
Gomphonema acuminatum	*
Gomphonema affine	*
Gomphonema angustatum	1
Gomphonema clevei	5
Gomphonema parvulum	2
Gomphonema sphaerophorum	1
Gomphonema subclavatum	*

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Gomphonema truncatum	*
Gyrosigma scalproides	1
Gyrosigma spencerii	*
Melosira varians	5
Meridion circulare	*
Navicula atomus	1
Navicula capitata	1
Navicula cryptocephala	1
Navicula cryptocephala var. veneta	2
Navicula cuspidata	*
Navicula decussis	*
Navicula gottlandica	*
Navicula hustedtii	13
Navicula lanceolata	1
Navicula menisculus var. upsaliensis	3
Navicula minima	85
Navicula mutica	1
Navicula pelliculosa	*
Navicula placenta	*
Navicula pupula	1
Navicula pygmaea	*
Navicula radiosa var. tenella	7
Navicula salinarum var. intermedia	5
Navicula schroeteri var. escambia	1
Navicula secreta var. apiculata	1
Navicula seminulum	5
Navicula symmetrica	2
Navicula tripunctata	*
Navicula viridula	4
Navicula viridula var. linearis	*
Navicula viridula var. rostellata	3
Nitzschia amphibia	30
Nitzschia angustata var. acuta	*
Nitzschia constricta	*
Nitzschia dissipata	1
Nitzschia filiformis	1
Nitzschia frustulum	3
Nitzschia gracilis	4
Nitzschia inconspicua	6
Nitzschia levidensis	*
Nitzschia linearis	1
Nitzschia palea	13
Nitzschia paleacea	*
Nitzschia recta	3
Nitzschia sigmoidea	*
Nitzschia sinuata var. tabellaria	10
Nitzschia sp.1	*
Nitzschia tryblionella var. victoriae	*
Rhoicosphenia curvata	18
Surirella angustata	2
Surirella elegans	*

 * Qualitative data

** Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

Surirella gracilis	*
Surirella ovata	1
Surirella robusta	*
Synedra ulna	1

Station ID: REFIPGOC Collection Date: 10/14/94

Total Number of Taxa (TNT):	94
Total Number of Individuals (TNI):	518
Diversity (H):	1.12
Percent (%) Sensitive Individuals:	5.6
Pollution Tolerance Index (PTI):	2.3
Siltation Index **:	40.3

* Qualitative data

** Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPGOC (03031001) Stream: GOOSE CREEK
 Mile Point: 5.60 Drainage Area: 40.1 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: CASEY Basin: GREEN
 Map Number: 06-41 Latitude: 37-08-37 Longitude: 084-59-54
 Location Description: OFF BROCK ROAD

Date Collected: 06/14/95 Comments:
 Sample ID: 19950614-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	9
Achnanthes lanceolata	61
Achnanthes lanceolata var. dubia	*
Achnanthes linearis	3
Achnanthes minutissima	66
Achnanthes stewartii	1
Amphora perpusilla	5
Amphora submontana	*
Caloneis bacillum	*
Cocconeis pediculus	*
Cocconeis placentula	3
Cocconeis placentula var. euglypta	2
Cyclotella atomus	1
Cyclotella meneghiniana	2
Cyclotella striata var. ambigua	1
Cymbella affinis	10
Cymbella minuta	*
Cymbella silesiaca	3
Cymbella sinuata	4
Cymbella sp. (K)	*
Cymbella tumida	7
Cymbella turgidula	1
Diatoma vulgare	*
Fragilaria pinnata	*
Fragilaria vaucheriae	*
Frustulia vulgaris	1
Gomphonema angustatum	3
Gomphonema clevei	*
Gomphonema olivaceum	2
Gomphonema parvulum	6
Gomphonema subclavatum	*
Gyrosigma scalproides	*
Gyrosigma spencerii	1
Melosira varians	11
Meridion circulare	1
Navicula atomus	6
Navicula capitata	*
Navicula contenta	1
Navicula cryptocephala	6

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula cryptocephala</i> var. <i>veneta</i>	4
<i>Navicula gottlandica</i>	*
<i>Navicula hustedtii</i>	*
<i>Navicula lanceolata</i>	1
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	7
<i>Navicula minima</i>	94
<i>Navicula miniscula</i>	16
<i>Navicula notha</i>	*
<i>Navicula pupula</i>	*
<i>Navicula radiosa</i> var. <i>tenella</i>	3
<i>Navicula salinarum</i> var. <i>intermedia</i>	28
<i>Navicula secreta</i> var. <i>apiculata</i>	11
<i>Navicula seminulum</i>	3
<i>Navicula viridula</i>	3
<i>Navicula viridula</i> var. <i>linearis</i>	*
<i>Navicula viridula</i> var. <i>rostellata</i>	11
<i>Nitzschia acicularis</i>	6
<i>Nitzschia amphibia</i>	1
<i>Nitzschia dissipata</i>	17
<i>Nitzschia gracilis</i>	2
<i>Nitzschia inconspicua</i>	52
<i>Nitzschia linearis</i>	2
<i>Nitzschia palea</i>	58
<i>Nitzschia paleacea</i>	3
<i>Nitzschia perminuta</i>	2
<i>Nitzschia recta</i>	4
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	3
<i>Rhoicosphenia curvata</i>	4
<i>Surirella angustata</i>	2
<i>Surirella ovata</i>	1
<i>Surirella ovata</i> var. <i>pinnata</i>	1
<i>Surirella robusta</i>	*
<i>Synedra delicatissima</i>	*
<i>Synedra rumpens</i> var. <i>familiaris</i>	*
<i>Synedra ulna</i>	1
<i>Synedra ulna</i> var. <i>oxyrhynchus</i>	4

 Station ID: REFIPGOC Collection Date: 06/14/95

Total Number of Taxa (TNT):	75
Total Number of Individuals (TNI):	561
Diversity (H):	1.32
Percent (%) Sensitive Individuals:	6.2
Pollution Tolerance Index (PTI):	1.9
Siltation Index**:	61.3

 *Qualitative data

**Relative abundance of *Navicula*+*Nitzschia*+*Surirella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPMC2 (04023002) Stream: MUDDY CREEK
 Mile Point: 13.40 Drainage Area: 37.0 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: MADISON Basin: KENTUCKY
 Map Number: 10-47 Latitude: 37-44-30 Longitude: 084-08-23
 Location Description: KY 52 BRIDGE

Date Collected: 05/07/92 Comments:
 Sample ID: 19920507-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	23
Achnanthes lanceolata var. dubia	3
Achnanthes minutissima	118
Actinocyclus normanii	*
Amphipleura pellucida	1
Amphora ovalis	1
Amphora perpusilla	15
Amphora submontana	*
Caloneis bacillum	1
Cocconeis pediculus	26
Cocconeis placentula	21
Cocconeis placentula var. euglypta	*
Cyclotella stelligera	*
Cyclotella striata var. ambigua	1
Cymatopleura solea	*
Cymbella affinis	6
Cymbella delicatula	*
Cymbella minuta	*
Cymbella prostrata	1
Cymbella prostrata var. auerswaldii	1
Cymbella silesiaca	*
Cymbella sinuata	1
Cymbella tumida	*
Cymbella turgidula	*
Diploneis elliptica	*
Fragilaria vaucheriae	15
Frustulia rhomboides var. amphipleuroides	*
Gomphonema affine	*
Gomphonema angustatum	23
Gomphonema clevei	*
Gomphonema olivaceum	4
Gomphonema parvulum	3
Gomphonema subclavatum	1
Gyrosigma scalpoides	*
Melosira varians	*
Meridion circulare	*
Navicula cryptocephala	4
Navicula cryptocephala var. veneta	16
Navicula elginensis	*

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

Navicula lanceolata	2
Navicula menisculus var. upsaliensis	11
Navicula minima	28
Navicula mutica	*
Navicula pupula var. capitata	*
Navicula pygmaea	*
Navicula radiosa	3
Navicula radiosa var. tenella	14
Navicula salinarum var. intermedia	6
Navicula secreta var. apiculata	1
Navicula tripunctata	8
Navicula viridula var. rostellata	*
Nitzschia acicularis	6
Nitzschia clausii	1
Nitzschia constricta	*
Nitzschia dissipata	38
Nitzschia linearis	8
Nitzschia palea	33
Nitzschia sinuata var. tabellaria	4
Nitzschia tryblionella var. victoriae	*
Pinnularia subcapitata var. paucistriata	*
Rhoicosphenia curvata	42
Stephanodiscus hantzschii	*
Surirella angustata	1
Surirella ovata	8
Surirella ovata var. pinnata	*
Synedra acus	*
Synedra rumpens var. familiaris	1
Synedra ulna	*
Synedra ulna var. oxyrhynchus	1

 Station ID: REFIPMC2 Collection Date: 05/07/92

Total Number of Taxa (TNT):	69
Total Number of Individuals (TNI):	501
Diversity (H):	1.26
Percent (%) Sensitive Individuals:	6.4
Pollution Tolerance Index (PTI):	2.4
Siltation Index**:	36.5

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPMC2 (04023002) Stream: MUDDY CREEK
 Mile Point: 13.40 Drainage Area: 37.0 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: MADISON Basin: KENTUCKY
 Map Number: 10-47 Latitude: 37-44-30 Longitude: 084-08-23
 Location Description: KY 52 BRIDGE

Date Collected: 10/20/92 Comments:
 Sample ID: 19921020-10 Substrate Type: Natural
 ID By:

<i>Achnanthes deflexa</i>	37
<i>Achnanthes lanceolata</i>	*
<i>Achnanthes lanceolata</i> var. <i>dubia</i>	*
<i>Achnanthes minutissima</i>	64
<i>Amphipleura pellucida</i>	*
<i>Amphora ovalis</i>	1
<i>Amphora perpusilla</i>	29
<i>Amphora submontana</i>	3
<i>Caloneis bacillum</i>	1
<i>Cocconeis pediculus</i>	7
<i>Cocconeis placentula</i>	2
<i>Cocconeis placentula</i> var. <i>euglypta</i>	3
<i>Cyclotella striata</i> var. <i>ambigua</i>	6
<i>Cymatopleura solea</i>	*
<i>Cymbella affinis</i>	4
<i>Cymbella minuta</i>	1
<i>Cymbella silesiaca</i>	1
<i>Cymbella sinuata</i>	2
<i>Cymbella</i> sp. (K)	*
<i>Cymbella triangulum</i>	*
<i>Cymbella tumida</i>	*
<i>Cymbella turgidula</i>	18
<i>Denticula elegans</i>	*
<i>Diploneis puella</i>	*
<i>Fragilaria vaucheriae</i>	18
<i>Gomphonema affine</i>	*
<i>Gomphonema angustatum</i>	2
<i>Gomphonema brasiliense</i>	*
<i>Gomphonema clevei</i>	*
<i>Gomphonema olivaceum</i>	*
<i>Gomphonema parvulum</i>	*
<i>Gomphonema subclavatum</i>	*
<i>Gomphonema truncatum</i>	*
<i>Gyrosigma scalproides</i>	2
<i>Gyrosigma spencerii</i>	*
<i>Melosira italica</i>	27
<i>Melosira varians</i>	58
<i>Navicula cryptocephala</i>	*
<i>Navicula cryptocephala</i> var. <i>veneta</i>	8

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

<i>Navicula elginensis</i>	*
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	3
<i>Navicula minima</i>	51
<i>Navicula mutica</i>	*
<i>Navicula pelliculosa</i>	*
<i>Navicula pupula</i> var. <i>capitata</i>	3
<i>Navicula radiosa</i>	*
<i>Navicula radiosa</i> var. <i>parva</i>	3
<i>Navicula radiosa</i> var. <i>tenella</i>	13
<i>Navicula salinarum</i> var. <i>intermedia</i>	17
<i>Navicula schroeteri</i> var. <i>escambia</i>	2
<i>Navicula secreta</i> var. <i>apiculata</i>	*
<i>Navicula symmetrica</i>	4
<i>Navicula tripunctata</i>	1
<i>Navicula viridula</i>	4
<i>Nitzschia accomoda</i>	*
<i>Nitzschia acicularis</i>	2
<i>Nitzschia amphibia</i>	2
<i>Nitzschia coarctata</i>	*
<i>Nitzschia constricta</i>	*
<i>Nitzschia dissipata</i>	41
<i>Nitzschia dubia</i>	*
<i>Nitzschia linearis</i>	4
<i>Nitzschia microcephala</i>	*
<i>Nitzschia palea</i>	8
<i>Nitzschia recta</i>	*
<i>Nitzschia romana</i>	1
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	80
<i>Nitzschia tryblionella</i> var. <i>victoriae</i>	*
<i>Nitzschia vermicularis</i>	*
<i>Rhoicosphenia curvata</i>	8
<i>Surirella angustata</i>	*
<i>Surirella linearis</i>	*
<i>Surirella ovata</i>	3
<i>Surirella ovata</i> var. <i>pinnata</i>	2
<i>Synedra delicatissima</i>	2
<i>Synedra ulna</i>	*
<i>Synedra ulna</i> var. <i>oxyrhynchus</i>	*

 Station ID: REFIPMC2 Collection Date: 10/20/92

Total Number of Taxa (TNT):	77
Total Number of Individuals (TNI):	548
Diversity (H):	1.28
Percent (%) Sensitive Individuals:	11.7
Pollution Tolerance Index (PTI):	2.6
Siltation Index**:	45.1

 * Qualitative data
 ** Relative abundance of *Navicula+Nitzschia+Surirella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPMC2 (04023002) Stream: MUDDY CREEK
 Mile Point: 13.40 Drainage Area: 37.0 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: MADISON Basin: KENTUCKY
 Map Number: 10-47 Latitude: 37-44-30 Longitude: 084-08-23
 Location Description: KY 52 BRIDGE

Date Collected: 05/27/93 Comments:
 Sample ID: 19930527-10 Substrate Type: Natural
 ID By:

<i>Achnanthes deflexa</i>	23
<i>Achnanthes lanceolata</i>	8
<i>Achnanthes minutissima</i>	48
<i>Amphora ovalis</i>	1
<i>Amphora perpusilla</i>	31
<i>Amphora submontana</i>	*
<i>Caloneis bacillum</i>	9
<i>Cocconeis pediculus</i>	30
<i>Cocconeis placentula</i>	1
<i>Cocconeis placentula</i> var. <i>euglypta</i>	5
<i>Cyclotella meneghiniana</i>	1
<i>Cyclotella stelligera</i>	*
<i>Cyclotella striata</i> var. <i>ambigua</i>	3
<i>Cymbella affinis</i>	11
<i>Cymbella cymbiformis</i>	*
<i>Cymbella minuta</i>	*
<i>Cymbella prostrata</i>	*
<i>Cymbella prostrata</i> var. <i>auerswaldii</i>	1
<i>Cymbella sinuata</i>	1
<i>Cymbella</i> sp. (K)	*
<i>Diatoma vulgare</i>	6
<i>Fragilaria crotonensis</i>	*
<i>Fragilaria vaucheriae</i>	2
<i>Gomphonema angustatum</i>	4
<i>Gomphonema clevei</i>	*
<i>Gomphonema olivaceum</i>	6
<i>Gomphonema parvulum</i>	3
<i>Navicula atomus</i>	3
<i>Navicula cryptocephala</i>	1
<i>Navicula cryptocephala</i> var. <i>veneta</i>	31
<i>Navicula lanceolata</i>	1
<i>Navicula laterorostrata</i>	1
<i>Navicula meniscus</i> var. <i>upsaliensis</i>	1
<i>Navicula minima</i>	34
<i>Navicula pelliculosa</i>	2
<i>Navicula radiosa</i>	1
<i>Navicula radiosa</i> var. <i>parva</i>	1
<i>Navicula radiosa</i> var. <i>tenella</i>	42
<i>Navicula salinarum</i> var. <i>intermedia</i>	62

* Qualitative data
 ** Relative abundance of *Navicula+Nitzschia+Surriella*
 06/25/96

DIATOM COLLECTION DATA

Navicula secreta var. apiculata	1
Navicula tripunctata	11
Navicula tripunctata var. schizonemoides	1
Neidium affine	*
Nitzschia acicularis	6
Nitzschia communis	6
Nitzschia constricta	*
Nitzschia dissipata	64
Nitzschia frustulum	1
Nitzschia gracilis	13
Nitzschia linearis	4
Nitzschia palea	26
Nitzschia recta	3
Nitzschia romana	*
Nitzschia sigmoidea	1
Nitzschia sinuata var. tabellaria	2
Nitzschia vermicularis	13
Rhoicosphenia curvata	5
Stephanodiscus hantzschii	*
Surirella ovata	6
Surirella ovata var. pinnata	2
Synedra acus	3
Synedra ulna	1

 Station ID: REFIPMC2 Collection Date: 05/27/93

Total Number of Taxa (TNT):	62
Total Number of Individuals (TNI):	543
Diversity (H):	1.36
Percent (%) Sensitive Individuals:	6.6
Pollution Tolerance Index (PTI):	2.3
Siltation Index**:	61.1

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPMC2 (04023002) Stream: MUDDY CREEK
 Mile Point: 13.40 Drainage Area: 37.0 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: MADISON Basin: KENTUCKY
 Map Number: 10-47 Latitude: 37-44-30 Longitude: 084-08-23
 Location Description: KY 52 BRIDGE

Date Collected: 10/07/93 Comments:
 Sample ID: 19931007-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	23
Achnanthes lanceolata	2
Achnanthes minutissima	18
Amphora perpusilla	44
Amphora submontana	2
Cocconeis pediculus	21
Cocconeis placentula	5
Cocconeis placentula var. euglypta	9
Cyclotella meneghiniana	*
Cyclotella striata var. ambigua	2
Cymatopleura solea	*
Cymbella affinis	*
Cymbella minuta	*
Cymbella naviculiformis	*
Cymbella silesiaca	2
Cymbella sinuata	*
Cymbella tumida	1
Cymbella turgidula	24
Diatoma vulgare	*
Diploneis puella	2
Fragilaria crotonensis	7
Fragilaria pinnata	2
Fragilaria vaucheriae	1
Gomphonema angustatum	1
Gomphonema apuncto	*
Gomphonema brasiliense	*
Gomphonema parvulum	*
Gomphonema subclavatum	*
Gomphonema tergestinum	*
Gyrosigma scalproides	*
Gyrosigma spencerii	2
Melosira varians	8
Navicula atomus	1
Navicula capitata	*
Navicula cryptocephala	2
Navicula cryptocephala var. veneta	6
Navicula lanceolata	2
Navicula laterorostrata	6
Navicula menisculus var. upsaliensis	2

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Navicula minima	185
Navicula mutica	*
Navicula pelliculosa	*
Navicula pupula	*
Navicula radiosa	*
Navicula radiosa var. tenella	7
Navicula rhynchocephala	*
Navicula salinarum var. intermedia	16
Navicula secreta var. apiculata	1
Navicula symmetrica	4
Navicula tripunctata	*
Navicula viridula	30
Navicula viridula var. linearis	*
Navicula viridula var. rostellata	6
Nitzschia acicularis	*
Nitzschia amphibia	6
Nitzschia angustata var. acuta	3
Nitzschia constricta	*
Nitzschia dissipata	*
Nitzschia filiformis	*
Nitzschia fonticola	1
Nitzschia gracilis	2
Nitzschia levidensis	*
Nitzschia linearis	*
Nitzschia palea	13
Nitzschia sinuata var. tabellaria	68
Nitzschia tryblionella var. victoriae	2
Nitzschia vermicularis	7
Pinnularia mesolepta	*
Rhoicosphenia curvata	1
Rhopalodia gibberula var. vanheurckii	*
Stephanodiscus invisitatus	*
Surirella angustata	*
Surirella ovata	2
Surirella ovata var. pinnata	3
Synedra ulna	1
Thalassiosira weissflogii	*

 Station ID: REFIPMC2 Collection Date: 10/07/93

Total Number of Taxa (TNT):	76
Total Number of Individuals (TNI):	553
Diversity (H):	1.15
Percent (%) Sensitive Individuals:	9.0
Pollution Tolerance Index (PTI):	2.0
Siltation Index**:	66.9

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPMC2 (04023002) Stream: MUDDY CREEK
 Mile Point: 13.40 Drainage Area: 37.0 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: MADISON Basin: KENTUCKY
 Map Number: 10-47 Latitude: 37-44-30 Longitude: 084-08-23
 Location Description: KY 52 BRIDGE

Date Collected: 06/09/94 Comments:
 Sample ID: 19940609-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	24
Achnanthes lanceolata	*
Achnanthes linearis	*
Achnanthes minutissima	54
Achnanthes stewartii	*
Amphipleura pellucida	*
Amphora perpusilla	21
Amphora submontana	1
Caloneis bacillum	12
Cocconeis pediculus	41
Cocconeis placentula	2
Cocconeis placentula var. euglypta	2
Cyclotella meneghiniana	4
Cyclotella striata var. ambigua	*
Cymbella affinis	6
Cymbella cistula	*
Cymbella delicatula	*
Cymbella minuta	*
Cymbella prostrata	2
Cymbella prostrata var. auerswaldii	*
Cymbella silesiaca	*
Cymbella sinuata	*
Cymbella tumida	1
Cymbella turgidula	*
Fragilaria pinnata	1
Fragilaria vaucheriae	9
Gomphonema angustatum	1
Gomphonema clevei	1
Gomphonema olivaceum	1
Gomphonema parvulum	1
Melosira varians	4
Navicula atomus	1
Navicula cryptocephala	*
Navicula cryptocephala var. veneta	34
Navicula gottlandica	*
Navicula lanceolata	*
Navicula meniscus var. upsaliensis	2
Navicula minima	20
Navicula miniscula	16

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula mutica	*
Navicula pelliculosa	1
Navicula pygmaea	1
Navicula radiosa var. parva	1
Navicula radiosa var. tenella	22
Navicula salinarum var. intermedia	164
Navicula seminulum	1
Navicula tripunctata	12
Navicula tripunctata var. schizonemoides	1
Navicula viridula var. rostellata	*
Nitzschia acicularis	1
Nitzschia amphibia	*
Nitzschia dissipata	18
Nitzschia filiformis	*
Nitzschia inconspicua	*
Nitzschia linearis	*
Nitzschia palea	18
Nitzschia paleacea	2
Nitzschia perminuta	1
Nitzschia recta	2
Nitzschia sigmoidea	*
Nitzschia sinuata var. tabellaria	11
Nitzschia tropica	3
Rhoicosphenia curvata	7
Stephanodiscus niagarae	*
Surirella ovata	*
Surirella ovata var. pinnata	*
Synedra delicatissima	1
Synedra ulna	4

 Station ID: REFIPMC2 Collection Date: 06/09/94

Total Number of Taxa (TNT):	68
Total Number of Individuals (TNI):	532
Diversity (H):	1.18
Percent (%) Sensitive Individuals:	6.4
Pollution Tolerance Index (PTI):	2.3
Siltation Index**:	62.4

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPMC2 (04023002) Stream: MUDDY CREEK
 Mile Point: 13.40 Drainage Area: 37.0 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: MADISON Basin: KENTUCKY
 Map Number: 10-47 Latitude: 37-44-30 Longitude: 084-08-23
 Location Description: KY 52 BRIDGE

Date Collected: 10/06/94 Comments:
 Sample ID: 19941006-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	8
Achnanthes lanceolata	2
Achnanthes minutissima	72
Amphipleura pellucida	2
Amphora perpusilla	9
Amphora submontana	*
Caloneis ventricosa var. subundulata	*
Caloneis ventricosa var. truncatula	1
Cocconeis pediculus	69
Cocconeis placentula	3
Cocconeis placentula var. euglypta	3
Cyclotella meneghiniana	*
Cyclotella striata var. ambigua	7
Cymbella affinis	7
Cymbella cistula	3
Cymbella prostrata	*
Cymbella silesiaca	3
Cymbella tumida	*
Cymbella turgidula	7
Diploneis puella	*
Fragilaria pinnata	*
Fragilaria vaucheriae	7
Frustulia vulgaris	*
Gomphonema angustatum	3
Gomphonema gracile	*
Gomphonema olivaceum	1
Gomphonema parvulum	*
Gomphonema subclavatum var. mexicanum	*
Gomphonema tergestinum	4
Gomphonema truncatum	*
Gyrosigma scalproides	*
Gyrosigma spencerii	1
Melosira varians	30
Navicula atomus	1
Navicula cryptocephala	*
Navicula cryptocephala var. veneta	13
Navicula gottlandica	*
Navicula hustedtii	3
Navicula lanceolata	*

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Navicula meniscus var. upsaliensis	1
Navicula minima	57
Navicula miniscula	23
Navicula pupula	*
Navicula pygmaea	*
Navicula radiosa var. parva	1
Navicula radiosa var. tenella	20
Navicula salinarum var. intermedia	21
Navicula schroeteri var. escambia	3
Navicula seminulum	*
Navicula symmetrica	7
Navicula tripunctata	*
Navicula viridula	5
Navicula viridula var. linearis	*
Navicula viridula var. rostellata	*
Nitzschia amphibia	1
Nitzschia constricta	*
Nitzschia dissipata	2
Nitzschia gracilis	3
Nitzschia linearis	*
Nitzschia palea	24
Nitzschia paleacea	1
Nitzschia perminuta	3
Nitzschia recta	3
Nitzschia sinuata var. tabellaria	61
Nitzschia tropica	*
Nitzschia tryblionella var. victoriae	*
Nitzschia vermicularis	*
Rhoicosphenia curvata	4
Rhopalodia gibberula var. vanheurckii	*
Surirella angustata	1
Surirella linearis var. helvetica	*
Surirella ovata	2
Surirella ovata var. pinnata	1
Synedra ulna	9
Synedra ulna var. oxyrhynchus	2
Thalassiosira weissflogii	*

 Station ID: REFIPMC2 Collection Date: 10/06/94

Total Number of Taxa (TNT):	76
Total Number of Individuals (TNI):	514
Diversity (H):	1.30
Percent (%) Sensitive Individuals:	5.4
Pollution Tolerance Index (PTI):	2.3
Siltation Index**:	49.2

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPRU1 (03030006) Stream: RUSSELL CREEK
 Mile Point: 60.50 Drainage Area: 16.5 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: ADAIR Basin: GREEN
 Map Number: 05-39 Latitude: 37-04-34 Longitude: 085-09-32
 Location Description: KY 80 AT GENTRYS MILL

Date Collected: 07/10/92 Comments:
 Sample ID: 19920710-10 Substrate Type: Natural
 ID By:

Achnanthes clevei var. rostrata	*
Achnanthes deflexa	19
Achnanthes exigua	1
Achnanthes lanceolata var. dubia	37
Achnanthes minutissima	55
Amphipleura pellucida	*
Amphora perpusilla	10
Caloneis ventricosa	*
Caloneis ventricosa var. truncatula	11
Cocconeis placentula	41
Cyclotella stelligera	*
Cyclotella striata var. ambigua	3
Cymatopleura solea	1
Cymbella affinis	27
Cymbella delicatula	2
Cymbella minuta	17
Cymbella naviculiformis	*
Cymbella prostrata	*
Cymbella silesiaca	18
Cymbella sinuata	21
Cymbella tumida	14
Diatoma vulgare	1
Diploneis elliptica	*
Eunotia curvata	1
Frustulia rhomboides var. amphipleuroides	1
Frustulia vulgaris	1
Gomphonema abbreviatum	1
Gomphonema acuminatum	*
Gomphonema angustatum	31
Gomphonema parvulum	5
Gomphonema subclavatum	6
Gyrosigma attenuatum	1
Gyrosigma nodiferum	*
Melosira varians	14
Meridion circulare	3
Meridion circulare var. constricta	1
Navicula capitata	*
Navicula cryptocephala	17
Navicula cryptocephala var. veneta	2

* Qualitative data

** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula menisculus</i> var. <i>upsaliensis</i>	10
<i>Navicula mutica</i>	*
<i>Navicula radiosa</i>	17
<i>Navicula salinarum</i> var. <i>intermedia</i>	45
<i>Navicula tripunctata</i>	3
<i>Navicula viridula</i> var. <i>rostellata</i>	15
<i>Neidium affine</i>	1
<i>Nitzschia acicularis</i>	*
<i>Nitzschia amphibia</i>	2
<i>Nitzschia dissipata</i>	9
<i>Nitzschia linearis</i>	5
<i>Nitzschia palea</i>	13
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	1
<i>Nitzschia tryblionella</i> var. <i>victoriae</i>	*
<i>Pinnularia biceps</i>	*
<i>Pinnularia subcapitata</i> var. <i>paucistriata</i>	*
<i>Rhoicosphenia curvata</i>	18
<i>Stauroneis smithii</i>	*
<i>Surirella angustata</i>	4
<i>Surirella ovata</i>	5
<i>Synedra acus</i>	2
<i>Synedra parasitica</i> var. <i>subconstricta</i>	*
<i>Synedra rumpens</i> var. <i>familiaris</i>	1
<i>Synedra ulna</i>	10
<i>Synedra ulna</i> var. <i>oxyrhynchus</i>	1
<i>Tabellaria flocculosa</i>	*

 Station ID: REFIPRU1 Collection Date: 07/10/92

Total Number of Taxa (TNT):	65
Total Number of Individuals (TNI):	524
Diversity (H):	1.43
Percent (%) Sensitive Individuals:	19.5
Pollution Tolerance Index (PTI):	2.6
Siltation Index**:	26.5

 * Qualitative data

** Relative abundance of *Navicula*+*Nitzschia*+*Surirella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPRU1 (03030006) Stream: RUSSELL CREEK
 Mile Point: 60.50 Drainage Area: 16.5 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: ADAIR Basin: GREEN
 Map Number: 05-39 Latitude: 37-04-34 Longitude: 085-09-32
 Location Description: KY 80 AT GENTRYS MILL

Date Collected: 05/06/93 Comments: @GENTRYS MILL
 Sample ID: 19930506-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	69
Achnanthes lanceolata	10
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	64
Achnanthes pinnata	*
Amphipleura pellucida	1
Amphora perpusilla	1
Caloneis bacillum	*
Cocconeis pediculus	*
Cocconeis placentula	1
Cocconeis placentula var. euglypta	*
Cyclotella meneghiniana	*
Cyclotella stelligera	*
Cyclotella striata var. ambigua	2
Cymbella affinis	3
Cymbella delicatula	*
Cymbella minuta	64
Cymbella prostrata var. auerswaldii	1
Cymbella silesiaca	50
Cymbella sinuata	6
Cymbella sp. (K)	2
Cymbella tumida	2
Cymbella turgidula	1
Diatoma vulgare	2
Epithemia adnata	*
Eunotia maior	*
Fragilaria vaucheriae	14
Frustulia rhomboides var. amphipleuroides	1
Gomphonema acuminatum	*
Gomphonema angustatum	2
Gomphonema olivaceum	5
Gomphonema parvulum	4
Gomphonema subclavatum	*
Melosira varians	3
Meridion circulare	*
Navicula atomus	7
Navicula capitata	*
Navicula cryptocephala	10
Navicula cryptocephala var. veneta	*

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula decussis	2
Navicula gottlandica	1
Navicula lanceolata	2
Navicula menisculus var. upsaliensis	3
Navicula minima	4
Navicula pelliculosa	1
Navicula radiosa	*
Navicula radiosa var. tenella	1
Navicula rhynchocephala	*
Navicula salinarum var. intermedia	120
Navicula secreta var. apiculata	16
Navicula symmetrica	*
Navicula tripunctata	3
Navicula viridula	1
Navicula viridula var. linearis	*
Navicula viridula var. rostellata	1
Neidium affine	1
Nitzschia acicularis	6
Nitzschia amphibia	1
Nitzschia communis	30
Nitzschia dissipata	17
Nitzschia fonticola	8
Nitzschia gracilis	*
Nitzschia linearis	2
Nitzschia palea	13
Nitzschia recta	3
Nitzschia romana	1
Nitzschia sinuata var. tabellaria	*
Nitzschia vermicularis	1
Pinnularia biceps	*
Pinnularia subcapitata var. paucistriata	*
Rhoicosphenia curvata	5
Surirella angustata	*
Surirella ovata	2
Synedra rumpens var. familiaris	2
Synedra ulna	3
Synedra ulna var. oxyrhynchus	*

 Station ID: REFIPRU1 Collection Date: 05/06/93

Total Number of Taxa (TNT):	76
Total Number of Individuals (TNI):	575
Diversity (H):	1.24
Percent (%) Sensitive Individuals:	23.3
Pollution Tolerance Index (PTI):	2.7
Siltation Index**:	44.2

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPRU1 (03030006) Stream: RUSSELL CREEK
 Mile Point: 60.50 Drainage Area: 16.5 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: ADAIR Basin: GREEN
 Map Number: 05-39 Latitude: 37-04-34 Longitude: 085-09-32
 Location Description: KY 80 AT GENTRYS MILL

Date Collected: 11/11/93 Comments:
 Sample ID: 19931111-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	32
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	*
Achnanthes minutissima	393
Amphipleura pellucida	*
Amphora ovalis	*
Amphora perpusilla	1
Cocconeis pediculus	*
Cocconeis placentula	*
Cocconeis placentula var. euglypta	*
Cyclotella striata var. ambigua	18
Cymbella affinis	1
Cymbella minuta	*
Cymbella silesiaca	*
Cymbella sinuata	*
Cymbella sp. (K)	*
Cymbella tumida	2
Cymbella turgidula	16
Diatoma vulgare	*
Fragilaria pinnata	1
Fragilaria vaucheriae	*
Frustulia vulgaris	*
Gomphonema affine	*
Gomphonema angustatum	1
Gomphonema apuncto	*
Gomphonema parvulum	*
Gomphonema sparsistriatum f. maculatum	9
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Gomphonema subclavatum var. mexicanum	1
Gyrosigma scalproides	*
Gyrosigma spencerii	*
Melosira varians	2
Meridion circulare	*
Navicula capitata	2
Navicula cryptocephala	2
Navicula cryptocephala var. veneta	5
Navicula decussis	1
Navicula elginensis	*

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula exigua</i>	*
<i>Navicula lanceolata</i>	*
<i>Navicula laterorostrata</i>	*
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	1
<i>Navicula minima</i>	10
<i>Navicula mutica</i>	*
<i>Navicula pupula</i>	*
<i>Navicula pygmaea</i>	*
<i>Navicula radiosa</i>	*
<i>Navicula radiosa</i> var. <i>parva</i>	*
<i>Navicula salinarum</i> var. <i>intermedia</i>	6
<i>Navicula secreta</i> var. <i>apiculata</i>	5
<i>Navicula symmetrica</i>	1
<i>Navicula tripunctata</i>	*
<i>Navicula viridula</i>	1
<i>Nitzschia acicularis</i>	1
<i>Nitzschia amphibia</i>	6
<i>Nitzschia communis</i>	3
<i>Nitzschia dissipata</i>	6
<i>Nitzschia filiformis</i>	*
<i>Nitzschia fonticola</i>	2
<i>Nitzschia gracilis</i>	1
<i>Nitzschia linearis</i>	*
<i>Nitzschia palea</i>	2
<i>Nitzschia sigmoidea</i>	*
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	9
<i>Nitzschia</i> sp.1	*
<i>Nitzschia vermicularis</i>	7
<i>Rhoicosphenia curvata</i>	5
<i>Surirella angustata</i>	6
<i>Surirella linearis</i>	1
<i>Surirella ovata</i>	*
<i>Synedra acus</i>	*
<i>Synedra rumpens</i>	*
<i>Synedra rumpens</i> var. <i>familiaris</i>	3
<i>Synedra ulna</i>	*
<i>Synedra ulna</i> var. <i>oxyrhynchus</i>	*

 Station ID: REFIPRU1 Collection Date: 11/11/93

Total Number of Taxa (TNT):	76
Total Number of Individuals (TNI):	563
Diversity (H):	0.66
Percent (%) Sensitive Individuals:	10.7
Pollution Tolerance Index (PTI):	2.9
Siltation Index**:	12.6

 *Qualitative data
 **Relative abundance of *Navicula+Nitzschia+Surirella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPRU1 (03030006) Stream: RUSSELL CREEK
 Mile Point: 60.50 Drainage Area: 16.5 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: ADAIR Basin: GREEN
 Map Number: 05-39 Latitude: 37-04-34 Longitude: 085-09-32
 Location Description: KY 80 AT GENTRYS MILL

Date Collected: 04/25/94 Comments:
 Sample ID: 19940425-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	36
Achnanthes lanceolata	6
Achnanthes lanceolata var. dubia	*
Achnanthes minutissima	30
Amphora perpusilla	1
Amphora submontana	*
Caloneis bacillum	14
Caloneis budensis	*
Cocconeis placentula	*
Cocconeis placentula var. euglypta	*
Cyclotella meneghiniana	*
Cyclotella stelligera	*
Cyclotella striata var. ambigua	1
Cymbella affinis	*
Cymbella minuta	1
Cymbella naviculiformis	*
Cymbella prostrata	*
Cymbella silesiaca	19
Cymbella sinuata	9
Cymbella sp. (K)	6
Cymbella tumida	3
Cymbella turgidula	*
Denticula elegans	*
Diatoma vulgare	1
Fragilaria pinnata	*
Fragilaria vaucheriae	3
Frustulia vulgaris	*
Gomphonema angustatum	8
Gomphonema gracile	*
Gomphonema parvulum	*
Gomphonema subclavatum var. mexicanum	*
Melosira varians	3
Meridion circulare	*
Navicula atomus	2
Navicula cryptocephala	4
Navicula cryptocephala var. veneta	8
Navicula decussis	*
Navicula exigua	*
Navicula gottlandica	2

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

<i>Navicula lanceolata</i>	*
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	3
<i>Navicula minima</i>	14
<i>Navicula pupula</i>	*
<i>Navicula radiosa</i>	*
<i>Navicula radiosa</i> var. <i>tenella</i>	*
<i>Navicula salinarum</i> var. <i>intermedia</i>	4
<i>Navicula secreta</i> var. <i>apiculata</i>	13
<i>Navicula seminulum</i>	5
<i>Navicula symmetrica</i>	*
<i>Navicula tripunctata</i>	*
<i>Navicula viridula</i> var. <i>rostellata</i>	*
<i>Nitzschia acicularis</i>	*
<i>Nitzschia dissipata</i>	16
<i>Nitzschia fonticola</i>	98
<i>Nitzschia gracilis</i>	1
<i>Nitzschia inconspicua</i>	44
<i>Nitzschia linearis</i>	1
<i>Nitzschia palea</i>	9
<i>Nitzschia paleacea</i>	*
<i>Nitzschia perminuta</i>	119
<i>Nitzschia recta</i>	8
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	*
<i>Nitzschia vermicularis</i>	*
<i>Pinnularia subcapitata</i>	*
<i>Rhoicosphenia curvata</i>	2
<i>Stauroneis anceps</i>	*
<i>Surirella angustata</i>	*
<i>Surirella ovata</i>	17
<i>Synedra acus</i>	1
<i>Synedra pulchella</i>	*
<i>Synedra rumpens</i>	1
<i>Synedra rumpens</i> var. <i>familiaris</i>	1
<i>Synedra ulna</i>	3
<i>Synedra ulna</i> var. <i>oxyrhynchus</i>	2

 Station ID: REFIPRU1 Collection Date: 04/25/94

Total Number of Taxa (TNT):	74
Total Number of Individuals (TNI):	519
Diversity (H):	1.19
Percent (%) Sensitive Individuals:	14.3
Pollution Tolerance Index (PTI):	2.2
Siltation Index**:	67.6

 *Qualitative data
 **Relative abundance of *Navicula+Nitzschia+Surirella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPRU1 (03030006) Stream: RUSSELL CREEK
 Mile Point: 60.50 Drainage Area: 16.5 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: ADAIR Basin: GREEN
 Map Number: 05-39 Latitude: 37-04-34 Longitude: 085-09-32
 Location Description: KY 80 AT GENTRYS MILL

Date Collected: 10/12/94 Comments:
 Sample ID: 19941012-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	30
Achnanthes lanceolata	7
Achnanthes linearis	105
Achnanthes minutissima	62
Amphora perpusilla	3
Amphora submontana	1
Caloneis bacillum	*
Cocconeis pediculus	*
Cocconeis placentula	2
Cocconeis placentula var. euglypta	2
Cyclotella meneghiniana	*
Cyclotella stelligera	1
Cyclotella striata var. ambigua	1
Cymbella affinis	3
Cymbella prostrata	*
Cymbella silesiaca	*
Cymbella sinuata	4
Cymbella sp. (K)	*
Cymbella tumida	1
Cymbella turgidula	1
Denticula elegans	*
Diploneis elliptica	*
Fragilaria pinnata	2
Fragilaria vaucheriae	1
Frustulia vulgaris	*
Gomphonema abbreviatum	3
Gomphonema affine	*
Gomphonema angustatum	2
Gomphonema clevei	2
Gomphonema gracile	*
Gomphonema parvulum	1
Gomphonema subclavatum	1
Gomphonema subclavatum var. mexicanum	*
Gyrosigma scalproides	*
Gyrosigma spencerii	*
Melosira varians	6
Meridion circulare	*
Navicula capitata	2
Navicula cryptocephala	7

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

<i>Navicula cryptocephala</i> var. <i>veneta</i>	7
<i>Navicula decussis</i>	2
<i>Navicula elginensis</i> var. <i>neglecta</i>	*
<i>Navicula gottlandica</i>	*
<i>Navicula hustedtii</i>	*
<i>Navicula lanceolata</i>	*
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	*
<i>Navicula minima</i>	71
<i>Navicula pelliculosa</i>	*
<i>Navicula pupula</i>	1
<i>Navicula pygmaea</i>	*
<i>Navicula radiosa</i>	*
<i>Navicula radiosa</i> var. <i>tenella</i>	3
<i>Navicula salinarum</i> var. <i>intermedia</i>	20
<i>Navicula schroeteri</i> var. <i>escambia</i>	*
<i>Navicula secreta</i> var. <i>apiculata</i>	31
<i>Navicula seminulum</i>	2
<i>Navicula symmetrica</i>	8
<i>Navicula tripunctata</i>	*
<i>Navicula viridula</i>	5
<i>Navicula viridula</i> var. <i>linearis</i>	*
<i>Navicula viridula</i> var. <i>rostellata</i>	3
<i>Neidium affine</i>	*
<i>Nitzschia acicularis</i>	*
<i>Nitzschia amphibia</i>	37
<i>Nitzschia clausii</i>	*
<i>Nitzschia dissipata</i>	6
<i>Nitzschia filiformis</i>	3
<i>Nitzschia fonticola</i>	9
<i>Nitzschia frustulum</i>	*
<i>Nitzschia gracilis</i>	2
<i>Nitzschia inconspicua</i>	24
<i>Nitzschia levidensis</i>	1
<i>Nitzschia palea</i>	26
<i>Nitzschia paleacea</i>	2
<i>Nitzschia pelliculosa</i>	*
<i>Nitzschia perminuta</i>	*
<i>Nitzschia recta</i>	8
<i>Nitzschia sigmoidea</i>	*
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	2
<i>Nitzschia</i> sp.1	*
<i>Nitzschia tryblionella</i> var. <i>victoriae</i>	*
<i>Nitzschia vermicularis</i>	*
<i>Rhoicosphenia curvata</i>	2
<i>Stauroneis smithii</i>	*
<i>Surirella angustata</i>	1
<i>Surirella ovata</i>	1
<i>Surirella ovata</i> var. <i>pinnata</i>	1
<i>Surirella robusta</i>	*
<i>Synedra rumpens</i> var. <i>familiaris</i>	*
<i>Synedra ulna</i>	1

 *Qualitative data

**Relative abundance of *Navicula*+*Nitzschia*+*Surirella*

06/25/96

DIATOM COLLECTION DATA

Synedra ulna var. oxyrhynchus

*

Station ID: REFIPRU1 Collection Date: 10/12/94

Total Number of Taxa (TNT):	91
Total Number of Individuals (TNI):	529
Diversity (H):	1.27
Percent (%) Sensitive Individuals:	7.4
Pollution Tolerance Index (PTI):	2.2
Siltation Index**:	53.3

* Qualitative data

** Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPRU1 (03030006) Stream: RUSSELL CREEK
 Mile Point: 60.50 Drainage Area: 16.5 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: ADAIR Basin: GREEN
 Map Number: 05-39 Latitude: 37-04-34 Longitude: 085-09-32
 Location Description: KY 80 AT GENTRYS MILL

Date Collected: 06/24/95 Comments:
 Sample ID: 19950624-10 Substrate Type: Natural
 ID By:

Achnanthes clevei		*
Achnanthes deflexa	38	
Achnanthes exigua		*
Achnanthes lanceolata	4	
Achnanthes linearis	40	
Achnanthes microcephala		*
Achnanthes minutissima	233	
Amphora perpusilla	6	
Caloneis bacillum	1	
Cocconeis placentula	2	
Cocconeis placentula var. euglypta		*
Cyclotella meneghiniana		*
Cyclotella stelligera		*
Cyclotella striata var. ambigua		*
Cymbella affinis	17	
Cymbella aspera		*
Cymbella cymbiformis		*
Cymbella lunata		*
Cymbella minuta		*
Cymbella naviculiformis	1	
Cymbella prostrata		*
Cymbella prostrata var. auerswaldii		*
Cymbella silesiaca	1	
Cymbella sinuata	21	
Cymbella sp. (K)		*
Cymbella tumida	2	
Cymbella turgidula		*
Denticula elegans	1	
Fragilaria pinnata	1	
Fragilaria vaucheriae	2	
Frustulia rhomboides var. crassinervia		*
Frustulia vulgaris		*
Frustulia weinholdii		*
Gomphonema affine		*
Gomphonema angustatum	1	
Gomphonema apuncto		*
Gomphonema clevei		*
Gomphonema parvulum	2	
Gomphonema sparsistriatum f. maculatum	1	

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Gomphonema subclavatum var. mexicanum	*
Hantzschia amphioxys	*
Melosira varians	5
Meridion circulare	*
Navicula atomus	6
Navicula cryptocephala	3
Navicula cryptocephala var. veneta	4
Navicula decussis	*
Navicula gottlandica	*
Navicula hustedtii	1
Navicula lanceolata	2
Navicula menisculus var. upsaliensis	*
Navicula minima	55
Navicula miniscula	2
Navicula notha	*
Navicula pupula	1
Navicula radiosa	*
Navicula radiosa var. parva	*
Navicula radiosa var. tenella	3
Navicula salinarum var. intermedia	3
Navicula secreta var. apiculata	8
Navicula seminulum	3
Navicula symmetrica	5
Navicula tripunctata	*
Navicula viridula	5
Navicula viridula var. linearis	*
Navicula viridula var. rostellata	1
Nitzschia acicularis	3
Nitzschia amphibia	2
Nitzschia angustata var. acuta	1
Nitzschia clausii	*
Nitzschia communis	*
Nitzschia dissipata	5
Nitzschia fonticola	1
Nitzschia frustulum	1
Nitzschia gracilis	*
Nitzschia inconspicua	26
Nitzschia linearis	1
Nitzschia palea	30
Nitzschia paleacea	*
Nitzschia perminuta	1
Nitzschia recta	4
Nitzschia sinuata var. tabellaria	*
Nitzschia sp.1	1
Nitzschia vermicularis	*
Pinnularia subcapitata	2
Pinnularia subcapitata var. paucistriata	*
Pinnularia viridis	*
Rhoicosphenia curvata	1
Stauroneis anceps	*
Surirella angustata	*

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

Surirella ovata	1
Synedra acus	1
Synedra rumpens	*
Synedra rumpens var. familiaris	1
Synedra ulna	2
Synedra ulna var. oxyrhynchus	*

 Station ID: REFIPRU1 Collection Date: 06/24/95

Total Number of Taxa (TNT):	96
Total Number of Individuals (TNI):	565
Diversity (H):	1.07
Percent (%) Sensitive Individuals:	14.3
Pollution Tolerance Index (PTI):	2.5
Siltation Index**:	31.5

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPRU1 (03030006) Stream: RUSSELL CREEK
 Mile Point: 60.50 Drainage Area: 16.5 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: ADAIR Basin: GREEN
 Map Number: 05-39 Latitude: 37-04-34 Longitude: 085-09-32
 Location Description: KY 80 AT GENTRYS MILL

Date Collected: 11/01/95 Comments:
 Sample ID: 19951101-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	23
Achnanthes exigua	*
Achnanthes lanceolata var. dubia	*
Achnanthes linearis	94
Achnanthes minutissima	215
Amphora perpusilla	3
Amphora submontana	*
Caloneis budensis	*
Cocconeis placentula	1
Cocconeis placentula var. euglypta	1
Cyclotella meneghiniana	*
Cyclotella striata var. ambigua	*
Cymbella affinis	2
Cymbella delicatula	*
Cymbella minuta	*
Cymbella prostrata	*
Cymbella silesiaca	*
Cymbella sinuata	1
Cymbella tumida	1
Cymbella turgidula	4
Frustulia vulgaris	1
Gomphonema abbreviatum	23
Gomphonema affine	*
Gomphonema apuncto	4
Gomphonema parvulum	3
Melosira varians	*
Navicula capitata	*
Navicula cryptocephala	9
Navicula cryptocephala var. veneta	*
Navicula decussis	*
Navicula elginensis	*
Navicula hustedtii	*
Navicula menisculus var. upsaliensis	1
Navicula minima	29
Navicula pupula	1
Navicula pupula var. capitata	1
Navicula rhynchocephala	*
Navicula salinarum var. intermedia	23

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Navicula secreta var. apiculata	25
Navicula symmetrica	6
Navicula viridula	1
Navicula viridula var. linearis	*
Navicula viridula var. rostellata	3
Nitzschia acicularis	*
Nitzschia amphibia	26
Nitzschia coarctata	*
Nitzschia dissipata	*
Nitzschia filiformis	3
Nitzschia fonticola	1
Nitzschia gracilis	*
Nitzschia inconspicua	*
Nitzschia palea	21
Nitzschia paleacea	*
Nitzschia perminuta	*
Nitzschia recta	1
Nitzschia sigmoidea	*
Nitzschia sinuata var. tabellaria	38
Nitzschia sp.1	1
Nitzschia tryblionella var. victoriae	*
Nitzschia vermicularis	*
Rhoicosphenia curvata	*
Surirella angustata	*
Surirella ovata var. pinnata	1
Surirella robusta	*
Synedra delicatissima	*
Synedra rumpens var. familiaris	1
Synedra ulna var. oxyrhynchus	*

 Station ID: REFIPRU1 Collection Date: 11/01/95

Total Number of Taxa (TNT):	68
Total Number of Individuals (TNI):	568
Diversity (H):	0.98
Percent (%) Sensitive Individuals:	5.5
Pollution Tolerance Index (PTI):	2.6
Siltation Index**:	33.5

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPRU2 (03030005) Stream: RUSSELL CREEK
 Mile Point: 25.60 Drainage Area: 198.4 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: ADAIR Basin: GREEN
 Map Number: 05-37 Latitude: 37-07-27 Longitude: 085-24-16
 Location Description: OFF KY 768 AT MILLTOWN

Date Collected: 07/13/92 Comments:
 Sample ID: 19920713-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	17	
Achnanthes exigua		*
Achnanthes lanceolata var. dubia	7	
Achnanthes minutissima	175	
Amphora perpusilla	14	
Amphora submontana		*
Biddulphia laevis	2	
Caloneis bacillum	1	
Cocconeis pediculus	5	
Cocconeis placentula	1	
Cyclotella striata var. ambigua	6	
Cymbella affinis	19	
Cymbella microcephala		*
Cymbella prostrata	1	
Cymbella silesiaca	3	
Cymbella sinuata	6	
Cymbella sp. (K)		*
Cymbella tumida		*
Cymbella turgidula		*
Denticula elegans		
Diatoma vulgare	1	
Fragilaria pinnata	3	
Fragilaria vaucheriae	5	
Gomphonema affine	1	
Gomphonema angustatum	8	
Gomphonema brasiliense		*
Gomphonema clevei	4	
Gomphonema olivaceum		*
Gomphonema parvulum	3	
Gyrosigma spencerii		*
Melosira varians	2	
Meridion circulare		*
Navicula capitata		*
Navicula cryptocephala		
Navicula cryptocephala var. veneta	7	
Navicula lanceolata	1	
Navicula menisculus var. upsaliensis	1	
Navicula minima	183	
Navicula mutica		*

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula pupula var. rectangularis	*
Navicula radiosa	1
Navicula radiosa var. parva	*
Navicula radiosa var. tenella	6
Navicula salinarum var. intermedia	8
Navicula schroeteri var. escambia	*
Navicula secreta var. apiculata	*
Navicula symmetrica	*
Navicula tripunctata	5
Navicula viridula	3
Neidium affine	*
Nitzschia acicularis	2
Nitzschia amphibia	12
Nitzschia dissipata	3
Nitzschia fonticola	*
Nitzschia gracilis	*
Nitzschia linearis	1
Nitzschia microcephala	1
Nitzschia palea	8
Nitzschia recta	*
Nitzschia romana	*
Nitzschia sinuata var. tabellaria	*
Nitzschia tryblionella var. victoriae	*
Rhoicosphenia curvata	18
Surirella angustata	1
Surirella ovata	2
Surirella ovata var. pinnata	1
Synedra rumpens var. familiaris	1
Synedra ulna	*
Synedra ulna var. oxyrhynchus	*

 Station ID: REFIPRU2 Collection Date: 07/13/92

Total Number of Taxa (TNT):	69
Total Number of Individuals (TNI):	549
Diversity (H):	0.97
Percent (%) Sensitive Individuals:	8.4
Pollution Tolerance Index (PTI):	2.2
Siltation Index **:	44.1

 *Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPRU2 (03030005) Stream: RUSSELL CREEK
 Mile Point: 25.60 Drainage Area: 198.4 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: ADAIR Basin: GREEN
 Map Number: 05-37 Latitude: 37-07-27 Longitude: 085-24-16
 Location Description: OFF KY 768 AT MILLTOWN

Date Collected: 09/16/92 Comments:
 Sample ID: 19920916-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	5
Achnanthes exigua	1
Achnanthes lanceolata var. dubia	3
Achnanthes minutissima	12
Amphora perpusilla	2
Amphora submontana	*
Biddulphia laevis	99
Caloneis ventricosa var. truncatula	*
Cocconeis placentula	51
Cyclotella striata var. ambigua	6
Cymatopleura solea	*
Cymbella affinis	55
Cymbella delicatula	1
Cymbella minuta	1
Cymbella prostrata	*
Cymbella silesiaca	*
Cymbella sinuata	5
Cymbella triangulum	1
Cymbella tumida	8
Cymbella turgidula	*
Diatoma vulgare	2
Fragilaria vaucheriae	6
Frustulia rhomboides var. amphipleuroides	1
Gomphonema angustatum	21
Gomphonema brasiliense	5
Gomphonema clevei	*
Gomphonema olivaceum	*
Gomphonema parvulum	6
Gomphonema sphaerophorum	*
Gomphonema subclavatum	6
Gomphonema truncatum	*
Gyrosigma attenuatum	1
Gyrosigma nodiferum	1
Melosira varians	93
Meridion circulare	*
Navicula cryptocephala	7
Navicula cryptocephala var. veneta	1
Navicula menisculus var. upsaliensis	2
Navicula mutica	*

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*
 06/25/96

DIATOM COLLECTION DATA

Navicula pupula	1
Navicula radiosa	17
Navicula radiosa var. tenella	15
Navicula salinarum var. intermedia	18
Navicula symmetrica	*
Navicula tripunctata	1
Navicula viridula var. rostellata	17
Nitzschia amphibia	3
Nitzschia dissipata	2
Nitzschia linearis	5
Nitzschia palea	13
Nitzschia recta	*
Nitzschia sinuata var. tabellaria	2
Nitzschia tryblionella var. victoriae	1
Pinnularia viridis var. minor	1
Rhoicosphenia curvata	6
Rhopalodia gibba	*
Surirella angustata	2
Surirella linearis var. helvetica	5
Surirella ovata	*
Synedra acus	1
Synedra rumpens	*
Synedra ulna	7
Synedra ulna var. oxyrhynchus	1

 Station ID: REFIPRU2 Collection Date: 09/16/92

Total Number of Taxa (TNT):	63
Total Number of Individuals (TNI):	520
Diversity (H):	1.24
Percent (%) Sensitive Individuals:	15.8
Pollution Tolerance Index (PTI):	2.4
Siltation Index**:	20.2

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPRU2 (03030005) Stream: RUSSELL CREEK
 Mile Point: 25.60 Drainage Area: 198.4 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: ADAIR Basin: GREEN
 Map Number: 05-37 Latitude: 37-07-27 Longitude: 085-24-16
 Location Description: OFF KY 768 AT MILLTOWN

Date Collected: 05/26/93 Comments:
 Sample ID: 19930526-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	6
Achnanthes lanceolata	5
Achnanthes linearis	1
Achnanthes minutissima	8
Amphora perpusilla	6
Amphora submontana	1
Caloneis bacillum	1
Cocconeis pediculus	11
Cocconeis placentula	*
Cocconeis placentula var. euglypta	*
Cyclotella meneghiniana	*
Cyclotella striata var. ambigua	1
Cymatopleura solea	1
Cymbella affinis	8
Cymbella cymbiformis	*
Cymbella microcephala	*
Cymbella minuta	1
Cymbella prostrata	*
Cymbella prostrata var. auerswaldii	*
Cymbella silesiaca	17
Cymbella sinuata	3
Cymbella sp. (K)	*
Cymbella tumida	1
Diatoma vulgare	85
Diploneis oblongella	*
Fragilaria pinnata	3
Fragilaria vaucheriae	6
Gomphonema angustatum	2
Gomphonema brasiliense	1
Gomphonema clevei	3
Gomphonema olivaceum	1
Gomphonema sphaerophorum	*
Gyrosigma scalproides	*
Hantzschia amphioxys	1
Melosira granulata	*
Melosira varians	135
Meridion circulare	1
Navicula atomus	1
Navicula cryptocephala	9

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula cryptocephala</i> var. <i>veneta</i>	18
<i>Navicula decussis</i>	*
<i>Navicula gottlandica</i>	1
<i>Navicula laevissima</i>	*
<i>Navicula lanceolata</i>	1
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	3
<i>Navicula minima</i>	18
<i>Navicula miniscula</i>	*
<i>Navicula radiosa</i> var. <i>parva</i>	1
<i>Navicula radiosa</i> var. <i>tenella</i>	38
<i>Navicula salinarum</i> var. <i>intermedia</i>	43
<i>Navicula secreta</i> var. <i>apiculata</i>	2
<i>Navicula seminulum</i>	2
<i>Navicula tripunctata</i>	34
<i>Navicula tripunctata</i> var. <i>schizonemoides</i>	1
<i>Navicula viridula</i>	2
<i>Navicula viridula</i> var. <i>rostellata</i>	*
<i>Neidium affine</i>	*
<i>Nitzschia acicularis</i>	*
<i>Nitzschia amphibia</i>	*
<i>Nitzschia angustata</i> var. <i>acuta</i>	*
<i>Nitzschia dissipata</i>	7
<i>Nitzschia fonticola</i>	1
<i>Nitzschia gracilis</i>	1
<i>Nitzschia inconspicua</i>	*
<i>Nitzschia linearis</i>	4
<i>Nitzschia palea</i>	11
<i>Nitzschia paleacea</i>	*
<i>Nitzschia perminuta</i>	1
<i>Nitzschia recta</i>	2
<i>Nitzschia sigmoidea</i>	1
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	*
<i>Nitzschia tryblionella</i> var. <i>victoriae</i>	*
<i>Nitzschia vermicularis</i>	*
<i>Rhoicosphenia curvata</i>	4
<i>Stauroneis smithii</i>	1
<i>Surirella angustata</i>	*
<i>Surirella ovata</i>	1
<i>Surirella ovata</i> var. <i>pinnata</i>	*
<i>Synedra acus</i>	1
<i>Synedra parasitica</i> var. <i>subconstricta</i>	1
<i>Synedra ulna</i>	*
<i>Synedra ulna</i> var. <i>oxyrhynchus</i>	1

 Station ID: REFIPRU2 Collection Date: 05/26/93

Total Number of Taxa (TNT): 82
 Total Number of Individuals (TNI): 520
 Diversity (H): 1.21
 Percent (%) Sensitive Individuals: 7.1
 Pollution Tolerance Index (PTI): 2.4

*Qualitative data

**Relative abundance of *Navicula*+*Nitzschia*+*Surirella*
 06/25/96

DIATOM COLLECTION DATA

Siltation Index^{**}: 38.8

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPRU2 (03030005) Stream: RUSSELL CREEK
 Mile Point: 25.60 Drainage Area: 198.4 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: ADAIR Basin: GREEN
 Map Number: 05-37 Latitude: 37-07-27 Longitude: 085-24-16
 Location Description: OFF KY 768 AT MILLTOWN

Date Collected: 07/17/95 Comments:
 Sample ID: 19950717-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	17
Achnanthes lanceolata	8
Achnanthes linearis	*
Achnanthes minutissima	33
Amphora perpusilla	8
Amphora submontana	*
Caloneis bacillum	3
Cocconeis pediculus	10
Cocconeis placentula	9
Cocconeis placentula var. euglypta	3
Cyclotella meneghiniana	*
Cyclotella stelligera	*
Cyclotella striata var. ambigua	*
Cymbella affinis	48
Cymbella silesiaca	*
Cymbella sinuata	13
Cymbella sp. (K)	*
Cymbella tumida	1
Cymbella turgidula	*
Diatoma vulgare	*
Diploneis elliptica	*
Fragilaria pinnata	*
Fragilaria vaucheriae	*
Frustulia vulgaris	1
Gomphonema angustatum	2
Gomphonema brasiliense	*
Gomphonema clevei	6
Gomphonema olivaceum	1
Gomphonema parvulum	2
Gyrosigma scalproides	*
Gyrosigma spencerii	*
Hantzschia amphioxys	*
Melosira varians	1
Meridion circulare	*
Navicula atomus	2
Navicula contenta	1
Navicula cryptocephala	1
Navicula cryptocephala var. veneta	2
Navicula hustedtii	1

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula laevis</i>	*
<i>Navicula lanceolata</i>	*
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	1
<i>Navicula minima</i>	279
<i>Navicula miniscula</i>	4
<i>Navicula mutica</i>	1
<i>Navicula notha</i>	*
<i>Navicula pupula</i>	*
<i>Navicula radiosa</i> var. <i>parva</i>	*
<i>Navicula radiosa</i> var. <i>tenella</i>	5
<i>Navicula salinarum</i> var. <i>intermedia</i>	8
<i>Navicula secreta</i> var. <i>apiculata</i>	2
<i>Navicula seminulum</i>	4
<i>Navicula tripunctata</i>	2
<i>Navicula viridula</i>	2
<i>Navicula viridula</i> var. <i>rostellata</i>	5
<i>Nitzschia acicularis</i>	2
<i>Nitzschia amphibia</i>	4
<i>Nitzschia dissipata</i>	4
<i>Nitzschia gracilis</i>	3
<i>Nitzschia inconspicua</i>	*
<i>Nitzschia linearis</i>	*
<i>Nitzschia palea</i>	19
<i>Nitzschia recta</i>	*
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	1
<i>Nitzschia tryblionella</i> var. <i>victoriae</i>	*
<i>Rhoicosphenia curvata</i>	2
<i>Surirella angustata</i>	1
<i>Surirella ovata</i>	*
<i>Surirella ovata</i> var. <i>pinnata</i>	*
<i>Surirella robusta</i>	*
<i>Synedra rumpens</i> var. <i>familiaris</i>	*
<i>Synedra ulna</i>	*
<i>Synedra ulna</i> var. <i>oxyrhynchus</i>	*
<i>Thalassiosira weissflogii</i>	*

 Station ID: REFIPRU2 Collection Date: 07/17/95

Total Number of Taxa (TNT):	74
Total Number of Individuals (TNI):	522
Diversity (H):	0.91
Percent (%) Sensitive Individuals:	15.1
Pollution Tolerance Index (PTI):	1.8
Siltation Index**:	67.6

 *Qualitative data

**Relative abundance of *Navicula*+*Nitzschia*+*Surirella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPSAL (12035002) Stream: SALT LICK CREEK
 Mile Point: 5.30 Drainage Area: 5.0 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: MARION Basin: SALT
 Map Number: 08-37 Latitude: 37-29-42 Longitude: 085-28-34
 Location Description: OFF SALT LICK ROAD

Date Collected: 05/20/92 Comments:
 Sample ID: 19920520-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	116
Achnanthes microcephala	*
Achnanthes minutissima	102
Amphora perpusilla	1
Cocconeis pediculus	2
Cymatopleura solea	*
Cymbella affinis	200
Cymbella cesatii	7
Cymbella cymbiformis	1
Cymbella delicatula	42
Cymbella microcephala	2
Cymbella minuta	4
Cymbella prostrata var. auerswaldii	2
Cymbella sinuata	1
Cymbella sp. (K)	1
Denticula elegans	4
Eunotia sp.	1
Gomphonema angustatum	*
Gomphonema christenseni	11
Gomphonema tergestinum	*
Navicula cryptocephala	*
Navicula meniscus var. upsaliensis	1
Navicula salinarum var. intermedia	*
Neidium binode	*
Nitzschia acicularis	*
Nitzschia dissipata	1
Nitzschia frustulum	*
Nitzschia gracilis	*
Nitzschia linearis	*
Nitzschia palea	*
Nitzschia romana	*
Surirella angustata	*
Synedra filiformis var. exilis	*
Synedra ulna	1
Synedra ulna var. ramesi	*

Station ID: REFIPSAL Collection Date: 05/20/92

Total Number of Taxa (TNT): 35

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

Total Number of Individuals (TNI):	500
Diversity (H):	0.71
Percent (%) Sensitive Individuals:	76.6
Pollution Tolerance Index (PTI):	3.7
Siltation Index**:	0.4

* Qualitative data

** Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPSAL (12035002) Stream: SALT LICK CREEK
 Mile Point: 5.30 Drainage Area: 5.0 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: MARION Basin: SALT
 Map Number: 08-37 Latitude: 37-29-42 Longitude: 085-28-34
 Location Description: OFF SALT LICK ROAD

Date Collected: 09/02/92 Comments:
 Sample ID: 19920902-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	55
Achnanthes lanceolata var. dubia	2
Achnanthes minutissima	151
Amphipleura pellucida	*
Amphora perpusilla	2
Amphora submontana	6
Caloneis ventricosa var. truncatula	4
Cocconeis placentula	7
Cocconeis placentula var. euglypta	*
Cymatopleura solea	*
Cymbella affinis	153
Cymbella delicatula	26
Cymbella minuta	14
Cymbella naviculiformis	*
Cymbella prostrata	*
Cymbella silesiaca	12
Cymbella sinuata	*
Cymbella tumida	3
Cymbella turgidula	1
Diatoma vulgare	2
Diploneis elliptica	1
Epithemia adnata var. saxonica	5
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	3
Gomphonema abbreviatum	1
Gomphonema acuminatum	*
Gomphonema angustatum	2
Gomphonema parvulum	1
Gomphonema sphaerophorum	1
Gomphonema subclavatum	*
Gomphonema truncatum	*
Gyrosigma nodiferum	*
Hantzschia amphioxys	*
Melosira varians	*
Navicula bacillum	12
Navicula cryptocephala	3
Navicula cryptocephala var. veneta	5
Navicula radiosa	2
Navicula radiosa var. tenella	2

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Navicula salinarum var. intermedia	9
Navicula tripunctata	*
Navicula viridula var. rostellata	*
Neidium affine	*
Neidium binode	*
Nitzschia amphibia	1
Nitzschia constricta	1
Nitzschia dissipata	19
Nitzschia linearis	5
Nitzschia palea	2
Pinnularia subcapitata var. paucistriata	*
Rhoicosphenia curvata	*
Surirella angustata	*
Synedra ulna	3
Synedra ulna var. oxyrhynchus	2

 Station ID: REFIPSAL Collection Date: 09/02/92

Total Number of Taxa (TNT):	54
Total Number of Individuals (TNI):	518
Diversity (H):	0.97
Percent (%) Sensitive Individuals:	50.8
Pollution Tolerance Index (PTI):	3.4
Siltation Index**:	11.8

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPSAL (12035002) Stream: SALT LICK CREEK
 Mile Point: 5.30 Drainage Area: 5.0 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: MARION Basin: SALT
 Map Number: 08-37 Latitude: 37-29-42 Longitude: 085-28-34
 Location Description: OFF SALT LICK ROAD

Date Collected: 04/22/93 Comments:
 Sample ID: 19930422-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	94
Achnanthes lanceolata	2
Achnanthes lanceolata var. dubia	*
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	276
Amphora perpusilla	1
Cocconeis pediculus	*
Cocconeis placentula	*
Cocconeis placentula var. euglypta	*
Cymatopleura solea	*
Cymbella affinis	77
Cymbella delicatula	19
Cymbella microcephala	3
Cymbella minuta	*
Cymbella prostrata var. auerswaldii	*
Cymbella silesiaca	2
Cymbella sp. (K)	33
Denticula elegans	1
Diatoma vulgare	1
Fragilaria vaucheriae	1
Frustulia vulgaris	1
Gomphonema affine	5
Gomphonema angustatum	6
Gomphonema olivaceum	7
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Melosira varians	*
Meridion circulare	19
Navicula cryptocephala var. veneta	10
Navicula minima	6
Navicula radiosa var. tenella	*
Navicula salinarum var. intermedia	1
Navicula tripunctata	*
Nitzschia acicularis	8
Nitzschia dissipata	4
Nitzschia filiformis	1
Nitzschia gracilis	2
Nitzschia linearis	*
Nitzschia microcephala	1

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Nitzschia palea	4
Nitzschia vermicularis	1
Rhoicosphenia curvata	*
Surirella angustata	*
Surirella ovata	*
Synedra delicatissima	*
Synedra rumpens var. familiaris	*
Synedra ulna	6
Synedra ulna var. oxyrhynchus	1

Station ID: REFIPSAL Collection Date: 04/22/93

Total Number of Taxa (TNT):	48
Total Number of Individuals (TNI):	593
Diversity (H):	0.83
Percent (%) Sensitive Individuals:	38.4
Pollution Tolerance Index (PTI):	3.3
Siltation Index**:	6.4

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPSAL (12035002) Stream: SALT LICK CREEK
 Mile Point: 5.30 Drainage Area: 5.0 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: MARION Basin: SALT
 Map Number: 08-37 Latitude: 37-29-42 Longitude: 085-28-34
 Location Description: OFF SALT LICK ROAD

Date Collected: 10/13/93 Comments:
 Sample ID: 19931013-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	49
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	1
Achnanthes minutissima	248
Amphipleura pellucida	1
Amphora perpusilla	1
Amphora submontana	1
Cocconeis pediculus	7
Cocconeis placentula	8
Cocconeis placentula var. euglypta	6
Cymbella affinis	5
Cymbella aspera	1
Cymbella delicatula	45
Cymbella hustedtii	4
Cymbella microcephala	3
Cymbella minuta	4
Cymbella sinuata	2
Cymbella sp. (K)	1
Cymbella turgidula	1
Diatoma vulgare	*
Diploneis elliptica	*
Diploneis oblongella	*
Epithemia adnata	*
Epithemia argus	*
Frustulia rhomboides var. amphipleuroides	1
Gomphonema acuminatum	1
Gomphonema acuminatum var. elongatum	1
Gomphonema affine	1
Gomphonema angustatum	*
Gomphonema apuncto	14
Gomphonema gracile	1
Gomphonema olivaceum	*
Gomphonema parvulum	14
Gomphonema sparsistriatum f. maculatum	*
Gomphonema sphaerophorum	16
Gomphonema subclavatum	3
Gomphonema truncatum	*
Melosira varians	3

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

Navicula bacillum	1
Navicula cryptocephala	10
Navicula cryptocephala var. veneta	10
Navicula lanceolata	1
Navicula menisculus var. upsaliensis	2
Navicula minima	9
Navicula radiosa	6
Navicula radiosa var. tenella	21
Navicula salinarum var. intermedia	*
Navicula viridula	1
Navicula viridula var. rostellata	*
Nitzschia acicularis	*
Nitzschia amphibia	11
Nitzschia communis	*
Nitzschia dissipata	1
Nitzschia frustulum	5
Nitzschia gracilis	*
Nitzschia linearis	1
Nitzschia palea	9
Rhopalodia gibberula var. vanheurckii	*
Stauroneis anceps	1
Surirella angustata	*
Surirella linearis	*
Surirella ovata	*
Synedra acus	*
Synedra rumpens var. familiaris	*
Synedra ulna	13
Synedra ulna var. oxyrhynchus	1

 Station ID: REFIPSAL Collection Date: 10/13/93

Total Number of Taxa (TNT):	67
Total Number of Individuals (TNI):	546
Diversity (H):	1.03
Percent (%) Sensitive Individuals:	23.1
Pollution Tolerance Index (PTI):	2.9
Siltation Index**:	16.1

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPSA (12035002) Stream: SALT LICK CREEK
 Mile Point: 5.30 Drainage Area: 5.0 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: MARION Basin: SALT
 Map Number: 08-37 Latitude: 37-29-42 Longitude: 085-28-34
 Location Description: OFF SALT LICK ROAD

Date Collected: 05/18/94 Comments:
 Sample ID: 19940518-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	115
Achnanthes detha	*
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	*
Achnanthes minutissima	152
Amphora perpusilla	*
Caloneis bacillum	*
Cocconeis pediculus	2
Cocconeis placentula	1
Cymbella affinis	204
Cymbella delicatula	8
Cymbella microcephala	*
Cymbella minuta	2
Cymbella silesiaca	4
Cymbella sinuata	1
Cymbella sp. (K)	2
Cymbella turgidula	25
Denticula elegans	*
Diatoma vulgare	*
Gomphonema acuminatum	*
Gomphonema angustatum	8
Gomphonema clevei	*
Gomphonema olivaceum	2
Gomphonema parvulum	*
Melosira varians	*
Meridion circulare	3
Navicula cryptocephala	*
Navicula cryptocephala var. veneta	*
Navicula decussis	*
Navicula menisculus var. upsaliensis	*
Navicula minima	*
Navicula pupula	*
Navicula radiosa	*
Navicula radiosa var. parva	*
Navicula radiosa var. tenella	*
Navicula salinarum var. intermedia	2
Navicula tripunctata	*
Nitzschia acicularis	1

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Nitzschia amphibia	*
Nitzschia dissipata	8
Nitzschia filiformis	*
Nitzschia frustulum	2
Nitzschia linearis	1
Nitzschia palea	2
Nitzschia recta	*
Rhopalodia gibba	1
Stauroneis anceps	*
Surirella ovata	*
Synedra acus	*
Synedra delicatissima	*
Synedra rumpens	*
Synedra rumpens var. familiaris	3
Synedra ulna	*
Synedra ulna var. oxyrhynchus	2
Synedra ulna var. ramesi	4

 Station ID: REFIPSAL Collection Date: 05/18/94

Total Number of Taxa (TNT):	56
Total Number of Individuals (TNI):	555
Diversity (H):	0.75
Percent (%) Sensitive Individuals:	64.7
Pollution Tolerance Index (PTI):	3.6
Siltation Index**:	2.9

 *Qualitative data
 **Relative abundance of *Navicula+Nitzschia+Surirella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPSAL (12035002) Stream: SALT LICK CREEK
 Mile Point: 5.30 Drainage Area: 5.0 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: MARION Basin: SALT
 Map Number: 08-37 Latitude: 37-29-42 Longitude: 085-28-34
 Location Description: OFF SALT LICK ROAD

Date Collected: 10/27/94 Comments:
 Sample ID: 19941027-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	1
Achnanthes deflexa	100
Achnanthes exigua	*
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	*
Achnanthes minutissima	329
Amphipleura pellucida	*
Amphora perpusilla	*
Anomoeoneis vitrea	4
Caloneis bacillum	1
Caloneis budensis	*
Cocconeis pediculus	4
Cocconeis placentula	2
Cocconeis placentula var. euglypta	9
Cymbella affinis	*
Cymbella cymbiformis	*
Cymbella delicatula	29
Cymbella hustedtii	8
Cymbella microcephala	2
Cymbella minuta	1
Cymbella sinuata	1
Cymbella sp. (K)	*
Denticula elegans	*
Diploneis oblongella	*
Epithemia adnata	*
Fragilaria pinnata	*
Gomphonema abbreviatum	8
Gomphonema affine	*
Gomphonema angustatum	*
Gomphonema brasiliense	*
Gomphonema clevei	6
Gomphonema gracile	*
Gomphonema olivaceum	*
Gomphonema parvulum	*
Gomphonema subclavatum	*
Navicula atomus	*
Navicula cryptocephala var. veneta	*
Navicula minima	2
Navicula radiosa	2

* Qualitative data

** Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Navicula radiosa var. tenella	8
Navicula salinarum var. intermedia	*
Navicula subhamulata var. undulata	2
Navicula tripunctata	*
Nitzschia amphibia	7
Nitzschia constricta	*
Nitzschia dissipata	*
Nitzschia linearis	*
Nitzschia palea	1
Nitzschia paleacea	*
Nitzschia recta	*
Pinnularia subcapitata	*
Rhoicosphenia curvata	*
Rhopalodia gibberula var. vanheurckii	*
Synedra rumpens var. familiaris	*
Synedra ulna	*

 Station ID: REFIPSAL Collection Date: 10/27/94

Total Number of Taxa (TNT):	55
Total Number of Individuals (TNI):	527
Diversity (H):	0.60
Percent (%) Sensitive Individuals:	25.2
Pollution Tolerance Index (PTI):	3.1
Siltation Index**:	4.2

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPSAL (12035002) Stream: SALT LICK CREEK
 Mile Point: 5.30 Drainage Area: 5.0 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: MARION Basin: SALT
 Map Number: 08-37 Latitude: 37-29-42 Longitude: 085-28-34
 Location Description: OFF SALT LICK ROAD

Date Collected: 04/19/95 Comments:
 Sample ID: 19950419-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	153
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	*
Achnanthes minutissima	147
Amphora perpusilla	*
Amphora submontana	*
Cocconeis pediculus	2
Cocconeis placentula	*
Cocconeis placentula var. euglypta	*
Cyclotella atomus	4
Cymbella affinis	61
Cymbella cymbiformis	10
Cymbella delicatula	69
Cymbella hustedtii	*
Cymbella lunata	*
Cymbella microcephala	10
Cymbella minuta	*
Cymbella silesiaca	23
Cymbella sinuata	*
Cymbella sp. (K)	11
Denticula elegans	1
Diatoma vulgare	2
Epithemia adnata	*
Frustulia vulgaris	*
Gomphonema affine	*
Gomphonema angustatum	11
Gomphonema apuncto	*
Gomphonema clevei	*
Gomphonema olivaceum	*
Gomphonema sphaerophorum	*
Melosira varians	1
Meridion circulare	1
Navicula atomus	*
Navicula cryptocephala var. veneta	2
Navicula menisculus var. upsaliensis	*
Navicula minima	5
Navicula mutica	*
Navicula notha	*

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula pupula</i>	1
<i>Navicula radiosa</i> var. <i>tenella</i>	*
<i>Navicula salinarum</i> var. <i>intermedia</i>	*
<i>Navicula secreta</i> var. <i>apiculata</i>	*
<i>Navicula tripunctata</i>	*
<i>Nitzschia acicularis</i>	2
<i>Nitzschia amphibia</i>	*
<i>Nitzschia dissipata</i>	2
<i>Nitzschia filiformis</i>	1
<i>Nitzschia fonticola</i>	*
<i>Nitzschia gracilis</i>	*
<i>Nitzschia linearis</i>	*
<i>Nitzschia palea</i>	1
<i>Nitzschia paleacea</i>	*
<i>Nitzschia recta</i>	*
<i>Pinnularia viridis</i>	1
<i>Surirella ovata</i>	3
<i>Synedra rumpens</i> var. <i>familiaris</i>	*
<i>Synedra ulna</i>	*
<i>Synedra ulna</i> var. <i>oxyrhynchus</i>	*

 Station ID: REFIPSAL Collection Date: 04/19/95

Total Number of Taxa (TNT):	59
Total Number of Individuals (TNI):	524
Diversity (H):	0.86
Percent (%) Sensitive Individuals:	64.3
Pollution Tolerance Index (PTI):	3.6
Siltation Index**:	2.7

 *Qualitative data

**Relative abundance of *Navicula*+*Nitzschia*+*Surriella*

06/25/96

DIATOM COLLECTION DATA

Site ID: REFIPSLC (10014004)	Stream: SANDLICK CREEK
Mile Point: 6.70	Drainage Area: 5.1 square miles
Order: 3	Ecoregion: INTERIOR PLATEAU
County: CHRISTIAN	Basin: TRADEWATER
Map Number: 05-20	Latitude: 37-00-28 Longitude: 087-35-33
Location Description: MT. CARMEL-CAMP CR. RD.; 0.75 MI W OF SR 109 JC	

Date Collected: 05/13/93	Comments:
Sample ID: 19930513-11	Substrate Type: Natural
ID By:	

Achnanthes deflexa	20
Achnanthes lanceolata	1
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	189
Amphipleura pellucida	*
Amphora perpusilla	2
Amphora submontana	*
Cocconeis pediculus	2
Cocconeis placentula	1
Cymatopleura solea	1
Cymbella cymbiformis	17
Cymbella delicatula	2
Cymbella microcephala	*
Cymbella minuta	18
Cymbella prostrata	*
Cymbella silesiaca	75
Cymbella sinuata	1
Cymbella sp. (K)	9
Cymbella triangulum	*
Cymbella tumida	5
Cymbella turgidula	*
Denticula elegans	*
Diploneis elliptica	*
Diploneis puella	*
Fragilaria vaucheriae	4
Frustulia vulgaris	*
Gomphonema acuminatum	*
Gomphonema angustatum	10
Gomphonema parvulum	1
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Gyrosigma scalproides	*
Melosira varians	12
Meridion circulare	2
Navicula atomus	3
Navicula cryptocephala	5
Navicula cryptocephala var. veneta	5
Navicula lanceolata	*
Navicula menisculus var. upsaliensis	*

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Navicula minima	6
Navicula pupula	1
Navicula radiosa var. tenella	*
Navicula salinarum var. intermedia	1
Navicula secreta var. apiculata	*
Navicula viridula	1
Navicula viridula var. linearis	2
Nitzschia acicularis	8
Nitzschia clausii	2
Nitzschia communis	3
Nitzschia dissipata	56
Nitzschia filiformis	1
Nitzschia fonticola	3
Nitzschia gracilis	1
Nitzschia linearis	14
Nitzschia palea	26
Nitzschia sinuata var. tabellaria	2
Nitzschia vermicularis	8
Rhoicosphenia curvata	7
Stauroneis smithii	1
Surirella angustata	6
Surirella ovata	36
Synedra acus	6
Synedra rumpens var. familiaris	*
Synedra ulna	2

 Station ID: REFIPSLC Collection Date: 05/13/93

Total Number of Taxa (TNT):	64
Total Number of Individuals (TNI):	578
Diversity (H):	1.14
Percent (%) Sensitive Individuals:	22.5
Pollution Tolerance Index (PTI):	2.9
Siltation Index**:	25.6

 *Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPSLC (10014004) Stream: SANDLICK CREEK
 Mile Point: 6.70 Drainage Area: 5.1 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: CHRISTIAN Basin: TRADEWATER
 Map Number: 05-20 Latitude: 37-00-28 Longitude: 087-35-33
 Location Description: MT. CARMEL-CAMP CR. RD.; 0.75 MI W OF SR 109 JC

Date Collected: 05/05/94 Comments:
 Sample ID: 19940505-11 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	16
Achnanthes lanceolata	6
Achnanthes lanceolata var. dubia	*
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	248
Amphipleura pellucida	*
Caloneis bacillum	*
Cocconeis pediculus	*
Cocconeis placentula	1
Cyclotella meneghiniana	*
Cymbella cymbiformis	*
Cymbella microcephala	*
Cymbella minuta	21
Cymbella prostrata	1
Cymbella silesiaca	26
Cymbella sinuata	4
Cymbella sp. (K)	13
Cymbella triangulum	*
Cymbella tumida	3
Cymbella turgidula	*
Denticula elegans	1
Eunotia exigua	*
Fragilaria vaucheriae	*
Frustulia vulgaris	1
Gomphonema acuminatum	1
Gomphonema affine	*
Gomphonema angustatum	9
Gomphonema olivaceum	*
Gomphonema parvulum	*
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Gomphonema subclavatum var. mexicanum	*
Gomphonema truncatum	*
Melosira varians	20
Meridion circulare	5
Navicula atomus	*
Navicula cryptocephala	5
Navicula cryptocephala var. veneta	4

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Navicula gottlandica	1
Navicula hustedtii	1
Navicula lanceolata	1
Navicula menisculus var. upsaliensis	1
Navicula minima	8
Navicula mutica	*
Navicula pelliculosa	12
Navicula radiosa	*
Navicula radiosa var. tenella	*
Navicula salinarum var. intermedia	1
Navicula secreta var. apiculata	1
Navicula symmetrica	*
Neidium affine	*
Nitzschia acicularis	*
Nitzschia amphibia	*
Nitzschia brevissima	*
Nitzschia clausii	*
Nitzschia constricta	*
Nitzschia dissipata	71
Nitzschia fonticola	2
Nitzschia frustulum	1
Nitzschia gracilis	1
Nitzschia inconspicua	2
Nitzschia linearis	12
Nitzschia lorenziana var. subtilis	*
Nitzschia palea	7
Nitzschia paleacea	*
Nitzschia recta	18
Nitzschia sigmoidea	*
Nitzschia sinuata var. tabellaria	*
Nitzschia sp.1	*
Nitzschia vermicularis	1
Pinnularia mesolepta	*
Pinnularia viridis	*
Rhoicosphenia curvata	1
Surirella angustata	5
Surirella ovata	17
Synedra acus	13
Synedra delicatissima	*
Synedra rumpens var. familiaris	*
Synedra ulna	5
Synedra ulna var. oxyrhynchus	*

 Station ID: REFIPSLC Collection Date: 05/05/94

Total Number of Taxa (TNT):	81
Total Number of Individuals (TNI):	567
Diversity (H):	1.02
Percent (%) Sensitive Individuals:	11.3
Pollution Tolerance Index (PTI):	2.9
Siltation Index**:	26.5

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surirella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPTF1 (03019016) Stream: TRAMMEL FORK
 Mile Point: 18.50 Drainage Area: 99.2 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: ALLEN Basin: GREEN
 Map Number: 03-30 Latitude: 36-45-07 Longitude: 086-17-16
 Location Description: AT RED HILL ROAD BRIDGE

Date Collected: 05/14/92 Comments:
 Sample ID: 19920514-10 Substrate Type: Natural
 ID By: _____

Achnanthes clevei	*
Achnanthes deflexa	54
Achnanthes exigua	*
Achnanthes lanceolata var. dubia	3
Achnanthes minutissima	114
Amphora perpusilla	3
Cocconeis pediculus	16
Cocconeis placentula var. euglypta	3
Cyclotella striata var. ambigua	*
Cymatopleura solea	1
Cymbella affinis	187
Cymbella cistula	*
Cymbella cymbiformis	*
Cymbella delicatula	*
Cymbella mexicana	3
Cymbella minuta	*
Cymbella prostrata	*
Cymbella prostrata var. auerswaldii	*
Cymbella silesiaca	1
Cymbella sinuata	8
Cymbella sp. (K)	2
Cymbella tumida	3
Cymbella turgidula	2
Diatoma vulgare	5
Fragilaria capucina var. mesolepta	1
Fragilaria leptostauron	*
Fragilaria pinnata	1
Fragilaria vaucheriae	6
Gomphonema affine	1
Gomphonema angustatum	*
Gomphonema olivaceum	1
Gomphonema parvulum	*
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Gomphonema tergestinum	*
Gyrosigma attenuatum	1
Hantzschia amphioxys	*
Melosira varians	5
Meridion circulare	2

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Navicula cryptocephala	2
Navicula cryptocephala var. veneta	28
Navicula lanceolata	*
Navicula menisculus var. upsaliensis	3
Navicula minima	10
Navicula pelliculosa	1
Navicula radiosa var. parva	2
Navicula radiosa var. tenella	8
Navicula salinarum var. intermedia	20
Navicula secreta var. apiculata	7
Navicula tripunctata	*
Navicula viridula	1
Navicula viridula var. rostellata	*
Nitzschia acicularis	9
Nitzschia amphibia	13
Nitzschia constricta	*
Nitzschia dissipata	25
Nitzschia linearis	5
Nitzschia microcephala	9
Nitzschia palea	6
Nitzschia recta	*
Nitzschia romana	6
Nitzschia sinuata var. tabellaria	1
Pinnularia subcapitata var. paucistriata	*
Rhoicosphenia curvata	4
Surirella angustata	1
Surirella ovata	2
Surirella ovata var. pinnata	1
Synedra acus	*
Synedra pulchella	*
Synedra rumpens	*
Synedra rumpens var. familiaris	2
Synedra ulna	5
Synedra ulna var. oxyrhynchus	*

 Station ID: REFIPTF1 Collection Date: 05/14/92

Total Number of Taxa (TNT):	73
Total Number of Individuals (TNI):	594
Diversity (H):	1.13
Percent (%) Sensitive Individuals:	43.3
Pollution Tolerance Index (PTI):	3.1
Siltation Index**:	26.3

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPTF1 (03019016) Stream: TRAMMEL FORK
 Mile Point: 18.50 Drainage Area: 99.2 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: ALLEN Basin: GREEN
 Map Number: 03-30 Latitude: 36-45-07 Longitude: 086-17-16
 Location Description: AT RED HILL ROAD BRIDGE

Date Collected: 09/23/92 Comments:
 Sample ID: 19920923-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	1	
Achnanthes coarctata		*
Achnanthes deflexa	29	
Achnanthes lanceolata var. dubia	1	
Achnanthes minutissima	107	
Amphora perpusilla	2	
Amphora submontana	1	
Caloneis bacillum	1	
Caloneis ventricosa var. subundulata		*
Cocconeis pediculus	5	
Cocconeis placentula var. euglypta	25	
Cyclotella striata var. ambigua	1	
Cymatopleura solea		*
Cymbella affinis	112	
Cymbella delicatula		*
Cymbella microcephala		*
Cymbella silesiaca	3	
Cymbella sinuata	8	
Cymbella sp. (K)		*
Cymbella tumida	3	
Cymbella turgidula	3	
Denticula elegans	2	
Diatoma vulgare		*
Epithemia adnata	1	
Eunotia tenella	1	
Fragilaria pinnata	3	
Fragilaria vaucheriae	10	
Frustulia vulgaris	1	
Gomphonema affine		*
Gomphonema angustatum	2	
Gomphonema clevei	2	
Gomphonema olivaceum	1	
Gomphonema parvulum		*
Gomphonema sphaerophorum		*
Gomphonema subclavatum		*
Gomphonema truncatum		*
Gyrosigma attenuatum	1	
Gyrosigma scalpoides		*
Gyrosigma spencerii		*

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Hantzschia amphioxys	*
Melosira varians	18
Meridion circulare	*
Navicula cryptocephala	8
Navicula cryptocephala var. veneta	7
Navicula cuspidata	*
Navicula decussis	1
Navicula lanceolata	1
Navicula menisculus var. upsaliensis	10
Navicula minima	29
Navicula mutica	*
Navicula pelliculosa	*
Navicula pupula	*
Navicula pupula var. elliptica	*
Navicula radiosa	4
Navicula radiosa var. parva	3
Navicula radiosa var. tenella	6
Navicula salinarum var. intermedia	25
Navicula secreta var. apiculata	3
Navicula symmetrica	12
Navicula tripunctata	1
Navicula viridula	5
Navicula viridula var. linearis	*
Navicula viridula var. rostellata	6
Nitzschia acicularis	*
Nitzschia amphibia	4
Nitzschia clausii	1
Nitzschia constricta	*
Nitzschia dissipata	32
Nitzschia frustulum	*
Nitzschia linearis	1
Nitzschia palea	11
Nitzschia recta	2
Nitzschia sinuata var. tabellaria	1
Nitzschia tryblionella var. victoriae	*
Pinnularia borealis var. rectangularis	1
Rhoicosphenia curvata	11
Stephanodiscus hantzschii	*
Surirella angustata	1
Surirella linearis var. helvetica	*
Surirella ovata	1
Surirella ovata var. pinnata	*
Synedra pulchella	1
Synedra rumpens var. familiaris	7
Synedra ulna	6
Synedra ulna var. oxyrhynchus	*

 Station ID: REFIPF1 Collection Date: 09/23/92

Total Number of Taxa (TNT): 85
 Total Number of Individuals (TNI): 545

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

Diversity (H):	1.28
Percent (%) Sensitive Individuals:	29.2
Pollution Tolerance Index (PTI):	2.8
Siltation Index**:	31.7

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPTF1 (03019016) Stream: TRAMMEL FORK
 Mile Point: 18.50 Drainage Area: 99.2 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: ALLEN Basin: GREEN
 Map Number: 03-30 Latitude: 36-45-07 Longitude: 086-17-16
 Location Description: AT RED HILL ROAD BRIDGE

Date Collected: 07/20/93 Comments:
 Sample ID: 19930720-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	1
Achnanthes coarctata	*
Achnanthes deflexa	43
Achnanthes lanceolata	5
Achnanthes lanceolata var. dubia	*
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	141
Amphora perpusilla	12
Amphora submontana	*
Bacillaria paradoxa	1
Caloneis bacillum	2
Caloneis ventricosa	*
Cocconeis pediculus	14
Cocconeis placentula	8
Cocconeis placentula var. euglypta	12
Cyclotella stelligera	1
Cyclotella striata var. ambigua	*
Cymbella affinis	137
Cymbella cymbiformis	1
Cymbella mexicana	*
Cymbella microcephala	*
Cymbella minuta	1
Cymbella naviculiformis	*
Cymbella prostrata	*
Cymbella silesiaca	1
Cymbella sinuata	8
Cymbella sp. (K)	1
Cymbella tumida	5
Cymbella turgidula	1
Denticula elegans	1
Diatoma vulgare	1
Fragilaria pinnata	2
Fragilaria vaucheriae	*
Frustulia rhomboides var. amphipleuroides	*
Gomphonema affine	4
Gomphonema apuncto	2
Gomphonema olivaceum	2
Gomphonema parvulum	6
Gomphonema subclavatum	*

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Gomphonema subclavatum var. mexicanum	*
Gyrosigma attenuatum	*
Gyrosigma scalproides	*
Gyrosigma spencerii	*
Melosira varians	2
Meridion circulare	*
Navicula capitata	*
Navicula cryptocephala	2
Navicula cryptocephala var. veneta	6
Navicula cuspidata	*
Navicula decussis	1
Navicula lanceolata	*
Navicula menisculus var. upsaliensis	2
Navicula minima	18
Navicula radiosa	*
Navicula radiosa var. tenella	7
Navicula rhynchocephala	3
Navicula salinarum var. intermedia	16
Navicula schroeteri var. escambia	1
Navicula secreta var. apiculata	2
Navicula tripunctata	2
Navicula viridula	9
Nitzschia amphibia	6
Nitzschia communis	1
Nitzschia dissipata	8
Nitzschia filiformis	1
Nitzschia gracilis	3
Nitzschia linearis	3
Nitzschia microcephala	1
Nitzschia palea	48
Nitzschia recta	5
Nitzschia sinuata var. tabellaria	4
Nitzschia tryblionella var. victoriae	*
Rhoicosphenia curvata	8
Stephanodiscus hantzschii	1
Surirella angustata	1
Surirella ovata	*
Surirella ovata var. pinnata	*
Synedra acus	3
Synedra rumpens var. familiaris	1
Synedra ulna	4
Synedra ulna var. oxyrhynchus	5
Thalassiosira weissflogii	1

 Station ID: REFIPTF1 Collection Date: 07/20/93

Total Number of Taxa (TNT):	82
Total Number of Individuals (TNI):	588
Diversity (H):	1.20
Percent (%) Sensitive Individuals:	33.7
Pollution Tolerance Index (PTI):	2.9

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

Siltation Index^{**}: 25.3

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*
06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPTF1 (03019016) Stream: TRAMMEL FORK
 Mile Point: 18.50 Drainage Area: 99.2 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: ALLEN Basin: GREEN
 Map Number: 03-30 Latitude: 36-45-07 Longitude: 086-17-16
 Location Description: AT RED HILL ROAD BRIDGE

Date Collected: 11/03/93 Comments:
 Sample ID: 19931103-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	1
Achnanthes lanceolata	5
Achnanthes lanceolata var. dubia	2
Achnanthes minutissima	104
Amphipleura pellucida	3
Amphora perpusilla	4
Amphora submontana	*
Bacillaria paradoxa	*
Caloneis bacillum	3
Cocconeis pediculus	22
Cocconeis placentula	2
Cocconeis placentula var. euglypta	3
Cyclotella meneghiniana	4
Cyclotella striata var. ambigua	3
Cymatopleura solea	*
Cymbella affinis	33
Cymbella mexicana	1
Cymbella prostrata	1
Cymbella silesiaca	5
Cymbella sinuata	1
Cymbella sp. (K)	2
Cymbella tumida	*
Cymbella turgidula	4
Diatoma vulgare	3
Fragilaria leptostauron	*
Fragilaria pinnata	2
Fragilaria vaucheriae	2
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	*
Gomphonema angustatum	1
Gomphonema apuncto	*
Gomphonema brasiliense	*
Gomphonema gracile	*
Gomphonema olivaceum	1
Gomphonema parvulum	*
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Gyrosigma acuminatum	1

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Gyrosigma attenuatum	*
Gyrosigma scalproides	*
Gyrosigma spencerii	1
Melosira varians	7
Meridion circulare	*
Navicula atomus	1
Navicula cryptocephala	4
Navicula cryptocephala var. veneta	33
Navicula decussis	1
Navicula lanceolata	*
Navicula laterorostrata	1
Navicula menisculus var. upsaliensis	*
Navicula minima	13
Navicula mutica	1
Navicula pelliculosa	*
Navicula pupula	*
Navicula radiosa	*
Navicula radiosa var. tenella	4
Navicula salinarum var. intermedia	4
Navicula secreta var. apiculata	7
Navicula subhamulata var. undulata	*
Navicula symmetrica	13
Navicula tripunctata	*
Navicula tripunctata var. schizonemoides	*
Navicula viridula	3
Navicula viridula var. linearis	*
Navicula viridula var. rostellata	4
Neidium affine	*
Nitzschia acicularis	7
Nitzschia amphibia	7
Nitzschia communis	2
Nitzschia constricta	*
Nitzschia dissipata	70
Nitzschia filiformis	6
Nitzschia fonticola	*
Nitzschia frustulum	19
Nitzschia gracilis	18
Nitzschia linearis	*
Nitzschia palea	45
Nitzschia recta	5
Nitzschia sigmoidea	1
Nitzschia sinuata var. tabellaria	*
Nitzschia sp.1	*
Nitzschia vermicularis	25
Rhoicosphenia curvata	1
Surirella angustata	2
Surirella linearis	*
Surirella ovata	3
Surirella ovata var. pinnata	11
Synedra pulchella	1
Synedra rumpens	*

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

Synedra rumpens var. familiaris	3
Synedra ulna	8
Synedra ulna var. oxyrhynchus	3

Station ID: REFIPTF1 Collection Date: 11/03/93

Total Number of Taxa (TNT):	93
Total Number of Individuals (TNI):	547
Diversity (H):	1.38
Percent (%) Sensitive Individuals:	8.6
Pollution Tolerance Index (PTI):	2.3
Siltation Index**:	53.7

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPTF1 (03019016) Stream: TRAMMEL FORK
 Mile Point: 18.50 Drainage Area: 99.2 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: ALLEN Basin: GREEN
 Map Number: 03-30 Latitude: 36-45-07 Longitude: 086-17-16
 Location Description: AT RED HILL ROAD BRIDGE

Date Collected: 05/09/94 Comments:
 Sample ID: 19940509-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	23
Achnanthes lanceolata	1
Achnanthes minutissima	56
Amphora perpusilla	3
Caloneis bacillum	1
Cocconeis pediculus	1
Cocconeis placentula	2
Cocconeis placentula var. euglypta	*
Cyclotella meneghiniana	*
Cyclotella striata var. ambigua	*
Cymbella affinis	143
Cymbella hustedtii	*
Cymbella mexicana	1
Cymbella prostrata	*
Cymbella silesiaca	*
Cymbella sinuata	5
Cymbella sp. (K)	3
Cymbella tumida	1
Cymbella turgidula	1
Diatoma vulgare	28
Gomphonema angustatum	3
Gomphonema olivaceum	8
Gomphonema parvulum	2
Melosira varians	11
Meridion circulare	*
Navicula cryptocephala	*
Navicula cryptocephala var. veneta	29
Navicula lanceolata	*
Navicula menisculus var. upsaliensis	*
Navicula minima	3
Navicula radiosa	*
Navicula radiosa var. tenella	5
Navicula salinarum var. intermedia	24
Navicula secreta var. apiculata	1
Navicula tripunctata	*
Navicula viridula var. rostellata	*
Nitzschia acicularis	1
Nitzschia amphibia	*
Nitzschia dissipata	56

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Nitzschia dubia	*
Nitzschia fonticola	26
Nitzschia frustulum	1
Nitzschia gracilis	1
Nitzschia inconspicua	*
Nitzschia linearis	1
Nitzschia palea	6
Nitzschia perminuta	2
Nitzschia recta	29
Nitzschia sinuata var. tabellaria	*
Rhoicosphenia curvata	1
Stephanodiscus hantzschii	*
Surirella angustata	*
Surirella ovata	7
Surirella robusta	*
Synedra rumpens	*
Synedra rumpens var. familiaris	3
Synedra ulna	16
Synedra ulna var. oxyrhynchus	15

 Station ID: REFIPTF1 Collection Date: 05/09/94

Total Number of Taxa (TNT):	58
Total Number of Individuals (TNI):	520
Diversity (H):	1.15
Percent (%) Sensitive Individuals:	33.8
Pollution Tolerance Index (PTI):	3.0
Siltation Index**:	35.6

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPTF1 (03019016) Stream: TRAMMEL FORK
 Mile Point: 18.50 Drainage Area: 99.2 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: ALLEN Basin: GREEN
 Map Number: 03-30 Latitude: 36-45-07 Longitude: 086-17-16
 Location Description: AT RED HILL ROAD BRIDGE

Date Collected: 10/31/94 Comments:
 Sample ID: 19941031-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	22
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	*
Achnanthes minutissima	204
Amphora perpusilla	2
Bacillaria paradoxa	*
Caloneis bacillum	1
Caloneis ventricosa var. truncatula	*
Cocconeis pediculus	8
Cocconeis placentula	1
Cocconeis placentula var. euglypta	1
Cyclotella meneghiniana	2
Cyclotella striata var. ambigua	1
Cymatopleura solea	*
Cymbella affinis	214
Cymbella aspera	*
Cymbella prostrata	2
Cymbella silesiaca	1
Cymbella sinuata	*
Cymbella sp. (K)	2
Cymbella tumida	1
Cymbella turgidula	*
Diatoma vulgare	4
Diploneis puella	*
Fragilaria pinnata	1
Fragilaria vaucheriae	*
Gomphonema affine	*
Gomphonema angustatum	1
Gomphonema olivaceum	*
Gomphonema parvulum	*
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Gomphonema subclavatum var. mexicanum	*
Gyrosigma nodiferum	*
Gyrosigma spencerii	*
Melosira varians	1
Navicula cryptocephala	1
Navicula cryptocephala var. veneta	4

*Qualitative data
 **Relative abundance of *Navicula+Nitzschia+Surriella*
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula decussis</i>	*
<i>Navicula hustedtii</i>	*
<i>Navicula lanceolata</i>	1
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	1
<i>Navicula minima</i>	8
<i>Navicula mutica</i>	*
<i>Navicula pelliculosa</i>	*
<i>Navicula pupula</i> var. <i>capitata</i>	*
<i>Navicula radiosa</i>	2
<i>Navicula radiosa</i> var. <i>parva</i>	*
<i>Navicula radiosa</i> var. <i>tenella</i>	1
<i>Navicula salinarum</i> var. <i>intermedia</i>	6
<i>Navicula symmetrica</i>	2
<i>Navicula tripunctata</i>	*
<i>Navicula viridula</i>	9
<i>Navicula viridula</i> var. <i>linearis</i>	1
<i>Navicula viridula</i> var. <i>rostellata</i>	*
<i>Nitzschia acicularis</i>	2
<i>Nitzschia amphibia</i>	2
<i>Nitzschia constricta</i>	1
<i>Nitzschia dissipata</i>	15
<i>Nitzschia fonticola</i>	*
<i>Nitzschia frustulum</i>	5
<i>Nitzschia gracilis</i>	12
<i>Nitzschia linearis</i>	*
<i>Nitzschia palea</i>	17
<i>Nitzschia paleacea</i>	1
<i>Nitzschia recta</i>	3
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	2
<i>Nitzschia</i> sp.1	*
<i>Nitzschia vermicularis</i>	1
<i>Rhoicosphenia curvata</i>	1
<i>Surirella angustata</i>	*
<i>Surirella ovata</i>	*
<i>Surirella ovata</i> var. <i>pinnata</i>	1
<i>Synedra parasitica</i> var. <i>subconstricta</i>	*
<i>Synedra ulna</i>	2
<i>Synedra ulna</i> var. <i>oxyrhynchus</i>	*
<i>Synedra ulna</i> var. <i>ramesi</i>	*

 Station ID: REFIPTF1 Collection Date: 10/31/94

Total Number of Taxa (TNT):	78
Total Number of Individuals (TNI):	570
Diversity (H):	0.84
Percent (%) Sensitive Individuals:	42.5
Pollution Tolerance Index (PTI):	3.2
Siltation Index**:	17.0

 * Qualitative data
 ** Relative abundance of *Navicula*+*Nitzschia*+*Surriella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPTF1 (03019016) Stream: TRAMMEL FORK
 Mile Point: 18.50 Drainage Area: 99.2 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: ALLEN Basin: GREEN
 Map Number: 03-30 Latitude: 36-45-07 Longitude: 086-17-16
 Location Description: AT RED HILL ROAD BRIDGE

Date Collected: 07/19/95 Comments:
 Sample ID: 19950719-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	47
Achnanthes lanceolata	5
Achnanthes microcephala	1
Achnanthes minutissima	258
Amphora perpusilla	10
Caloneis bacillum	*
Cocconeis pediculus	8
Cocconeis placentula	8
Cocconeis placentula var. euglypta	23
Cyclotella meneghiniana	1
Cyclotella striata var. ambigua	1
Cymatopleura solea	*
Cymbella affinis	69
Cymbella mexicana	*
Cymbella microcephala	*
Cymbella minuta	*
Cymbella sinuata	11
Cymbella sp. (K)	*
Cymbella tumida	1
Cymbella turgidula	*
Denticula elegans	*
Diatoma vulgare	*
Fragilaria pinnata	1
Fragilaria vaucheriae	*
Gomphonema angustatum	2
Gomphonema olivaceum	*
Gomphonema parvulum	2
Gomphonema sparsistriatum f. maculatum	1
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Gyrosigma spencerii	*
Melosira varians	3
Meridion circulare	*
Navicula atomus	2
Navicula cryptocephala	1
Navicula cryptocephala var. veneta	3
Navicula hustedtii	*
Navicula menisculus var. upsaliensis	2

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula minima	15
Navicula miniscula	*
Navicula radiosa	*
Navicula radiosa var. parva	*
Navicula radiosa var. tenella	5
Navicula salinarum var. intermedia	6
Navicula secreta var. apiculata	2
Navicula symmetrica	1
Navicula tripunctata	1
Navicula tripunctata var. schizonemoides	*
Navicula viridula	2
Navicula viridula var. rostellata	4
Nitzschia acicularis	1
Nitzschia amphibia	*
Nitzschia constricta	1
Nitzschia dissipata	3
Nitzschia gracilis	3
Nitzschia palea	23
Nitzschia paleacea	2
Nitzschia perminuta	*
Nitzschia recta	3
Nitzschia sinuata var. tabellaria	*
Rhoicosphenia curvata	6
Surirella angustata	1
Surirella ovata	1
Surirella ovata var. pinnata	*
Surirella robusta	*
Synedra ulna	*
Synedra ulna var. oxyrhynchus	*
Thalassiosira weissflogii	1

 Station ID: REFIPF1 Collection Date: 07/19/95

Total Number of Taxa (TNT): 69
 Total Number of Individuals (TNI): 541
 Diversity (H): 0.93
 Percent (%) Sensitive Individuals: 23.8
 Pollution Tolerance Index (PTI): 3.0
 Siltation Index^{**}: 14.8

 *Qualitative data
 **Relative abundance of *Navicula+Nitzschia+Surirella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPTF2 (03019017) Stream: TRAMMEL FORK
 Mile Point: 26.60 Drainage Area: 31.9 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: ALLEN Basin: GREEN
 Map Number: 02-31 Latitude: 36-40-43 Longitude: 086-12-55
 Location Description: CONCORD CHURCH ROAD BRIDGE

Date Collected: 05/14/92 Comments:
 Sample ID: 19920514-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	94
Achnanthes lanceolata var. dubia	11
Achnanthes minutissima	3
Amphora perpusilla	1
Caloneis ventricosa	*
Cocconeis placentula	21
Cocconeis placentula var. lineata	*
Cyclotella striata var. ambigua	2
Cymatopleura solea	2
Cymbella affinis	182
Cymbella cistula	*
Cymbella mexicana	3
Cymbella minuta	9
Cymbella prostrata	*
Cymbella silesiaca	2
Cymbella sinuata	8
Cymbella sp. (K)	8
Cymbella tumida	2
Cymbella turgidula	16
Diatoma vulgare	5
Fragilaria vaucheriae	*
Frustulia vulgaris	*
Gomphonema acuminatum	*
Gomphonema angustatum	14
Gomphonema clevei	2
Gomphonema olivaceum	5
Gomphonema sphaerophorum	1
Gomphonema truncatum	*
Gyrosigma attenuatum	*
Gyrosigma scalproides	1
Melosira varians	3
Meridion circulare	7
Navicula cryptocephala	8
Navicula cryptocephala var. veneta	4
Navicula lanceolata	*
Navicula meniscus var. upsaliensis	2
Navicula minima	8
Navicula pupula	*
Navicula radiosa	1

* Qualitative data

** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula radiosa var. tenella	2
Navicula salinarum var. intermedia	17
Navicula secreta var. apiculata	*
Navicula tripunctata	2
Navicula viridula	1
Navicula viridula var. rostellata	1
Neidium affine var. amphirhynchus	*
Nitzschia acicularis	1
Nitzschia amphibia	8
Nitzschia dissipata	15
Nitzschia linearis	23
Nitzschia palea	10
Pinnularia biceps	*
Rhoicosphenia curvata	2
Stauroneis phoenicenteron	*
Surirella angustata	5
Surirella ovata	7
Surirella ovata var. pinnata	2
Synedra acus	2
Synedra rumpens var. familiaris	*
Synedra ulna	3
Synedra ulna var. oxyrhynchus	*

 Station ID: REFIPF2 Collection Date: 05/14/92

Total Number of Taxa (TNT):	61
Total Number of Individuals (TNI):	526
Diversity (H):	1.14
Percent (%) Sensitive Individuals:	59.5
Pollution Tolerance Index (PTI):	3.2
Siltation Index**:	19.6

 *Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPF2 (03019017) Stream: TRAMMEL FORK
 Mile Point: 26.60 Drainage Area: 31.9 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: ALLEN Basin: GREEN
 Map Number: 02-31 Latitude: 36-40-43 Longitude: 086-12-55
 Location Description: CONCORD CHURCH ROAD BRIDGE

Date Collected: 09/23/92 Comments:
 Sample ID: 19920923-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	141
Achnanthes lanceolata var. dubia	4
Achnanthes minutissima	199
Amphora perpusilla	3
Amphora submontana	2
Caloneis bacillum	*
Cocconeis pediculus	*
Cocconeis placentula	4
Cocconeis placentula var. euglypta	7
Cyclotella stelligera	1
Cyclotella striata var. ambigua	*
Cymbella affinis	13
Cymbella delicatula	1
Cymbella silesiaca	*
Cymbella sinuata	4
Cymbella sp. (K)	2
Cymbella turgidula	4
Diatoma vulgare	*
Frustulia vulgaris	*
Gomphonema affine	*
Gomphonema angustatum	2
Gomphonema clevei	2
Gomphonema olivaceum	1
Gomphonema parvulum	1
Gomphonema truncatum	1
Gyrosigma scalproides	*
Hantzschia amphioxys	*
Melosira varians	6
Meridion circulare	*
Navicula capitata	*
Navicula cryptocephala	2
Navicula cryptocephala var. veneta	2
Navicula menisculus var. upsaliensis	3
Navicula minima	53
Navicula mutica	*
Navicula pupula	*
Navicula radiosa	1
Navicula radiosa var. parva	2
Navicula radiosa var. tenella	4

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula salinarum</i> var. <i>intermedia</i>	2
<i>Navicula schroeteri</i> var. <i>escambia</i>	*
<i>Navicula secreta</i> var. <i>apiculata</i>	6
<i>Navicula symmetrica</i>	1
<i>Navicula tripunctata</i>	2
<i>Navicula viridula</i>	1
<i>Navicula viridula</i> var. <i>linearis</i>	*
<i>Nitzschia amphibia</i>	*
<i>Nitzschia clausii</i>	*
<i>Nitzschia constricta</i>	*
<i>Nitzschia dissipata</i>	10
<i>Nitzschia dubia</i>	*
<i>Nitzschia gracilis</i>	1
<i>Nitzschia microcephala</i>	*
<i>Nitzschia palea</i>	8
<i>Nitzschia romana</i>	5
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	1
<i>Rhoicosphenia curvata</i>	2
<i>Surirella linearis</i>	*
<i>Surirella ovata</i>	2
<i>Surirella ovata</i> var. <i>pinnata</i>	1
<i>Synedra acus</i>	1
<i>Synedra delicatissima</i>	2
<i>Synedra parasitica</i> var. <i>subconstricta</i>	*
<i>Synedra rumpens</i> var. <i>familiaris</i>	1
<i>Synedra ulna</i> var. <i>oxyrhynchus</i>	*

 Station ID: REFIPTF2 Collection Date: 09/23/92

Total Number of Taxa (TNT):	65
Total Number of Individuals (TNI):	511
Diversity (H):	0.90
Percent (%) Sensitive Individuals:	32.9
Pollution Tolerance Index (PTI):	3.0
Siltation Index**:	20.4

 *Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surirella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPTF2 (03019017) Stream: TRAMMEL FORK
 Mile Point: 26.60 Drainage Area: 31.9 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: ALLEN Basin: GREEN
 Map Number: 02-31 Latitude: 36-40-43 Longitude: 086-12-55
 Location Description: CONCORD CHURCH ROAD BRIDGE

Date Collected: 07/20/93 Comments:
 Sample ID: 19930720-11 Substrate Type: Natural
 ID By:

Achnanthes clevei	1
Achnanthes deflexa	65
Achnanthes lanceolata	2
Achnanthes lanceolata var. dubia	10
Achnanthes minutissima	119
Amphora perpusilla	1
Amphora submontana	*
Caloneis bacillum	4
Cocconeis pediculus	5
Cocconeis placentula	2
Cocconeis placentula var. euglypta	6
Cyclotella stelligera	1
Cymatopleura solea	2
Cymbella affinis	7
Cymbella aspera	*
Cymbella microcephala	1
Cymbella minuta	5
Cymbella silesiaca	12
Cymbella sinuata	1
Cymbella sp. (K)	4
Cymbella tumida	1
Cymbella turgidula	7
Denticula elegans	*
Diatoma vulgare	*
Epithemia adnata	*
Eunotia perpusilla	1
Fragilaria pinnata	*
Frustulia vulgaris	3
Gomphonema angustatum	*
Gomphonema apuncto	*
Gomphonema olivaceum	6
Gomphonema sphaerophorum	3
Gomphonema subclavatum	*
Gyrosigma attenuatum	*
Gyrosigma nodiferum	*
Gyrosigma scalproides	3
Gyrosigma spencerii	*
Melosira granulata	*
Melosira varians	4

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Meridion circulare	2
Navicula capitata	*
Navicula cryptocephala	8
Navicula cryptocephala var. veneta	33
Navicula cuspidata	*
Navicula decussis	*
Navicula elginensis	*
Navicula lanceolata	*
Navicula menisculus var. upsaliensis	12
Navicula minima	23
Navicula mutica	2
Navicula pelliculosa	*
Navicula pupula	*
Navicula pupula var. capitata	*
Navicula pupula var. rectangularis	*
Navicula radiosa	1
Navicula radiosa var. parva	3
Navicula radiosa var. tenella	15
Navicula rhynchocephala	*
Navicula salinarum var. intermedia	5
Navicula schroeteri var. escambia	*
Navicula secreta var. apiculata	2
Navicula symmetrica	*
Navicula tripunctata	1
Navicula viridula	*
Navicula viridula var. rostellata	1
Neidium affine	*
Neidium binode	*
Nitzschia acicularis	5
Nitzschia amphibia	1
Nitzschia angustata var. acuta	*
Nitzschia constricta	*
Nitzschia dissipata	22
Nitzschia filiformis	19
Nitzschia gracilis	8
Nitzschia linearis	8
Nitzschia microcephala	4
Nitzschia palea	42
Nitzschia recta	14
Nitzschia romana	4
Nitzschia sigmoidea	1
Nitzschia sinuata var. tabellaria	6
Nitzschia vermicularis	2
Pinnularia viridis	2
Rhoicosphenia curvata	5
Stauroneis anceps f. gracilis	*
Surirella angustata	4
Surirella linearis	1
Surirella ovata	*
Surirella ovata var. pinnata	3
Synedra rumpens var. familiaris	*

 * Qualitative data

** Relative abundance of *Navicula*+*Nitzschia*+*Surirella*

06/25/96

DIATOM COLLECTION DATA

Synedra ulna *
Synedra ulna var. oxyrhynchus *

Station ID: REFIPTF2 Collection Date: 07/20/93

Total Number of Taxa (TNT): 92
Total Number of Individuals (TNI): 535
Diversity (H): 1.37
Percent (%) Sensitive Individuals: 19.1
Pollution Tolerance Index (PTI): 2.6
Siltation Index^{**}: 45.2

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPTF2 (03019017) Stream: TRAMMEL FORK
 Mile Point: 26.60 Drainage Area: 31.9 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: ALLEN Basin: GREEN
 Map Number: 02-31 Latitude: 36-40-43 Longitude: 086-12-55
 Location Description: CONCORD CHURCH ROAD BRIDGE

Date Collected: 11/03/93 Comments:
 Sample ID: 19931103-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	24
Achnanthes hungarica	1
Achnanthes lanceolata	2
Achnanthes lanceolata var. dubia	5
Achnanthes minutissima	59
Amphipleura pellucida	1
Amphora perpusilla	4
Amphora submontana	*
Caloneis bacillum	*
Cocconeis pediculus	6
Cocconeis placentula	4
Cocconeis placentula var. euglypta	6
Cyclotella stelligera	2
Cyclotella striata var. ambigua	*
Cymatopleura solea	3
Cymbella affinis	8
Cymbella minuta	*
Cymbella prostrata	1
Cymbella silesiaca	7
Cymbella sinuata	7
Cymbella sp. (K)	3
Cymbella tumida	1
Cymbella turgidula	1
Denticula elegans	*
Diatoma vulgare	1
Diploneis elliptica	*
Fragilaria pinnata	1
Frustulia vulgaris	*
Gomphonema apuncto	3
Gomphonema olivaceum	*
Gomphonema parvulum	4
Gomphonema subclavatum var. mexicanum	*
Gyrosigma attenuatum	1
Gyrosigma nodiferum	1
Gyrosigma scalproides	13
Gyrosigma spencerii	*
Melosira varians	13
Meridion circulare	*
Navicula cryptocephala	8

* Qualitative data

** Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

<i>Navicula cryptocephala</i> var. <i>veneta</i>	22
<i>Navicula decussis</i>	1
<i>Navicula lanceolata</i>	1
<i>Navicula laterorostrata</i>	1
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	5
<i>Navicula minima</i>	8
<i>Navicula mutica</i>	1
<i>Navicula pelliculosa</i>	2
<i>Navicula pupula</i>	1
<i>Navicula pygmaea</i>	*
<i>Navicula radiosa</i>	*
<i>Navicula radiosa</i> var. <i>tenella</i>	6
<i>Navicula salinarum</i> var. <i>intermedia</i>	10
<i>Navicula secreta</i> var. <i>apiculata</i>	23
<i>Navicula symmetrica</i>	5
<i>Navicula tripunctata</i>	6
<i>Navicula viridula</i>	5
<i>Navicula viridula</i> var. <i>rostellata</i>	6
<i>Neidium binode</i>	*
<i>Nitzschia acicularis</i>	5
<i>Nitzschia amphibia</i>	3
<i>Nitzschia clausii</i>	1
<i>Nitzschia communis</i>	5
<i>Nitzschia constricta</i>	7
<i>Nitzschia dissipata</i>	24
<i>Nitzschia filiformis</i>	1
<i>Nitzschia gracilis</i>	7
<i>Nitzschia hungarica</i>	*
<i>Nitzschia levidensis</i>	*
<i>Nitzschia linearis</i>	*
<i>Nitzschia palea</i>	155
<i>Nitzschia recta</i>	*
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	*
<i>Nitzschia tryblionella</i> var. <i>victoriae</i>	*
<i>Nitzschia vermicularis</i>	14
<i>Rhoicosphenia curvata</i>	3
<i>Surirella angustata</i>	11
<i>Surirella ovata</i>	12
<i>Surirella ovata</i> var. <i>pinnata</i>	8
<i>Synedra ulna</i> var. <i>oxyrhynchus</i>	1

 Station ID: REFIPTF2 Collection Date: 11/03/93

Total Number of Taxa (TNT):	79
Total Number of Individuals (TNI):	550
Diversity (H):	1.35
Percent (%) Sensitive Individuals:	9.8
Pollution Tolerance Index (PTI):	2.1
Siltation Index**:	60.5

 * Qualitative data

** Relative abundance of *Navicula*+*Nitzschia*+*Surirella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPTF2 (03019017) Stream: TRAMMEL FORK
 Mile Point: 26.60 Drainage Area: 31.9 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: ALLEN Basin: GREEN
 Map Number: 02-31 Latitude: 36-40-43 Longitude: 086-12-55
 Location Description: CONCORD CHURCH ROAD BRIDGE

Date Collected: 05/09/94 Comments:
 Sample ID: 19940509-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	19
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	*
Achnanthes minutissima	33
Achnanthes stewartii	1
Amphora perpusilla	1
Amphora submontana	*
Cocconeis placentula	2
Cocconeis placentula var. euglypta	*
Cyclotella stelligera	*
Cyclotella striata var. ambigua	*
Cymbella affinis	6
Cymbella cymbiformis	*
Cymbella minuta	*
Cymbella silesiaca	*
Cymbella sinuata	3
Cymbella sp. (K)	15
Cymbella tumida	*
Cymbella turgidula	*
Diatoma vulgare	10
Fragilaria pinnata	*
Fragilaria vaucheriae	2
Gomphonema angustatum	*
Gomphonema olivaceum	12
Gomphonema parvulum	7
Melosira varians	21
Meridion circulare	2
Navicula atomus	*
Navicula cryptocephala	*
Navicula cryptocephala var. veneta	46
Navicula decussis	*
Navicula gottlandica	*
Navicula hustedtii	*
Navicula lanceolata	*
Navicula menisculus var. upsaliensis	6
Navicula minima	5
Navicula mutica	*
Navicula radiosa	2
Navicula radiosa var. tenella	1

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula salinarum var. intermedia	3
Navicula secreta var. apiculata	1
Navicula tripunctata	*
Navicula viridula	*
Navicula viridula var. linearis	*
Nitzschia acicularis	1
Nitzschia constricta	1
Nitzschia dissipata	95
Nitzschia fonticola	126
Nitzschia frustulum	1
Nitzschia gracilis	2
Nitzschia linearis	3
Nitzschia palea	15
Nitzschia paleacea	*
Nitzschia perminuta	42
Nitzschia recta	22
Nitzschia sinuata var. tabellaria	*
Surirella angustata	1
Surirella ovata	15
Surirella ovata var. pinnata	2
Synedra ulna	3
Synedra ulna var. oxyrhynchus	3

 Station ID: REFIPTF2 Collection Date: 05/09/94

Total Number of Taxa (TNT):	61
Total Number of Individuals (TNI):	530
Diversity (H):	1.15
Percent (%) Sensitive Individuals:	8.3
Pollution Tolerance Index (PTI):	2.4
Siltation Index**:	70.2

 *Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPTF2 (03019017) Stream: TRAMMEL FORK
 Mile Point: 26.60 Drainage Area: 31.9 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: ALLEN Basin: GREEN
 Map Number: 02-31 Latitude: 36-40-43 Longitude: 086-12-55
 Location Description: CONCORD CHURCH ROAD BRIDGE

Date Collected: 10/31/94 Comments:
 Sample ID: 19941031-11 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	37
Achnanthes lanceolata	4
Achnanthes lanceolata var. dubia	15
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	114
Amphipleura pellucida	*
Amphora perpusilla	10
Amphora submontana	1
Bacillaria paradoxa	1
Caloneis bacillum	1
Cocconeis pediculus	34
Cocconeis placentula	19
Cocconeis placentula var. euglypta	13
Cyclotella meneghiniana	*
Cyclotella striata var. ambigua	1
Cymatopleura solea	*
Cymbella affinis	6
Cymbella minuta	2
Cymbella silesiaca	*
Cymbella sinuata	3
Cymbella sp. (K)	2
Cymbella tumida	1
Cymbella turgidula	1
Diatoma vulgare	2
Diploneis elliptica	*
Diploneis puella	*
Eunotia maior	2
Fragilaria pinnata	*
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	*
Gomphonema acuminatum	*
Gomphonema angustatum	1
Gomphonema apuncto	*
Gomphonema clevei	4
Gomphonema parvulum	*
Gomphonema sphaerophorum	*
Gomphonema subclavatum var. mexicanum	*
Gyrosigma acuminatum	2

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Gyrosigma scalproides	*
Gyrosigma spencerii	1
Melosira varians	21
Meridion circulare	*
Navicula atomus	1
Navicula capitata	*
Navicula cryptocephala	18
Navicula cryptocephala var. veneta	15
Navicula decussis	2
Navicula gottlandica	*
Navicula hustedtii	1
Navicula lanceolata	3
Navicula menisculus var. upsaliensis	2
Navicula minima	29
Navicula mutica	*
Navicula notha	5
Navicula pelliculosa	2
Navicula pupula	3
Navicula radiosa var. tenella	10
Navicula salinarum var. intermedia	2
Navicula secreta var. apiculata	5
Navicula symmetrica	*
Navicula tripunctata	2
Navicula viridula	7
Navicula viridula var. linearis	*
Navicula viridula var. rostellata	1
Neidium affine	*
Neidium binode	1
Neidium dubium	2
Nitzschia acicularis	3
Nitzschia constricta	*
Nitzschia dissipata	13
Nitzschia dubia	2
Nitzschia filiformis	1
Nitzschia fonticola	3
Nitzschia frustulum	5
Nitzschia gracilis	11
Nitzschia levidensis	*
Nitzschia linearis	6
Nitzschia lorenziana var. subtilis	*
Nitzschia palea	42
Nitzschia paleacea	*
Nitzschia perminuta	1
Nitzschia recta	19
Nitzschia sigmoidea	2
Nitzschia sinuata var. tabellaria	1
Nitzschia vermicularis	*
Rhoicosphenia curvata	3
Stauroneis smithii	*
Surirella angustata	2
Surirella linearis	*

 * Qualitative data

** Relative abundance of *Navicula*+*Nitzschia*+*Surirella*

06/25/96

DIATOM COLLECTION DATA

Surirella linearis var. helvetica	1
Surirella ovata	1
Surirella ovata var. pinnata	5
Surirella robusta	*
Synedra acus	1
Synedra rumpens var. familiaris	*
Synedra ulna	*
Synedra ulna var. oxyrhynchus	1

 Station ID: REFIPTF2 Collection Date: 10/31/94

Total Number of Taxa (TNT):	98
Total Number of Individuals (TNI):	532
Diversity (H):	1.41
Percent (%) Sensitive Individuals:	9.4
Pollution Tolerance Index (PTI):	2.4
Siltation Index**:	40.8

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPF2 (03019017) Stream: TRAMMEL FORK
 Mile Point: 26.60 Drainage Area: 31.9 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: ALLEN Basin: GREEN
 Map Number: 02-31 Latitude: 36-40-43 Longitude: 086-12-55
 Location Description: CONCORD CHURCH ROAD BRIDGE

Date Collected: 04/25/95 Comments:
 Sample ID: 19950425-12 Substrate Type: Natural
 ID By:

Achnanthes deflexa	218
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	*
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	64
Amphora perpusilla	3
Amphora submontana	1
Cocconeis pediculus	*
Cocconeis placentula var. euglypta	1
Cymbella affinis	95
Cymbella cistula	*
Cymbella cymbiformis	1
Cymbella delicatula	*
Cymbella mexicana	1
Cymbella minuta	*
Cymbella silesiaca	1
Cymbella sinuata	3
Cymbella sp. (K)	6
Cymbella tumida	*
Cymbella turgidula	*
Diatoma vulgare	*
Gomphonema affine	*
Gomphonema angustatum	7
Gomphonema olivaceum	5
Gomphonema parvulum	7
Gomphonema truncatum	*
Gyrosigma scalproides	*
Gyrosigma spencerii	*
Melosira varians	3
Meridion circulare	1
Navicula atomus	1
Navicula cryptocephala	10
Navicula cryptocephala var. veneta	30
Navicula hustedtii	1
Navicula lanceolata	1
Navicula menisculus var. upsaliensis	2
Navicula minima	2
Navicula pupula	*
Navicula radiosa	1

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

<i>Navicula radiosa</i> var. <i>tenella</i>	*
<i>Navicula salinarum</i> var. <i>intermedia</i>	11
<i>Navicula secreta</i> var. <i>apiculata</i>	3
<i>Navicula tripunctata</i>	*
<i>Navicula viridula</i>	1
<i>Navicula viridula</i> var. <i>linearis</i>	*
<i>Nitzschia acicularis</i>	2
<i>Nitzschia dissipata</i>	40
<i>Nitzschia filiformis</i>	6
<i>Nitzschia fonticola</i>	3
<i>Nitzschia frustulum</i>	1
<i>Nitzschia gracilis</i>	1
<i>Nitzschia linearis</i>	2
<i>Nitzschia palea</i>	3
<i>Nitzschia recta</i>	14
<i>Surirella angustata</i>	*
<i>Surirella ovata</i>	1
<i>Surirella ovata</i> var. <i>pinnata</i>	*
<i>Synedra rumpens</i> var. <i>familiaris</i>	1
<i>Synedra ulna</i>	*
<i>Synedra ulna</i> var. <i>oxyrhynchus</i>	1

 Station ID: REFIPTF2 Collection Date: 04/25/95

Total Number of Taxa (TNT):	60
Total Number of Individuals (TNI):	555
Diversity (H):	0.95
Percent (%) Sensitive Individuals:	58.4
Pollution Tolerance Index (PTI):	3.3
Siltation Index**:	24.3

 *Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPTRR (10014003) Stream: UPPER TRADEWATER RIVER
 Mile Point: 128.85 Drainage Area: 22.0 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: CHRISTIAN Basin: TRADEWATER
 Map Number: 04-20 Latitude: 36-58-40 Longitude: 087-30-44
 Location Description: J. T. SPARKMAN RD.; 0.7 MI FROM MT. ZOAR RD. JC

Date Collected: 05/13/93 Comments:
 Sample ID: 19930513-10 Substrate Type: Natural
 ID By:

Achnanthes lanceolata	1
Achnanthes lanceolata var. dubia	*
Achnanthes minutissima	163
Amphipleura pellucida	*
Amphora perpusilla	2
Cocconeis pediculus	1
Cocconeis placentula	*
Cyclotella stelligera	*
Cyclotella striata var. ambigua	6
Cymatopleura solea	1
Cymbella affinis	189
Cymbella naviculiformis	1
Cymbella prostrata	3
Cymbella prostrata var. auerswaldii	9
Cymbella silesiaca	10
Cymbella tumida	2
Diploneis elliptica	1
Fragilaria vaucheriae	14
Frustulia rhomboides var. saxonica	*
Gomphonema parvulum	1
Gomphonema sphaerophorum	1
Gomphonema tergestinum	3
Gyrosigma scalproides	*
Hantzschia amphioxys	*
Melosira granulata	*
Melosira varians	7
Meridion circulare	*
Navicula cryptocephala	10
Navicula cryptocephala var. veneta	13
Navicula cuspidata	*
Navicula pupula	1
Navicula radiosa	*
Navicula salinarum var. intermedia	2
Navicula tripunctata	3
Neidium binode	1
Nitzschia acicularis	*
Nitzschia amphibia	2
Nitzschia clausii	*
Nitzschia dissipata	61

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Nitzschia linearis	3
Nitzschia sinuata var. tabellaria	*
Pinnularia subcapitata var. paucistriata	1
Rhoicosphenia curvata	25
Surirella angustata	1
Surirella ovata	9
Synedra acus	3
Synedra rumpens var. familiaris	*
Synedra ulna	1

 Station ID: REFIPTRR Collection Date: 05/13/93

Total Number of Taxa (TNT):	48
Total Number of Individuals (TNI):	551
Diversity (H):	0.89
Percent (%) Sensitive Individuals:	39.0
Pollution Tolerance Index (PTI):	3.2
Siltation Index**:	17.2

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPTRR (10014003) Stream: UPPER TRADEWATER RIVER
 Mile Point: 128.85 Drainage Area: 22.0 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: CHRISTIAN Basin: TRADEWATER
 Map Number: 04-20 Latitude: 36-58-40 Longitude: 087-30-44
 Location Description: J. T. SPARKMAN RD.; 0.7 MI FROM MT. ZOAR RD. JC

Date Collected: 05/05/94 Comments:
 Sample ID: 19940505-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	3
Achnanthes lanceolata	3
Achnanthes lanceolata var. dubia	*
Achnanthes minutissima	228
Amphipleura pellucida	*
Amphora perpusilla	*
Caloneis bacillum	*
Cocconeis pediculus	6
Cocconeis placentula	*
Cyclotella meneghiniana	*
Cyclotella stelligera	*
Cyclotella striata var. ambigua	*
Cymbella affinis	4
Cymbella minuta	*
Cymbella prostrata	1
Cymbella silesiaca	47
Cymbella sinuata	*
Cymbella sp. (K)	21
Cymbella tumida	1
Diploneis elliptica	*
Fragilaria crotonensis	5
Fragilaria pinnata	*
Fragilaria vaucheriae	2
Frustulia vulgaris	*
Gomphonema angustatum	1
Gomphonema olivaceum	9
Gomphonema parvulum	1
Gomphonema sphaerophorum	*
Gomphonema truncatum	*
Gyrosigma spencerii	*
Hantzschia amphioxys	*
Melosira varians	11
Meridion circulare	*
Navicula atomus	1
Navicula capitata	*
Navicula cryptocephala	5
Navicula cryptocephala var. veneta	6
Navicula elginensis	*

* Qualitative data

** Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Navicula gottlandica	*
Navicula hustedtii	1
Navicula lanceolata	*
Navicula menisculus var. upsaliensis	5
Navicula minima	3
Navicula pelliculosa	3
Navicula pupula	*
Navicula salinarum var. intermedia	1
Navicula secreta var. apiculata	4
Navicula tripunctata	2
Navicula viridula	1
Neidium affine	*
Neidium affine var. longiceps	*
Nitzschia acicularis	*
Nitzschia amphibia	6
Nitzschia brevissima	*
Nitzschia dissipata	35
Nitzschia fonticola	1
Nitzschia frustulum	*
Nitzschia gracilis	2
Nitzschia linearis	2
Nitzschia palea	11
Nitzschia paleacea	2
Nitzschia recta	25
Nitzschia sinuata var. tabellaria	2
Nitzschia vermicularis	*
Rhoicosphenia curvata	4
Stauroneis anceps	*
Stephanodiscus hantzschii	2
Surirella angustata	*
Surirella ovata	11
Synedra acus	20
Synedra delicatissima	*
Synedra rumpens	*
Synedra rumpens var. familiaris	8
Synedra ulna	6
Tabellaria fenestrata	*

 Station ID: REFIPTRR Collection Date: 05/05/94

Total Number of Taxa (TNT):	76
Total Number of Individuals (TNI):	512
Diversity (H):	1.04
Percent (%) Sensitive Individuals:	15.0
Pollution Tolerance Index (PTI):	2.9
Siltation Index**:	23.0

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPWHP (20020007) Stream: WHIPPOORWILL CREEK
 Mile Point: 4.30 Drainage Area: 4.0 square miles
 Order: 5 Ecoregion: INTERIOR PLATEAU
 County: LOGAN Basin: LOWER CUMBERLAND
 Map Number: 02-25 Latitude: 36-41-51 Longitude: 086-57-43
 Location Description: KY 2395 BRIDGE

Date Collected: 10/07/92 Comments:
 Sample ID: 19921007-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	6
Achnanthes exigua	*
Achnanthes lanceolata var. dubia	5
Achnanthes minutissima	4
Amphipleura pellucida	*
Amphora ovalis	1
Amphora perpusilla	35
Amphora submontana	*
Caloneis bacillum	1
Cocconeis placentula	35
Cocconeis placentula var. euglypta	*
Cyclotella striata var. ambigua	*
Cymatopleura solea	*
Cymbella affinis	*
Cymbella minuta	1
Cymbella prostrata	*
Cymbella sinuata	1
Cymbella tumida	1
Diatoma vulgare	*
Diploneis elliptica	5
Diploneis oblongella	1
Fragilaria vaucheriae	2
Frustulia rhomboides var. amphipleuroides	2
Frustulia vulgaris	10
Frustulia weinholdii	*
Gomphonema abbreviatum	1
Gomphonema angustatum	21
Gomphonema brasiliense	*
Gomphonema clevei	8
Gomphonema olivaceum	*
Gomphonema parvulum	3
Gomphonema sphaerophorum	1
Gomphonema subclavatum	1
Gomphonema truncatum	*
Gyrosigma attenuatum	*
Gyrosigma scalproides	7
Gyrosigma spencerii	*
Melosira varians	3

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Navicula capitata	1
Navicula cryptocephala	2
Navicula cryptocephala var. veneta	5
Navicula elginensis	*
Navicula hustedtii	39
Navicula lanceolata	1
Navicula menisculus var. upsaliensis	15
Navicula minima	21
Navicula mutica	7
Navicula placenta	1
Navicula pupula var. rectangularis	4
Navicula radiosa	3
Navicula radiosa var. tenella	47
Navicula salinarum var. intermedia	3
Navicula schroeteri var. escambia	2
Navicula symmetrica	*
Navicula tripunctata	7
Navicula viridula	*
Navicula viridula var. rostellata	3
Neidium affine var. longiceps	1
Neidium binode	1
Neidium dubium	*
Nitzschia amphibia	5
Nitzschia coarctata	1
Nitzschia constricta	3
Nitzschia dissipata	32
Nitzschia linearis	20
Nitzschia palea	13
Nitzschia recta	2
Nitzschia tryblionella var. victoriae	1
Pinnularia subcapitata var. paucistriata	*
Rhoicosphenia curvata	121
Stauroneis smithii	1
Surirella angustata	*
Surirella linearis	*
Surirella linearis var. helvetica	5
Surirella ovata	1
Surirella ovata var. pinnata	3
Synedra parasitica var. subconstricta	*
Synedra ulna	*

 Station ID: REFIPWHP Collection Date: 10/07/92

Total Number of Taxa (TNT):	79
Total Number of Individuals (TNI):	526
Diversity (H):	1.32
Percent (%) Sensitive Individuals:	1.9
Pollution Tolerance Index (PTI):	2.4
Siltation Index**:	45.2

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPWHP (20020007) Stream: WHIPPOORWILL CREEK
 Mile Point: 4.30 Drainage Area: 4.0 square miles
 Order: 5 Ecoregion: INTERIOR PLATEAU
 County: LOGAN Basin: LOWER CUMBERLAND
 Map Number: 02-25 Latitude: 36-41-51 Longitude: 086-57-43
 Location Description: KY 2395 BRIDGE

Date Collected: 07/22/93 Comments:
 Sample ID: 19930722-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	23
Achnanthes lanceolata	4
Achnanthes lanceolata var. dubia	2
Achnanthes minutissima	38
Amphora ovalis	2
Amphora perpusilla	34
Amphora submontana	1
Caloneis bacillum	*
Cocconeis pediculus	21
Cocconeis placentula	6
Cocconeis placentula var. euglypta	7
Cyclotella striata var. ambigua	4
Cymatopleura solea	2
Cymbella affinis	*
Cymbella microcephala	1
Cymbella prostrata	2
Cymbella tumida	*
Cymbella turgidula	8
Diatoma vulgare	1
Diploneis elliptica	2
Diploneis puella	*
Fragilaria pinnata	5
Frustulia vulgaris	4
Gomphonema abbreviatum	*
Gomphonema parvulum	4
Gyrosigma acuminatum	2
Gyrosigma obtusatum	1
Gyrosigma scalproides	12
Gyrosigma spencerii	17
Melosira varians	2
Navicula atomus	28
Navicula capitata	*
Navicula cryptocephala var. veneta	16
Navicula elginensis var. neglecta	1
Navicula hustedtii	21
Navicula meniscus var. upsaliensis	13
Navicula minima	22
Navicula mutica	14
Navicula pelliculosa	4

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula placenta	*
Navicula pupula	2
Navicula pygmaea	1
Navicula radiosa var. tenella	33
Navicula rhychocephala	*
Navicula salinarum var. intermedia	4
Navicula savannahiana	1
Navicula schroeteri var. escambia	4
Navicula tripunctata	4
Navicula viridula var. linearis	3
Navicula viridula var. rostellata	11
Neidium affine	1
Neidium binode	*
Nitzschia acicularis	4
Nitzschia amphibia	31
Nitzschia coarctata	*
Nitzschia constricta	2
Nitzschia dissipata	10
Nitzschia fonticola	*
Nitzschia gracilis	7
Nitzschia linearis	5
Nitzschia palea	37
Nitzschia recta	9
Nitzschia tryblionella var. victoriae	2
Nitzschia vermicularis	17
Pinnularia viridis	*
Rhoicosphenia curvata	6
Stephanodiscus hantzschii	1
Surirella linearis	5
Surirella linearis var. helvetica	*
Surirella ovata	1
Surirella ovata var. pinnata	1
Synedra ulna	2

 Station ID: REFIPWHP Collection Date: 07/22/93

Total Number of Taxa (TNT):	72
Total Number of Individuals (TNI):	528
Diversity (H):	1.54
Percent (%) Sensitive Individuals:	6.4
Pollution Tolerance Index (PTI):	2.1
Siltation Index**:	58.0

 * Qualitative data

** Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPWHP (20020007) Stream: WHIPPOORWILL CREEK
 Mile Point: 4.30 Drainage Area: 4.0 square miles
 Order: 5 Ecoregion: INTERIOR PLATEAU
 County: LOGAN Basin: LOWER CUMBERLAND
 Map Number: 02-25 Latitude: 36-41-51 Longitude: 086-57-43
 Location Description: KY 2395 BRIDGE

Date Collected: 11/04/93 Comments:
 Sample ID: 19931104-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	14
Achnanthes lanceolata	10
Achnanthes lanceolata var. dubia	7
Achnanthes minutissima	32
Amphipleura pellucida	1
Amphora ovalis	*
Amphora perpusilla	32
Amphora submontana	1
Cocconeis pediculus	4
Cocconeis placentula	6
Cocconeis placentula var. euglypta	3
Cyclotella striata var. ambigua	*
Cymatopleura solea	*
Cymbella microcephala	*
Cymbella silesiaca	5
Cymbella tumida	*
Diatoma vulgare	*
Diploneis elliptica	1
Diploneis puella	*
Fragilaria pinnata	1
Frustulia rhomboides var. saxonica	*
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	2
Gomphonema parvulum	*
Gomphonema sphaerophorum	*
Gomphonema subclavatum	*
Gyrosigma attenuatum	1
Gyrosigma scalproides	*
Melosira varians	1
Meridion circulare	*
Navicula capitata var. lueneburgensis	1
Navicula cryptocephala	2
Navicula cryptocephala var. veneta	6
Navicula elginensis	*
Navicula exigua	1
Navicula lanceolata	4
Navicula laterorostrata	31
Navicula meniscus var. upsaliensis	15
Navicula minima	40

 *Qualitative data
 **Relative abundance of *Navicula+Nitzschia+Surriella*
 06/25/96

DIATOM COLLECTION DATA

Navicula mutica	3
Navicula pelliculosa	*
Navicula pupula	1
Navicula pygmaea	3
Navicula radiosa	*
Navicula radiosa var. tenella	46
Navicula salinarum var. intermedia	*
Navicula secreta var. apiculata	1
Navicula subhamulata var. undulata	2
Navicula symmetrica	4
Navicula tripunctata	19
Navicula viridula	2
Navicula viridula var. linearis	1
Navicula viridula var. rostellata	*
Neidium affine	1
Neidium binode	1
Nitzschia acicularis	1
Nitzschia amphibia	4
Nitzschia coarctata	*
Nitzschia constricta	9
Nitzschia dissipata	37
Nitzschia filiformis	1
Nitzschia fonticola	*
Nitzschia frustulum	25
Nitzschia gracilis	2
Nitzschia levidensis	1
Nitzschia linearis	9
Nitzschia palea	55
Nitzschia recta	19
Nitzschia sigmoidea	1
Nitzschia tryblionella var. victoriae	*
Nitzschia vermicularis	19
Pinnularia biceps	1
Pinnularia viridis	*
Rhoicosphenia curvata	5
Stauroneis smithii	15
Surirella angustata	11
Surirella linearis	3
Surirella linearis var. helvetica	1
Surirella ovata	2
Surirella ovata var. pinnata	7
Synedra acus	*
Synedra parasitica	1
Synedra parasitica var. subconstricta	*
Synedra ulna	5

 Station ID: REFIPWHP Collection Date: 11/04/93

Total Number of Taxa (TNT): 84
 Total Number of Individuals (TNI): 539
 Diversity (H): 1.46

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

Percent (%) Sensitive Individuals:	6.5
Pollution Tolerance Index (PTI):	2.1
Siltation Index**:	67.7

* Qualitative data

** Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPWHP (20020007) Stream: WHIPPOORWILL CREEK
 Mile Point: 4.30 Drainage Area: 4.0 square miles
 Order: 5 Ecoregion: INTERIOR PLATEAU
 County: LOGAN Basin: LOWER CUMBERLAND
 Map Number: .02-25 Latitude: 36-41-51 Longitude: 086-57-43
 Location Description: KY 2395 BRIDGE

Date Collected: 11/01/94 Comments:
 Sample ID: 19941101-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	50
Achnanthes lanceolata	7
Achnanthes lanceolata var. dubia	26
Achnanthes minutissima	3
Amphipleura pellucida	1
Amphora ovalis	1
Amphora perpusilla	17
Amphora submontana	*
Caloneis bacillum	*
Caloneis ventricosa var. truncatula	*
Cocconeis pediculus	19
Cocconeis placentula	5
Cocconeis placentula var. euglypta	6
Cyclotella meneghiniana	*
Cyclotella striata var. ambigua	1
Cymatopleura solea	1
Cymbella microcephala	1
Cymbella silesiaca	1
Cymbella sp. (K)	1
Cymbella tumida	*
Diploneis elliptica	1
Diploneis puella	*
Fragilaria vaucheriae	*
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	1
Gomphonema acuminatum	*
Gomphonema angustatum	1
Gomphonema apuncto	*
Gomphonema parvulum	8
Gomphonema subclavatum var. mexicanum	*
Gyrosigma attenuatum	*
Gyrosigma nodiferum	*
Gyrosigma scalproides	1
Gyrosigma spencerii	1
Melosira varians	16
Navicula atomus	9
Navicula capitata	2
Navicula cryptocephala	19
Navicula cryptocephala var. veneta	17

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

<i>Navicula decussis</i>	1
<i>Navicula elginensis</i>	*
<i>Navicula gottlandica</i>	*
<i>Navicula hustedtii</i>	13
<i>Navicula lanceolata</i>	1
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	20
<i>Navicula minima</i>	33
<i>Navicula mutica</i>	1
<i>Navicula notha</i>	*
<i>Navicula pelliculosa</i>	*
<i>Navicula placenta</i>	*
<i>Navicula pupula</i>	*
<i>Navicula radiosa</i>	*
<i>Navicula radiosa</i> var. <i>tenella</i>	11
<i>Navicula salinarum</i> var. <i>intermedia</i>	11
<i>Navicula schroeteri</i> var. <i>escambia</i>	3
<i>Navicula scutelloides</i>	*
<i>Navicula secreta</i> var. <i>apiculata</i>	*
<i>Navicula subhamulata</i> var. <i>undulata</i>	*
<i>Navicula symmetrica</i>	2
<i>Navicula tripunctata</i>	8
<i>Navicula tripunctata</i> var. <i>schizonemoides</i>	*
<i>Navicula viridula</i>	3
<i>Navicula viridula</i> var. <i>linearis</i>	*
<i>Neidium binode</i>	*
<i>Nitzschia acicularis</i>	3
<i>Nitzschia amphibia</i>	2
<i>Nitzschia angustata</i> var. <i>acuta</i>	3
<i>Nitzschia clausii</i>	1
<i>Nitzschia constricta</i>	2
<i>Nitzschia dissipata</i>	16
<i>Nitzschia fonticola</i>	2
<i>Nitzschia frustulum</i>	*
<i>Nitzschia gracilis</i>	5
<i>Nitzschia hungarica</i>	*
<i>Nitzschia linearis</i>	4
<i>Nitzschia palea</i>	79
<i>Nitzschia paleacea</i>	10
<i>Nitzschia perminuta</i>	*
<i>Nitzschia recta</i>	22
<i>Nitzschia sigmoidea</i>	*
<i>Nitzschia tryblionella</i> var. <i>victoriae</i>	*
<i>Nitzschia vermicularis</i>	5
<i>Rhoicosphenia curvata</i>	2
<i>Stauroneis smithii</i>	1
<i>Surirella angustata</i>	6
<i>Surirella linearis</i> var. <i>helvetica</i>	*
<i>Surirella ovata</i>	6
<i>Surirella ovata</i> var. <i>pinnata</i>	32
<i>Synedra rumpens</i> var. <i>familiaris</i>	*
<i>Synedra ulna</i>	1

*Qualitative data

**Relative abundance of *Navicula*+*Nitzschia*+*Surirella*

06/25/96

DIATOM COLLECTION DATA

Synedra ulna var. oxyrhynchus

*

Station ID: REFIPWHP Collection Date: 11/01/94

Total Number of Taxa (TNT):	91
Total Number of Individuals (TNI):	525
Diversity (H):	1.45
Percent (%) Sensitive Individuals:	10.3
Pollution Tolerance Index (PTI):	2.3
Siltation Index**:	58.7

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*
06/25/96

DIATOM COLLECTION DATA

Site ID: REFIPWHP (20020007)	Stream: WHIPPOORWILL CREEK
Mile Point: 4.30	Drainage Area: 4.0 square miles
Order: 5	Ecoregion: INTERIOR PLATEAU
County: LOGAN	Basin: LOWER CUMBERLAND
Map Number: 02-25	Latitude: 36-41-51 Longitude: 086-57-43
Location Description: KY 2395 BRIDGE	

Date Collected: 04/26/95	Comments:
Sample ID: 19950426-10	Substrate Type: Natural
ID By:	

Achnanthes clevei	*
Achnanthes deflexa	6
Achnanthes lanceolata	1
Achnanthes lanceolata var. dubia	2
Achnanthes microcephala	*
Achnanthes minutissima	13
Amphora perpusilla	17
Amphora submontana	1
Caloneis bacillum	2
Cocconeis pediculus	2
Cocconeis placentula	2
Cocconeis placentula var. euglypta	2
Cyclotella striata var. ambigua	*
Cymatopleura solea	*
Cymbella affinis	1
Cymbella minuta	*
Cymbella sinuata	*
Cymbella sp. (K)	*
Cymbella tumida	*
Diatoma vulgare	24
Diploneis elliptica	*
Fragilaria pinnata	*
Fragilaria vaucheriae	3
Frustulia vulgaris	*
Gomphonema acuminatum	*
Gomphonema affine	*
Gomphonema angustatum	*
Gomphonema apuncto	*
Gomphonema brasiliense	*
Gomphonema clevei	3
Gomphonema olivaceum	4
Gomphonema parvulum	2
Gyrosigma acuminatum	1
Gyrosigma nodiferum	*
Gyrosigma scalproides	*
Gyrosigma spencerii	*
Melosira varians	56
Navicula anglica var. subsalsa	*
Navicula capitata	*

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula cryptocephala</i>	1
<i>Navicula cryptocephala</i> var. <i>veneta</i>	25
<i>Navicula decussis</i>	*
<i>Navicula elginensis</i>	*
<i>Navicula gottlandica</i>	*
<i>Navicula hustedtii</i>	1
<i>Navicula lanceolata</i>	*
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	4
<i>Navicula minima</i>	22
<i>Navicula mutica</i>	1
<i>Navicula pelliculosa</i>	*
<i>Navicula pupula</i>	1
<i>Navicula pupula</i> var. <i>capitata</i>	*
<i>Navicula radiosa</i>	1
<i>Navicula radiosa</i> var. <i>parva</i>	*
<i>Navicula radiosa</i> var. <i>tenella</i>	81
<i>Navicula salinarum</i> var. <i>intermedia</i>	69
<i>Navicula secreta</i> var. <i>apiculata</i>	1
<i>Navicula subhamulata</i> var. <i>undulata</i>	*
<i>Navicula tripunctata</i>	18
<i>Navicula tripunctata</i> var. <i>schizonemoides</i>	7
<i>Navicula viridula</i>	2
<i>Navicula viridula</i> var. <i>rostellata</i>	1
<i>Neidium binode</i>	*
<i>Nitzschia acicularis</i>	6
<i>Nitzschia constricta</i>	2
<i>Nitzschia dissipata</i>	34
<i>Nitzschia filiformis</i>	4
<i>Nitzschia fonticola</i>	1
<i>Nitzschia gracilis</i>	11
<i>Nitzschia linearis</i>	20
<i>Nitzschia palea</i>	26
<i>Nitzschia paleacea</i>	1
<i>Nitzschia perminuta</i>	3
<i>Nitzschia recta</i>	5
<i>Nitzschia sigmoidea</i>	*
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	*
<i>Nitzschia tryblionella</i> var. <i>victoriae</i>	1
<i>Rhoicosphenia curvata</i>	*
<i>Stauroneis smithii</i>	1
<i>Surirella angustata</i>	1
<i>Surirella linearis</i>	*
<i>Surirella ovata</i>	29
<i>Surirella ovata</i> var. <i>pinnata</i>	6
<i>Synedra ulna</i>	*

 Station ID: REFIPWHP Collection Date: 04/26/95

Total Number of Taxa (TNT): 84
 Total Number of Individuals (TNI): 528
 Diversity (H): 1.31

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surirella*
 06/25/96

DIATOM COLLECTION DATA

Percent (%) Sensitive Individuals:	1.5
Pollution Tolerance Index (PTI):	2.2
Siltation Index**:	66.1

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPWIL (12034002) Stream: WILSON CREEK
 Mile Point: 12.20 Drainage Area: 12.4 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: BULLITT Basin: SALT
 Map Number: 11-36 Latitude: 37-51-39 Longitude: 085-36-40
 Location Description: MT. CARMEL CHURCH ROAD 1ST XING

Date Collected: 05/22/92 Comments:
 Sample ID: 19920522-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	30
Achnanthes lanceolata var. dubia	1
Achnanthes minutissima	236
Amphipleura pellucida	1
Amphora ovalis	*
Amphora perpusilla	5
Amphora submontana	*
Caloneis bacillum	*
Cocconeis pediculus	10
Cyclotella stelligera	1
Cyclotella striata var. ambigua	1
Cymbella affinis	146
Cymbella cistula	1
Cymbella cymbiformis	4
Cymbella delicatula	1
Cymbella hustedtii	1
Cymbella microcephala	*
Cymbella minuta	*
Cymbella silesiaca	5
Cymbella sinuata	*
Cymbella sp. (K)	4
Cymbella triangulum	*
Cymbella turgidula	*
Denticula elegans	2
Diatoma vulgare	*
Fragilaria vaucheriae	2
Frustulia vulgaris	*
Gomphonema angustatum	*
Gomphonema olivaceum	*
Gomphonema parvulum	1
Gomphonema sphaerophorum	*
Gomphonema subclavatum var. mexicanum	*
Melosira varians	*
Meridion circulare	3
Navicula cryptocephala	2
Navicula cryptocephala var. veneta	23
Navicula lanceolata	2
Navicula menisculus var. upsaliensis	1
Navicula minima	7

 *Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*
 06/25/96

DIATOM COLLECTION DATA

Navicula pupula var. elliptica	1
Navicula radiosa	1
Navicula radiosa var. parva	*
Navicula radiosa var. tenella	*
Navicula salinarum var. intermedia	2
Navicula secreta var. apiculata	*
Navicula tripunctata	*
Nitzschia acicularis	6
Nitzschia amphibia	1
Nitzschia constricta	*
Nitzschia dissipata	29
Nitzschia gracilis	*
Nitzschia linearis	3
Nitzschia microcephala	2
Nitzschia palea	9
Nitzschia recta	*
Nitzschia romana	5
Nitzschia sinuata var. tabellaria	*
Rhoicosphenia curvata	1
Surirella angustata	*
Surirella ovata	4
Surirella ovata var. pinnata	*
Synedra acus	*
Synedra delicatissima	8
Synedra ulna	3
Synedra ulna var. oxyrhynchus	*

 Station ID: REFIPWIL Collection Date: 05/22/92

Total Number of Taxa (TNT):	65
Total Number of Individuals (TNI):	565
Diversity (H):	0.88
Percent (%) Sensitive Individuals:	35.2
Pollution Tolerance Index (PTI):	3.2
Siltation Index**:	16.6

 *Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPWIL (12034002) Stream: WILSON CREEK
 Mile Point: 12.20 Drainage Area: 12.4 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: BULLITT Basin: SALT
 Map Number: 11-36 Latitude: 37-51-39 Longitude: 085-36-40
 Location Description: MT. CARMEL CHURCH ROAD 1ST XING

Date Collected: 09/29/92 Comments:
 Sample ID: 19920929-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	21
Achnanthes lanceolata var. dubia	6
Achnanthes minutissima	213
Amphipleura pellucida	4
Amphora ovalis	1
Amphora perpusilla	15
Amphora submontana	*
Caloneis bacillum	*
Caloneis ventricosa var. truncatula	*
Cocconeis pediculus	*
Cocconeis placentula	27
Cyclotella stelligera	*
Cyclotella striata var. ambigua	1
Cymatopleura solea	*
Cymbella affinis	23
Cymbella cistula	*
Cymbella cymbiformis	*
Cymbella delicatula	2
Cymbella minuta	5
Cymbella prostrata	*
Cymbella silesiaca	7
Cymbella sinuata	2
Cymbella sp. (K)	*
Cymbella triangulum	*
Cymbella turgidula	1
Denticula elegans	10
Diploneis elliptica	5
Diploneis oblongella	1
Epithemia adnata	*
Eunotia curvata	*
Fragilaria vaucheriae	4
Frustulia vulgaris	*
Gomphonema acuminatum	*
Gomphonema angustatum	2
Gomphonema parvulum	*
Gomphonema sphaerophorum	3
Gomphonema subclavatum	1
Gyrosigma scalproides	*

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Hantzschia amphioxys	*
Melosira varians	5
Navicula cryptocephala	4
Navicula cryptocephala var. veneta	7
Navicula elginensis	*
Navicula lanceolata	*
Navicula menisculus var. upsaliensis	4
Navicula minima	69
Navicula mutica	*
Navicula pupula	3
Navicula radiosa	2
Navicula radiosa var. tenella	2
Navicula salinarum var. intermedia	8
Navicula schroeteri var. escambia	1
Navicula secreta var. apiculata	5
Navicula symmetrica	1
Navicula tripunctata	*
Navicula viridula	*
Navicula viridula var. rostellata	1
Neidium binode	1
Nitzschia acicularis	8
Nitzschia amphibia	4
Nitzschia clausii	*
Nitzschia constricta	3
Nitzschia dissipata	2
Nitzschia gracilis	*
Nitzschia linearis	7
Nitzschia palea	39
Nitzschia recta	*
Nitzschia sinuata var. tabellaria	3
Rhoicosphenia curvata	6
Stauroneis smithii	*
Surirella angustata	*
Surirella linearis	1
Surirella linearis var. helvetica	*
Surirella ovata	9
Synedra acus	3
Synedra rumpens var. familiaris	3
Synedra ulna	1
Synedra ulna var. oxyrhynchus	*

 Station ID: REFIPWIL Collection Date: 09/29/92

Total Number of Taxa (TNT):	79
Total Number of Individuals (TNI):	556
Diversity (H):	1.13
Percent (%) Sensitive Individuals:	10.6
Pollution Tolerance Index (PTI):	2.4
Siltation Index**:	31.1

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPWIL (12034002) Stream: WILSON CREEK
 Mile Point: 12.20 Drainage Area: 12.4 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: BULLITT Basin: SALT
 Map Number: 11-36 Latitude: 37-51-39 Longitude: 085-36-40
 Location Description: MT. CARMEL CHURCH ROAD 1ST XING

Date Collected: 05/07/93 Comments:
 Sample ID: 19930507-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	40
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	*
Achnanthes lapponica var. ninckei	5
Achnanthes minutissima	251
Amphipleura pellucida	2
Amphora ovalis	*
Amphora perpusilla	3
Caloneis budensis	*
Cocconeis pediculus	7
Cocconeis placentula	*
Cocconeis placentula var. euglypta	*
Cyclotella stelligera	*
Cymatopleura solea	*
Cymbella affinis	7
Cymbella cymbiformis	14
Cymbella delicatula	8
Cymbella microcephala	*
Cymbella minuta	*
Cymbella naviculiformis	*
Cymbella silesiaca	6
Cymbella sinuata	*
Cymbella sp. (K)	7
Denticula elegans	*
Diatoma vulgare	104
Diploneis elliptica	*
Fragilaria pinnata	1
Fragilaria vaucheriae	5
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	*
Gomphonema affine	1
Gomphonema angustatum	*
Gomphonema olivaceum	*
Gomphonema parvulum	2
Gomphonema sphaerophorum	6
Gomphonema subclavatum	*
Melosira varians	*
Meridion circulare	2
Navicula bacillum	*

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

<i>Navicula cryptocephala</i>	3
<i>Navicula cryptocephala</i> var. <i>veneta</i>	15
<i>Navicula lanceolata</i>	*
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	*
<i>Navicula minima</i>	1
<i>Navicula pupula</i>	*
<i>Navicula radiosa</i>	*
<i>Navicula radiosa</i> var. <i>parva</i>	1
<i>Navicula radiosa</i> var. <i>tenella</i>	3
<i>Navicula salinarum</i> var. <i>intermedia</i>	12
<i>Navicula secreta</i> var. <i>apiculata</i>	*
<i>Navicula tripunctata</i>	1
<i>Neidium affine</i>	*
<i>Nitzschia acicularis</i>	*
<i>Nitzschia amphibia</i>	3
<i>Nitzschia constricta</i>	1
<i>Nitzschia dissipata</i>	19
<i>Nitzschia filiformis</i>	5
<i>Nitzschia gracilis</i>	1
<i>Nitzschia linearis</i>	9
<i>Nitzschia palea</i>	9
<i>Nitzschia recta</i>	5
<i>Nitzschia sigmoidea</i>	*
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	*
<i>Rhoicosphenia curvata</i>	3
<i>Surirella angustata</i>	*
<i>Surirella ovata</i>	7
<i>Synedra acus</i>	*
<i>Synedra delicatissima</i>	7
<i>Synedra parasitica</i> var. <i>subconstricta</i>	*
<i>Synedra rumpens</i>	*
<i>Synedra rumpens</i> var. <i>familiaris</i>	3
<i>Synedra ulna</i>	5
<i>Synedra ulna</i> var. <i>oxyrhynchus</i>	*

 Station ID: REFIPWIL Collection Date: 05/07/93

Total Number of Taxa (TNT):	73
Total Number of Individuals (TNI):	584
Diversity (H):	0.99
Percent (%) Sensitive Individuals:	16.3
Pollution Tolerance Index (PTI):	3.0
Siltation Index**:	15.1

 * Qualitative data

** Relative abundance of *Navicula*+*Nitzschia*+*Surirella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPWIL (12034002) Stream: WILSON CREEK
 Mile Point: 12.20 Drainage Area: 12.4 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: BULLITT Basin: SALT
 Map Number: 11-36 Latitude: 37-51-39 Longitude: 085-36-40
 Location Description: MT. CARMEL CHURCH ROAD 1ST KING

Date Collected: 10/11/93 Comments:
 Sample ID: 19931011-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	1
Achnanthes deflexa	59
Achnanthes exigua	*
Achnanthes hungarica	*
Achnanthes lanceolata	2
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	230
Amphipleura pellucida	3
Amphora ovalis	*
Amphora perpusilla	4
Amphora submontana	4
Anomoeoneis vitrea	5
Caloneis bacillum	2
Caloneis ventricosa var. truncatula	*
Cocconeis pediculus	2
Cocconeis placentula	2
Cocconeis placentula var. euglypta	2
Cyclotella striata var. ambigua	1
Cymbella affinis	13
Cymbella cymbiformis	*
Cymbella delicatula	3
Cymbella microcephala	16
Cymbella minuta	3
Cymbella prostrata	*
Cymbella prostrata var. auerswaldii	1
Cymbella silesiaca	18
Cymbella sinuata	*
Cymbella turgidula	4
Denticula elegans	14
Diatoma vulgare	1
Diploneis elliptica	3
Diploneis puella	*
Epithemia adnata	*
Eunotia curvata	*
Eunotia maior	*
Eunotia pectinalis var. minor	*
Fragilaria crotonensis	6
Fragilaria vaucheriae	2
Frustulia rhomboides var. amphipleuroides	*

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Gomphonema acuminatum	2
Gomphonema olivaceum	1
Gomphonema parvulum	1
Gomphonema sphaerophorum	7
Gomphonema subclavatum	4
Gomphonema subclavatum var. mexicanum	*
Gyrosigma scalproides	*
Melosira varians	4
Navicula cryptocephala	6
Navicula cryptocephala var. veneta	3
Navicula lanceolata	1
Navicula menisculus var. upsaliensis	4
Navicula minima	42
Navicula pupula	*
Navicula radiosa	1
Navicula radiosa var. parva	1
Navicula radiosa var. tenella	8
Navicula salinarum var. intermedia	3
Navicula schroeteri var. escambia	*
Navicula symmetrica	*
Navicula tripunctata	*
Navicula viridula	*
Nitzschia acicularis	2
Nitzschia amphibia	4
Nitzschia constricta	1
Nitzschia dissipata	*
Nitzschia filiformis	8
Nitzschia gracilis	3
Nitzschia linearis	*
Nitzschia palea	8
Nitzschia recta	*
Nitzschia sinuata var. tabellaria	11
Pinnularia maior	1
Pinnularia viridis	*
Rhoicosphenia curvata	*
Rhopalodia gibba	1
Rhopalodia gibberula var. vanheurckii	*
Surirella angustata	*
Surirella linearis	*
Surirella linearis var. helvetica	*
Surirella ovata	2
Synedra acus	5
Synedra capitata	1
Synedra delicatissima	2
Synedra rumpens var. familiaris	*
Synedra ulna	2
Tabellaria flocculosa	*

 Station ID: REFIPWIL Collection Date: 10/11/93

Total Number of Taxa (TNT): 86

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

Total Number of Individuals (TNI):	540
Diversity (H):	1.11
Percent (%) Sensitive Individuals:	23.3
Pollution Tolerance Index (PTI):	2.8
Siltation Index**:	19.6

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*
06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPWIL (12034002) Stream: WILSON CREEK
 Mile Point: 12.20 Drainage Area: 12.4 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: BULLITT Basin: SALT
 Map Number: 11-36 Latitude: 37-51-39 Longitude: 085-36-40
 Location Description: MT. CARMEL CHURCH ROAD 1ST XING

Date Collected: 05/11/94 Comments:
 Sample ID: 19940511-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	49
Achnanthes hauckii	*
Achnanthes lanceolata	*
Achnanthes lapponica var. ninckei	1
Achnanthes minutissima	242
Amphora perpusilla	6
Caloneis bacillum	1
Cocconeis pediculus	8
Cocconeis placentula	*
Cyclotella stelligera	*
Cymbella affinis	42
Cymbella cymbiformis	2
Cymbella delicatula	22
Cymbella hustedtii	1
Cymbella microcephala	*
Cymbella minuta	1
Cymbella silesiaca	11
Cymbella sinuata	*
Cymbella sp. (K)	9
Denticula elegans	2
Diatoma vulgare	19
Diploneis oblongella	*
Epithemia adnata	1
Eunotia pectinalis var. minor	*
Fragilaria crotonensis	*
Fragilaria vaucheriae	7
Frustulia rhomboides var. amphipleuroides	*
Gomphonema olivaceum	1
Gomphonema parvulum	1
Gomphonema sphaerophorum	*
Gomphonema subclavatum	2
Gomphonema subclavatum var. mexicanum	*
Gomphonema truncatum	2
Hantzschia amphioxys	1
Meridion circulare	1
Navicula bacillum	*
Navicula confervacea	1
Navicula cryptocephala	*
Navicula cryptocephala var. veneta	22

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

<i>Navicula elginensis</i>	*
<i>Navicula lanceolata</i>	*
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	1
<i>Navicula minima</i>	33
<i>Navicula mutica</i>	*
<i>Navicula notha</i>	*
<i>Navicula pupula</i>	*
<i>Navicula radiosa</i>	*
<i>Navicula radiosa</i> var. <i>parva</i>	*
<i>Navicula radiosa</i> var. <i>tenella</i>	3
<i>Navicula salinarum</i> var. <i>intermedia</i>	3
<i>Navicula tripunctata</i>	*
<i>Nitzschia acicularis</i>	*
<i>Nitzschia amphibia</i>	1
<i>Nitzschia clausii</i>	*
<i>Nitzschia dissipata</i>	9
<i>Nitzschia frustulum</i>	1
<i>Nitzschia gracilis</i>	*
<i>Nitzschia linearis</i>	*
<i>Nitzschia palea</i>	*
<i>Nitzschia paleacea</i>	2
<i>Nitzschia perminuta</i>	1
<i>Nitzschia recta</i>	8
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	2
<i>Nitzschia</i> sp.1	*
<i>Nitzschia vermicularis</i>	1
<i>Rhoicosphenia curvata</i>	1
<i>Surirella ovata</i>	7
<i>Synedra acus</i>	2
<i>Synedra ulna</i>	2

 Station ID: REFIPWIL Collection Date: 05/11/94

Total Number of Taxa (TNT):	69
Total Number of Individuals (TNI):	532
Diversity (H):	0.98
Percent (%) Sensitive Individuals:	25.8
Pollution Tolerance Index (PTI):	3.0
Siltation Index**:	16.5

 *Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surirella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPWIL (12034002) Stream: WILSON CREEK
 Mile Point: 12.20 Drainage Area: 12.4 square miles
 Order: 4 Ecoregion: INTERIOR PLATEAU
 County: BULLITT Basin: SALT
 Map Number: 11-36 Latitude: 37-51-39 Longitude: 085-36-40
 Location Description: MT. CARMEL CHURCH ROAD 1ST XING

Date Collected: 10/04/94 Comments:
 Sample ID: 19941004-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	3
Achnanthes deflexa	109
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	3
Achnanthes lapponica var. ninckei	*
Achnanthes microcephala	2
Achnanthes minutissima	216
Amphipleura pellucida	4
Amphora ovalis	*
Amphora perpusilla	4
Anomoeoneis vitrea	7
Bacillaria paradoxa	*
Caloneis bacillum	*
Caloneis ventricosa var. truncatula	*
Cocconeis pediculus	*
Cocconeis placentula	4
Cocconeis placentula var. euglypta	*
Cyclotella striata var. ambigua	*
Cymatopleura solea	1
Cymbella affinis	2
Cymbella cistula	*
Cymbella cymbiformis	2
Cymbella delicatula	18
Cymbella hustedtii	*
Cymbella microcephala	9
Cymbella minuta	2
Cymbella prostrata	*
Cymbella silesiaca	3
Cymbella sinuata	*
Denticula elegans	6
Diatoma vulgare	1
Diploneis elliptica	2
Diploneis puella	*
Epithemia argus	1
Eunotia maior	*
Fragilaria crotonensis	2
Fragilaria vaucheriae	1
Frustulia rhomboides var. amphipleuroides	*
Frustulia weinholdii	*

*Qualitative data
 **Relative abundance of *Navicula+Nitzschia+Surriella*
 06/25/96

DIATOM COLLECTION DATA

Gomphonema acuminatum	*
Gomphonema angustatum	*
Gomphonema apuncto	2
Gomphonema augur	*
Gomphonema gracile	*
Gomphonema parvulum	*
Gomphonema sphaerophorum	2
Gomphonema subclavatum	*
Gomphonema subclavatum var. mexicanum	*
Gomphonema truncatum	*
Gyrosigma scalproides	*
Melosira varians	5
Navicula bacillum	*
Navicula cryptocephala	4
Navicula cryptocephala var. veneta	4
Navicula cuspidata	*
Navicula lanceolata	1
Navicula menisculus var. upsaliensis	2
Navicula minima	39
Navicula pelliculosa	*
Navicula pupula	2
Navicula pupula var. rectangularis	*
Navicula pygmaea	*
Navicula radiosa	2
Navicula radiosa var. tenella	4
Navicula salinarum var. intermedia	3
Navicula schroeteri var. escambia	*
Navicula symmetrica	1
Navicula tuscula	*
Navicula viridula	1
Neidium binode	1
Nitzschia acicularis	2
Nitzschia amphibia	4
Nitzschia angustata var. acuta	*
Nitzschia constricta	2
Nitzschia dissipata	7
Nitzschia gracilis	15
Nitzschia linearis	6
Nitzschia palea	17
Nitzschia sigmoidea	*
Nitzschia sinuata var. tabellaria	4
Nitzschia vermicularis	2
Pinnularia maior	1
Rhoicosphenia curvata	*
Surirella angustata	*
Surirella linearis	*
Synedra acus	2
Synedra delicatissima	2
Synedra parasitica	1
Synedra ulna	*

 * Qualitative data

** Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

Station ID: REFIPWIL Collection Date: 10/04/94

Total Number of Taxa (TNT):	89
Total Number of Individuals (TNI):	540
Diversity (H):	1.03
Percent (%) Sensitive Individuals:	28.0
Pollution Tolerance Index (PTI):	2.9
Siltation Index**:	22.6

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPYBC (08037001) Stream: YELLOWBANK CREEK
 Mile Point: 4.40 Drainage Area: 15.8 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: BRECKINRIDGE Basin: OHIO
 Map Number: 12-29 Latitude: 37-59-43 Longitude: 086-28-54
 Location Description: CART-MANNING CROSSING ROAD WILDLIFE MGT AREA

Date Collected: 05/19/92 Comments:
 Sample ID: 19920519-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	10
Achnanthes exigua	*
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	3
Achnanthes minutissima	307
Amphora perpusilla	1
Caloneis bacillum	*
Cocconeis pediculus	14
Cocconeis placentula	*
Cyclotella striata var. ambigua	*
Cymatopleura solea	*
Cymbella naviculiformis	*
Cymbella silesiaca	*
Cymbella sinuata	1
Cymbella sp. (K)	13
Cymbella tumida	*
Diatoma vulgare	*
Eunotia curvata	*
Eunotia incisa	*
Fragilaria pinnata	*
Fragilaria vaucheriae	9
Frustulia vulgaris	*
Gomphonema acuminatum	*
Gomphonema affine	*
Gomphonema angustatum	11
Gomphonema clevei	1
Gomphonema olivaceum	13
Gomphonema parvulum	1
Gomphonema sphaerophorum	*
Gomphonema truncatum	3
Gyrosigma spencerii	*
Hantzschia amphioxys	*
Melosira varians	5
Meridion circulare	1
Navicula cryptocephala	6
Navicula cryptocephala var. veneta	1
Navicula lanceolata	1
Navicula menisculus var. upsaliensis	1
Navicula minima	5

 * Qualitative data

** Relative abundance of *Navicula*+*Nitzschia*+*Surriella*
 06/25/96

DIATOM COLLECTION DATA

Navicula pupula var. elliptica	*
Navicula radiosa	*
Navicula salinarum var. intermedia	1
Navicula secreta var. apiculata	1
Navicula tripunctata	1
Neidium affine	*
Nitzschia acicularis	7
Nitzschia amphibia	5
Nitzschia clausii	1
Nitzschia dissipata	3
Nitzschia dubia	*
Nitzschia gracilis	1
Nitzschia linearis	5
Nitzschia palea	4
Nitzschia recta	*
Nitzschia romana	5
Rhoicosphenia curvata	10
Stauroneis smithii	*
Surirella angustata	*
Surirella ovata	*
Synedra acus	11
Synedra delicatissima	61
Synedra pulchella	*
Synedra rumpens var. familiaris	*
Synedra ulna	14
Synedra ulna var. oxyrhynchus	*

 Station ID: REFIPYBC Collection Date: 05/19/92

Total Number of Taxa (TNT):	65
Total Number of Individuals (TNI):	537
Diversity (H):	0.83
Percent (%) Sensitive Individuals:	16.4
Pollution Tolerance Index (PTI):	3.0
Siltation Index**:	8.9

 *Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPYBC (08037001) Stream: YELLOWBANK CREEK
 Mile Point: 4.40 Drainage Area: 15.8 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: BRECKINRIDGE Basin: OHIO
 Map Number: 12-29 Latitude: 37-59-43 Longitude: 086-28-54
 Location Description: CART-MANNING CROSSING ROAD WILDLIFE MGT AREA

Date Collected: 10/05/92 Comments:
 Sample ID: 19921005-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	4
Achnanthes lanceolata	4
Achnanthes lanceolata var. dubia	1
Achnanthes minutissima	231
Amphipleura pellucida	5
Amphora ovalis	*
Amphora perpusilla	1
Amphora submontana	2
Caloneis bacillum	2
Caloneis ventricosa	1
Cocconeis pediculus	1
Cocconeis placentula	*
Cyclotella stelligera	2
Cyclotella striata var. ambigua	4
Cymatopleura solea	1
Cymbella affinis	1
Cymbella cymbiformis	*
Cymbella delicatula	1
Cymbella naviculiformis	*
Cymbella silesiaca	7
Cymbella sinuata	*
Cymbella sp. (K)	*
Cymbella tumida	8
Denticula elegans	2
Entomoneis ornata	*
Eunotia curvata	3
Eunotia pectinalis	1
Fragilaria vaucheriae	18
Frustulia vulgaris	*
Gomphonema acuminatum	1
Gomphonema affine	11
Gomphonema angustatum	4
Gomphonema clevei	*
Gomphonema gracile	4
Gomphonema olivaceum	10
Gomphonema parvulum	7
Gomphonema sphaerophorum	*
Gomphonema subclavatum	4
Gomphonema truncatum	1

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

Gomphonema truncatum var. capitatum	1	
Gyrosigma attenuatum		*
Gyrosigma scalproides	1	
Gyrosigma spencerii		*
Melosira varians	27	
Meridion circulare		*
Navicula cryptocephala	13	
Navicula cryptocephala var. veneta	12	
Navicula elginensis	1	
Navicula lanceolata	3	
Navicula menisculus var. upsaliensis	1	
Navicula minima	26	
Navicula mutica	1	
Navicula pupula var. rectangularis		*
Navicula radiosa	1	
Navicula radiosa var. parva		*
Navicula radiosa var. tenella	5	
Navicula salinarum var. intermedia	3	
Navicula secreta var. apiculata	1	
Navicula symmetrica	11	
Navicula viridula	2	
Neidium affine var. longiceps		*
Nitzschia acicularis	1	
Nitzschia amphibia	15	
Nitzschia clausii	1	
Nitzschia constricta		*
Nitzschia dissipata	19	
Nitzschia dubia		*
Nitzschia gracilis		*
Nitzschia linearis	5	
Nitzschia microcephala	1	
Nitzschia palea	37	
Nitzschia romana	10	
Nitzschia sigmoidea		*
Nitzschia sinuata var. tabellaria	4	
Nitzschia tryblionella var. victoriae		*
Nitzschia vermicularis		*
Pinnularia abaujensis v. subundulata	1	
Pinnularia biceps		*
Rhoicosphenia curvata	6	
Stauroneis anceps f. gracilis		*
Surirella angustata	7	
Surirella linearis		*
Surirella ovata	1	
Synedra acus	2	
Synedra rumpens var. familiaris	4	
Synedra ulna	5	

 Station ID: REFIPYBC Collection Date: 10/05/92

Total Number of Taxa (TNT): 86

* Qualitative data

** Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

Total Number of Individuals (TNI):	570
Diversity (H):	1.20
Percent (%) Sensitive Individuals:	4.0
Pollution Tolerance Index (PTI):	2.5
Siltation Index **:	30.4

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPYBC (08037001) Stream: YELLOWBANK CREEK
 Mile Point: 4.40 Drainage Area: 15.8 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: BRECKINRIDGE Basin: OHIO
 Map Number: 12-29 Latitude: 37-59-43 Longitude: 086-28-54
 Location Description: CART-MANNING CROSSING ROAD WILDLIFE MGT AREA

Date Collected: 10/05/93 Comments:
 Sample ID: 19931005-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	1
Achnanthes deflexa	47
Achnanthes hungarica	4
Achnanthes lanceolata	3
Achnanthes minutissima	322
Amphipleura pellucida	1
Amphora perpusilla	3
Amphora submontana	2
Caloneis bacillum	*
Caloneis ventricosa var. truncatula	*
Cocconeis placentula	2
Cocconeis placentula var. euglypta	1
Cyclotella striata var. ambigua	3
Cymatopleura solea	2
Cymbella affinis	9
Cymbella aspera	*
Cymbella delicatula	*
Cymbella minuta	*
Cymbella silesiaca	9
Cymbella sinuata	*
Cymbella triangulum	2
Cymbella tumida	3
Cymbella turgidula	9
Denticula elegans	*
Diploneis elliptica	1
Eunotia curvata	2
Eunotia maior	1
Eunotia pectinalis var. minor	*
Fragilaria pinnata	2
Fragilaria vaucheriae	4
Frustulia vulgaris	*
Gomphonema acuminatum	*
Gomphonema affine	11
Gomphonema apuncto	22
Gomphonema gracile	2
Gomphonema parvulum	11
Gomphonema subclavatum	*
Gyrosigma scalproides	1
Gyrosigma spencerii	2

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Melosira varians	2
Navicula atomus	8
Navicula capitata	*
Navicula cryptocephala	7
Navicula cryptocephala var. veneta	4
Navicula exigua	*
Navicula hustedtii	5
Navicula lanceolata	3
Navicula menisculus var. upsaliensis	3
Navicula minima	1
Navicula mutica	*
Navicula pupula	2
Navicula radiosa var. tenella	10
Navicula salinarum var. intermedia	1
Navicula schroeteri var. escambia	3
Navicula viridula	1
Nitzschia amphibia	7
Nitzschia clausii	*
Nitzschia coarctata	1
Nitzschia dissipata	3
Nitzschia linearis	3
Nitzschia palea	22
Nitzschia recta	2
Nitzschia sigmoidea	*
Nitzschia sinuata var. tabellaria	2
Nitzschia tryblionella var. victoriae	1
Nitzschia vermicularis	1
Pinnularia biceps	1
Pinnularia subcapitata	*
Pinnularia viridis	*
Rhoicosphenia curvata	1
Stauroneis smithii	*
Surirella angustata	*
Surirella linearis	2
Surirella ovata	*
Surirella ovata var. pinnata	*
Synedra acus	*
Synedra ulna	*

 Station ID: REFIPYBC Collection Date: 10/05/93

Total Number of Taxa (TNT):	77
Total Number of Individuals (TNI):	578
Diversity (H):	0.94
Percent (%) Sensitive Individuals:	14.5
Pollution Tolerance Index (PTI):	2.8
Siltation Index**:	15.6

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFIPYBC (08037001) Stream: YELLOWBANK CREEK
 Mile Point: 4.40 Drainage Area: 15.8 square miles
 Order: 3 Ecoregion: INTERIOR PLATEAU
 County: BRECKINRIDGE Basin: OHIO
 Map Number: 12-29 Latitude: 37-59-43 Longitude: 086-28-54
 Location Description: CART-MANNING CROSSING ROAD WILDLIFE MGT AREA

Date Collected: 06/08/94 Comments:
 Sample ID: 19940608-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	122
Achnanthes lanceolata	7
Achnanthes lanceolata var. dubia	*
Achnanthes lapponica var. ninckei	*
Achnanthes minutissima	190
Amphora perpusilla	1
Caloneis bacillum	1
Cocconeis pediculus	4
Cocconeis placentula	*
Cocconeis placentula var. euglypta	*
Cyclotella meneghiniana	4
Cyclotella stelligera	1
Cyclotella striata var. ambigua	2
Cymbella affinis	58
Cymbella cymbiformis	*
Cymbella minuta	*
Cymbella prostrata	*
Cymbella silesiaca	6
Cymbella sinuata	2
Cymbella sp. (K)	3
Cymbella tumida	1
Denticula elegans	*
Diatoma vulgare	*
Diploneis puella	*
Fragilaria crotonensis	*
Fragilaria pinnata	*
Gomphonema acuminatum	*
Gomphonema angustatum	1
Gomphonema apuncto	*
Gomphonema clevei	*
Gomphonema olivaceum	2
Gomphonema parvulum	2
Gomphonema sphaerophorum	1
Gomphonema subclavatum	*
Gomphonema subclavatum var. mexicanum	*
Gomphonema truncatum	*
Melosira varians	4
Meridion circulare	*

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Navicula bacillum	*
Navicula capitata	*
Navicula cryptocephala	4
Navicula cryptocephala var. veneta	21
Navicula elginensis	*
Navicula hustedtii	*
Navicula lanceolata	1
Navicula menisculus var. upsaliensis	2
Navicula minima	18
Navicula pupula	*
Navicula radiosa var. tenella	*
Navicula salinarum var. intermedia	13
Navicula secreta var. apiculata	3
Navicula tripunctata	*
Nitzschia acicularis	5
Nitzschia amphibia	*
Nitzschia clausii	*
Nitzschia constricta	*
Nitzschia dissipata	8
Nitzschia fonticola	*
Nitzschia frustulum	7
Nitzschia gracilis	2
Nitzschia inconspicua	4
Nitzschia levidensis	*
Nitzschia linearis	2
Nitzschia lorenziana var. subtilis	*
Nitzschia palea	2
Nitzschia paleacea	*
Nitzschia perminuta	4
Nitzschia recta	2
Nitzschia sinuata var. tabellaria	1
Nitzschia vermicularis	*
Pinnularia microstauron	*
Rhoicosphenia curvata	8
Stauroneis anceps	*
Stephanodiscus hantzschii	1
Surirella angustata	1
Surirella ovata	2
Surirella ovata var. pinnata	*
Synedra acus	*
Synedra delicatissima	11
Synedra pulchella	*
Synedra rumpens var. familiaris	1
Synedra ulna	*

 Station ID: REFIPYBC Collection Date: 06/08/94

Total Number of Taxa (TNT): 83
 Total Number of Individuals (TNI): 535
 Diversity (H): 1.00
 Percent (%) Sensitive Individuals: 38.1

* Qualitative data

** Relative abundance of *Navicula+Nitzschia+Surirella*
 06/25/96

DIATOM COLLECTION DATA

Pollution Tolerance Index (PTI): 3.1
Siltation Index^{**}: 18.5

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFMVBLR (09016001) Stream: BLOOD RIVER
 Mile Point: 15.10 Drainage Area: 34.2 square miles
 Order: 4 Ecoregion: MISSISSIPPI VALLEY LOESS PLAIN
 County: CALLOWAY Basin: TENNESSEE
 Map Number: 01-15 Latitude: 36-30-13 Longitude: 088-10-09
 Location Description: GRUBBS LANE BR.; 0.75 MI E OF STATE LINE RD. JC

Date Collected: 05/12/93 Comments: MISS. VALLEY LOESS PLAINS
 Sample ID: 19930512-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	23
Achnanthes lanceolata	1
Achnanthes minutissima	113
Caloneis bacillum	1
Cymbella aspera	4
Cymbella lunata	6
Cymbella microcephala	1
Cymbella minuta	9
Cymbella naviculiformis	3
Cymbella silesiaca	92
Entomoneis ornata	*
Eunotia curvata	16
Eunotia maior	9
Eunotia naegelii	4
Eunotia pectinalis var. minor	2
Eunotia perpusilla	2
Eunotia praerupta	*
Eunotia vanheurckii var. intermedia	*
Fragilaria vaucheriae	11
Frustulia rhomboides var. crassinervia	5
Frustulia rhomboides var. saxonica	*
Frustulia rhomboides var. amphipleuroides	6
Frustulia vulgaris	3
Frustulia weinholdii	4
Gomphonema affine	*
Gomphonema angustatum	2
Gomphonema parvulum	24
Gyrosigma nodiferum	2
Gyrosigma scalproides	*
Meridion circulare	1
Navicula angusta	*
Navicula atomus	*
Navicula capitata	1
Navicula cryptocephala	29
Navicula cryptocephala var. veneta	20
Navicula decussis	1
Navicula elginensis	*
Navicula exigua	1
Navicula lanceolata	*

* Qualitative data

** Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

<i>Navicula menisculus</i> var. <i>upsaliensis</i>	4
<i>Navicula minima</i>	4
<i>Navicula mutica</i>	2
<i>Navicula pupula</i>	2
<i>Navicula radiosa</i>	1
<i>Navicula radiosa</i> var. <i>parva</i>	6
<i>Navicula radiosa</i> var. <i>tenella</i>	21
<i>Navicula rhynchocephala</i>	9
<i>Navicula schroeteri</i> var. <i>escambia</i>	3
<i>Navicula secreta</i> var. <i>apiculata</i>	1
<i>Navicula viridula</i>	*
<i>Navicula viridula</i> var. <i>linearis</i>	1
<i>Navicula viridula</i> var. <i>rostellata</i>	*
<i>Neidium affine</i>	*
<i>Neidium affine</i> var. <i>longiceps</i>	*
<i>Neidium binode</i>	*
<i>Nitzschia acicularis</i>	1
<i>Nitzschia amphibia</i>	2
<i>Nitzschia clausii</i>	1
<i>Nitzschia communis</i>	1
<i>Nitzschia dissipata</i>	17
<i>Nitzschia filiformis</i>	8
<i>Nitzschia gracilis</i>	8
<i>Nitzschia linearis</i>	*
<i>Nitzschia lorenziana</i> var. <i>subtilis</i>	*
<i>Nitzschia palea</i>	37
<i>Nitzschia sigmoidea</i>	*
<i>Nitzschia vermicularis</i>	16
<i>Pinnularia abaujensis</i> var. <i>rostrata</i>	*
<i>Pinnularia biceps</i>	1
<i>Pinnularia mesolepta</i>	*
<i>Pinnularia subcapitata</i> var. <i>paucistriata</i>	1
<i>Pinnularia viridis</i>	2
<i>Pinnularia viridis</i> var. <i>minor</i>	*
<i>Stauroneis anceps</i>	1
<i>Stauroneis anceps</i> f. <i>gracilis</i>	*
<i>Stauroneis smithii</i>	7
<i>Surirella angustata</i>	9
<i>Surirella linearis</i>	1
<i>Surirella ovata</i>	3
<i>Surirella robusta</i> f. <i>lata</i>	*
<i>Synedra acus</i>	1
<i>Synedra delicatissima</i>	*
<i>Synedra rumpens</i> var. <i>familiaris</i>	8
<i>Synedra ulna</i>	17
<i>Tabellaria flocculosa</i>	3

 Station ID: REFMVBLR Collection Date: 05/12/93

Total Number of Taxa (TNT): 85
 Total Number of Individuals (TNI): 595

*Qualitative data
 **Relative abundance of *Navicula+Nitzschia+Surirella*
 06/25/96

DIATOM COLLECTION DATA

Diversity (H):	1.39
Percent (%) Sensitive Individuals:	24.7
Pollution Tolerance Index (PTI):	2.7
Siltation Index**:	33.1

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

Site ID: REFMVBLR (09016001)	Stream: BLOOD RIVER
Mile Point: 15.10	Drainage Area: 34.2 square miles
Order: 4	Ecoregion: MISSISSIPPI VALLEY LOESS PLAIN
County: CALLOWAY	Basin: TENNESSEE
Map Number: 01-15	Latitude: 36-30-13 Longitude: 088-10-09
Location Description: GRUBBS LANE BR.; 0.75 MI E OF STATE LINE RD. JC	

Date Collected: 05/04/94	Comments:
Sample ID: 19940504-10	Substrate Type: Natural
ID By:	

Achnanthes deflexa	9
Achnanthes detha	*
Achnanthes lanceolata	3
Achnanthes lanceolata var. apiculata	*
Achnanthes minutissima	4
Caloneis bacillum	2
Capartogramma crucicula	1
Cymbella aspera	4
Cymbella naviculiformis	2
Cymbella silesiaca	29
Cymbella sp.	*
Diploneis elliptica	*
Diploneis finnica	*
Entomoneis ornata	1
Eunotia curvata	34
Eunotia exigua	1
Eunotia maior	1
Eunotia pectinalis var. minor	10
Fragilaria vaucheriae	17
Frustulia rhomboides var. crassinervia	*
Frustulia rhomboides var. saxonica	1
Frustulia rhomboides var. amphipleuroides	1
Frustulia vulgaris	15
Frustulia weinholdii	3
Gomphonema acuminatum	*
Gomphonema affine	1
Gomphonema gracile	3
Gomphonema parvulum	19
Hantzschia amphioxys	*
Meridion circulare	2
Navicula anglica var. subsalsa	*
Navicula atomus	6
Navicula capitata	*
Navicula contenta	24
Navicula cryptocephala	45
Navicula cryptocephala var. veneta	18
Navicula decussis	1
Navicula elginensis	*
Navicula exigua	*

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

<i>Navicula gottlandica</i>	*
<i>Navicula hustedtii</i>	1
<i>Navicula laevissima</i>	1
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	*
<i>Navicula minima</i>	7
<i>Navicula mutica</i>	7
<i>Navicula notha</i>	5
<i>Navicula pupula</i>	*
<i>Navicula pygmaea</i>	1
<i>Navicula radiosa</i>	*
<i>Navicula radiosa</i> var. <i>parva</i>	2
<i>Navicula radiosa</i> var. <i>tenella</i>	5
<i>Navicula rhynchocephala</i>	13
<i>Navicula secreta</i> var. <i>apiculata</i>	1
<i>Navicula seminulum</i>	1
<i>Navicula viridula</i>	*
<i>Navicula viridula</i> var. <i>linearis</i>	1
<i>Neidium affine</i>	3
<i>Neidium bisulcatum</i>	4
<i>Nitzschia acicularis</i>	5
<i>Nitzschia amphibia</i>	1
<i>Nitzschia brevissima</i>	12
<i>Nitzschia clausii</i>	*
<i>Nitzschia dissipata</i>	3
<i>Nitzschia dubia</i>	*
<i>Nitzschia filiformis</i>	3
<i>Nitzschia gracilis</i>	24
<i>Nitzschia linearis</i>	1
<i>Nitzschia palea</i>	65
<i>Nitzschia paleacea</i>	5
<i>Nitzschia pelliculosa</i>	*
<i>Nitzschia recta</i>	8
<i>Nitzschia vermicularis</i>	12
<i>Pinnularia biceps</i>	1
<i>Pinnularia borealis</i> var. <i>rectangularis</i>	1
<i>Pinnularia mesolepta</i>	*
<i>Pinnularia microstauron</i>	1
<i>Pinnularia subcapitata</i>	5
<i>Pinnularia viridis</i>	1
<i>Stauroneis anceps</i>	2
<i>Stauroneis anceps</i> f. <i>gracilis</i>	4
<i>Stauroneis kriegeri</i>	*
<i>Stauroneis phoenicenteron</i>	*
<i>Stauroneis smithii</i>	2
<i>Surirella angustata</i>	30
<i>Surirella ovata</i>	3
<i>Synedra delicatissima</i>	3
<i>Synedra rumpens</i> var. <i>familiaris</i>	9
<i>Synedra ulna</i>	9
<i>Tabellaria flocculosa</i>	2

 *Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surirella*

06/25/96

DIATOM COLLECTION DATA

Station ID: REFVBLR Collection Date: 05/04/94

Total Number of Taxa (TNT):	89
Total Number of Individuals (TNI):	521
Diversity (H):	1.52
Percent (%) Sensitive Individuals:	10.2
Pollution Tolerance Index (PTI):	2.0
Siltation Index**:	53.4

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFMVBLR (09016001) Stream: BLOOD RIVER
 Mile Point: 15.10 Drainage Area: 34.2 square miles
 Order: 4 Ecoregion: MISSISSIPPI VALLEY LOESS PLAIN
 County: CALLOWAY Basin: TENNESSEE
 Map Number: 01-15 Latitude: 36-30-13 Longitude: 088-10-09
 Location Description: GRUBBS LANE BR.; 0.75 MI E OF STATE LINE RD. JC

Date Collected: 11/16/94 Comments:
 Sample ID: 19941116-10 Substrate Type: Natural
 ID By:

Achnanthes clevei	*
Achnanthes deflexa	26
Achnanthes hungarica	1
Achnanthes lanceolata	2
Achnanthes lanceolata var. dubia	6
Achnanthes lapponica var. ninckei	1
Achnanthes minutissima	205
Amphipleura pellucida	*
Amphora ovalis	1
Amphora perpusilla	2
Caloneis bacillum	*
Caloneis ventricosa	*
Cocconeis pediculus	*
Cocconeis placentula	4
Cyclotella meneghiniana	3
Cyclotella striata var. ambigua	9
Cymbella aspera	4
Cymbella cymbiformis	24
Cymbella delicatula	*
Cymbella lunata	*
Cymbella microcephala	*
Cymbella minuta	*
Cymbella prostrata	*
Cymbella silesiaca	21
Cymbella sinuata	1
Cymbella sp. (K)	1
Cymbella triangulum	*
Cymbella tumida	1
Cymbella turgidula	*
Diploneis elliptica	*
Eunotia curvata	*
Eunotia maior	*
Eunotia pectinalis var. minor	*
Fragilaria vaucheriae	39
Frustulia vulgaris	*
Gomphonema acuminatum	*
Gomphonema affine	*
Gomphonema angustatum	1
Gomphonema parvulum	2

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Gomphonema sphaerophorum	2
Gomphonema subclavatum	1
Gomphonema subclavatum var. mexicanum	*
Gomphonema truncatum	1
Gyrosigma scalproides	*
Melosira varians	7
Meridion circulare	*
Navicula bacillum	*
Navicula cryptocephala	4
Navicula cryptocephala var. veneta	7
Navicula decussis	2
Navicula menisculus var. upsaliensis	5
Navicula minima	5
Navicula mutica	*
Navicula pupula	*
Navicula pygmaea	*
Navicula radiosa	*
Navicula radiosa var. tenella	*
Navicula rhynchocephala	1
Navicula salinarum var. intermedia	6
Navicula secreta var. apiculata	4
Navicula symmetrica	*
Navicula viridula	5
Navicula viridula var. linearis	*
Neidium binode	1
Nitzschia acicularis	1
Nitzschia clausii	*
Nitzschia constricta	*
Nitzschia dissipata	10
Nitzschia gracilis	4
Nitzschia linearis	5
Nitzschia palea	23
Nitzschia paleacea	2
Nitzschia recta	2
Nitzschia sinuata var. tabellaria	4
Nitzschia vermicularis	*
Pinnularia mesolepta	1
Rhoicosphenia curvata	*
Stephanodiscus hantzschii	*
Surirella angustata	9
Surirella linearis var. helvetica	*
Surirella ovata	1
Synedra acus	*
Synedra delicatissima	*
Synedra rumpens var. familiaris	82
Synedra ulna	3
Synedra ulna var. oxyrhynchus	2
Tetracyclus glans	*

 Station ID: REFMVBLR Collection Date: 11/16/94

 *Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

Total Number of Taxa (TNT):	87
Total Number of Individuals (TNI):	554
Diversity (H):	1.11
Percent (%) Sensitive Individuals:	14.8
Pollution Tolerance Index (PTI):	2.4
Siltation Index**:	16.2

*Qualitative data

**Relative abundance of *Navicula*+*Nitzschia*+*Surriella*

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFMVBLR (09016001) Stream: BLOOD RIVER
 Mile Point: 15.10 Drainage Area: 34.2 square miles
 Order: 4 Ecoregion: MISSISSIPPI VALLEY LOESS PLAIN
 County: CALLOWAY Basin: TENNESSEE
 Map Number: 01-15 Latitude: 36-30-13 Longitude: 088-10-09
 Location Description: GRUBBS LANE BR.; 0.75 MI E OF STATE LINE RD. JC

Date Collected: 04/12/95 Comments:
 Sample ID: 19950412-10 Substrate Type: Natural
 ID By:

<i>Achnanthes deflexa</i>	14
<i>Achnanthes minutissima</i>	12
<i>Anomoeoneis vitrea</i>	*
<i>Caloneis bacillum</i>	*
<i>Cymbella aspera</i>	1
<i>Cymbella lunata</i>	*
<i>Cymbella minuta</i>	*
<i>Cymbella naviculiformis</i>	*
<i>Cymbella silesiaca</i>	53
<i>Cymbella tumida</i>	20
<i>Cymbella turgidula</i>	1
<i>Entomoneis ornata</i>	*
<i>Eunotia curvata</i>	15
<i>Eunotia maior</i>	1
<i>Eunotia pectinalis</i> var. <i>minor</i>	7
<i>Fragilaria vaucheriae</i>	16
<i>Frustulia rhomboides</i> var. <i>crassinervia</i>	*
<i>Frustulia rhomboides</i> var. <i>amphipleuroides</i>	1
<i>Frustulia vulgaris</i>	*
<i>Frustulia weinholdii</i>	2
<i>Gomphonema affine</i>	2
<i>Gomphonema angustatum</i>	4
<i>Gomphonema gracile</i>	1
<i>Gomphonema parvulum</i>	8
<i>Hantzschia amphioxys</i>	*
<i>Meridion circulare</i>	5
<i>Navicula contenta</i>	*
<i>Navicula cryptocephala</i>	108
<i>Navicula cryptocephala</i> var. <i>veneta</i>	21
<i>Navicula cuspidata</i>	*
<i>Navicula decussis</i>	*
<i>Navicula elginensis</i>	*
<i>Navicula hustedtii</i>	5
<i>Navicula laevisissima</i>	*
<i>Navicula lateropunctata</i>	*
<i>Navicula minima</i>	*
<i>Navicula mutica</i>	*
<i>Navicula notha</i>	22
<i>Navicula pygmaea</i>	*

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

Navicula radiosa	*
Navicula radiosa var. tenella	35
Navicula rhynchocephala	*
Navicula seminulum	*
Navicula viridula	*
Neidium bisulcatum	1
Nitzschia acicularis	40
Nitzschia brevissima	*
Nitzschia dissipata	1
Nitzschia filiformis	7
Nitzschia gracilis	15
Nitzschia linearis	*
Nitzschia lorenziana var. subtilis	1
Nitzschia palea	38
Nitzschia paleacea	*
Nitzschia pelliculosa	*
Nitzschia recta	7
Nitzschia vermicularis	13
Pinnularia maior	*
Pinnularia mesolepta	*
Pinnularia obscurum	1
Pinnularia subcapitata	*
Pinnularia viridis	3
Stauroneis anceps	*
Stauroneis anceps f. gracilis	1
Stauroneis kriegeri	*
Stauroneis phoenicenteron	*
Stauroneis smithii	*
Surirella angustata	12
Surirella ovata	1
Surirella robusta	*
Synedra acus	1
Synedra delicatissima	1
Synedra rumpens	2
Synedra rumpens var. familiaris	12
Synedra ulna	15
Tabellaria flocculosa	*

 Station ID: REFMVBLR Collection Date: 04/12/95

Total Number of Taxa (TNT):	76
Total Number of Individuals (TNI):	526
Diversity (H):	1.29
Percent (%) Sensitive Individuals:	17.5
Pollution Tolerance Index (PTI):	2.5
Siltation Index**:	59.5

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFMVPC2 (09016002) Stream: PANTHER CREEK
 Mile Point: 1.00 Drainage Area: 0.0 square miles
 Order: 3 Ecoregion: MISSISSIPPI VALLEY LOESS PLAIN
 County: CALLOWAY Basin: TENNESSEE
 Map Number: 01-15 Latitude: 36-34-04 Longitude: 088-10-08
 Location Description: KY 280 BRIDGE

Date Collected: 05/04/94 Comments:
 Sample ID: 19940504-11 Substrate Type: Natural
 ID By:

Achnanthes detha	3
Achnanthes lanceolata	1
Achnanthes minutissima	44
Amphora ovalis	*
Cyclotella striata var. ambigua	*
Cymbella aspera	*
Cymbella lunata	3
Cymbella minuta	*
Cymbella naviculiformis	*
Cymbella silesiaca	51
Eunotia curvata	3
Eunotia exigua	*
Eunotia pectinalis var. minor	1
Eunotia perpusilla	*
Eunotia vanheurckii var. intermedia	3
Fragilaria vaucheriae	40
Frustulia rhomboides var. crassinervia	*
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	27
Frustulia weinholdii	*
Gomphonema affine	2
Gomphonema gracile	1
Gomphonema parvulum	122
Gyrosigma sp.	*
Melosira varians	*
Meridion circulare	4
Navicula atomus	*
Navicula cryptocephala	13
Navicula cryptocephala var. veneta	35
Navicula decussis	1
Navicula minima	20
Navicula mutica	*
Navicula pupula	*
Navicula radiosa var. parva	*
Navicula radiosa var. tenella	5
Navicula rhynchocephala	6
Navicula secreta var. apiculata	*
Neidium affine	*
Nitzschia acicularis	1

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Nitzschia clausii	1
Nitzschia dissipata	8
Nitzschia filiformis	4
Nitzschia frustulum	3
Nitzschia linearis	13
Nitzschia lorenziana var. subtilis	*
Nitzschia palea	12
Nitzschia recta	1
Nitzschia vermicularis	12
Pinnularia biceps	*
Pinnularia borealis	*
Pinnularia mesogonglya	*
Pinnularia obscurum	*
Pinnularia subcapitata var. paucistriata	2
Pinnularia viridis	*
Stauroneis anceps	1
Stauroneis anceps f. gracilis	*
Surirella angustata	6
Synedra rumpens	4
Synedra rumpens var. familiaris	37
Synedra ulna	33

 Station ID: REFMVPC2 Collection Date: 05/04/94

Total Number of Taxa (TNT):	60
Total Number of Individuals (TNI):	523
Diversity (H):	1.20
Percent (%) Sensitive Individuals:	11.3
Pollution Tolerance Index (PTI):	1.9
Siltation Index**:	25.8

 *Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFMVPC2 (09016002) Stream: PANTHER CREEK
 Mile Point: 1.00 Drainage Area: 0.0 square miles
 Order: 3 Ecoregion: MISSISSIPPI VALLEY LOESS PLAIN
 County: CALLOWAY Basin: TENNESSEE
 Map Number: 01-15 Latitude: 36-34-04 Longitude: 088-10-08
 Location Description: KY 280 BRIDGE

Date Collected: 11/16/94 Comments:
 Sample ID: 19941116-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	17
Achnanthes detha	1
Achnanthes lanceolata	*
Achnanthes lanceolata var. dubia	1
Achnanthes minutissima	289
Cymbella aspera	2
Cymbella lunata	1
Cymbella minuta	*
Cymbella naviculiformis	*
Cymbella silesiaca	18
Eunotia curvata	11
Eunotia maior	9
Eunotia pectinalis var. minor	4
Eunotia perpusilla	*
Fragilaria vaucheriae	7
Frustulia rhomboides var. crassinervia	5
Frustulia rhomboides var. saxonica	6
Frustulia rhomboides var. amphipleuroides	*
Frustulia vulgaris	*
Frustulia weinholdii	*
Gomphonema affine	11
Gomphonema angustatum	12
Gomphonema gracile	1
Gomphonema parvulum	17
Gomphonema truncatum	1
Navicula angusta	2
Navicula cryptocephala	45
Navicula cryptocephala var. veneta	5
Navicula cuspidata	*
Navicula decussis	*
Navicula exigua	*
Navicula lanceolata	3
Navicula menisculus var. upsaliensis	1
Navicula minima	11
Navicula mutica	*
Navicula notha	9
Navicula pupula	1
Navicula radiosa var. tenella	15
Navicula rhynchocephala	1

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula secreta var. apiculata	1
Navicula subhamulata var. undulata	*
Navicula viridula var. linearis	1
Nitzschia amphibia	1
Nitzschia dissipata	1
Nitzschia gracilis	4
Nitzschia linearis	*
Nitzschia lorenziana var. subtilis	*
Nitzschia palea	4
Nitzschia paleacea	1
Nitzschia recta	1
Nitzschia vermicularis	1
Pinnularia obscurum	*
Pinnularia subcapitata	*
Pinnularia viridis	2
Rhopalodia gibberula var. vanheurckii	*
Stauroneis anceps	*
Stauroneis phoenicenteron	*
Stauroneis smithii	*
Stenopterobia delicatissima	*
Surirella linearis	2
Synedra rumpens var. familiaris	4
Synedra ulna	4

 Station ID: REFMVPC2 Collection Date: 11/16/94

Total Number of Taxa (TNT):	62
Total Number of Individuals (TNI):	533
Diversity (H):	0.92
Percent (%) Sensitive Individuals:	8.3
Pollution Tolerance Index (PTI):	2.8
Siltation Index**:	20.3

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFMVPC2 (09016002) Stream: PANTHER CREEK
 Mile Point: 1.00 Drainage Area: 0.0 square miles
 Order: 3 Ecoregion: MISSISSIPPI VALLEY LOESS PLAIN
 County: CALLOWAY Basin: TENNESSEE
 Map Number: 01-15 Latitude: 36-34-04 Longitude: 088-10-08
 Location Description: KY 280 BRIDGE

Date Collected: 04/12/95 Comments:
 Sample ID: 19950412-11 Substrate Type: Natural
 ID By:

Achnanthes deflexa	34
Achnanthes detha	*
Achnanthes lanceolata	1
Achnanthes minutissima	172
Cymbella affinis	*
Cymbella aspera	*
Cymbella cuspidata	*
Cymbella hauckii	*
Cymbella lunata	3
Cymbella minuta	3
Cymbella naviculiformis	2
Cymbella silesiaca	30
Eunotia curvata	5
Eunotia exigua	*
Eunotia maior	*
Eunotia naegelii	*
Eunotia pectinalis var. minor	11
Eunotia perpusilla	1
Fragilaria leptostauron	*
Fragilaria vaucheriae	51
Frustulia rhomboides var. crassinervia	*
Frustulia rhomboides var. saxonica	1
Frustulia vulgaris	*
Frustulia weinholdii	*
Gomphonema affine	3
Gomphonema angustatum	*
Gomphonema gracile	1
Gomphonema parvulum	32
Gomphonema subclavatum	1
Hantzschia amphioxys	1
Meridion circulare	7
Navicula cryptocephala	5
Navicula cryptocephala var. veneta	4
Navicula cuspidata	*
Navicula decussis	*
Navicula hustedtii	10
Navicula minima	14
Navicula notha	9
Navicula pupula	*

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

Navicula pupula var. capitata	*
Navicula radiosa var. tenella	4
Navicula rhynchocephala	2
Navicula secreta var. apiculata	*
Navicula viridula var. linearis	*
Neidium affine	*
Neidium binode	*
Nitzschia acicularis	5
Nitzschia dissipata	3
Nitzschia filiformis	2
Nitzschia gracilis	6
Nitzschia linearis	2
Nitzschia lorenziana var. subtilis	1
Nitzschia palea	9
Nitzschia paleacea	*
Nitzschia pelliculosa	*
Nitzschia recta	4
Nitzschia vermicularis	1
Pinnularia biceps	*
Pinnularia maior	*
Pinnularia mesogonglya	1
Pinnularia subcapitata	1
Pinnularia viridis	*
Stauroneis anceps	*
Stauroneis anceps f. gracilis	*
Stauroneis kriegeri	*
Stauroneis smithii	*
Surirella angustata	4
Surirella ovata	3
Synedra acus	*
Synedra delicatissima	*
Synedra rumpens var. familiaris	78
Synedra ulna	13
Tabellaria fenestrata	*
Tabellaria flocculosa	*

 Station ID: REFMVPC2 Collection Date: 04/12/95

Total Number of Taxa (TNT):	74
Total Number of Individuals (TNI):	540
Diversity (H):	1.12
Percent (%) Sensitive Individuals:	12.8
Pollution Tolerance Index (PTI):	2.3
Siltation Index**:	15.0

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFMVPAC (09010001) Stream: PANTHER CREEK
 Mile Point: 1.20 Drainage Area: 20.9 square miles
 Order: 4 Ecoregion: MISSISSIPPI VALLEY LOESS PLAIN
 County: GRAVES Basin: TENNESSEE
 Map Number: 03-12 Latitude: 36-52-00 Longitude: 088-31-21
 Location Description: HWY 2580; 0.3 MI SE OF HWY 301 JUNCTION

Date Collected: 05/13/93 Comments:
 Sample ID: 19930513-10 Substrate Type: Natural
 ID By:

<i>Achnanthes deflexa</i>	2
<i>Achnanthes hungarica</i>	1
<i>Achnanthes lanceolata</i>	14
<i>Achnanthes lanceolata</i> var. <i>dubia</i>	*
<i>Achnanthes minutissima</i>	20
<i>Cyclotella stelligera</i>	*
<i>Cyclotella striata</i> var. <i>ambigua</i>	1
<i>Cymbella affinis</i>	*
<i>Cymbella lunata</i>	*
<i>Cymbella minuta</i>	*
<i>Cymbella naviculiformis</i>	*
<i>Cymbella silesiaca</i>	18
<i>Cymbella tumida</i>	1
<i>Cymbella turgidula</i>	*
<i>Eunotia curvata</i>	1
<i>Eunotia exigua</i>	*
<i>Eunotia pectinalis</i> var. <i>minor</i>	2
<i>Fragilaria vaucheriae</i>	4
<i>Frustulia rhomboides</i> var. <i>crassinervia</i>	*
<i>Frustulia rhomboides</i> var. <i>amphipleuroides</i>	*
<i>Frustulia vulgaris</i>	2
<i>Gomphonema angustatum</i>	3
<i>Gomphonema parvulum</i>	5
<i>Gyrosigma spencerii</i>	*
<i>Melosira distans</i> var. <i>alpigena</i>	17
<i>Meridion circulare</i>	7
<i>Navicula atomus</i>	2
<i>Navicula cryptocephala</i>	8
<i>Navicula cryptocephala</i> var. <i>veneta</i>	1
<i>Navicula decussis</i>	84
<i>Navicula exigua</i>	*
<i>Navicula lanceolata</i>	1
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	*
<i>Navicula minima</i>	5
<i>Navicula mutica</i>	*
<i>Navicula pupula</i>	*
<i>Navicula pygmaea</i>	*
<i>Navicula radiosa</i>	*
<i>Navicula radiosa</i> var. <i>tenella</i>	*

 *Qualitative data

**Relative abundance of *Navicula*+*Nitzschia*+*Surriella*

06/25/96

DIATOM COLLECTION DATA

Navicula rhynchocephala	1
Navicula schroeteri var. escambia	1
Navicula secreta var. apiculata	5
Navicula viridula	*
Navicula viridula var. linearis	*
Neidium affine	*
Nitzschia acicularis	6
Nitzschia amphibia	1
Nitzschia clausii	*
Nitzschia communis	3
Nitzschia dissipata	*
Nitzschia filiformis	339
Nitzschia linearis	4
Nitzschia palea	22
Nitzschia recta	1
Nitzschia tryblionella var. victoriae	*
Nitzschia vermicularis	*
Pinnularia biceps	*
Pinnularia mesolepta	*
Pinnularia subcapitata	*
Pinnularia subcapitata var. paucistriata	*
Pinnularia viridis	4
Stauroneis anceps	*
Stephanodiscus hantzschii	*
Surirella angustata	2
Surirella linearis	*
Surirella ovata	3
Synedra acus	1
Synedra rumpens	*
Synedra rumpens var. familiaris	7
Synedra ulna	9

 Station ID: REFMVPAC Collection Date: 05/13/93

Total Number of Taxa (TNT):	70
Total Number of Individuals (TNI):	608
Diversity (H):	0.82
Percent (%) Sensitive Individuals:	3.6
Pollution Tolerance Index (PTI):	1.7
Siltation Index**:	79.6

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFMVPAC (09010001) Stream: PANTHER CREEK
 Mile Point: 1.20 Drainage Area: 20.9 square miles
 Order: 4 Ecoregion: MISSISSIPPI VALLEY LOESS PLAIN
 County: GRAVES Basin: TENNESSEE
 Map Number: 03-12 Latitude: 36-52-00 Longitude: 088-31-21
 Location Description: HWY 2580; 0.3 MI SE OF HWY 301 JUNCTION

Date Collected: 05/04/94 Comments:
 Sample ID: 19940504-12 Substrate Type: Natural
 ID By:

<i>Achnanthes detha</i>	1
<i>Achnanthes lanceolata</i>	23
<i>Achnanthes lanceolata</i> var. <i>dubia</i>	3
<i>Achnanthes minutissima</i>	16
<i>Caloneis bacillum</i>	*
<i>Cyclotella meneghiniana</i>	*
<i>Cyclotella pseudostelligera</i>	4
<i>Cyclotella stelligera</i>	5
<i>Cyclotella striata</i> var. <i>ambigua</i>	1
<i>Cymbella microcephala</i>	*
<i>Cymbella minuta</i>	*
<i>Cymbella naviculiformis</i>	1
<i>Cymbella silesiaca</i>	20
<i>Cymbella sinuata</i>	*
<i>Cymbella tumida</i>	*
<i>Eunotia curvata</i>	1
<i>Eunotia exigua</i>	1
<i>Eunotia maior</i>	*
<i>Eunotia pectinalis</i> var. <i>minor</i>	4
<i>Fragilaria vaucheriae</i>	16
<i>Frustulia rhomboides</i> var. <i>crassinervia</i>	*
<i>Frustulia vulgaris</i>	10
<i>Frustulia weinholdii</i>	*
<i>Gomphonema affine</i>	2
<i>Gomphonema angustatum</i>	2
<i>Gomphonema gracile</i>	*
<i>Gomphonema parvulum</i>	12
<i>Gyrosigma spencerii</i>	*
<i>Hantzschia amphioxys</i>	*
<i>Melosira granulata</i>	6
<i>Melosira varians</i>	8
<i>Meridion circulare</i>	16
<i>Navicula anglica</i> var. <i>subsalsa</i>	1
<i>Navicula atomus</i>	10
<i>Navicula cryptocephala</i>	32
<i>Navicula cryptocephala</i> var. <i>veneta</i>	*
<i>Navicula decussis</i>	56
<i>Navicula gottlandica</i>	2
<i>Navicula hustedtii</i>	1

* Qualitative data

** Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

<i>Navicula lanceolata</i>	*
<i>Navicula menisculus</i> var. <i>upsaliensis</i>	*
<i>Navicula minima</i>	51
<i>Navicula mutica</i>	*
<i>Navicula notha</i>	2
<i>Navicula pupula</i>	1
<i>Navicula pygmaea</i>	*
<i>Navicula radiosa</i> var. <i>parva</i>	3
<i>Navicula radiosa</i> var. <i>tenella</i>	4
<i>Navicula rhynchocephala</i>	5
<i>Navicula schroeteri</i> var. <i>escambia</i>	*
<i>Navicula secreta</i> var. <i>apiculata</i>	5
<i>Navicula seminulum</i>	2
<i>Navicula viridula</i>	*
<i>Navicula viridula</i> var. <i>linearis</i>	*
<i>Neidium affine</i>	1
<i>Neidium bisulcatum</i>	*
<i>Nitzschia acicularis</i>	17
<i>Nitzschia brevissima</i>	*
<i>Nitzschia clausii</i>	*
<i>Nitzschia dissipata</i>	9
<i>Nitzschia gracilis</i>	10
<i>Nitzschia linearis</i>	6
<i>Nitzschia lorenziana</i> var. <i>subtilis</i>	1
<i>Nitzschia palea</i>	48
<i>Nitzschia paleacea</i>	1
<i>Nitzschia recta</i>	7
<i>Nitzschia</i> sp.1	*
<i>Nitzschia tryblionella</i> var. <i>victoriae</i>	*
<i>Nitzschia vermicularis</i>	3
<i>Pinnularia biceps</i>	*
<i>Pinnularia borealis</i> var. <i>rectangularis</i>	*
<i>Pinnularia microstauron</i>	*
<i>Pinnularia subcapitata</i>	2
<i>Pinnularia viridis</i>	*
<i>Stauroneis anceps</i>	*
<i>Stauroneis phoenicenteron</i>	*
<i>Stephanodiscus hantzschii</i>	14
<i>Surirella angustata</i>	45
<i>Surirella ovata</i>	4
<i>Surirella robusta</i>	*
<i>Synedra acus</i>	11
<i>Synedra delicatissima</i>	12
<i>Synedra rumpens</i> var. <i>familiaris</i>	3
<i>Synedra ulna</i>	6
<i>Tetracyclus rupestris</i>	*
<i>Thalassiosira weissflogii</i>	1

 Station ID: REFMVPAC Collection Date: 05/04/94

Total Number of Taxa (TNT): 86

*Qualitative data
 **Relative abundance of *Navicula+Nitzschia+Surirella*
 06/25/96

DIATOM COLLECTION DATA

Total Number of Individuals (TNI):	528
Diversity (H):	1.45
Percent (%) Sensitive Individuals:	6.3
Pollution Tolerance Index (PTI):	2.3
Siltation Index**:	52.5

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*
06/25/96

DIATOM COLLECTION DATA

 Site ID: REFMVPAC (09010001) Stream: PANTHER CREEK
 Mile Point: 1.20 Drainage Area: 20.9 square miles
 Order: 4 Ecoregion: MISSISSIPPI VALLEY LOESS PLAIN
 County: GRAVES Basin: TENNESSEE
 Map Number: 03-12 Latitude: 36-52-00 Longitude: 088-31-21
 Location Description: HWY 2580; 0.3 MI SE OF HWY 301 JUNCTION

Date Collected: 11/15/94 Comments:
 Sample ID: 19941115-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	24
Achnanthes detha	2
Achnanthes hungarica	7
Achnanthes lanceolata	3
Achnanthes lanceolata var. dubia	2
Achnanthes linearis	5
Achnanthes minutissima	112
Caloneis bacillum	2
Cyclotella meneghiniana	4
Cyclotella striata var. ambigua	3
Cymbella aspera	1
Cymbella minuta	3
Cymbella naviculiformis	3
Cymbella silesiaca	9
Cymbella tumida	5
Cymbella turgidula	4
Diploneis elliptica	2
Eunotia exigua	4
Eunotia pectinalis var. minor	32
Fragilaria vaucheriae	8
Frustulia rhomboides var. crassinervia	3
Frustulia rhomboides var. saxonica	2
Frustulia vulgaris	*
Gomphonema acuminatum	*
Gomphonema angustatum	5
Gomphonema gracile	2
Gomphonema parvulum	8
Gyrosigma spencerii	1
Hantzschia amphioxys	1
Melosira varians	13
Navicula contenta	2
Navicula cryptocephala	160
Navicula decussis	28
Navicula elginensis	*
Navicula lanceolata	1
Navicula minima	12
Navicula pupula var. capitata	*
Navicula radiosa var. tenella	2
Navicula rhynchocephala	1

*Qualitative data
 **Relative abundance of *Navicula+Nitzschia+Surriella*
 06/25/96

DIATOM COLLECTION DATA

Navicula secreta var. apiculata	1
Navicula symmetrica	1
Navicula viridula	6
Navicula viridula var. linearis	*
Nitzschia acicularis	6
Nitzschia gracilis	2
Nitzschia palea	21
Nitzschia paleacea	9
Nitzschia pusilla	1
Nitzschia recta	*
Nitzschia tropica	6
Nitzschia vermicularis	5
Pinnularia biceps	1
Pinnularia mesolepta	*
Pinnularia subcapitata	1
Pinnularia viridis	1
Surirella angustata	1
Surirella linearis	4
Surirella ovata	2
Synedra acus	*
Synedra rumpens var. familiaris	4
Synedra ulna	6
Thalassiosira weissflogii	*

 Station ID: REFMVPAC Collection Date: 11/15/94

Total Number of Taxa (TNT):	62
Total Number of Individuals (TNI):	554
Diversity (H):	1.20
Percent (%) Sensitive Individuals:	10.1
Pollution Tolerance Index (PTI):	2.7
Siltation Index**:	47.7

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFMVPAC (09010001) Stream: PANTHER CREEK
 Mile Point: 1.20 Drainage Area: 20.9 square miles
 Order: 4 Ecoregion: MISSISSIPPI VALLEY LOESS PLAIN
 County: GRAVES Basin: TENNESSEE
 Map Number: 03-12 Latitude: 36-52-00 Longitude: 088-31-21
 Location Description: HWY 2580; 0.3 MI SE OF HWY 301 JUNCTION

Date Collected: 04/12/95 Comments:
 Sample ID: 19950412-12 Substrate Type: Natural
 ID By:

Achnanthes deflexa	4
Achnanthes detha	1
Achnanthes lanceolata	2
Achnanthes lanceolata var. dubia	*
Achnanthes minutissima	114
Caloneis bacillum	1
Cyclotella meneghiniana	*
Cyclotella pseudostelligera	*
Cyclotella stelligera	*
Cyclotella striata var. ambigua	*
Cymbella aspera	*
Cymbella hustedtii	*
Cymbella microcephala	*
Cymbella minuta	3
Cymbella naviculiformis	2
Cymbella silesiaca	17
Cymbella tumida	*
Cymbella turgidula	*
Eunotia curvata	3
Eunotia exigua	2
Eunotia maior	*
Eunotia naegelii	*
Eunotia pectinalis var. minor	1
Fragilaria vaucheriae	3
Frustulia rhomboides var. crassinervia	1
Frustulia rhomboides var. saxonica	1
Frustulia vulgaris	3
Frustulia weinholdii	1
Gomphonema affine	4
Gomphonema angustatum	16
Gomphonema parvulum	12
Gomphonema subclavatum	*
Hantzschia amphioxys	*
Melosira granulata	*
Melosira varians	*
Meridion circulare	13
Navicula atomus	2
Navicula contenta	*
Navicula cryptocephala	72

* Qualitative data

** Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

<i>Navicula cryptocephala</i> var. <i>veneta</i>	16
<i>Navicula decussis</i>	3
<i>Navicula gottlandica</i>	2
<i>Navicula hustedtii</i>	2
<i>Navicula laevissima</i>	*
<i>Navicula lanceolata</i>	2
<i>Navicula minima</i>	46
<i>Navicula mutica</i>	*
<i>Navicula notha</i>	12
<i>Navicula pupula</i> var. <i>capitata</i>	1
<i>Navicula radiosa</i> var. <i>tenella</i>	*
<i>Navicula rhynchocephala</i>	4
<i>Navicula schroeteri</i> var. <i>escambia</i>	*
<i>Navicula secreta</i> var. <i>apiculata</i>	*
<i>Navicula seminulum</i>	1
<i>Navicula viridula</i>	1
<i>Navicula viridula</i> var. <i>linearis</i>	*
<i>Navicula viridula</i> var. <i>rostellata</i>	1
<i>Neidium bisulcatum</i>	1
<i>Nitzschia acicularis</i>	34
<i>Nitzschia amphibia</i>	*
<i>Nitzschia dissipata</i>	5
<i>Nitzschia filiformis</i>	2
<i>Nitzschia gracilis</i>	2
<i>Nitzschia linearis</i>	2
<i>Nitzschia lorenziana</i> var. <i>subtilis</i>	*
<i>Nitzschia palea</i>	15
<i>Nitzschia paleacea</i>	*
<i>Nitzschia pelliculosa</i>	1
<i>Nitzschia recta</i>	9
<i>Nitzschia vermicularis</i>	1
<i>Pinnularia biceps</i>	1
<i>Pinnularia mesolepta</i>	*
<i>Pinnularia viridis</i>	*
<i>Stauroneis anceps</i>	1
<i>Surirella angustata</i>	*
<i>Surirella ovata</i>	9
<i>Synedra acus</i>	1
<i>Synedra delicatissima</i>	15
<i>Synedra rumpens</i>	*
<i>Synedra rumpens</i> var. <i>familiaris</i>	3
<i>Synedra ulna</i>	34

 Station ID: REFMVPAC Collection Date: 04/12/95

Total Number of Taxa (TNT): 81
 Total Number of Individuals (TNI): 505
 Diversity (H): 1.26
 Percent (%) Sensitive Individuals: 7.9
 Pollution Tolerance Index (PTI): 2.5
 Siltation Index **: 46.7

*Qualitative data

**Relative abundance of *Navicula*+*Nitzschia*+*Surirella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFMVSDC (09010002) Stream: SOLDIERS CREEK
 Mile Point: 1.10 Drainage Area: 18.5 square miles
 Order: 4 Ecoregion: MISSISSIPPI VALLEY LOESS PLAIN
 County: MARSHALL Basin: TENNESSEE
 Map Number: 03-13 Latitude: 36-47-48 Longitude: 088-27-26
 Location Description: VANZORA CHURCH ROAD (KY 2603) BRIDGE

Date Collected: 10/15/92 Comments:
 Sample ID: 19921015-10 Substrate Type: Natural
 ID By:

<i>Achnanthes lanceolata</i>	45
<i>Achnanthes minutissima</i>	69
<i>Bacillaria paradoxa</i>	7
<i>Caloneis budensis</i>	1
<i>Cocconeis placentula</i> var. <i>euglypta</i>	1
<i>Cyclotella stelligera</i>	1
<i>Cyclotella striata</i> var. <i>ambigua</i>	6
<i>Cymbella affinis</i>	*
<i>Cymbella aspera</i>	*
<i>Cymbella minuta</i>	1
<i>Cymbella naviculiformis</i>	1
<i>Cymbella silesiaca</i>	2
<i>Cymbella tumida</i>	*
<i>Cymbella turgidula</i>	2
<i>Denticula elegans</i>	5
<i>Diploneis elliptica</i>	*
<i>Entomoneis ornata</i>	1
<i>Eunotia curvata</i>	7
<i>Eunotia exigua</i>	*
<i>Eunotia pectinalis</i> var. <i>minor</i>	*
<i>Fragilaria vaucheriae</i>	3
<i>Frustulia rhomboides</i> var. <i>crassinervia</i>	3
<i>Frustulia rhomboides</i> var. <i>saxonica</i>	*
<i>Frustulia vulgaris</i>	*
<i>Gomphonema affine</i>	*
<i>Gomphonema angustatum</i>	*
<i>Gomphonema parvulum</i>	3
<i>Gyrosigma scalproides</i>	*
<i>Gyrosigma spencerii</i>	*
<i>Hantzschia amphioxys</i>	*
<i>Melosira granulata</i>	*
<i>Melosira italica</i>	4
<i>Melosira varians</i>	12
<i>Meridion circulare</i>	*
<i>Navicula capitata</i>	2
<i>Navicula cryptocephala</i>	15
<i>Navicula decussis</i>	27
<i>Navicula elginensis</i>	*
<i>Navicula laevissima</i>	*

 *Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*

06/25/96

DIATOM COLLECTION DATA

<i>Navicula lanceolata</i>	*
<i>Navicula minima</i>	7
<i>Navicula placenta</i>	*
<i>Navicula pupula</i>	1
<i>Navicula radiosa</i>	*
<i>Navicula radiosa</i> var. <i>parva</i>	7
<i>Navicula radiosa</i> var. <i>tenella</i>	6
<i>Navicula rhynchocephala</i>	6
<i>Navicula schroeteri</i> var. <i>escambia</i>	4
<i>Navicula secreta</i> var. <i>apiculata</i>	13
<i>Navicula symmetrica</i>	2
<i>Navicula viridula</i>	18
<i>Navicula viridula</i> var. <i>linearis</i>	*
<i>Neidium affine</i>	*
<i>Nitzschia acicularis</i>	2
<i>Nitzschia brevissima</i>	*
<i>Nitzschia clausii</i>	1
<i>Nitzschia coarctata</i>	*
<i>Nitzschia constricta</i>	*
<i>Nitzschia dissipata</i>	3
<i>Nitzschia filiformis</i>	21
<i>Nitzschia gracilis</i>	15
<i>Nitzschia levidensis</i>	*
<i>Nitzschia linearis</i>	7
<i>Nitzschia lorenziana</i> var. <i>subtilis</i>	5
<i>Nitzschia microcephala</i>	3
<i>Nitzschia palea</i>	44
<i>Nitzschia recta</i>	5
<i>Nitzschia romana</i>	4
<i>Nitzschia rostellata</i>	2
<i>Nitzschia sigmoidea</i>	1
<i>Nitzschia sinuata</i> var. <i>tabellaria</i>	*
<i>Nitzschia</i> sp.1	1
<i>Nitzschia tryblionella</i> var. <i>victoriae</i>	3
<i>Nitzschia vermicularis</i>	10
<i>Pinnularia biceps</i>	2
<i>Pinnularia mesolepta</i>	2
<i>Pinnularia subcapitata</i>	1
<i>Pinnularia viridis</i>	8
<i>Pinnularia viridis</i> var. <i>minor</i>	*
<i>Rhoicosphenia curvata</i>	2
<i>Stauroneis anceps</i> f. <i>gracilis</i>	*
<i>Stauroneis phoenicenteron</i>	*
<i>Stauroneis smithii</i>	*
<i>Surirella angustata</i>	11
<i>Surirella linearis</i>	1
<i>Surirella linearis</i> var. <i>helvetica</i>	*
<i>Surirella ovalis</i>	*
<i>Surirella ovata</i> var. <i>pinnata</i>	2
<i>Synedra acus</i>	*
<i>Synedra rumpens</i>	2

 * Qualitative data

** Relative abundance of *Navicula+Nitzschia+Surirella*

06/25/96

DIATOM COLLECTION DATA

Synedra rumpens var. familiaris	3
Synedra ulna	11
Thalassiosira weissflogii	2

Station ID: REFMVSDC Collection Date: 10/15/92

Total Number of Taxa (TNT):	93
Total Number of Individuals (TNI):	456
Diversity (H):	1.47
Percent (%) Sensitive Individuals:	2.2
Pollution Tolerance Index (PTI):	2.2
Siltation Index**:	51.5

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96

DIATOM COLLECTION DATA

 Site ID: REFMVSDC (09010002) Stream: SOLDIERS CREEK
 Mile Point: 1.10 Drainage Area: 18.5 square miles
 Order: 4 Ecoregion: MISSISSIPPI VALLEY LOESS PLAIN
 County: MARSHALL Basin: TENNESSEE
 Map Number: 03-13 Latitude: 36-47-48 Longitude: 088-27-26
 Location Description: VANZORA CHURCH ROAD (KY 2603) BRIDGE

Date Collected: 05/12/93 Comments:
 Sample ID: 19930512-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	4
Achnanthes hungarica	40
Achnanthes lanceolata	33
Achnanthes minutissima	99
Caloneis bacillum	1
Cyclotella striata var. ambigua	11
Cymbella aspera	1
Cymbella silesiaca	4
Cymbella tumida	*
Cymbella turgidula	*
Entomoneis ornata	1
Eunotia curvata	*
Eunotia exigua	1
Eunotia maior	*
Eunotia naegelii	*
Eunotia pectinalis var. minor	3
Eunotia triodon	*
Fragilaria vaucheriae	10
Frustulia rhomboides var. crassinervia	*
Frustulia vulgaris	*
Gomphonema affine	3
Gomphonema angustatum	10
Gomphonema parvulum	3
Gyrosigma spencerii	*
Hantzschia amphioxys	*
Melosira varians	*
Meridion circulare	4
Navicula atomus	8
Navicula cryptocephala	32
Navicula cryptocephala var. veneta	15
Navicula decussis	13
Navicula lanceolata	1
Navicula menisculus var. upsaliensis	*
Navicula minima	17
Navicula pelliculosa	1
Navicula pupula	1
Navicula radiosa	*
Navicula rhynchocephala	5
Navicula secreta var. apiculata	56

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

<i>Navicula viridula</i>	1
<i>Navicula viridula</i> var. <i>rostellata</i>	*
<i>Neidium affine</i>	*
<i>Nitzschia acicularis</i>	39
<i>Nitzschia communis</i>	7
<i>Nitzschia dissipata</i>	5
<i>Nitzschia filiformis</i>	15
<i>Nitzschia gracilis</i>	7
<i>Nitzschia linearis</i>	42
<i>Nitzschia palea</i>	37
<i>Nitzschia recta</i>	8
<i>Nitzschia vermicularis</i>	2
<i>Pinnularia subcapitata</i> var. <i>paucistriata</i>	1
<i>Pinnularia viridis</i>	*
<i>Rhoicosphenia curvata</i>	*
<i>Stauroneis anceps</i>	*
<i>Surirella angustata</i>	17
<i>Surirella ovata</i>	4
<i>Synedra acus</i>	12
<i>Synedra rumpens</i>	1
<i>Synedra rumpens</i> var. <i>familiaris</i>	10
<i>Synedra ulna</i>	2
<i>Thalassiosira weissflogii</i>	*

 Station ID: REFMVSDC Collection Date: 05/12/93

Total Number of Taxa (TNT):	62
Total Number of Individuals (TNI):	587
Diversity (H):	1.34
Percent (%) Sensitive Individuals:	8.5
Pollution Tolerance Index (PTI):	2.4
Siltation Index**:	53.2

 * Qualitative data
 ** Relative abundance of *Navicula+Nitzschia+Surriella*
 06/25/96

DIATOM COLLECTION DATA

 Site ID: REFMVSD2 (09010003) Stream: SOLDIERS CREEK
 Mile Point: 2.60 Drainage Area: 0.0 square miles
 Order: 4 Ecoregion: MISSISSIPPI VALLEY LOESS PLAIN
 County: MARSHALL Basin: TENNESSEE
 Map Number: 03-13 Latitude: 36-47-39 Longitude: 088-26-02
 Location Description: HWY 58 BRIDGE

Date Collected: 05/03/94 Comments:
 Sample ID: 19940503-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	13
Achnanthes lanceolata	14
Achnanthes minutissima	16
Achnanthes stewartii	1
Amphora submontana	*
Caloneis bacillum	*
Cyclotella striata var. ambigua	1
Cymbella aspera	*
Cymbella hauckii	1
Cymbella lunata	*
Cymbella naviculiformis	*
Cymbella silesiaca	12
Cymbella triangulum	28
Cymbella tumida	5
Denticula elegans	*
Eunotia curvata	*
Eunotia maior	*
Eunotia pectinalis var. minor	1
Fragilaria vaucheriae	7
Frustulia rhomboides var. crassinervia	1
Frustulia vulgaris	2
Gomphonema angustatum	3
Gomphonema parvulum	5
Gyrosigma spencerii	*
Hantzschia amphioxys	1
Melosira granulata	*
Melosira varians	1
Meridion circulare	6
Navicula atomus	16
Navicula cryptocephala	71
Navicula cryptocephala var. veneta	20
Navicula decussis	3
Navicula gottlandica	1
Navicula lanceolata	6
Navicula minima	70
Navicula radiosa var. tenella	*
Navicula rhychocephala	4
Navicula secreta var. apiculata	66
Navicula viridula	1

*Qualitative data
 **Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Neidium affine	1
Nitzschia acicularis	2
Nitzschia amphibia	*
Nitzschia clausii	1
Nitzschia communis	5
Nitzschia dissipata	6
Nitzschia filiformis	6
Nitzschia frustulum	3
Nitzschia gracilis	1
Nitzschia linearis	19
Nitzschia palea	19
Nitzschia recta	1
Nitzschia sigmoidea	*
Nitzschia vermicularis	1
Pinnularia mesolepta	2
Pinnularia obscurum	1
Pinnularia subcapitata var. paucistriata	1
Pinnularia viridis	2
Rhoicosphenia curvata	19
Stauroneis anceps	*
Stauroneis phoenicenteron	*
Surirella angustata	36
Surirella linearis	1
Surirella ovata	*
Synedra acus	2
Synedra delicatissima	*
Synedra rumpens	*
Synedra rumpens var. familiaris	8
Synedra ulna	5

 Station ID: REFVSD2 Collection Date: 05/03/94

Total Number of Taxa (TNT):	68
Total Number of Individuals (TNI):	518
Diversity (H):	1.34
Percent (%) Sensitive Individuals:	11.6
Pollution Tolerance Index (PTI):	2.2
Siltation Index**:	62.2

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella
 06/25/96

DIATOM COLLECTION DATA

Site ID: REFMVSD2 (09010003)	Stream: SOLDIERS CREEK
Mile Point: 2.60	Drainage Area: 0.0 square miles
Order: 4	Ecoregion: MISSISSIPPI VALLEY LOESS PLAIN
County: MARSHALL	Basin: TENNESSEE
Map Number: 03-13	Latitude: 36-47-39 Longitude: 088-26-02
Location Description: HWY 58 BRIDGE	

Date Collected: 11/15/94	Comments:
Sample ID: 19941115-10	Substrate Type: Natural
ID By:	

Achnanthes deflexa	31
Achnanthes exigua	1
Achnanthes lanceolata	6
Achnanthes linearis	12
Achnanthes minutissima	25
Achnanthes stewartii	*
Amphipleura pellucida	1
Bacillaria paradoxa	1
Caloneis bacillum	1
Caloneis ventricosa	*
Cyclotella atomus	1
Cyclotella striata var. ambigua	4
Cymbella aspera	*
Cymbella naviculiformis	2
Cymbella silesiaca	2
Cymbella tumida	1
Denticula elegans	*
Diploneis elliptica	3
Diploneis puella	*
Eunotia curvata	6
Eunotia maior	2
Eunotia pectinalis var. minor	28
Frustulia rhomboides var. crassinervia	7
Frustulia rhomboides var. amphipleuroides	1
Frustulia vulgaris	14
Frustulia weinholdii	7
Gomphonema affine	*
Gomphonema angustatum	*
Gomphonema gracile	1
Gomphonema parvulum	4
Gyrosigma scalproides	2
Gyrosigma spencerii	*
Hantzschia amphioxys	2
Melosira varians	9
Meridion circulare	1
Navicula atomus	5
Navicula capitata	*
Navicula cryptocephala	26
Navicula cryptocephala var. veneta	3

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula decussis	7
Navicula exigua	1
Navicula hustedtii	3
Navicula menisculus var. upsaliensis	1
Navicula minima	76
Navicula notha	11
Navicula pupula	1
Navicula pupula var. rectangularis	*
Navicula radiosa var. tenella	2
Navicula rhynchocephala	*
Navicula schroeteri var. escambia	17
Navicula secreta var. apiculata	2
Navicula subhamulata var. undulata	*
Navicula symmetrica	2
Navicula viridula	1
Navicula viridula var. rostellata	3
Neidium affine	*
Nitzschia acicularis	3
Nitzschia clausii	6
Nitzschia coarctata	3
Nitzschia dissipata	5
Nitzschia fonticola	7
Nitzschia frustulum	21
Nitzschia gracilis	6
Nitzschia lorenziana var. subtilis	1
Nitzschia microcephala	*
Nitzschia palea	58
Nitzschia paleacea	4
Nitzschia recta	8
Nitzschia sigmoidea	1
Nitzschia sp.1	1
Nitzschia tryblionella var. victoriae	*
Nitzschia vermicularis	17
Pinnularia biceps	2
Pinnularia mesolepta	*
Pinnularia subcapitata	2
Pinnularia subcapitata var. paucistriata	1
Pinnularia viridis	5
Rhoicosphenia curvata	2
Stauroneis anceps	2
Surirella angustata	5
Surirella linearis	*
Surirella linearis var. helvetica	*
Surirella ovata	*
Synedra acus	*
Synedra delicatissima	*
Synedra rumpens var. familiaris	1
Synedra ulna	5

 Station ID: REFMVSD2 Collection Date: 11/15/94

*Qualitative data

**Relative abundance of Navicula+Nitzschia+Surirella

06/25/96

DIATOM COLLECTION DATA

Total Number of Taxa (TNT):	87
Total Number of Individuals (TNI):	502
Diversity (H):	1.48
Percent (%) Sensitive Individuals:	9.2
Pollution Tolerance Index (PTI):	2.1
Siltation Index**:	60.2

*Qualitative data

**Relative abundance of *Navicula+Nitzschia+Surriella*
06/25/96

DIATOM COLLECTION DATA

 Site ID: REFMVSD2 (09010003) Stream: SOLDIERS CREEK
 Mile Point: 2.60 Drainage Area: 0.0 square miles
 Order: 4 Ecoregion: MISSISSIPPI VALLEY LOESS PLAIN
 County: MARSHALL Basin: TENNESSEE
 Map Number: 03-13 Latitude: 36-47-39 Longitude: 088-26-02
 Location Description: HWY 58 BRIDGE

Date Collected: 04/11/95 Comments:
 Sample ID: 19950411-10 Substrate Type: Natural
 ID By:

Achnanthes deflexa	14
Achnanthes detha	*
Achnanthes exigua	*
Achnanthes lanceolata	21
Achnanthes minutissima	95
Amphora ovalis	*
Caloneis bacillum	*
Cyclotella atomus	1
Cyclotella meneghiniana	11
Cyclotella stelligera	*
Cyclotella striata var. ambigua	4
Cymbella aspera	*
Cymbella lunata	*
Cymbella microcephala	2
Cymbella minuta	*
Cymbella naviculiformis	*
Cymbella silesiaca	11
Cymbella triangulum	*
Cymbella tumida	*
Denticula elegans	1
Diatoma vulgare	*
Eunotia curvata	1
Eunotia exigua	*
Eunotia maior	*
Eunotia pectinalis var. minor	1
Fragilaria vaucheriae	27
Frustulia rhomboides var. crassinervia	1
Frustulia vulgaris	*
Gomphonema angustatum	2
Gomphonema gracile	*
Gomphonema parvulum	2
Gyrosigma spencerii	1
Melosira varians	46
Meridion circulare	44
Navicula atomus	10
Navicula capitata	*
Navicula cryptocephala	25
Navicula cryptocephala var. veneta	12
Navicula cuspidata	*

* Qualitative data
 ** Relative abundance of Navicula+Nitzschia+Surriella
 06/25/96

DIATOM COLLECTION DATA

Navicula decussis	1
Navicula gottlandica	*
Navicula hustedtii	1
Navicula menisculus var. upsaliensis	1
Navicula minima	33
Navicula mutica	*
Navicula notha	*
Navicula pupula var. rectangularis	*
Navicula rhynchocephala	1
Navicula secreta var. apiculata	12
Navicula viridula	2
Navicula viridula var. linearis	*
Neidium affine	1
Nitzschia acicularis	17
Nitzschia clausii	*
Nitzschia dissipata	5
Nitzschia filiformis	*
Nitzschia gracilis	*
Nitzschia linearis	53
Nitzschia palea	23
Nitzschia paleacea	3
Nitzschia recta	10
Nitzschia sp.1	*
Nitzschia vermicularis	*
Pinnularia maior	*
Pinnularia mesogonglya	1
Pinnularia mesolepta	1
Pinnularia viridis	*
Stauroneis anceps	*
Stauroneis anceps f. gracilis	*
Stauroneis kriegeri	3
Stauroneis phoenicenteron	*
Surirella angustata	39
Surirella linearis	*
Surirella ovata	5
Synedra acus	*
Synedra delicatissima	1
Synedra rumpens	*
Synedra rumpens var. familiaris	15
Synedra ulna	7
Tetracyclus glans	1

 Station ID: REFVSD2 Collection Date: 04/11/95

Total Number of Taxa (TNT):	80
Total Number of Individuals (TNI):	568
Diversity (H):	1.32
Percent (%) Sensitive Individuals:	5.1
Pollution Tolerance Index (PTI):	2.3
Siltation Index**:	36.8

 *Qualitative data

**Relative abundance of Navicula+Nitzschia+Surriella

06/25/96