# BIOLOGICAL MONITORING PROGRAM EXPANSION

# SALT RIVER BASIN

## FINAL REPORT

by

**Guenter A. Schuster, Danny Jones, Matthew Thomas**
**Dustin Jones and Paulette Akers**

**Department of Biological Sciences**
**Eastern Kentucky University**
**Richmond, KY 40475**

**EPA Cooperative Agreement: C9994861-97**

**MOA Number: m-99042681**

**Agreement Period: 04/01/99 to 10/31/01**

**December 18, 2000**

Funding for this project was provided, in part, by a grant from the U.S. Environmental Protection Agency through the Kentucky Division of Water, Nonpoint Source Section, as authorized by the Clean Water Act Amendments of 1987, Section 319(h) Nonpoint Source Implementation Grant #C9994861-97. The contents of this document do not necessarily reflect the views and policies of the EPA, nor does the mention of trade names or commercial products constitute endorsement.

## TABLE OF CONTENTS

## LIST OF TABLES

## EXECUTIVE SUMMARY

A total of 24 sites within the Salt River Basin were successfully sampled during the summer of 1999. These sites were sampled for fish and macroinvertebrates in order to make an assessment of the water quality of this system. The biological samples were returned to Eastern Kentucky University where they were sorted, identified, enumerated and analyzed according to KDOW QA/QC protocols. The data will be entered into the biological database of KDOW, and have been reported within this document. The data analysis included taxa lists and taxa abundances for fish and macroinvertebrates. In addition, a number of metrics were calculated for both fish and macroinvertebrate samples. These included IBI values for fish, and for macroinvertebrates the Total Richness, Total Number of Individuals, Shannon Diversity, EPT Index, EPT/Chironomid Index, HBI, and percentage composition of each functional feeding group were included. It was learned that these sites represent warmwater streams with typical warmwater fauna. Utilizing IBI assessments two sites were rated as Poor and four sites were rated as Fair. Utilizing the MBI assessment three sites were rated as Very Poor, ten sites were rated as Poor and six sites were rated as Fair. Therefore, according to the MBI 19 of 24 sites were rated as having Fair to Very Poor water quality, as opposed to the IBI assessments, which ranked only six sites in this way. There is an obvious discrepancy between these two tools. The third tool, Habitat Assessment, correlated much better with the MBI results than with the IBI results. Three sites are recommended for remediation (sites 5, 7 and 12). This recommendation is based on a combination of Habitat, MBI and IBA assessments. Two sites (sites 6 and 8) are recommended to be included in the Ambient Monitoring Program. This recommendation is based on the combination of Habitat, MBI and IBI assessments, as well as individual macroinvertebrate metric results. The predominant landuse in the Salt River Basin is Agriculture. It is thought that this landuse potentially contributes to the overall poor assessments of most of the 24 sites sampled. The primary perturbations according to habitat assessments is the reduction of riparian zones and riparian vegetation and the occurrence of sedimentation in the stream.

## INTRODUCTION

An effective method of identifying priority watersheds impacted by nonpoint source pollution is biological monitoring. This project shall allow for expansion of those efforts on the Salt River Basin. Increasing the total number of sampling stations in the biological monitoring network shall ensure a more valid and thorough identification of biological indicators of Nonpoint Source pollution (NPS) and shall enable the Kentucky Division of Water (KDOW) to more accurately assess and monitor the effects of siltation, nutrient enrichment, pesticides, and other pollutants on aquatic communities. These data are necessary for effectively documenting NPS impacts and subsequently targeting NPS remediation efforts. Therefore, sites for this project were located in watersheds that were potentially impacted by these activities. Macroinvertebrates and fish communities were assessed based on methods standardized by the Division in "Methods for Assessing the Biological Integrity of Surface Waters" (KDOW 1993).

The objectives of this project include the establishment of twenty-nine (29) new sites in the Rolling Fork and Beech Fork of the Salt River basin, comparing resulting fish and macroinvertebrate data to Kentucky Division of Water reference reach sites to determine if the aquatic communities deviate from expected conditions, developing baseline databases for fish and macroinvertebrate data, identifying biological indicators that are sensitive to, and/or specific for NPS impacts.

## PLAN OF WORK

The Kentucky Division of Water (KDOW), Water Quality Branch, Ecological Support Section (ESS) had responsibility for coordinating this program. Twenty-nine sites were established in the Rolling Fork and Beech Fork of the Salt River basin, for sampling in 1999. The ESS selected sites that were possibly impacted by either agriculture, silviculture, resource extraction, or a combination of those activities. Land use information gathered from reports generated by other agencies (e.g., National Resources Conservation Service, Nature Preserves Commission, Division of Conservation, Department for Fish & Wildlife Resources) was used to select preliminary sites. Site selection criteria included: (1) known or suspected NPS inputs, (2) no major point sources in upstream watershed, (3) perennial stream (may be pooled in dry season), (4) presence of a nearby, same ecoregion, reference reach site, and (5) balanced geographical site distribution. The ESS strived for a balanced distribution of these sites by both geography and type of impact.

The ESS contracted Eastern Kentucky University to perform the sampling and taxonomic work. Sampling strictly followed protocols outlined in the Division's "Methods for Assessing Biological Integrity of Surface Waters" manual (KDOW 1993) and "Quality Assurance Guidelines" (KDOW 1986). The data will be provided for Aquatic Habitat (WAH) use assessment. Two of the three communities typically sampled by the ESS (fish and macroinvertebrates) were collected and identified to species level, where possible, using current

taxonomic references. Biological indices defined in the "Methods Manual" were calculated by the contract biologists. An additional study on the freshwater mussels of the Rolling Fork River drainage was conducted, and the results are presented in another report.

The data shall be used to 1) provide the River Basin Management team information to make decisions on placement of resources for further monitoring, 2) assist KDOW in making permit decisions in the watershed, 3) assist KDOW in preparing the Kentucky 305(b) report to Congress on Water Quality and determining 303(d) listings, 4) assist Nonpoint Source of the KDOW to determine priority watersheds, 5) enter taxonomic data into statewide database that shall be available to agencies and universities involved with data collection in the watershed.

## STATUS OF REQUIRED OUTPUTS

Four distinct outputs were addressed in the MOA. These have all been fulfilled by the contractor. A summary of these accomplishments is as follows: Output 1, fish and macroinvertebrates have been collected from 24 sites within the Salt River drainage system; Output 2, IBI metrics have been calculated for all sites, and macroinvertebrate metrics have been calculated for all sites and are reported herein; Output 3, a written report assessing freshwater mussels has been prepared as a separate document, and was submitted to KDOW; Output 4, a preliminary report was presented to the annual Nonpoint Source Conference at Bowling Green, 2000 in the form of a poster presentation.

## RESULTS AND DISCUSSION

A total of 29 sites (Table 1) were scheduled to be sampled in the Salt River basin, however, due to drought conditions, which caused some streams to dry, three sites (Sites 19, 20, 21) could not be sampled. Two sites (Sites 28, 29) were located on Fort Knox and could not be sampled due to unsafe conditions. Therefore, a total of 24 sites were actually sampled during the summer of 1999. The raw fish and macroinvertebrate data generated by this project are presented in Appendix 1 and 2, respectively. Summary sheets that provide assessment information for both the macroinvertebrate and fish communities at each site can be found in the Appendix 3. Each summary sheet provides the location of that site, habitat assessment, an assessment of the macroinvertebrate community and an assessment of the fish community. The following is a discussion of each of the four pre-established objectives, and how each objective was met.

Table 1. Location of Twenty-nine Sampling Sites in the Salt River basin. * indicates sites not sampled due to unfavorable conditions

| Site # | HUC # | County | Stream | LOCATION |
|---|---|---|---|---|
| 1 | 05140103010 | Boyle | North Rolling Fk. | Hwy 37 2.5 mi E Forkland |
| 2 | 05140103010 | Boyle | Scrubgrass Br. | Jct Hwy243&1856, 3 mi N Forkland |
| 3 | 05140103010 | Marion | Jones Cr. | Jones Cr. Rd. 1.5 mi NE Bradfordsville |
| 4 | 05140103010 | Marion | North Rolling Fk. | River Rd 1.5 mi NE Bradfordsville |
| 5 | 05140103030 | Marion | Prather Cr. | Hwy 527 1 mi W Raywick |
| 6 | 05140103050 | Larue | Middle Fk. Otter Cr. | Wayne-Ennis Rd. 0.5 mi SE Ginseng |
| 7 | 05140103050 | Larue | W. Fk. Otter Cr. | Perking Rd. of Hwy 210, 2.4 mi SW Ginseng |
| 8 | 05140103020 | Larue/Nelson | Rolling Fk. | Gaddys Ford Rd. 3 mi NW Stiles |
| 9 | 05140103070 | Larue | Knob Cr. | Blanton Rd. 0.5 mi E Athertonville |
| 10 | 05140103090 | Hardin | Younger Cr. | Hwy 2799 3 mi SW of Youngers Creek |
| 11 | 05140103100 | Washington/Marion | Beech Fk. | Beech Rd. 1 mi E Texas |
| 12 | 05140103100 | Washington | E. Fk. Beech Fk. | Beech Rd. 1 mi E Texas |
| 13 | 05140103100 | Washington/Marion | Pleasant Run | Tick Cr. Rd. 4 mi NE Springfield |
| 14 | 05140103100 | Washington | Beech Fk. | Hardesty Rd. 1.5 mi SE Hardesty |
| 15 | 05140103100 | Washington | Long Lick Cr. | Hardesty Rd. 1 mi S Polin |
| 16 | 05140103100 | Boyle | Chaplin R. | Claunch R. 2 mi N Perryville |
| 17 | 05140103100 | Boyle | Doctors Fk. | Shortline Rd. 3 mi SW Perryville |
| 18 | 05140103100 | Mercer | Chaplin R. | Hwy 152 2.4 mi SE Bushtown |
| 19* | 05140103100 | Mercer | Hayden Cr. | Unable to sample; no water |
| 20* | 05140103100 | Washington/Mercer | Thompson Cr. | Unable to sample; no water |
| 21* | 05140103100 | Washington | Chaplin R. | Unable to sample; no water |
| 22 | 05140103160 | Washington/Mercer | Cartwright Cr. | Hwy 1724 2.4 mi NE Bear Wallow |
| 23 | 05140103160 | Washington | Road Run | Walker Ln. 2 mi S Valley Hill |
| 24 | 05140103150 | Nelson | Rowan Cr. | Hwy 31E 0.5 mi S Bardstown |
| 25 | 05140103190 | Nelson | Lick Cr. | Lick Cr. Ln. 2 mi E Boston |
| 26 | 05140103210 | Hardin | Clear Cr. | Jct Upper and Lower Colesburg Rd., 1 mi NE of Colesburg |
| 27 | 05140103200 | Bullitt/Hardin | Rolling Fk. | Hwy 434 1.5 mi NE Booth |
| 28* | 05140103230 | Hardin | Crooked Cr. | Unable to sample; tank range |
| 29* | 05140103200 | Hardin | Cedar Cr. | Unable to sample; tank range |

**Objective 1: Assessment of Water Quality of Salt River**

A total of 24 sites were sampled in the Salt River basin. Each site was assessed in terms of habitat, macroinvertebrate and fish communities. Three sites could not be sampled due to drought conditions, and two sites could not be sampled because of their location on tank range areas on Fort Knox. Summary assessment sheets for each site are provided in Appendix 3.

## FISH COMMUNITY ASSESSMENTS

IBI scores were calculated for all sampled sites using metrics from KDOW (1997) with updated metric values provided by KDOW (Michael Compton, personal communications). Species abundance is given for each site in Table 2. The raw IBI data and scores are presented for each site in Appendix 1. A total of 5391 individual fish representing 49 species in 11 families were collected from the 24 sites. The total number of species collected from any site varied from two species (site 7) to 22 species (site 1). Eight sites had 20 or more species, while only one site (7) had less than 13 species represented. Site 7 also had the lowest number of individuals (31); site 4 had the highest number of individuals collected (482). IBI scores ranged from 28 (site 7) with a Poor water quality rating to 58 (site 6) with an Excellent water quality rating. Two of the sites scored in the Poor range, and all other sites scored 40 or greater. Four sites scored Fair (sites 18, 22, 23, and 26); two sites scored Fair/Good (sites 12 and 14); ten sites scored in the Good category (sites 1, 2, 3, 4, 9, 10, 11, 13, 16, and 25); five sites scored in the Good/Excellent category (sites 5, 8, 15, 17, and 24); one site (6) scored Excellent.

## MACROINVERTEBRATE COMMUNITY ASSESSMENTS

Raw macroinvertebrate data are presented for each site in Appendix 2. Sites 5, 12 and 24 had the lowest MBI scores (5, 8 and 8 respectively) for all sites, and these were considered to represent Very Poor water quality. Ten sites scored Poor (7, 9, 10-15, 17, 18, 26); six scored Fair (2, 3, 16, 22, 23, 26); five scored Good (1, 4, 6, 8, 27); no site score in the Excellent category.

The scores for six individual macroinvertebrate metrics are presented for each site in Table 3. The highest Total Number of Individuals (TNI) collected was at site 16 (4901); while the lowest TNI was at site 26 (173). The Taxa Richness (TR) ranged from 19 (site 12) to 59 (site 22). The modified Hilsenhoff Biotic Index (HBI) values ranged from 4.37 (site 25) to 7.00 (site 5). The Ephemeroptera, Plecoptera, Trichoptera (EPT) index ranged from 4 (site 24) to 22 (site 8). The Percent EPT of the total number of individuals collected (% EPT) ranged from 9.9 (site 24) to 80.5 (site 27). The Percent of the Dominant Five taxa (PCD-5) ranged from39.0 (site 9) to 87.1 (site 23). The EPT and HBI seemed to be the best indicators for poorer water quality. A combination of EPT scores of less than 10 and HBI scores of greater than 6 generally indicated poor sites. However, TR scores of greater than 40, HBI scores less than 6 and EPT scores greater than 15 generally indicated sites of good water quality or better.

Table 2. KDOW-EKU Rolling Fork River Fish Data 1999

| | Site Numbers | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Species** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** | **16** | **17** | **18** | **22** | **23** | **24** | **25** | **26** | **27** | **Totals** |
| *Esox americanus vermiculatus* | | | | | | | | | | | | | | | | | | | | | | 2 | | | 2 |
| *Campostoma anomalum* | 21 | 7 | 21 | 66 | 14 | 29 | | 16 | 45 | 75 | 14 | 6 | 1 | 19 | 25 | 17 | 20 | 1 | 62 | 95 | 53 | 8 | 10 | 50 | 675 |
| *Cyprinella spiloptera* | 28 | 23 | 3 | 80 | 23 | | | 58 | 5 | | 3 | 10 | | 43 | 18 | | | | 32 | 18 | 73 | 3 | | 14 | 434 |
| *Cyprinella whipplei* | 15 | | | | | 1 | | 31 | | | | | | 24 | 19 | | | | | 13 | 50 | | | | 153 |
| *Ericymba buccata* | | | | | | 2 | | | 8 | | 1 | | 2 | 4 | | | | | | 21 | | | 1 | | 39 |
| *Erimystax dissimilis* | | | | 1 | | | | | | | | | | | | | | | | | | | | | 1 |
| *Hybopsis amblops* | 1 | | | | | | | | | | | | | | | | | 1 | | | | | | | 2 |
| *Luxilus chrysocephalus* | 78 | | 18 | 37 | 3 | 11 | | 2 | 9 | | | | | 14 | 9 | 3 | 6 | 39 | | 12 | | 2 | 37 | | 280 |
| *Lythrurus fasciloaris* | 69 | 3 | 29 | 16 | 11 | 5 | | 3 | 81 | 13 | 34 | 53 | 20 | 90 | 2 | 60 | 42 | 39 | | 8 | | 11 | 97 | | 686 |
| *Notropis boops* | 3 | | 2 | 12 | 39 | | | 5 | 12 | | 9 | | 13 | 42 | 22 | 23 | 28 | 2 | | | 3 | | 3 | 4 | 222 |
| *Notropis rubellus* | 4 | | | 15 | | | | 36 | 20 | | | | | | | | | | | | | | | 8 | 83 |
| *Notropis stramineus* | | | | | | | | | | | 4 | | | | | | | | | | | | | | 4 |
| *Notropis volucellus* | 7 | | | | | | | 14 | | | | | | 45 | 12 | | | | 9 | | | | | | 87 |
| *Phoxinus erythogaster* | | 1 | 5 | | | | | | | | | | | | | | | | | | | | | | 6 |
| *Pimephales notatus* | 14 | 2 | 7 | 25 | 10 | 1 | | 3 | 61 | | 44 | 44 | 5 | 6 | 8 | 33 | 17 | 7 | 18 | 13 | 41 | 5 | 18 | 6 | 388 |
| *Pimephales promelas* | | | | | | | | | | | | | | | | | | | | | 1 | | | | 1 |
| *Rhinichthys atratulus* | | | | | | | 24 | | | | | | | | | | | | | | | | | | 24 |
| *Semotilus atromaculatus* | 3 | 19 | 30 | 2 | 9 | 3 | 7 | | 1 | | 8 | 30 | 1 | 4 | 12 | 2 | 11 | 17 | 1 | 24 | | 1 | | | 185 |
| *Catostomus commersoni* | | | | | 1 | 3 | | | 2 | | 3 | 3 | | | 3 | | 3 | | | | | | | | 18 |
| *Hypentelium nigricans* | 3 | | | 10 | 3 | 4 | | 4 | 7 | 9 | 7 | 4 | 2 | 2 | 3 | | | | | | 2 | 1 | | | 61 |
| *Moxostoma duquesnei* | 7 | | | | 1 | 1 | | | | 4 | | | | | | | | | | | | | | | 13 |
| *Moxostoma erythrurum* | | | | | | | | 1 | | | | | | | | | | | | | 3 | | | | 4 |
| *Ameiurus melas* | 1 | | | | | | | | | | | | | | | 1 | | | | | | | | | 2 |
| *Ameiurus natalis* | | | 2 | 1 | | | | | | 1 | 3 | | 1 | | | | | 1 | 1 | 5 | | | | | 15 |
| *Noturus flavus* | | | | | | | | 9 | | | 1 | | | 8 | | | | | | | 4 | | | 2 | 24 |
| *Noturus miurus* | | | | 2 | | | | | | | | | | | | | | | | | | | | | 2 |
| *Noturus stigomosus* | | | | | | | | 1 | | | | | | | | | | | | | 1 | | | 1 | 3 |
| *Fundulus catenatus* | 7 | 1 | 3 | 6 | 2 | 1 | | | 17 | 38 | 2 | 4 | 1 | 1 | | | | | | | | | 25 | | 108 |
| *Fundulus notatus* | | | | | 2 | | | | | | | | 4 | | 4 | | 4 | | | | | 5 | | | 19 |
| *Gambusia affinis* | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 |
| *Labidesthes sicculus* | | | | | 4 | | | | | | | | | | 1 | | | | | | | 2 | | | 7 |
| *Cottus carolinae* | | | | | | | | | | | | | | | | 23 | | | | | | | 3 | 3 | 29 |
| *Ambloplites rupestris* | 2 | 1 | | 2 | | | | 3 | | 7 | 1 | | | 1 | 1 | 1 | | 2 | | | | | 2 | | 23 |
| *Lepomis cyanellus* | | | | | 4 | | | | 1 | 6 | 2 | 1 | 2 | 1 | 1 | 1 | 6 | 14 | 2 | 2 | 1 | 2 | 1 | 5 | 52 |
| *Lepomis macrochirus* | | | | | 5 | | | | 1 | 1 | | 1 | | | | 1 | | 2 | 5 | 1 | 2 | 1 | | | 20 |
| *Lepomis megalotis* | 16 | 29 | 17 | 9 | 36 | 3 | | 5 | 17 | 25 | 33 | 49 | 23 | 11 | 12 | 7 | 9 | 36 | 10 | 25 | 5 | 13 | 3 | | 393 |
| *Lepomis microlophus* | | | | | | | | | | | | | | | | | | | | | 1 | 1 | | | 2 |
| *Micropterus dolomieu* | 3 | 1 | | 1 | | 1 | | | | 15 | | | | | 1 | | | | | | | | | | 22 |
| *Micropterus punctatus* | | | | | 1 | | | | 2 | | | | | | | | 2 | | | | | 3 | | | 8 |

| | Site Numbers | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Species** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** | **16** | **17** | **18** | **22** | **23** | **24** | **25** | **26** | **27** | **Totals** |
| *Etheostoma blennioides* | 1 | | | 27 | | 1 | | 11 | 1 | | 10 | 2 | 4 | 21 | 2 | 10 | | | 3 | | 125 | | 3 | | 221 |
| *Etheostoma caeruleum* | 2 | 3 | | 39 | 10 | 38 | | 1 | 14 | 48 | 13 | 1 | 14 | 48 | 16 | 29 | 8 | 2 | 8 | 7 | 30 | 4 | 38 | | 373 |
| *Etheostoma flabellare* | 4 | 24 | 24 | 39 | | 44 | | 8 | 1 | 43 | 46 | 4 | 10 | 40 | 8 | 20 | 14 | 32 | 32 | 15 | 86 | 3 | 2 | 4 | 503 |
| *Etheostoma nigrum* | | | | | 7 | | | | 10 | | 1 | 7 | 27 | | 2 | 4 | 9 | 1 | 2 | | | 3 | | 1 | 74 |
| *Etheostoma cf. spectabile* "Headwater" | 2 | | 4 | | | | | | | | | | | | | | 5 | | | | | | | | 11 |
| *Aplodinotus grunniens* | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 |
| **Total Number of Individuals** | 291 | 114 | 165 | 413 | 186 | 148 | 31 | 285 | 315 | 285 | 239 | 219 | 130 | 427 | 181 | 235 | 184 | 192 | 185 | 259 | 482 | 71 | 243 | 111 | 5391 |
| **Total Number of Species** | 22 | 12 | 13 | 21 | 20 | 16 | 2 | 21 | 20 | 13 | 20 | 15 | 16 | 20 | 21 | 16 | 15 | 16 | 13 | 14 | 18 | 19 | 14 | 13 | 49 |

Table 3. Summary of Macroinvertebrate Metric Scores of all Salt River Sites. TNI= Total Number of Individuals; TR= Taxa Richness; HBI= modified Hilsenhoff Biotic Index; EPT= Ephemeroptera, Plecoptera, Trichoptera; %EPT= %EPT in total sample; PCD-5= Percent Composition of Dominant five taxa.

| Site # | HUC # | TNI | TR | HBI | EPT | %EPT | PCD-5 |
|---|---|---|---|---|---|---|---|
| 1 | 05140103010 | 681 | 42 | 5.34 | 16 | 61.0 | 89.9 |
| 2 | 05140103010 | 413 | 40 | 6.25 | 13 | 24.0 | 45.0 |
| 3 | 05140103010 | 874 | 55 | 5.67 | 10 | 24.2 | 55.5 |
| 4 | 05140103010 | 363 | 34 | 4.76 | 14 | 64.6 | 55.2 |
| 5 | 05140103030 | 474 | 25 | 7.00 | 6 | 12.2 | 76.2 |
| 6 | 05140103050 | 560 | 40 | 5.47 | 15 | 72.7 | 65.5 |
| 7 | 05140103050 | 846 | 28 | 5.53 | 9 | 43.4 | 69.3 |
| 8 | 05140103020 | 1228 | 48 | 5.72 | 22 | 68.9 | 99.5 |
| 9 | 05140103070 | 370 | 31 | 6.12 | 11 | 42.4 | 39.0 |
| 10 | 05140103090 | 429 | 38 | 6.91 | 13 | 39.8 | 62.9 |
| 11 | 05140103100 | 1664 | 44 | 5.24 | 14 | 25.8 | 80.1 |
| 12 | 05140103100 | 630 | 19 | 5.91 | 5 | 27.6 | 83.5 |
| 13 | 05140103100 | 2512 | 44 | 5.30 | 13 | 32.7 | 83.9 |
| 14 | 05140103100 | 3070 | 48 | 5.89 | 15 | 29.4 | 77.1 |
| 15 | 05140103100 | 691 | 36 | 6.03 | 9 | 55.0 | 78.2 |
| 16 | 05140103100 | 4901 | 48 | 5.06 | 16 | 14.4 | 85.2 |
| 17 | 05140103100 | 695 | 38 | 6.27 | 8 | 16.8 | 59.3 |
| 18 | 05140103100 | 722 | 35 | 5.69 | 10 | 28.0 | 69.9 |
| 19* | 05140103100 | - | - | - | - | - | - |
| 20* | 05140103100 | - | - | - | - | - | - |
| 21* | 05140103100 | - | - | - | - | - | - |
| 22 | 05140103160 | 1665 | 59 | 5.99 | 14 | 21.7 | 54.7 |
| 23 | 05140103160 | 3800 | 43 | 5.49 | 10 | 72.3 | 87.1 |
| 24 | 05140103150 | 392 | 24 | 5.26 | 4 | 9.9 | 87.5 |
| 25 | 05140103190 | 382 | 29 | 4.37 | 7 | 64.1 | 76.7 |
| 26 | 05140103210 | 173 | 28 | 6.05 | 8 | 37.0 | 53.8 |
| 27 | 05140103200 | 277 | 29 | 5.14 | 14 | 80.5 | 74.0 |
| 28* | 05140103230 | - | - | - | - | - | - |
| 29* | 05140103200 | - | - | - | - | - | - |

## HABITAT ASSESSMENTS

The habitat assessment scores and rating for each site can be seen in Table 4. Sites 22 and 23 had the lowest habitat assessment scores each with a score of 75, which is considered supporting but threatened. Site 8 had the highest score with 149, followed by Site 6 with a score of 144. All scores greater than 117 were considered fully supporting, while scores less than 117 were considered supporting but threatened. In general Habitat Assessment scores corresponded more closely to MBI assessments than to IBI assessments. Those Habitat Assessment scores in the Supporting But Threatened range mostly agreed with MBI assessment, while IBI assessments seemed to generally rate water quality higher.

## SUMMARY OF COMMUNITY ASSESSMENTS

A summary sheet for each site is provided in the Appendix 3. A summary of the habitat and biological assessments of each site is presented in Table 4. When examining the three assessments presented in Table 4 one is struck by the apparent disagreement among them at many sites. There were 17 sites rated as Supporting But Threatened, which indicated some habitat problems at each of these sites. The MBI assessments rated three sites as Very Poor and 10 sites were rated as Poor. In general, the IBI assessments were higher at most sites than the MBI assessments (18 of 24 sites). At only one site (site 27) was the IBI assessment lower than the MBI assessment.

When examining these results one must wonder about the robustness and validity of the metrics. In general, it is thought by the authors that the MBI assessment is more robust than the IBI assessment. This is especially true for the following individual macroinvertebrate metrics: Taxa Richness, HBI, and EPT. The MBI also corresponds more closely with the habitat assessments for each site than does the IBI. These results make it difficult to determine the overall assessment of most sites. Therefore, this assessment has not been included.

Table 4. Summary of Habitat and Biological Assessments Scores of all Salt River Sites (FS = Full Supporting; FSB= Supporting But Threatened; G/E= Good/Excellent; G= Good; F = Fair; F/G = Fair/Good; P/F = Poor/Fair; VP= Very Poor).

| Site # | HUC # | Habitat | MBI | IBI |
|---|---|---|---|---|
| 1 | 05140103010 | 107-SBT | 17-G | 50-G |
| 2 | 05140103010 | 86-SBT | 15-F | 52-G |
| 3 | 05140103010 | 108-SBT | 15-F | 48-G |
| 4 | 05140103010 | 141-FS | 19-G | 52-G |
| 5 | 05140103030 | 83-SBT | 5-VP | 54-G/E |
| 6 | 05140103050 | 144-FS | 18-G | 58-E |
| 7 | 05140103050 | 105-SBT | 12-P | 28-P |
| 8 | 05140103020 | 149-FS | 17-G | 54-G/E |
| 9 | 05140103070 | 93-SBT | 12-P | 52-G |
| 10 | 05140103090 | 118-SBT | 12-P | 48-G |
| 11 | 05140103100 | 94-SBT | 15-P | 48-G |
| 12 | 05140103100 | 82-SBT | 8-VP | 46-F/G |
| 13 | 05140103100 | 85-SBT | 13-P | 48-G |
| 14 | 05140103100 | 138-FS | 13-P | 46-F/G |
| 15 | 05140103100 | 123-FS | 11-P | 54-G/E |
| 16 | 05140103100 | 117-FS | 14-F | 48-G |
| 17 | 05140103100 | 93-SBT | 10-P | 54-G/E |
| 18 | 05140103100 | 96-SBT | 12-P | 42-F |
| 19* | 05140103100 | - | - | - |
| 20* | 05140103100 | - | - | - |
| 21* | 05140103100 | - | - | - |
| 22 | 05140103160 | 75-SBT | 16-F | 40-F |
| 23 | 05140103160 | 75-SBT | 16-F | 42-F |
| 24 | 05140103150 | 139-FS | 8-VP | 54-G/E |
| 25 | 05140103190 | 83-SBT | 15-F | 48-G |
| 26 | 05140103210 | 107-SBT | 11-P | 44-F |
| 27 | 05140103200 | 110-SBT | 17-G | 32-P |
| 28* | 05140103230 | - | - | - |
| 29* | 05140103200 | - | - | - |

**Objective 2: Biological Indicators Sensitive to or Specific for NPS Impacts in Salt River Drainage.**

The fish fauna of Salt River included a number species that KDOW has classified as intolerant. These include the following species: *Ambloplites rupestris, Cottus carolinae, Cyprinella whipplei, Erimystax dissimilis, Etheostoma zonale, Hybopsis amblops, Lepomis megalotis, Lythrurus fasciolaris, Micropterus dolomieu, Moxostoma duquesnei, Notropis rubellus, Notropis volucellus, Noturus flavus, Noturus miurus, Noturus stigmosus, Percina caprodes, Percina maculata, Percina phoxocephala and Phoxinus erythrogaster.* The macroinvertebrate fauna included numerous taxa (i.e., EPT taxa) that have been classified as generally intolerant to NPS. The fauna is for the most part a warm water fauna that by its nature consists of a variety of relatively tolerant taxa. A fair representation of the classic intolerant EPT groups were collected. However, even in these groups many of the taxa are considered to be somewhat tolerant (e.g., *Cheumatopsyche*, *Stenonema*).

**Objective 3: Establish Sites That Will Be Permanently Included in the Ambient Biological Monitoring Program Sampling Rotation**

It is recommended that two sites could be used for permanent ambient biological monitoring. They are Sites 6 and 8. This recommendation is based on habitat, fish and macroinvertebrate assessments at these sites. The MBI assessment for both sites indicated Good water quality. Both sites had Taxa Richness of 40 or greater; HBI values less than 6; EPT index of 15 or greater; % EPT for each was greater than 65%; and PCD-5 for each was less than 70%. Site 6 scored 58 on the IBI and site 8 scored 54. Each site was represented by several intolerant species of fish. The habitat assessments were 144 for site 6 and 149 for site 8, both were Fully Supporting.

**Objective 4: Identify Sites That Are the Most Severely Impacted by NPS So That Resources Can Be Directed Toward Remediation of Those Impacts.**

It is recommended that three sites be considered for remediation. These sites are site 5, 7 and 12. The reasons for this recommendation lie primarily in the combination of habitat assessment and macroinvertebrate assessments for each of these sites. All three sites had low habitat assessment scores (site 5 - 83; site 7 -105, site 12 - 82); all were Supporting But Threatened. The MBI scores for each site indicated either Very Poor or Poor water quality (site 5 - 5 VP; site 7 - 12 P; site 12 - 8 VP). Individual macroinvertebrate metrics for each of these sites all indicated problems. The Taxa Richness for each was less than 30; HBI values for each site exceeded 5.5; and the EPT index was less than 10 for each. However, the IBI scores from sites 5 and 12 conflict with the habitat and macroinvertebrate assessments for these sites. For these sites the habitat and macroinvertebrate assessments may be better tools than the IBI assessment.

## SUMMARY AND CONCLUSIONS

A total of 24 sites within the Salt River Basin were successfully sampled during the summer of 1999. These sites were sampled for fish and macroinvertebrates in order to make an assessment of the water quality of this system. The biological samples were returned to Eastern Kentucky University where they were sorted, identified, enumerated and analyzed according to KDOW QA/QC protocols. The data will be entered into the biological database of KDOW, and have been reported within this document. The data analysis included taxa lists and taxa abundances for fish and macroinvertebrates. In addition, a number of metrics were calculated for both fish and macroinvertebrate samples. These included IBI values for fish, and for macroinvertebrates the Total Richness, Total Number of Individuals, Shannon Diversity, EPT Index, EPT/Chironomid Index, HBI, and percentage composition of each functional feeding group were included.

It was learned that these sites represent warmwater streams with typical warmwater fauna. Utilizing IBI assessments two sites were rated as Poor and four sites were rated as Fair. Utilizing the MBI assessment three sites were rated as Very Poor, ten sites were rated as Poor and six sites were rated as Fair. Therefore, according to the MBI 19 of 24 sites were rated as having Fair to Very Poor water quality, as opposed to the IBI assessments, which ranked only six sites in this way. There is an obvious discrepancy between these two tools. The third tool, Habitat Assessment, correlated much better with the MBI results than with the IBI results.

Three sites are recommended for remediation (sites 5, 7 and 12). This recommendation is based on a combination of Habitat, MBI and IBI assessments. Two sites (sites 6 and 8) are recommended to be included in the Ambient Monitoring Program. This recommendation is based on the combination of Habitat, MBI and IBI assessments, as well as individual macroinvertebrate metric results.

The predominant land use in the Salt River Basin is Agriculture. It is thought that this land use potentially contributes to the overall poor assessments of the 24 sites sampled. The primary perturbations according to habitat assessments is the reduction of riparian zones and riparian vegetation and the occurrence of sedimentation in the stream.

## LITERATURE CITED

Kentucky Division of Water. 1986. Quality Assurance Guidelines. Kentucky Division of Water, Department of Environmental Protection, Frankfort, Kentucky, USA.

Kentucky Division of Water. 1993. Standard Operating Procedures Manual. Kentucky Division of Water, Department of Environmental Protection, Frankfort, KY, USA.

Kentucky Division of Water. 1997. Reference Reach Fish Community Report. Kentucky Division of Water, Department of Environmental Protection, Frankfort, KY, USA.

Appendix 1. IBI data and metric calculations for 24 sites within the Salt River Basin

**Site 1: North Rolling Fork 4**

Wading Site

**Drainage Area: 20.86 sq mi**

| Species | Ind# | Dart# | Sun# | Suck# | Intol# | %Tol | %Omni | %Insect | Carn# | Lith# | %DELT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Campostoma anomalum* | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Cyprinella spiloptera* | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 28 | 0 | 0 | 0 |
| *Cyprinella whipplei* | 15 | 0 | 0 | 0 | 1 | 0 | 0 | 15 | 0 | 0 | 0 |
| *Hybopsis amblops* | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| *Luxilus chrysocephalus* | 78 | 0 | 0 | 0 | 0 | 0 | 78 | 0 | 0 | 1 | 0 |
| *Lythrurus fasciloaris* | 69 | 0 | 0 | 0 | 0 | 0 | 69 | 0 | 0 | 0 | 0 |
| *Notropis boops* | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 0 |
| *Notropis rubellus* | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 1 | 0 |
| *Notropis volucellus* | 7 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| *Pimephales notatus* | 14 | 0 | 0 | 0 | 0 | 14 | 14 | 0 | 0 | 0 | 0 |
| *Semotilus atromaculatus* | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 |
| *Hypentelium nigricans* | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 1 | 0 |
| *Moxostoma duquesnei* | 7 | 0 | 0 | 1 | 1 | 0 | 0 | 7 | 0 | 1 | 0 |
| *Ameiurus melas* | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| *Fundulus catenatus* | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| *Ambloplites rupestris* | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| *Lepomis megalotis* | 16 | 0 | 1 | 0 | 1 | 0 | 0 | 16 | 0 | 0 | 0 |
| *Micropterus dolomieui* | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| *Etheostoma blenniodes* | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| *Etheostoma caerulem* | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 0 |
| *Etheostoma flabellare* | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| *Etheostoma cf. spectabile* "Headwater" | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 |
| **Total** | **291** | **4** | **1** | **2** | **6** | **17** | **172** | **95** | **2** | **9** | **0** |

| Metrics | Totals | IBI Score |
|---|---|---|
| Total # of Species | 22 | 5 |
| # of Darter Species | 4 | 5 |
| # of Sunfish Species | 1 | 3 |
| # of Sucker Species | 2 | 5 |
| # Intolerant Species | 6 | 5 |
| % Tolerant Species | 5.84 | 5 |
| % of Omnivores | 59.11 | 1 |
| % of Insectivores | 32.65 | 1 |
| # of Top Carnivore spp | 2 | 5 |
| # Simple Lithophil spp | 9 | 5 |
| % DELT anomalies | 0 | 5 |
| # of Individuals | 291 | 5 |
| **Total** | | **50** |

**Site 2: Scrubgrass Branch**

Headwater Site

**Drainage Area: 8.29 sq mi**

| Species | Ind# | Dart# | Head# | Minn# | Intol# | %Tol | %Omni | %Insect | %Pio | Lith# | %DELT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Campostoma anomalum* | 7 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Cyprinella spiloptera* | 23 | 0 | 0 | 1 | 0 | 0 | 0 | 23 | 0 | 0 | 0 |
| *Lythrurus fasciloaris* | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| *Phoxinus erythogaster* | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 |
| *Pimephales notatus* | 2 | 0 | 0 | 1 | 0 | 2 | 2 | 0 | 2 | 0 | 0 |
| *Semotilus atromaculatus* | 19 | 0 | 0 | 1 | 0 | 19 | 19 | 0 | 19 | 0 | 0 |
| *Catostomus commersoni* | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Fundulus catenatus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Ambloplites rupestris* | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Lepomis megalotis* | 29 | 0 | 0 | 0 | 1 | 0 | 0 | 29 | 0 | 0 | 0 |
| *Micropterus dolomieui* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Etheostoma caerulem* | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 0 |
| *Etheostoma flabellare* | 24 | 1 | 1 | 0 | 0 | 0 | 0 | 29 | 0 | 0 | 0 |
| **Totals** | **114** | **2** | **2** | **6** | **3** | **21** | **22** | **88** | **21** | **2** | **0** |
| **Species** | **12** | | | | | | | | | | |

| Metrics | Totals | IBI Score |
|---|---|---|
| Total # of Species | 12 | 3 |
| # Darter/Sculpin spp | 2 | 3 |
| # Headwater spp | 2 | 5 |
| # Minnow spp | 6 | 5 |
| # Intolerant Species | 3 | 3 |
| % Tolerant Species | 18.4211 | 5 |
| % of Omnivores | 19.2982 | 5 |
| % of Insectivores | 77.193 | 5 |
| % Pioneer spp | 18.4211 | 5 |
| # Simple Lithophil spp | 2 | 3 |
| % DELT anomalies | 0 | 5 |
| # of Individuals | 114 | 5 |
| **Total** | | **52** |

**Site 3: Jones Creek**

Headwater Site

**Drainage Area: 7.30 sq mi**

| Species | Ind# | Dart# | Head# | Minn# | Intol# | %Tol | %Omni | %Insect | %Pio | Lith# | % DELT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Campostoma anomalum* | 21 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Cyprinella spiloptera* | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| *Luxilus chrysocephalus* | 53 | 0 | 0 | 1 | 0 | 0 | 53 | 0 | 0 | 1 | 0 |
| *Lythrurus fasciloaris* | 29 | 0 | 0 | 1 | 0 | 0 | 0 | 29 | 0 | 0 | 0 |
| *Notropis boops* | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 1 | 0 |
| *Phoxinus erythogaster* | 5 | 0 | 1 | 1 | 1 | 0 | 5 | 0 | 0 | 1 | 0 |
| *Pimephales notatus* | 7 | 0 | 0 | 1 | 0 | 7 | 7 | 0 | 7 | 0 | 0 |
| *Semotilus atromaculatus* | 30 | 0 | 0 | 1 | 0 | 30 | 30 | 0 | 30 | 0 | 0 |
| *Ameiurus natalis* | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 |
| *Fundulus catenatus* | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| *Lepomis megalotis* | 17 | 0 | 0 | 0 | 1 | 0 | 0 | 17 | 0 | 0 | 0 |
| *Etheostoma flabellare* | 24 | 1 | 1 | 0 | 0 | 0 | 0 | 24 | 0 | 0 | 0 |
| *Etheostoma cf. spectabile* "Headwater" | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 1 | 0 |
| **Totals** | **200** | **2** | **2** | **8** | **2** | **39** | **97** | **82** | **41** | **4** | **0** |
| **Species** | **13** | | | | | | | | | | |

| Metrics | Totals | IBI Score |
|---|---|---|
| Total # of Species | 13 | 3 |
| # Darter/Sculpin spp | 2 | 3 |
| # Headwater spp | 2 | 5 |
| # Minnow spp | 8 | 5 |
| # Intolerant Species | 2 | 3 |
| % Tolerant Species | 19.5 | 5 |
| % of Omnivores | 48.5 | 3 |
| % of Insectivores | 41 | 3 |
| % Pioneer spp | 20.5 | 5 |
| # Simple Lithophil spp | 4 | 3 |
| % DELT anomalies | 0 | 5 |
| # of Individuals | 200 | 5 |
| **Total** | | **48** |

**Site 4: North Rolling Fork 1**

Wading Site

**Drainage Area: 95.88 sq mi**

| Species | Ind# | Dart# | Sun# | Suck# | Intol# | %Tol | %Omni | %Insect | Carn# | Lith# | % DELT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Campostoma anomalum* | 66 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Cyprinella spiloptera* | 80 | 0 | 0 | 0 | 0 | 0 | 0 | 80 | 0 | 0 | 0 |
| *Erimystax dissimilis* | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| *Luxilus chrysocephalus* | 37 | 0 | 0 | 0 | 0 | 0 | 37 | 0 | 0 | 1 | 0 |
| *Lythrurus fasciloaris* | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 0 |
| *Notropis boops* | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 1 | 0 |
| *Notropis ludibundus* | 15 | 0 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 0 |
| *Pimephales notatus* | 25 | 0 | 0 | 0 | 0 | 25 | 25 | 0 | 0 | 0 | 0 |
| *Semotilus atromaculatus* | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 |
| *Hypentelium nigricans* | 10 | 0 | 0 | 1 | 0 | 0 | 0 | 10 | 0 | 1 | 0 |
| *Ameiurus natalis* | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| *Noturus miurus* | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 |
| *Fundulus catenatus* | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 |
| *Ambloplites rupestris* | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| *Lepomis megalotis* | 9 | 0 | 1 | 0 | 1 | 0 | 0 | 9 | 0 | 0 | 0 |
| *Micropterus dolomieui* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| *Etheostoma blenniodes* | 27 | 1 | 0 | 0 | 0 | 0 | 0 | 27 | 0 | 1 | 0 |
| *Etheostoma caerulem* | 39 | 1 | 0 | 0 | 0 | 0 | 0 | 39 | 0 | 1 | 0 |
| *Etheostoma flabellare* | 39 | 1 | 0 | 0 | 0 | 0 | 0 | 39 | 0 | 0 | 0 |
| *Etheostoma zonale* | 21 | 1 | 0 | 0 | 1 | 0 | 0 | 21 | 0 | 1 | 0 |
| *Percina caprodes* | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **413** | **5** | **1** | **1** | **6** | **28** | **80** | **262** | **2** | **7** | **0** |

| Metrics | Totals | IBI Score |
|---|---|---|
| Total # of Species | 21 | 5 |
| # of Darter Species | 5 | 5 |
| # of Sunfish Species | 1 | 1 |
| # of Sucker Species | 1 | 3 |
| # Intolerant Species | 6 | 5 |
| % Tolerant Species | 6.78 | 5 |
| % of Omnivores | 19.37 | 5 |
| % of Insectivores | 63.44 | 3 |
| # of Top Carnivore spp | 2 | 5 |
| # Simple Lithophil spp | 7 | 5 |
| % DELT anomalies | 0 | 5 |
| # of Individuals | 413 | 5 |
| **Total** | | **52** |

**Site 5: Panther Creek**

Wading Site

**Drainage Area: 14.66 sq mi**

| Species | Ind# | Dart# | Sun# | Suck# | Intol# | %Tol | %Omni | %Insect | Carn# | Lith# | % DELT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Campostoma anomalum* | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Cyprinella spiloptera* | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 0 | 0 |
| *Luxilus chrysocephalus* | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 |
| *Lythrurus fasciloaris* | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 |
| *Notropis boops* | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 0 | 1 | 0 |
| *Pimephales notatus* | 10 | 0 | 0 | 0 | 0 | 10 | 10 | 0 | 0 | 0 | 0 |
| *Semotilus atromaculatus* | 9 | 0 | 0 | 0 | 0 | 9 | 9 | 0 | 0 | 0 | 0 |
| *Catostomus commersoni* | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| *Hypentelium nigricans* | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 1 | 0 |
| *Moxostoma duquesnei* | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| *Fundulus catenatus* | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| *Fundulus notatus* | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| *Labidesthes sicculus* | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| *Lepomis cyanellus* | 4 | 0 | 1 | 0 | 0 | 4 | 0 | 4 | 0 | 0 | 0 |
| *Lepomis macrochirus* | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 |
| *Lepomis megalotis* | 36 | 0 | 1 | 0 | 1 | 0 | 0 | 36 | 0 | 0 | 0 |
| *Micropterus punctulatus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| *Etheostoma caerulem* | 10 | 1 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 1 | 0 |
| *Etheostoma nigrum* | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 |
| *Percina maculata* | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| **Total** | **186** | **3** | **3** | **3** | **3** | **24** | **22** | **148** | **1** | **7** | **0** |

| Metrics | Totals | IBI Score |
|---|---|---|
| Total # of Species | 20 | 5 |
| # of Darter Species | 3 | 3 |
| # of Sunfish Species | 3 | 5 |
| # of Sucker Species | 3 | 5 |
| # Intolerant Species | 3 | 3 |
| % Tolerant Species | 12.90 | 5 |
| % of Omnivores | 11.83 | 5 |
| % of Insectivores | 79.57 | 5 |
| # of Top Carnivore spp | 1 | 3 |
| # Simple Lithophil spp | 7 | 5 |
| % DELT anomalies | 0 | 5 |
| # of Individuals | 186 | 5 |
| **Total** | | **54** |

**Site 6: Middle Fork Otter Creek 1**

Headwater Site

**Drainage Area: 6.10 sq mi**

| Species | Ind# | Dart# | Head# | Minn# | Intol# | %Tol | %Omni | %Insect | %Pio | Lith# | % DELT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Campostoma anomalum* | 29 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Cyprinella whipplei* | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Ericymba buccata* | 2 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 2 | 0 | 0 |
| *Luxilus chrysocephalus* | 11 | 0 | 0 | 1 | 0 | 0 | 11 | 0 | 0 | 1 | 0 |
| *Lythrurus fasciloaris* | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 5 | 0 | 0 | 0 |
| *Pimephales notatus* | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 |
| *Semotilus atromaculatus* | 3 | 0 | 0 | 1 | 0 | 3 | 3 | 0 | 3 | 0 | 0 |
| *Catostomus commersoni* | 3 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 |
| *Hypentelium nigricans* | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 0 |
| *Moxostoma duquesnei* | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| *Fundulus catenatus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Lepomis megalotis* | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 |
| *Micropterus dolomieui* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Etheostoma blenniodes* | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| *Etheostoma caerulem* | 38 | 1 | 0 | 0 | 0 | 0 | 0 | 38 | 0 | 1 | 0 |
| *Etheostoma flabellare* | 44 | 1 | 1 | 0 | 0 | 0 | 0 | 44 | 0 | 0 | 0 |
| **Totals** | **148** | **3** | **1** | **7** | **3** | **7** | **17** | **98** | **6** | **6** | **0** |
| **Species** | **16** | | | | | | | | | | |

| Metrics | Totals | IBI Score |
|---|---|---|
| Total # of Species | 16 | 5 |
| # Darter/Sculpin spp | 3 | 5 |
| # Headwater spp | 1 | 3 |
| # Minnow spp | 7 | 5 |
| # Intolerant Species | 3 | 5 |
| % Tolerant Species | 4.73 | 5 |
| % of Omnivores | 11.49 | 5 |
| % of Insectivores | 66.22 | 5 |
| % Pioneer spp | 4.05 | 5 |
| # Simple Lithophil spp | 6 | 5 |
| % DELT anomalies | 0 | 5 |
| # of Individuals | 148 | 5 |
| **Total** | | **58** |

**Site 7: West Fork Otter Creek**

Headwater Site

**Drainage Area: 1.70 sq mi**

| Species | Ind# | Dart# | Head# | Minn# | Intol# | %Tol | %Omni | %Insect | %Pio | Lith# | % DELT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Rhinichthys atratulus* | 24 | 0 | 1 | 1 | 1 | 0 | 24 | 0 | 0 | 1 | 0 |
| *Semotilus atromaculatus* | 7 | 0 | 0 | 1 | 0 | 7 | 7 | 0 | 7 | 0 | 0 |
| **Totals** | **31** | **0** | **1** | **2** | **1** | **7** | **31** | **0** | **7** | **1** | **0** |
| **Species** | **2** | | | | | | | | | | |

| Metrics | Totals | IBI Score |
|---|---|---|
| Total # of Species | 2 | 1 |
| # Darter/Sculpin spp | 0 | 1 |
| # Headwater spp | 1 | 3 |
| # Minnow spp | 2 | 3 |
| # Intolerant Species | 1 | 3 |
| % Tolerant Species | 22.58 | 3 |
| % of Omnivores | 100 | 1 |
| % of Insectivores | 0 | 1 |
| % Pioneer spp | 22.58 | 5 |
| # Simple Lithophil spp | 1 | 1 |
| % DELT anomalies | 0 | 5 |
| # of Individuals | 31 | 1 |
| **Total** | | **28** |

**Site 8: Rolling Fork 8**

Wading Site

**Drainage Area: 383.66 sq mi**

| Species | Ind# | Dart# | Sun# | Suck# | Intol# | %Tol | %Omni | %Insect | Carn# | Lith# | % DELT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Campostoma anomalum* | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Cyprinella spiloptera* | 58 | 0 | 0 | 0 | 0 | 0 | 0 | 58 | 0 | 0 | 0 |
| *Cyprinella whipplei* | 31 | 0 | 0 | 0 | 1 | 0 | 0 | 31 | 0 | 0 | 0 |
| *Luxilus chrysocephalus* | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 |
| *Lythrurus fasciloaris* | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| *Notropis boops* | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 1 | 0 |
| *Notropis rubellus* | 36 | 0 | 0 | 0 | 1 | 0 | 0 | 36 | 0 | 1 | 0 |
| *Notropis volucellus* | 14 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 |
| *Pimephales notatus* | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 |
| *Hypentelium nigricans* | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 1 | 0 |
| *Moxostoma erythrurum* | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| *Noturus flavus* | 9 | 0 | 0 | 0 | 1 | 0 | 0 | 9 | 0 | 0 | 0 |
| *Noturus stigomosus* | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Ambloplites rupestris* | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| *Lepomis megalotis* | 5 | 0 | 1 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 |
| *Etheostoma blenniodes* | 11 | 1 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 1 | 0 |
| *Etheostoma caerulem* | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| *Etheostoma flabellare* | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 |
| *Etheostoma zonale* | 67 | 1 | 0 | 0 | 1 | 0 | 0 | 67 | 0 | 1 | 0 |
| *Percina caprodes* | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 1 | 0 |
| *Percina phoxocephala* | 5 | 1 | 0 | 0 | 1 | 0 | 0 | 5 | 0 | 1 | 0 |
| **Total** | **285** | **6** | **1** | **2** | **9** | **3** | **19** | **244** | **1** | **10** | **0** |

| Metrics | Totals | IBI Score |
|---|---|---|
| Total # of Species | 21 | 5 |
| # of Darter Species | 6 | 5 |
| # of Sunfish Species | 1 | 1 |
| # of Sucker Species | 2 | 5 |
| # Intolerant Species | 9 | 5 |
| % Tolerant Species | 1.05 | 5 |
| % of Omnivores | 9.82 | 5 |
| % of Insectivores | 85.61 | 5 |
| # of Top Carnivore spp | 1 | 3 |
| # Simple Lithophil spp | 10 | 5 |
| % DELT anomalies | 0 | 5 |
| # of Individuals | 285 | 5 |
| **Total** | | **54** |

## Site 9: Knob Creek

Wading Site

**Drainage Area: 16.10 sq mi**

| Species | Ind# | Dart# | Sun# | Suck# | Intol# | %Tol | %Omni | %Insect | Carn# | Lith# | % DELT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Campostoma anomalum* | 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Cyprinella spiloptera* | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 |
| *Ericymba buccata* | 8 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 |
| *Luxilus chrysocephalus* | 9 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 1 | 0 |
| *Lythrurus fasciloaris* | 81 | 0 | 0 | 0 | 0 | 0 | 0 | 81 | 0 | 0 | 0 |
| *Notropis boops* | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 1 | 0 |
| *Notropis rubellus* | 20 | 0 | 0 | 0 | 1 | 0 | 0 | 20 | 0 | 1 | 0 |
| *Pimephales notatus* | 61 | 0 | 0 | 0 | 0 | 61 | 61 | 0 | 0 | 0 | 0 |
| *Semotilus atromaculatus* | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| *Catostomus commersoni* | 2 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 1 | 0 |
| *Hypentelium nigricans* | 7 | 0 | 0 | 1 | 0 | 0 | 0 | 7 | 0 | 1 | 0 |
| *Fundulus catenatus* | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 0 | 0 | 0 |
| *Lepomis cyanellus* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| *Lepomis macrochirus* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Lepomis megalotis* | 17 | 0 | 1 | 0 | 1 | 0 | 0 | 17 | 0 | 0 | 0 |
| *Micropterus punctulatus* | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| *Etheostoma blenniodes* | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| *Etheostoma caerulem* | 14 | 1 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 1 | 0 |
| *Etheostoma flabellare* | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Etheostoma nigrum* | 10 | 1 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 |
| **Total** | **315** | **4** | **3** | **2** | **2** | **65** | **79** | **187** | **1** | **7** | **0** |

| Metrics | Totals | IBI Score |
|---|---|---|
| Total # of Species | 20 | 5 |
| # of Darter Species | 4 | 5 |
| # of Sunfish Species | 3 | 5 |
| # of Sucker Species | 2 | 5 |
| # Intolerant Species | 2 | 3 |
| % Tolerant Species | 1.58 | 5 |
| % of Omnivores | 25.08 | 3 |
| % of Insectivores | 59.37 | 3 |
| # of Top Carnivore spp | 1 | 3 |
| # Simple Lithophil spp | 7 | 5 |
| % DELT anomalies | 0 | 5 |
| # of Individuals | 315 | 5 |
| **Total** | | **52** |

## Site 10: Younger Creek

Wading Site

**Drainage Area: 17.70 sq mi**

| Species | Ind# | Dart# | Sun# | Suck# | Intol# | %Tol | %Omni | %Insect | Carn# | Lith# | % DELT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Campostoma anomalum* | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Lythrurus fasciloaris* | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 0 |
| *Hypentelium nigricans* | 9 | 0 | 0 | 1 | 0 | 0 | 0 | 9 | 0 | 1 | 0 |
| *Moxostoma duquesnei* | 4 | 0 | 0 | 1 | 1 | 0 | 0 | 4 | 0 | 1 | 1 |
| *Ameiurus natalis* | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| *Fundulus catenatus* | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 38 | 0 | 0 | 0 |
| *Ambloplites rupestris* | 7 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| *Lepomis cyanellus* | 6 | 0 | 1 | 0 | 0 | 1 | 0 | 6 | 0 | 0 | 0 |
| *Lepomis macrochirus* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Lepomis megalotis* | 25 | 0 | 1 | 0 | 1 | 0 | 0 | 25 | 0 | 0 | 0 |
| *Micropterus dolomieui* | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| *Etheostoma caerulem* | 48 | 1 | 0 | 0 | 0 | 0 | 0 | 48 | 0 | 1 | 0 |
| *Etheostoma flabellare* | 43 | 1 | 0 | 0 | 0 | 0 | 0 | 43 | 0 | 0 | 0 |
| **Total** | **285** | **2** | **3** | **2** | **3** | **2** | **1** | **187** | **2** | **3** | **1** |

| Metrics | Totals | IBI Score |
|---|---|---|
| Total # of Species | 13 | 3 |
| # of Darter Species | 2 | 1 |
| # of Sunfish Species | 3 | 5 |
| # of Sucker Species | 2 | 5 |
| # Intolerant Species | 3 | 3 |
| % Tolerant Species | 1.05 | 5 |
| % of Omnivores | 0.35 | 5 |
| % of Insectivores | 65.61 | 5 |
| # of Top Carnivore spp | 2 | 5 |
| # Simple Lithophil spp | 3 | 3 |
| % DELT anomalies | 0.35 | 3 |
| # of Individuals | 233 | 5 |
| **Total** | | **48** |

**Site 11: Beech Fork 9**

Wading Site

**Drainage Area: 25.59 sq mi**

| Species | Ind# | Dart# | Sun# | Suck# | Intol# | %Tol | %Omni | %Insect | Carn# | Lith# | % DELT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Campostoma anomalum* | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Cyprinella spiloptera* | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| *Ericymba buccata* | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| *Lythrurus fasciloaris* | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 34 | 0 | 0 | 0 |
| *Notropis boops* | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 1 | 0 |
| *Notropis ludibundus* | 4 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 |
| *Pimephales notatus* | 44 | 0 | 0 | 0 | 0 | 44 | 44 | 0 | 0 | 0 | 0 |
| *Semotilus atromaculatus* | 8 | 0 | 0 | 0 | 0 | 8 | 8 | 0 | 0 | 0 | 0 |
| *Catostomus commersoni* | 3 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 0 | 1 | 0 |
| *Hypentelium nigricans* | 7 | 0 | 0 | 1 | 0 | 0 | 0 | 7 | 0 | 1 | 0 |
| *Ameiurus natalis* | 3 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 |
| *Noturus flavus* | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Fundulus catenatus* | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| *Ambloplites rupestris* | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| *Lepomis cyanellus* | 2 | 0 | 1 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 |
| *Lepomis megalotis* | 33 | 0 | 1 | 0 | 1 | 0 | 0 | 33 | 0 | 0 | 0 |
| *Etheostoma blenniodes* | 10 | 1 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 1 | 0 |
| *Etheostoma caerulem* | 13 | 1 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 1 | 0 |
| *Etheostoma flabellare* | 46 | 1 | 0 | 0 | 0 | 0 | 0 | 46 | 0 | 0 | 0 |
| *Etheostoma nigrum* | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| **Total** | **239** | **4** | **2** | **2** | **3** | **60** | **60** | **161** | **1** | **5** | **0** |

| Metrics | Totals | IBI Score |
|---|---|---|
| Total # of Species | 20 | 5 |
| # of Darter Species | 4 | 5 |
| # of Sunfish Species | 2 | 3 |
| # of Sucker Species | 2 | 5 |
| # Intolerant Species | 3 | 3 |
| % Tolerant Species | 25.10 | 3 |
| % of Omnivores | 25.10 | 3 |
| % of Insectivores | 67.36 | 5 |
| # of Top Carnivore spp | 1 | 3 |
| # Simple Lithophil spp | 5 | 3 |
| % DELT anomalies | 0 | 5 |
| # of Individuals | 239 | 5 |
| **Total** | | **48** |

**Site 12: East Fork Beech Fork**

Headwater Site

**Drainage Area: 9.31**

| Species | Ind# | Dart# | Head# | Minn# | Intol# | %Tol | %Omni | %Insect | %Pio | Lith# | %DELT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Campostoma anomalum* | 6 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Cyprinella spiloptera* | 10 | 0 | 0 | 1 | 0 | 0 | 0 | 10 | 0 | 0 | 0 |
| *Lythrurus fasciloaris* | 53 | 0 | 0 | 1 | 0 | 0 | 0 | 53 | 0 | 0 | 0 |
| *Pimephales notatus* | 44 | 0 | 0 | 1 | 0 | 44 | 44 | 0 | 44 | 0 | 0 |
| *Semotilus atromaculatus* | 30 | 0 | 0 | 1 | 0 | 30 | 30 | 0 | 30 | 0 | 0 |
| *Catostomus commersoni* | 3 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 |
| *Hypentelium nigricans* | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 0 |
| *Fundulus catenatus* | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| *Lepomis cyanellus* | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |
| *Lepomis macrochirus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Lepomis megalotis* | 49 | 0 | 0 | 0 | 1 | 0 | 0 | 49 | 0 | 0 | 0 |
| *Etheostoma blenniodes* | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 |
| *Etheostoma caerulem* | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| *Etheostoma flabellare* | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| *Etheostoma nigrum* | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 7 | 7 | 0 | 0 |
| **Totals** | **219** | **4** | **1** | **5** | **1** | **78** | **74** | **136** | **82** | **4** | **0** |
| **Species** | **15** | | | | | | | | | | |

| Metrics | Totals | IBI Score |
|---|---|---|
| Total # of Species | 15 | 5 |
| # Darter/Sculpin spp | 4 | 5 |
| # Headwater spp | 1 | 3 |
| # Minnow spp | 5 | 3 |
| # Intolerant Species | 1 | 1 |
| % Tolerant Species | 35.62 | 3 |
| % of Omnivores | 33.79 | 5 |
| % of Insectivores | 62.1 | 5 |
| % Pioneer spp | 37.44 | 3 |
| # Simple Lithophil spp | 4 | 3 |
| % DELT anomalies | 0 | 5 |
| # of Individuals | 219 | 5 |
| **Total** | | **46** |

**Site 13: Pleasant Run**

Wading Site

**Drainage Area: 21.34 sq mi**

| Species | Ind# | Dart# | Sun# | Suck# | Intol# | %Tol | %Omni | %Insect | Carn# | Lith# | % DELT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Campostoma anomalum* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Ericymba buccata* | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| *Lythrurus fasciloaris* | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 0 |
| *Notropis boops* | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 1 | 0 |
| *Pimephales notatus* | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 0 |
| *Semotilus atromaculatus* | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| *Hypentelium nigricans* | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 1 | 0 |
| *Ameiurus natalis* | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| *Fundulus catenatus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Fundulus notatus* | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| *Lepomis cyanellus* | 2 | 0 | 1 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 |
| *Lepomis megalotis* | 23 | 0 | 1 | 0 | 1 | 0 | 0 | 23 | 0 | 0 | 0 |
| *Etheostoma blenniodes* | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 0 |
| *Etheostoma caerulem* | 14 | 1 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 1 | 0 |
| *Etheostoma flabellare* | 10 | 1 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 |
| *Etheostoma nigrum* | 27 | 1 | 0 | 0 | 0 | 0 | 0 | 27 | 0 | 0 | 0 |
| **Total** | **130** | **4** | **2** | **1** | **1** | **9** | **9** | **120** | **0** | **4** | **0** |

| Metrics | Totals | IBI Score |
|---|---|---|
| Total # of Species | 16 | 5 |
| # of Darter Species | 4 | 5 |
| # of Sunfish Species | 2 | 3 |
| # of Sucker Species | 1 | 3 |
| # Intolerant Species | 1 | 1 |
| % Tolerant Species | 6.92 | 5 |
| % of Omnivores | 6.92 | 5 |
| % of Insectivores | 92.31 | 5 |
| # of Top Carnivore spp | 0 | 1 |
| # Simple Lithophil spp | 4 | 3 |
| % DELT anomalies | 0 | 5 |
| # of Individuals | 130 | 5 |
| **Total** | | **48** |

**Site 14: Beech Fork 7**

Wading Site

**Drainage Area: 113.00 sq mi**

| Species | Ind# | Dart# | Sun# | Suck# | Intol# | %Tol | %Omni | %Insect | Carn# | Lith# | % DELT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Campostoma anomalum* | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Cyprinella spiloptera* | 43 | 0 | 0 | 0 | 0 | 0 | 0 | 43 | 0 | 0 | 0 |
| *Cyprinella whipplei* | 24 | 0 | 0 | 0 | 1 | 0 | 0 | 24 | 0 | 0 | 0 |
| *Ericymba buccata* | 4 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 |
| *Luxilus chrysocephalus* | 14 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 1 | 0 |
| *Lythrurus fasciloaris* | 90 | 0 | 0 | 0 | 0 | 0 | 90 | 0 | 0 | 0 | 0 |
| *Notropis boops* | 42 | 0 | 0 | 0 | 0 | 0 | 0 | 42 | 0 | 1 | 0 |
| *Notropis volucellus* | 45 | 0 | 0 | 0 | 0 | 0 | 45 | 0 | 0 | 0 | 0 |
| *Pimephales notatus* | 6 | 0 | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 0 |
| *Semotilus atromaculatus* | 4 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 0 |
| *Hypentelium nigricans* | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 1 | 0 |
| *Noturus flavus* | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Fundulus catenatus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Ambloplites rupestris* | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| *Lepomis cyanellus* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| *Lepomis megalotis* | 11 | 0 | 1 | 0 | 1 | 0 | 0 | 11 | 0 | 0 | 0 |
| *Etheostoma blenniodes* | 21 | 1 | 0 | 0 | 0 | 0 | 0 | 21 | 0 | 1 | 0 |
| *Etheostoma caerulem* | 48 | 1 | 0 | 0 | 0 | 0 | 0 | 48 | 0 | 1 | 0 |
| *Etheostoma flabellare* | 40 | 1 | 0 | 0 | 0 | 0 | 0 | 40 | 0 | 0 | 0 |
| *Percina maculata* | 3 | 1 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 1 | 0 |
| **Total** | **427** | **4** | **2** | **1** | **4** | **11** | **163** | **236** | **1** | **6** | **0** |

| Metrics | Totals | IBI Score |
|---|---|---|
| Total # of Species | 20 | 5 |
| # of Darter Species | 4 | 5 |
| # of Sunfish Species | 2 | 3 |
| # of Sucker Species | 1 | 3 |
| # Intolerant Species | 4 | 3 |
| % Tolerant Species | 2.58 | 5 |
| % of Omnivores | 38.17 | 3 |
| % of Insectivores | 55.27 | 3 |
| # of Top Carnivore spp | 1 | 3 |
| # Simple Lithophil spp | 6 | 3 |
| % DELT anomalies | 0 | 5 |
| # of Individuals | 427 | 5 |
| **Total** | | **46** |

## Site 15: Long Lick Creek

Wading Site

**Drainage Area: 22.34 sq mi**

| Species | Ind# | Dart# | Sun# | Suck# | Intol# | %Tol | %Omni | %Insect | Carn# | Lith# | %DELT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Campostoma anomalum* | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Cyprinella spiloptera* | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 |
| *Cyprinella whipplei* | 19 | 0 | 0 | 0 | 1 | 0 | 0 | 19 | 0 | 0 | 0 |
| *Luxilus chrysocephalus* | 9 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 1 | 0 |
| *Lythrurus fasciloaris* | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| *Notropis boops* | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 0 | 1 | 0 |
| *Notropis volucellus* | 12 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 0 |
| *Pimephales notatus* | 8 | 0 | 0 | 0 | 0 | 8 | 8 | 0 | 0 | 0 | 0 |
| *Semotilus atromaculatus* | 12 | 0 | 0 | 0 | 0 | 12 | 12 | 0 | 0 | 0 | 0 |
| *Catostomus commersoni* | 3 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 0 | 1 | 0 |
| *Hypentelium nigricans* | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 1 | 0 |
| *Fundulus notatus* | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| *Labidesthes sicculus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Ambloplites rupestris* | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| *Lepomis cyanellus* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| *Lepomis megalotis* | 12 | 0 | 1 | 0 | 1 | 0 | 0 | 12 | 0 | 0 | 0 |
| *Micropterus dolomieui* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| *Etheostoma blenniodes* | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 |
| *Etheostoma caerulem* | 16 | 1 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 1 | 0 |
| *Etheostoma flabellare* | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 |
| *Etheostoma nigrum* | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| **Total** | **181** | **4** | **2** | **2** | **3** | **24** | **41** | **110** | **2** | **6** | **0** |

| Metrics | Totals | IBI Score |
|---|---|---|
| Total # of Species | 21 | 5 |
| # of Darter Species | 4 | 5 |
| # of Sunfish Species | 2 | 3 |
| # of Sucker Species | 2 | 5 |
| # Intolerant Species | 3 | 3 |
| % Tolerant Species | 13.26 | 5 |
| % of Omnivores | 22.65 | 5 |
| % of Insectivores | 60.77 | 3 |
| # of Top Carnivore spp | 2 | 5 |
| # Simple Lithophil spp | 6 | 5 |
| % DELT anomalies | 0 | 5 |
| # of Individuals | 181 | 5 |
| **Total** | | **54** |

**Site 16: Chaplin River 7**

Wading Site

**Drainage Area: 21.99 sq mi**

| Species | Ind# | Dart# | Sun# | Suck# | Intol# | %Tol | %Omni | %Insect | Carn# | Lith# | % DELT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Campostoma anomalum* | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Luxilus chrysocephalus* | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 0 |
| *Lythrurus fasciloaris* | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 60 | 0 | 0 | 0 |
| *Notropis boops* | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 0 | 1 | 0 |
| *Pimephales notatus* | 33 | 0 | 0 | 0 | 0 | 33 | 33 | 0 | 0 | 0 | 0 |
| *Semotilus atromaculatus* | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 |
| *Ameiurus melas* | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| *Cottis carolinae* | 23 | 0 | 0 | 0 | 1 | 0 | 0 | 23 | 0 | 0 | 0 |
| *Ambloplites rupestris* | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| *Lepomis cyanellus* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| *Lepomis macrochirus* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Lepomis megalotis* | 7 | 0 | 1 | 0 | 1 | 0 | 0 | 7 | 0 | 0 | 0 |
| *Etheostoma blenniodes* | 10 | 1 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 1 | 0 |
| *Etheostoma caerulem* | 29 | 1 | 0 | 0 | 0 | 0 | 0 | 29 | 0 | 1 | 0 |
| *Etheostoma flabellare* | 20 | 1 | 0 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 0 |
| *Etheostoma nigrum* | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| **Total** | **235** | **4** | **3** | **0** | **3** | **36** | **39** | **178** | **1** | **4** | **0** |

| Metrics | Totals | IBI Score |
|---|---|---|
| Total # of Species | 16 | 3 |
| # of Darter Species | 4 | 5 |
| # of Sunfish Species | 3 | 5 |
| # of Sucker Species | 0 | 1 |
| # Intolerant Species | 3 | 3 |
| % Tolerant Species | 15.32 | 5 |
| % of Omnivores | 16.60 | 5 |
| % of Insectivores | 75.74 | 5 |
| # of Top Carnivore spp | 1 | 3 |
| # Simple Lithophil spp | 4 | 3 |
| % DELT anomalies | 0 | 5 |
| # of Individuals | 235 | 5 |
| **Total** | | **48** |

**Site 17: Doctors Fork**

Headwater Site

**Drainage Area: 3.24 sq mi**

| Species | Ind# | Dart# | Head# | Minn# | Intol# | %Tol | %Omni | %Insect | %Pio | Lith# | %DELT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Campostoma anomalum* | 20 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Luxilus chrysocephalus* | 6 | 0 | 0 | 1 | 0 | 0 | 6 | 0 | 0 | 1 | 0 |
| *Lythrurus fasciloaris* | 42 | 0 | 0 | 1 | 0 | 0 | 0 | 42 | 0 | 0 | 0 |
| *Notropis boops* | 28 | 0 | 0 | 1 | 0 | 0 | 0 | 28 | 0 | 1 | 0 |
| *Pimephales notatus* | 17 | 0 | 0 | 1 | 0 | 17 | 17 | 0 | 17 | 0 | 0 |
| *Semotilus atromaculatus* | 11 | 0 | 0 | 1 | 0 | 11 | 11 | 0 | 11 | 0 | 0 |
| *Catostomus commersoni* | 3 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 |
| *Fundulus notatus* | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| *Lepomis cyanellus* | 6 | 0 | 0 | 0 | 0 | 6 | 0 | 6 | 6 | 0 | 0 |
| *Lepomis megalotis* | 9 | 0 | 0 | 0 | 1 | 0 | 0 | 9 | 0 | 0 | 0 |
| *Micropterus punctulatus* | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Etheostoma caerulem* | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 1 | 0 |
| *Etheostoma flabellare* | 14 | 1 | 1 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 0 |
| *Etheostoma nigrum* | 9 | 1 | 0 | 0 | 0 | 0 | 0 | 9 | 9 | 0 | 0 |
| *Etheostoma cf. spectabile* "Headwater" | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 1 | 0 |
| **Totals** | **184** | **4** | **1** | **6** | **1** | **37** | **34** | **125** | **48** | **5** | **0** |
| **Species** | **15** | | | | | | | | | | |

| Metrics | Totals | IBI Score |
|---|---|---|
| Total # of Species | 15 | 5 |
| # Darter/Sculpin spp | 4 | 5 |
| # Headwater spp | 1 | 3 |
| # Minnow spp | 6 | 5 |
| # Intolerant Species | 1 | 1 |
| % Tolerant Species | 20.11 | 5 |
| % of Omnivores | 18.48 | 5 |
| % of Insectivores | 67.94 | 5 |
| % Pioneer spp | 26.09 | 5 |
| # Simple Lithophil spp | 5 | 5 |
| % DELT anomalies | 0 | 5 |
| # of Individuals | 184 | 5 |
| **Total** | | **54** |

**Site 18: Chaplin River 6**

Wading Site

**Drainage Area: 68.58 sq mi**

| Species | Ind# | Dart# | Sun# | Suck# | Intol# | %Tol | %Omni | %Insect | Carn# | Lith# | % DELT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Campostoma anomalum* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Hybopsis amblops* | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| *Luxilus chrysocephalus* | 39 | 0 | 0 | 0 | 0 | 0 | 39 | 0 | 0 | 1 | 0 |
| *Lythrurus fasciloaris* | 39 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 0 | 0 | 0 |
| *Notropis boops* | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 |
| *Pimephales notatus* | 7 | 0 | 0 | 0 | 0 | 7 | 7 | 0 | 0 | 0 | 0 |
| *Semotilus atromaculatus* | 17 | 0 | 0 | 0 | 0 | 17 | 17 | 0 | 0 | 0 | 0 |
| *Ameiurus natalis* | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| *Ambloplites rupestris* | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| *Lepomis cyanellus* | 14 | 0 | 1 | 0 | 0 | 7 | 0 | 14 | 0 | 0 | 0 |
| *Lepomis macrochirus* | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| *Lepomis megalotis* | 36 | 0 | 1 | 0 | 1 | 0 | 0 | 36 | 0 | 0 | 0 |
| *Etheostoma caerulem* | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 |
| *Etheostoma flabellare* | 32 | 1 | 0 | 0 | 0 | 0 | 0 | 32 | 0 | 0 | 0 |
| *Etheostoma nigrum* | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Percina maculata* | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 1 | 0 |
| **Total** | **198** | **4** | **3** | **0** | **4** | **32** | **64** | **131** | **1** | **5** | **0** |

| Metrics | Totals | IBI Score |
|---|---|---|
| Total # of Species | 16 | 3 |
| # of Darter Species | 4 | 5 |
| # of Sunfish Species | 3 | 3 |
| # of Sucker Species | 0 | 1 |
| # Intolerant Species | 4 | 3 |
| % Tolerant Species | 16.16 | 5 |
| % of Omnivores | 32.32 | 3 |
| % of Insectivores | 66.16 | 3 |
| # of Top Carnivore spp | 1 | 3 |
| # Simple Lithophil spp | 5 | 3 |
| % DELT anomalies | 0 | 5 |
| # of Individuals | 198 | 5 |
| **Total** | | **42** |

## Site 22: Cartwright Creek 2

Wading Site

**Drainage Area: 48.44 sq mi**

| Species | Ind# | Dart# | Sun# | Suck# | Intol# | %Tol | %Omni | %Insect | Carn# | Lith# | % DELT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Campostoma anomalum* | 62 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Cyprinella spiloptera* | 32 | 0 | 0 | 0 | 0 | 0 | 0 | 32 | 0 | 0 | 0 |
| *Notropis volucellus* | 9 | 0 | 0 | 0 | 1 | 0 | 9 | 0 | 0 | 0 | 0 |
| *Pimephales notatus* | 18 | 0 | 0 | 0 | 0 | 18 | 18 | 0 | 0 | 0 | 0 |
| *Semotilus atromaculatus* | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| *Ameiurus natalis* | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| *Lepomis cyanellus* | 2 | 0 | 1 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 |
| *Lepomis macrochirus* | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 |
| *Lepomis megalotis* | 10 | 0 | 1 | 0 | 1 | 0 | 0 | 10 | 0 | 0 | 0 |
| *Etheostoma blenniodes* | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 0 |
| *Etheostoma caerulem* | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 1 | 0 |
| *Etheostoma flabellare* | 32 | 1 | 0 | 0 | 0 | 0 | 0 | 32 | 0 | 0 | 0 |
| *Etheostoma nigrum* | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| **Total** | **185** | **4** | **3** | **0** | **2** | **22** | **29** | **94** | **0** | **2** | **0** |

| Metrics | Totals | IBI Score |
|---|---|---|
| Total # of Species | 13 | 3 |
| # of Darter Species | 4 | 5 |
| # of Sunfish Species | 3 | 5 |
| # of Sucker Species | 0 | 1 |
| # Intolerant Species | 2 | 1 |
| % Tolerant Species | 11.89 | 5 |
| % of Omnivores | 15.68 | 5 |
| % of Insectivores | 50.81 | 3 |
| # of Top Carnivore spp | 0 | 1 |
| # Simple Lithophil spp | 2 | 1 |
| % DELT anomalies | 0 | 5 |
| # of Individuals | 185 | 5 |
| **Total** | | **40** |

**Site 23: Road Run**

Headwater Site

**Drainage Area: 10.75 sq mi**

| Species | Ind# | Dart# | Head# | Minn# | Intol# | %Tol | %Omni | %Insect | %Pio | Lith# | %DELT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Campostoma anomalum* | 95 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| *Cyprinella spiloptera* | 18 | 0 | 0 | 1 | 0 | 0 | 0 | 18 | 0 | 0 | 0 |
| *Cyprinella whipplei* | 13 | 0 | 0 | 1 | 1 | 0 | 0 | 13 | 0 | 0 | 0 |
| *Ericymba buccata* | 21 | 0 | 0 | 1 | 0 | 0 | 21 | 0 | 21 | 0 | 0 |
| *Luxilus chrysocephalus* | 12 | 0 | 0 | 1 | 0 | 0 | 12 | 0 | 0 | 1 | 0 |
| *Lythrurus fasciloaris* | 8 | 0 | 0 | 1 | 0 | 0 | 0 | 8 | 0 | 0 | 0 |
| *Pimephales notatus* | 13 | 0 | 0 | 1 | 0 | 13 | 13 | 0 | 13 | 0 | 0 |
| *Semotilus atromaculatus* | 24 | 0 | 0 | 1 | 0 | 24 | 24 | 0 | 24 | 0 | 0 |
| *Ameiurus natalis* | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 0 |
| *Lepomis cyanellus* | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 2 | 0 | 0 |
| *Lepomis macrochirus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Lepomis megalotis* | 25 | 0 | 0 | 0 | 1 | 0 | 0 | 25 | 0 | 0 | 1 |
| *Etheostoma caerulem* | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 1 | 0 |
| *Etheostoma flabellare* | 15 | 1 | 1 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 0 |
| **Totals** | **259** | **2** | **1** | **8** | **2** | **44** | **75** | **89** | **60** | **2** | **3** |
| **Species** | **14** | | | | | | | | | | |

| Metrics | Totals | IBI Score |
|---|---|---|
| Total # of Species | 14 | 3 |
| # Darter/Sculpin spp | 2 | 3 |
| # Headwater spp | 1 | 3 |
| # Minnow spp | 8 | 5 |
| # Intolerant Species | 2 | 3 |
| % Tolerant Species | 16.99 | 5 |
| % of Omnivores | 28.96 | 5 |
| % of Insectivores | 34.36 | 1 |
| % Pioneer spp | 23.17 | 5 |
| # Simple Lithophil spp | 2 | 1 |
| % DELT anomalies | 1.158 | 3 |
| # of Individuals | 259 | 5 |
| **Total** | | **42** |

**Site 24: Rowan Creek**

Wading Site

**Drainage Area: 11.72 sq mi**

| Species | Ind# | Dart# | Sun# | Suck# | Intol# | %Tol | %Omni | %Insect | Carn# | Lith# | % DELT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Campostoma anomalum* | 53 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Cyprinella spiloptera* | 73 | 0 | 0 | 0 | 0 | 0 | 0 | 73 | 0 | 0 | 0 |
| *Cyprinella whipplei* | 50 | 0 | 0 | 0 | 1 | 0 | 0 | 50 | 0 | 0 | 0 |
| *Notropis boops* | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 0 |
| *Pimephales notatus* | 41 | 0 | 0 | 0 | 0 | 41 | 41 | 0 | 0 | 0 | 0 |
| *Pimephales promelas* | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| *Hypentelium nigricans* | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 1 | 0 |
| *Moxostoma erythrurum* | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 1 | 0 |
| *Noturus flavus* | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 0 |
| *Noturus stigomosus* | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Lepomis cyanellus* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| *Lepomis macrochirus* | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| *Lepomis megalotis* | 5 | 0 | 1 | 0 | 1 | 0 | 0 | 5 | 0 | 0 | 1 |
| *Lepomis microlophus* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Etheostoma blenniodes* | 125 | 1 | 0 | 0 | 0 | 0 | 0 | 125 | 0 | 1 | 0 |
| *Etheostoma caerulem* | 30 | 1 | 0 | 0 | 0 | 0 | 0 | 30 | 0 | 1 | 0 |
| *Etheostoma flabellare* | 86 | 1 | 0 | 0 | 0 | 0 | 0 | 86 | 0 | 0 | 0 |
| *Percina caprodes* | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| **Total** | **482** | **4** | **4** | **2** | **5** | **43** | **42** | **387** | **0** | **6** | **1** |

| Metrics | Totals | IBI Score |
|---|---|---|
| Total # of Species | 18 | 5 |
| # of Darter Species | 4 | 5 |
| # of Sunfish Species | 4 | 5 |
| # of Sucker Species | 2 | 5 |
| # Intolerant Species | 5 | 5 |
| % Tolerant Species | 8.92 | 5 |
| % of Omnivores | 8.71 | 5 |
| % of Insectivores | 80.29 | 5 |
| # of Top Carnivore spp | 0 | 1 |
| # Simple Lithophil spp | 6 | 5 |
| % DELT anomalies | 0.21 | 3 |
| # of Individuals | 482 | 5 |
| **Total** | | **54** |

**Site 25: Lick Creek**

Wading Site

**Drainage Area: 13.96 sq mi**

| Species | Ind# | Dart# | Sun# | Suck# | Intol# | %Tol | %Omni | %Insect | Carn# | Lith# | % DELT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Esox americanus vermiculatus* | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Campostoma anomalum* | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Cyprinella spiloptera* | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| *Luxilus chrysocephalus* | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 |
| *Lythrurus fasciloaris* | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 |
| *Pimephales notatus* | 5 | 0 | 0 | 0 | 0 | 5 | 5 | 0 | 0 | 0 | 0 |
| *Semotilus atromaculatus* | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| *Hypentelium nigricans* | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| *Fundulus notatus* | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 |
| *Gambusia affinis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Labidesthes sicculus* | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| *Lepomis cyanellus* | 2 | 0 | 1 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 |
| *Lepomis macrochirus* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Lepomis megalotis* | 13 | 0 | 1 | 0 | 1 | 0 | 0 | 13 | 0 | 0 | 0 |
| *Lepomis microlophus* | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Micropterus punctulatus* | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| *Etheostoma caerulem* | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 0 |
| *Etheostoma flabellare* | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| *Etheostoma nigrum* | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 |
| *Etheostoma cf. spectabile* "Headwater" | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| **Total** | **71** | **4** | **4** | **1** | **1** | **8** | **8** | **50** | **1** | **4** | **0** |

| Metrics | Totals | IBI Score |
|---|---|---|
| Total # of Species | 20 | 5 |
| # of Darter Species | 4 | 5 |
| # of Sunfish Species | 4 | 5 |
| # of Sucker Species | 1 | 3 |
| # Intolerant Species | 1 | 1 |
| % Tolerant Species | 11.27 | 5 |
| % of Omnivores | 11.27 | 5 |
| % of Insectivores | 70.42 | 5 |
| # of Top Carnivore spp | 1 | 3 |
| # Simple Lithophil spp | 4 | 3 |
| % DELT anomalies | 0 | 5 |
| # of Individuals | 71 | 3 |
| **Total** | | **48** |

## Site 26: Clear Creek

Wading Site

**Drainage Area: 17.02 sq mi**

| Species | Ind# | Dart# | Sun# | Suck# | Intol# | %Tol | %Omni | %Insect | Carn# | Lith# | % DELT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Campostoma anomalum* | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Ericymba buccata* | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| *Luxilus chrysocephalus* | 37 | 0 | 0 | 0 | 0 | 0 | 37 | 0 | 0 | 1 | 0 |
| *Lythrurus fasciloaris* | 97 | 0 | 0 | 0 | 0 | 0 | 0 | 97 | 0 | 0 | 0 |
| *Notropis boops* | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 0 |
| *Pimephales notatus* | 18 | 0 | 0 | 0 | 0 | 18 | 18 | 0 | 0 | 0 | 0 |
| *Fundulus catenatus* | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 0 |
| *Cottis carolinae* | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 |
| *Ambloplites rupestris* | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| *Lepomis cyanellus* | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| *Lepomis megalotis* | 3 | 0 | 1 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 |
| *Etheostoma blenniodes* | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 0 |
| *Etheostoma caerulem* | 38 | 1 | 0 | 0 | 0 | 0 | 0 | 38 | 0 | 1 | 0 |
| *Etheostoma flabellare* | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 |
| **Total** | **243** | **3** | **2** | **0** | **3** | **19** | **56** | **175** | **1** | **4** | **0** |

| Metrics | Totals | IBI Score |
|---|---|---|
| Total # of Species | 14 | 3 |
| # of Darter Species | 3 | 3 |
| # of Sunfish Species | 2 | 3 |
| # of Sucker Species | 0 | 1 |
| # Intolerant Species | 3 | 3 |
| % Tolerant Species | 7.82 | 5 |
| % of Omnivores | 23.05 | 5 |
| % of Insectivores | 72.02 | 5 |
| # of Top Carnivore spp | 1 | 3 |
| # Simple Lithophil spp | 4 | 3 |
| % DELT anomalies | 0 | 5 |
| # of Individuals | 243 | 5 |
| **Total** | | **44** |

## Site 27: Rolling Fork 3

Wading Site

**Drainage Area: 1341.03 sq mi**

| Species | Ind# | Dart# | Sun# | Suck# | Intol# | %Tol | %Omni | %Insect | Carn# | Lith# | % DELT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Campostoma anomalum* | 50 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Cyprinella spiloptera* | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 | 0 |
| *Notropis boops* | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 0 |
| *Notropis rubellus* | 8 | 0 | 0 | 0 | 1 | 0 | 0 | 8 | 0 | 1 | 0 |
| *Pimephales notatus* | 6 | 0 | 0 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 0 |
| *Noturus flavus* | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 |
| *Noturus stigomosus* | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Cottis carolinae* | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 0 |
| *Lepomis cyanellus* | 5 | 0 | 1 | 0 | 0 | 5 | 0 | 5 | 0 | 0 | 0 |
| *Etheostoma flabellare* | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 |
| *Etheostoma nigrum* | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Percina phoxocephala* | 12 | 1 | 0 | 0 | 1 | 0 | 0 | 12 | 0 | 1 | 0 |
| *Aplodinotus grunniens* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **111** | **3** | **1** | **0** | **5** | **11** | **6** | **54** | **0** | **3** | **0** |

| Metrics | Totals | IBI Score |
|---|---|---|
| Total # of Species | 13 | 1 |
| # of Darter Species | 3 | 3 |
| # of Sunfish Species | 1 | 1 |
| # of Sucker Species | 0 | 1 |
| # Intolerant Species | 5 | 3 |
| % Tolerant Species | 9.91 | 5 |
| % of Omnivores | 5.41 | 5 |
| % of Insectivores | 48.65 | 1 |
| # of Top Carnivore spp | 0 | 1 |
| # Simple Lithophil spp | 3 | 1 |
| % DELT anomalies | 0 | 5 |
| # of Individuals | 111 | 5 |
| **Total** | | **32** |

Appendix 2. Macroinvertebrate data and metric calculations for 24 sites within the Salt River Basin

| | |
|---|---|
| County | **Boyle** |
| **Site location** | **KDOW 99-01. SR 37 crossing 2.5 km east of Forkland Kentucky** |
| **KDOW site number** | **99-01 North Rolling Fork 4** |
| **Date** | **15-Jun-99** |
| **Determiner** | **D.R. Jones** |

| TAXON | TV | FFG | TKN | SWEEP | ROCKS | WOOD | FINES | TOTAL |
|---|---|---|---|---|---|---|---|---|
| **Insecta** | | | | | | | | |
| **Coleoptera** | | | | | | | | |
| Elmidae | | | | | | | | |
| *Macronychus glabratus* | 4.7 | CG | | 1 | | 2 | | 3 |
| *Stenelmis* sp. | 5.4 | SC | 17 | | 1 | | | 18 |
| Psephenidae | | | | | | | | |
| *Psephenus herricki* | 5 | SC | 5 | 2 | | 2 | | 9 |
| Ptilodactilidae | | | | | | | | |
| *Anchytarsus bicolor* | 2 | SH | 4 | | | | | 4 |
| **Diptera** | | | | | | | | |
| *Atrichopogon* sp. | 6.8 | PR | | | | 1 | | 1 |
| Chironomidae | | | | | | | | |
| *Ablesmyia* sp. | 6.4 | PR | | | | 14 | | 14 |
| *Cricotopus* sp. | 7 | SH | | | | 8 | | 8 |
| *Dicrotendipes* sp. | 7.9 | CG | | 1 | | 23 | | 24 |
| *Microtendipes* sp. | 6.2 | CF | | | | | 4 | 4 |
| *Orthocladius* sp. | 7.3 | CG | | | 8 | | | 8 |
| *Parakiefferiella* sp. | 5.9 | CG | | | | 8 | | 8 |
| *Paratendipes* sp. | 5.3 | CG | | 5 | | | | 5 |
| *Polypedilum* sp. | 6.8 | SH | 15 | 3 | | 54 | 8 | 80 |
| *Rheotanytarsus* sp. | 6.4 | CF | | | 17 | 8 | | 25 |
| *Thiennemannimyia* sp. | 8 | CG | 22 | | | | | 22 |
| Tipulidae | | | | | | | | |
| *Tipula* sp. | 7.7 | SH | 1 | | | | | 1 |
| **Ephemeroptera** | | | | | | | | |
| Baetidae | 8 | CG | | 2 | | | 2 | 4 |
| *Centroptilum* sp. | 6.3 | CG | 14 | | 1 | | | 15 |
| *Procleon* sp. | 5.4 | CG | | | | 13 | | 13 |
| Caenidae | | | | | | | | |
| *Caenis* sp. | 7.6 | CG | 14 | 5 | | 4 | 7 | 30 |
| Ephemeridae | | | | | | | | |
| *Hexagenia* sp. | 4.7 | CG | | | | | 1 | 1 |
| Heptageniidae | | | | | | | | |
| *Stenonema carlsoni* | 2.1 | SC | 14 | | | | | 14 |
| *Stenonema mediopunctatum* | 3.5 | SC | 93 | | 3 | 1 | | 97 |
| *Stenonema vicarium* | 4.1 | SC | 72 | 4 | | 15 | | 91 |
| Isonychiidae | | | | | | | | |
| *Isonychia* sp. | 3.8 | CG | 25 | | 6 | | | 31 |
| Tricorythidae | | | | | | | | |
| *Tricorythodes* sp. | 5.4 | CG | 1 | 2 | | | | 3 |
| **Megaloptera** | | | | | | | | |
| Corydalidae | | | | | | | | |
| *Corydalus cornutus* | 5.6 | PR | 2 | | | | | 2 |
| Sialidae | | | | | | | | |
| *Sialis vagans* | 7.5 | PR | 4 | | | | | 4 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Odonata** | | | | | | | | |
| Anisoptera | | | | | | | | |
| Aeschnidae | | | | | | | | |
| *Boyeria vinosa* | 6.3 | PR | 1 | 3 | | 1 | | 5 |
| Gomphidae | | | | | | | | |
| *Gomphus* sp. | 6.2 | PR | | 1 | | | | 1 |
| Macromiidae | | | | | | | | |
| *Macromia taeniolata* | 6.7 | PR | | 2 | | | | 2 |
| Zygoptera | | | | | | | | |
| Coenagrionidae | | | | | | | | |
| *Argia fumipennis* | 8.7 | PR | | 1 | | | | 1 |
| *Ischnura* sp. | 9.4 | PR | | 2 | | | | 2 |
| *Chromagrion conditum* | 9 | PR | | 4 | | 1 | | 5 |
| **Plecoptera** | | | | | | | | |
| Perlidae | | | | | | | | |
| *Neoperla* sp. | 1.6 | PR | 24 | 1 | 1 | | | 26 |
| *Perlesta* sp. | 4.9 | PR | 1 | | | | | 1 |
| **Trichoptera** | | | | | | | | |
| Hydropsychidae | | | | | | | | |
| *Cheumatopsyche* sp. | 6.6 | CF | 65 | 2 | 2 | | | 69 |
| Leptoceridae | | | | | | | | |
| *Nectopsyche* sp. | 4.5 | PR | | 1 | | | | 1 |
| Philopotamidae | | | | | | | | |
| *Chimarra* sp. | 2.8 | CF | 15 | | | 1 | | 16 |
| Polycentropodidae | | | | | | | | |
| *Cyrnellus fraternus* | 7.4 | CF | | | | 5 | | 5 |
| **Gastropoda** | | | | | | | | |
| Planorbidae | | | | | | | | |
| *Gyraulas* sp. | 7.5 | SC | | | 1 | | | 1 |
| Pleuroceridae | | | | | | | | |
| *Elimia* sp. | 2.5 | SC | | | 7 | | | 7 |
| TNI | | | 409 | 42 | 47 | 161 | 22 | 681 |

**MACROINVERTEBRATE METRICS**

| | |
|---|---|
| **TNI** | **681** |
| **TAXA RICHNESS** | **42** |
| **HBI** | **5.34** |
| **EPT INDEX** | **16** |
| **EPT/CHIRONOMIDS** | **2.11** |
| **$PCD_5$** | **54.00** |
| **H** | **2.94** |
| **d** | **18.94** |
| ***J*** | **0.79** |
| ***I*** | **0.08** |
| **$D_s$** | **0.92** |
| **% CF** | **17.47** |
| **% CG** | **24.52** |
| **% PR** | **9.54** |
| **% SC** | **34.80** |
| **% SH** | **13.66** |

| | |
|---|---|
| **County** | **Boyle** |
| **Site location & number** | **KDOW 99-02; Scrubgrass Branch at junction of Hwy 243/ 1856, 3 mi N of Forkland** |
| **Date** | **15-Jun-99** |
| **Determiner** | **D.R. Jones** |

| TAXON | TV | FFG | TKN | SWEEP | ROCKS | WOOD | FINES | TOTAL |
|---|---|---|---|---|---|---|---|---|
| **Insecta** | | | | | | | | |
| **Coleoptera** | | | | | | | | |
| Chrysomelidae | 8 | PR | | | | 1 | | 1 |
| Elmidae | | | | | | | | |
| *Dubiraphia sp.* | 6.4 | SC | | 2 | | | | 2 |
| *Stenelmis* sp. | 5.4 | SC | 28 | 1 | 1 | 1 | | 31 |
| Hydrophilidae | | | | | | | | |
| *Troposternis* sp. | 9.8 | CG | | 1 | | | | 1 |
| Psephenidae | | | | | | | | |
| *Psephenus herricki* | 5 | SC | | 2 | 13 | 1 | | 16 |
| Ptilodactilidae | | | | | | | | |
| *Anchytarsus bicolor* | 2 | SH | 1 | | | 1 | | 2 |
| **Diptera** | | | | | | | | |
| Chaoboridae | | | | | | | | |
| *Eucorethra* sp. | 8 | PR | | 6 | | | | 6 |
| Chironomidae | | | | | | | | |
| *Ablesmyia* sp. | 6.4 | PR | | 5 | | 12 | | 17 |
| *Chironomus* sp. | 9.8 | CG | | | | 24 | | 24 |
| *Cladotanytarsus* sp. | 3.7 | CG | | 1 | | | | 1 |
| *Dicrotendipes* sp. | 7.9 | CG | | 1 | | 47 | | 48 |
| *Endochironomus* sp. | 7.5 | SH | | 1 | | | | 1 |
| *Microtendipes* sp. | 6.2 | CF | | 1 | | | | 1 |
| *Natarsia* sp. | 10 | PR | | | | 12 | | 12 |
| *Orthocladius* sp. | 7.3 | CG | | | | 24 | | 24 |
| *Paratendipes* sp. | 5.3 | CG | 3 | | | | 49 | 52 |
| *Rheotanytarsus* sp. | 6.4 | CF | | | | 12 | | 12 |
| **Ephemeroptera** | | | | | | | | |
| Baetidae | | | | | | | | |
| *Procleon* sp. | 5.4 | CG | 2 | 4 | | 3 | | 9 |
| Caenidae | | | | | | | | |
| *Caenis* sp. | 7.6 | CG | 8 | 2 | 1 | 1 | | 12 |
| Heptageniidae | | | | | | | | |
| *Stenonema femoratum* | 7.5 | SC | 3 | 2 | | | | 5 |
| *Stenonema luteum* | | SC | 9 | | | | | 9 |
| *Stenonema mediopunctatu* | 3.5 | SC | 12 | | | | | 12 |
| *Stenonema pudicum* | 2.1 | SC | | | 1 | | | 1 |
| Isonychiidae | | | | | | | | |
| *Isonychia* sp. | 3.8 | CG | 1 | | | | | 1 |
| Leptophlebiidae | | | | | | | | |
| *Choroterpes* sp. | 2.3 | SC | | | 1 | | | 1 |
| Tricorythidae | | | | | | | | |
| *Tricorythodes* sp. | 5.4 | CG | | | 1 | 1 | | 2 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Hemiptera** | | | | | | | | |
| Vellidae | | | | | | | | |
| *Microvelia* sp. | 9 | PR | | 5 | | | | 5 |
| **Megaloptera** | | | | | | | | |
| Sialidae | | | | | | | | |
| *Sialis vagans* | 7.5 | PR | 15 | 2 | | | | 17 |
| **Odonata** | | | | | | | | |
| Anisoptera | | | | | | | | |
| Aeschnidae | | | | | | | | |
| *Boyeria vinosa* | 6.3 | PR | | 6 | | | | 6 |
| Gomphidae | | | | | | | | |
| *Lanthus parvalus* | 2.7 | PR | 2 | | | | | 2 |
| Zygoptera | | | | | | | | |
| Calopterigidae | | | | | | | | |
| *Calopteryx maculata* | 8.3 | PR | | 1 | | | | 1 |
| Coenagrionidae | | | | | | | | |
| *Argia* sp. | 8.7 | PR | 11 | 5 | 1 | | | 17 |
| **Plecoptera** | | | | | | | | |
| Leuctridae | | | | | | | | |
| *Leuctra* sp. | 0.7 | SH | 1 | | | | | 1 |
| Perlidae | | | | | | | | |
| *Neoperla* sp. | 1.6 | PR | 29 | | | 2 | | 31 |
| *Perlesta sp.* | 4.9 | PR | 4 | | | | | 4 |
| **Trichoptera** | | | | | | | | |
| Hydropsychidae | | | | | | | | |
| *Cheumatopsyche* sp. | 6.6 | CF | 8 | | 3 | | | 11 |
| **Malacostraca** | | | | | | | | |
| **Decapoda** | | | | | | | | |
| Cambaridae | | | | | | | | |
| *Orconectes* sp. | 8 | CG | 3 | 2 | | | | 5 |
| **Gastropoda** | | | | | | | | |
| Physidae | | | | | | | | |
| *Physa* sp. | 9 | SC | | | | 5 | | 5 |
| Pleuroceridae | | | | | | | | |
| *Elimia* sp. | 2.5 | SC | | | | 2 | | 2 |
| **Oligochaeta** | | | | | | | | |
| Lumbriculidae | 7.3 | CG | 3 | | | | | 3 |
| **TNI** | | | 143 | 50 | 22 | 149 | 49 | 413 |

| MACROINVERTEBRATE METRICS | |
|---|---|
| TNI | 413 |
| TAXA RICHNESS | 40 |
| HBI | 6.25 |
| EPT INDEX | 13 |
| EPT/CHIRONOMIDS | 0.52 |
| $PCD_5$ | 45.00 |
| H | 3.12 |
| d | 22.58 |
| *J* | 0.85 |
| *I* | 0.06 |
| $D_s$ | 0.94 |

| | |
|---|---|
| % CF | 5.8111 |
| % CG | 44.068 |
| % PR | 28.814 |
| % SC | 20.339 |
| % SH | 0.9685 |

**County** Larue Co.
**Site location & number** KDOW 99-03: Jones Creek, Jones Creek Rd., 3.8 mi. NE of Bradfordsville.
**Date** 15-Jun-99
**Det.** M. R. Thomas

| TAXON | TV | FFG | TKN | SWEEP | ROCKS | WOOD | FINES | TOTAL |
|---|---|---|---|---|---|---|---|---|
| **Insecta** | | | | | | | | |
| **Coleoptera** | | | | | | | | |
| Elmidae | | | | | | | | |
| *Dubiraphia sp.* | 6.4 | SC | | 2 | | | | 2 |
| *Macronychus glabratus* | 4.7 | CG | 1 | | | 1 | | 2 |
| *Stenelmis* sp. | 5.4 | SC | 46 | | | | | 46 |
| Hydrophilidae | | | | | | | | |
| *Enochrus* sp. | 8.5 | PR | 1 | 1 | | 1 | | 3 |
| *Troposternis* sp. | 9.8 | CG | | | | 1 | | 1 |
| *Laccobius* sp. | 8 | PR | 1 | | | | | 1 |
| Psephenidae | | | | | | | | |
| *Psephenus herricki* | 5 | SC | 158 | 2 | | 5 | 2 | 167 |
| Scirtidae | | | | | | | | |
| *Scirtes* sp. | 5 | SH | | 1 | | | | 1 |
| **Diptera** | | | | | | | | |
| Ceratopogonidae | | | | | | | | |
| *Probezzia* sp. | 6.9 | PR | | | | | 1 | 1 |
| Chironomidae | | | | | | | | |
| *Apedilum* sp. | ? | ? | | | 2 | | 5 | 7 |
| Chironomini genus III | ? | ? | | 5 | | | | 5 |
| *Chironomus* sp. | 9.8 | CG | | 20 | 1 | | | 21 |
| *Dicrotendipes* sp. | 7.9 | CG | | | | 5 | | 5 |
| *Endochironomus* sp. | 7.5 | SH | | 10 | | 5 | | 15 |
| *Larsia* sp. | 8.3 | PR | 6 | | | | | 6 |
| *Microtendipes* sp. | 6.2 | CF | | 5 | | 5 | | 10 |
| *Paratendipes* sp. | 5.3 | CG | | | | 5 | | 5 |
| *Polypedilum* sp. | 6.8 | SH | 24 | 44 | | 71 | | 139 |
| *Rheocrictopus* sp. | 6.8 | CG | | | 1 | 5 | | 6 |
| *Stenochironomus* sp. | 6.4 | CG | | | | 5 | | 5 |
| *Stictochironomus* sp. | 6.7 | CG | | | | | 1 | 1 |
| *Thienemannimyia* sp. | 8 | CG | 6 | 15 | 2 | 15 | | 38 |
| Simulidae | | | | | | | | |
| *Simulium* sp. | 4.4 | CF | | 38 | | | | 38 |
| Tabanidae | | | | | | | | |
| *Chrysops* sp. | 7.3 | PR | 1 | | | | | 1 |
| Tipulidae | | | | | | | | |
| *Tipula* sp. | 7.7 | SH | 2 | 1 | | | | 3 |
| Empididae | | | | | | | | |
| *Hemerodromia* sp. | 8.1 | PR | 9 | 1 | | | | 10 |
| **Ephemeroptera** | | | | | | | | |
| Baetidae | | | | | | | | |
| *Baetis* sp. | 5.4 | CG | 2 | 3 | | 1 | | 6 |
| Caenidae | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Caenis* sp. | 7.6 | CG | 6 | | | 5 | 7 | 18 |
| Heptageniidae | | | | | | | | |
| *Stenonema femoratum* | 7.5 | SC | 6 | 3 | | 10 | | 19 |
| *Stenonema mediopunctatum* | 3.5 | SC | 22 | | | | | 22 |
| Isonychiidae | | | | | | | | |
| *Isonychia* sp. | 3.8 | CG | 1 | | | | | 1 |
| **Hemiptera** | | | | | | | | |
| Gelastocoridae | | | | | | | | |
| *Gelastocoris oculatus* | 9 | PR | | 1 | | | | 1 |
| Gerridae | | | | | | | | |
| *Trepobates* sp. | 9 | PR | | | | | 1 | 1 |
| Mesovelidae | | | | | | | | |
| *Mesovelia* sp. | 9.8 | PR | | 1 | | | | 1 |
| **Megaloptera** | | | | | | | | |
| Corydalidae | | | | | | | | |
| *Corydalus cornutus* | 5.6 | PR | 6 | | | | | 6 |
| *Nigronia fasciatus* | 6.2 | PR | 1 | | | | | 1 |
| *Nigronia serricornis* | 5.5 | PR | 3 | | | | | 3 |
| **Odonata** | | | | | | | | |
| Anisoptera | | | | | | | | |
| *Boyeria vinosa* | 6.3 | PR | | 7 | | 1 | | 8 |
| Gomphidae | | | | | | | | |
| *Lanthus parvalus* | 2.7 | PR | 3 | | | | | 3 |
| Macromiidae | | | | | | | | |
| *Macromia* sp. | 6.7 | PR | | 2 | | | | 2 |
| Zygoptera | | | | | | | | |
| *Argia* sp. | 8.7 | PR | 4 | | | | | 4 |
| *Enallagma* sp. | 9 | PR | | 3 | | | | 3 |
| **Plecoptera** | | | | | | | | |
| Perlidae | | | | | | | | |
| *Neoperla* sp. | 1.6 | PR | 49 | | | | | 49 |
| *Perlesta placida* | 4.9 | PR | 6 | | | | | 6 |
| *Perlesta sp.* | 4.9 | PR | 12 | | 1 | | | 13 |
| **Trichoptera** | | | | | | | | |
| Hydropsychidae | | | | | | | | |
| *Cheumatopsyche* sp. | 6.6 | CF | 69 | 6 | | | | 75 |
| Lymnephilidae | | | | | | | | |
| *Pycnopsyche* sp. | 2.3 | SH | | 1 | | | | 1 |
| Rhyacophilidae | | | | | | | | |
| *Rhyacophila* sp. | 0.8 | PR | 2 | | | | | 2 |
| **Malacostraca** | | | | | | | | |
| **Decapoda** | | | | | | | | |
| Cambaridae | | | | | | | | |
| *Orconectes* sp. | 8 | CG | 2 | | | | | 2 |
| **Isopoda** | | | | | | | | |
| Asellidae | | | | | | | | |
| *Lirceus fontinalis* | 7.7 | CG | | 7 | | | | 7 |
| **Gastropoda** | | | | | | | | |
| Ancylidae | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Ferrissia* sp. | 6.9 | SC | | | 1 | | | 1 |
| Lymnaeidae | | | | | | | | |
| *Lymnaea* sp. | 7 | SC | 1 | | | | | 1 |
| Physidae | | | | | | | | |
| *Physa* sp. | 9 | SC | 3 | 1 | 12 | | | 16 |
| Pleuroceridae | | | | | | | | |
| *Elimia* sp. | 2.5 | SC | 2 | | 52 | | 1 | 55 |
| **Oligochaeta** | | | | | | | | |
| Tubificidae | 9.8 | CG | | | | | 5 | 5 |
| **Turbellaria** | | | | | | | | |
| Planariidae | 5 | CG | | | 3 | | | 3 |
| TNI | | | 455 | 180 | 72 | 141 | 23 | 874 |

**MACROINVERTEBRATE METRICS**

| | |
|---|---|
| TNI | 874 |
| TAXA RICHNESS | 55 |
| HBI | 5.67 |
| EPT INDEX | 10 |
| EPT/CHIRONOMIDS | 0.81 |
| $PCD_5$ | 55.49 |
| H | 2.82 |
| d | 16.78 |
| *J* | 0.70 |
| *I* | 0.07 |
| $D_s$ | 0.93 |
| % CF | 14.07 |
| % CG | 14.42 |
| % PR | 14.30 |
| % SC | 37.64 |
| % SH | 18.19 |

**County** Marion

**Site location & number** KDOW 99-04;N. Fork Rolling Fork @ River Road, 1.5 mi NE of Bradfordsville

**Date** 10-Jun-99

**Determiner** D.R. Jones

| TAXON | TV | FFG | TKN | SWEEP | ROCKS | WOOD | FINES | TOTAL |
|---|---|---|---|---|---|---|---|---|
| **Insecta** | | | | | | | | |
| **Coleoptera** | | | | | | | | |
| Elmidae | | | | | | | | |
| *Dubiraphia bivittata* | 6.4 | SC | 8 | | | | | 8 |
| *Macronychus glabratus* | 4.7 | CG | | 2 | | 2 | | 4 |
| *Stenelmis* sp. | 5.4 | SC | 21 | 4 | | 2 | | 27 |
| Gyrinidae | | | | | | | | |
| *Dineutus* sp. | 5.5 | PR | | 1 | | | | 1 |
| *Gyrinus* sp. | 6.3 | PR | 2 | | | | | 2 |
| Hydrophilidae | | | | | | | | |
| *Berosus* sp. | 8.6 | PH | | | | | 1 | 1 |
| Psephenidae | | | | | | | | |
| *Psephenus herricki* | 5 | SC | 29 | 1 | 2 | 4 | | 36 |
| Ptilodactilidae | | | | | | | | |
| *Anchytarsus bicolor* | 2 | SH | 2 | | | | | 2 |
| **Diptera** | | | | | | | | |
| Chironomidae | | | | | | | | |
| *Cryptochironomus* sp. | 7.4 | PR | | | | | 1 | 1 |
| *Larsia* sp. | 8.3 | PR | | 1 | | | 1 | 2 |
| *Natarsia* sp. | 10 | PR | | 1 | | | | 1 |
| *Procladius* sp. | 9.3 | PR | | 1 | | | 1 | 2 |
| *Rheotanytarsus* sp. | 6.4 | CF | | 1 | | | | 1 |
| *Stictochironomus* sp. | 6.7 | CG | | 13 | | | | 13 |
| Tipulidae | | | | | | | | |
| *Leptotarsus* sp. | ? | ? | | 1 | | | | 1 |
| **Ephemeroptera** | | | | | | | | |
| Baetidae | | | | | | | | |
| *Baetis* sp. | 5.4 | CG | | | 15 | | | 15 |
| *Centroptilum* sp. | 6.3 | CG | | | | 2 | | 2 |
| *Procleon* sp. | 5.4 | CG | 6 | | | | | 6 |
| Caenidae | | | | | | | | |
| *Caenis* sp. | 7.6 | CG | 8 | 1 | | 5 | | 14 |
| Heptageniidae | | | | | | | | |
| *Stenonema femoratum* | 7.5 | SC | | 5 | 4 | 4 | | 13 |
| *Stenonema mediopunctatum* | 3.5 | SC | 24 | | | 4 | | 28 |
| *Stenonema terminatum* | 4.5 | SC | 2 | | | | | 2 |
| Leptophlebiidae | | | | | | | | |
| *Choroterpes* sp. | 2.3 | SC | | | 2 | | | 2 |
| Tricorythidae | | | | | | | | |
| *Tricorythodes* sp. | 5.4 | CG | | 1 | | 9 | | 10 |
| **Megaloptera** | | | | | | | | |
| Corydalidae | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Corydalus cornutus* | 5.6 | PR | 1 | | | 1 | | 2 |
| Sialidae | | | | | | | | |
| *Sialis vagans* | 7.5 | PR | | | | | 2 | 2 |
| *Sialis* sp. | 7.5 | PR | 2 | | | | | 2 |
| **Odonata** | | | | | | | | |
| Anisoptera | | | | | | | | |
| Aeschnidae | | | | | | | | |
| *Boyeria vinosa* | 6.3 | PR | | 1 | | | | 1 |
| Zygoptera | | | | | | | | |
| *Argia* sp. | 8.7 | PR | | | | 1 | | 1 |
| **Plecoptera** | | | | | | | | |
| Perlidae | | | | | | | | |
| *Neoperla* sp | 1.6 | PR | 53 | | | 2 | 1 | 56 |
| *Perlesta sp.* | 4.9 | PR | 3 | | | 2 | | 5 |
| **Trichoptera** | | | | | | | | |
| Hydropsychidae | | | | | | | | |
| *Cheumatopsyche* sp. | 6.6 | CF | 18 | | 10 | 5 | | 33 |
| *Hydropsyche valanis* | 4 | CF | 1 | | | | | 1 |
| Philopotamidae | | | | | | | | |
| *Chimarra* sp. | 2.8 | CF | 46 | | | 1 | | 47 |
| **Oligochaeta** | | | | | | | | |
| Lumbriculidae | 7.3 | CG | 15 | 3 | | | | 18 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| TNI | | | 241 | 37 | 33 | 44 | 7 | 362 |

**MACROINVERTEBRATE METRICS**

| | |
|---|---|
| **TNI** | **362** |
| **TAXA RICHNESS** | **34** |
| **HBI** | **4.76** |
| **EPT INDEX** | **14** |
| **EPT/CHIRONOMIDS** | **11.7** |
| **$PCD_5$** | **55.25** |
| **H** | **2.83** |
| **d** | **17.00** |
| ***J*** | **0.80** |
| ***I*** | **0.08** |
| **$D_s$** | **0.92** |
| **% CF** | **22.71** |
| **% CG** | **22.71** |
| **% PH** | **0.28** |
| **% PR** | **21.61** |
| **% SC** | **32.13** |
| **% SH** | **0.55** |

**County** Marion
**Site location & number** KDOW 99-05; Prather Creek at Hwy 527, ca. 1 mi. W of Raywick
**Date** 10-Jun-99
**Det.** M. R. Thomas –Note: D. R. Jones did TKN

| TAXON | TV | FFG | TKN | SWEEP | ROCKS | WOOD | FINES | TOTAL |
|---|---|---|---|---|---|---|---|---|
| **Insecta** | | | | | | | | |
| **Coleoptera** | | | | | | | | |
| Chrysomelidae | | | | | | | | |
| Elmidae | | | | | | | | |
| *Macronychus glabratus* | 4.7 | CG | | 1 | | | | 1 |
| *Stenelmis* sp. | 5.4 | SC | 1 | 7 | | | | 8 |
| Hydrophilidae | | | | | | | | |
| *Laccobius* sp. | 8 | PR | | 3 | | | | 3 |
| Psephenidae | | | | | | | | |
| *Psephenus herricki* | 5 | SC | | 1 | | | | 1 |
| **Diptera** | | | | | | | | |
| Chironomidae | | | | | | | | |
| *Endochironomus* sp. | 7.5 | SH | | | | 33 | | 33 |
| *Glyptotendipes* sp. | 8.5 | SH | | | | 11 | | 11 |
| *Microtendipes* sp. | 6.2 | CF | 6 | | 1 | | | 7 |
| *Polypedilum* sp. | 6.8 | SH | | 2 | | 11 | | 13 |
| *Stenochironomus* sp. | 6.4 | CG | | | | 48 | | 48 |
| *Stictochironomus* sp. | 6.7 | CG | | | | | 114 | 114 |
| *Thienemannimyia* sp. | 8 | CG | 51 | 7 | 1 | 34 | | 93 |
| Tipulidae | | | | | | | | |
| *Hexatoma* sp. | 4.7 | PR | 2 | | | | | 2 |
| **Ephemeroptera** | | | | | | | | |
| Baetidae | | | | | | | | |
| *Centroptilum* sp. | 6.3 | CG | 14 | | | 1 | | 15 |
| Caenidae | | | | | | | | |
| *Caenis* sp. | 7.6 | CG | | | | | 1 | 1 |
| Heptageniidae | | | | | | | | |
| *Stenonema femoratum* | 7.5 | SC | | | 6 | 6 | | 12 |
| Leptophlebiidae | | | | | | | | |
| *Choroterpes* sp. | 2.3 | SC | | | 1 | | | 1 |
| **Megaloptera** | | | | | | | | |
| Corydalidae | | | | | | | | |
| *Nigronia serricornis* | 5.5 | PR | | 1 | | | | 1 |
| Sialidae | | | | | | | | |
| *Sialis* sp. | 7.5 | PR | | 1 | | | | 1 |
| **Odonata** | | | | | | | | |
| Anisoptera | | | | | | | | |
| Aeschnidae | | | | | | | | |
| *Boyeria vinosa* | 6.3 | PR | | 4 | | | | 4 |
| Coenagrionidae | | | | | | | | |
| *Argia* sp. | 8.7 | PR | | 1 | | | | 1 |
| *Enallagma* sp. | 9 | PR | | 2 | | | | 2 |
| **Plecoptera** | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Perlidae | | | | | | | | |
| *Neoperla* sp. | 1.6 | PR | 4 | 9 | | | | 13 |
| *Perlesta placida* | 4.9 | PR | | 1 | | | | 1 |
| **Trichoptera** | | | | | | | | |
| Hydropsychidae | | | | | | | | |
| *Cheumatopsyche* sp. | 6.6 | CF | 15 | | | | | 15 |
| **Malacostraca** | | | | | | | | |
| **Isopoda** | | | | | | | | |
| Asellidae | | | | | | | | |
| *Lirceus fontinalis* | 7.7 | CG | | 73 | | | | 73 |
| **TNI** | | | 93 | 113 | 9 | 144 | 115 | 474 |

**MACROINVERTEBRATE METRICS**

| | | | |
|---|---|---|---|
| **TNI** | | | 474 |
| **TAXA RICHNESS** | | | 25 |
| **HBI** | | | 7.00 |
| **EPT INDEX** | | | 6 |
| **EPT/CHIRONOMIDS** | | | 0.13 |
| **$PCD_5$** | | | 76.20 |
| **H** | | | 2.32 |
| **d** | | | 10.15 |
| ***J*** | | | 0.72 |
| ***I*** | | | 0.11 |
| **$D_s$** | | | 0.89 |
| **% CF** | | | 0.26 |
| **% CG** | | | 73.49 |
| **% PR** | | | 5.77 |
| **% SC** | | | 5.51 |
| **% SH** | | | 14.96 |

**County** Larue
**Site location & number** KDOW 99-06; Middle Fork Otter Creek at Wayne-Ennis Rd. , 5 mi. SE of Ginseng
**Date** 10-Jun-99
**Det.** M. R. Thomas

| TAXON | TV | FFG | TKN | SWEEP | ROCKS | WOOD | FINES | TOTAL |
|---|---|---|---|---|---|---|---|---|
| **Insecta** | | | | | | | | |
| **Coleoptera** | | | | | | | | |
| Chrysomelidae | | | | | | | | |
| Elmidae | | | | | | | | |
| *Ancyronyx* sp. | 6.9 | SC | | 1 | | 1 | | 2 |
| *Macronychus glabratus* | 4.7 | CG | | 2 | | 1 | | 3 |
| *Microcylloepus* sp. | 2.1 | SC | 4 | | | | | 4 |
| *Stenelmis* sp. | 5.4 | SC | 5 | | | | | 5 |
| *Optioservus* sp. | 2.7 | SC | | | 1 | | | 1 |
| Psephenidae | | | | | | | | |
| *Psephenus herricki* | 5 | SC | 9 | | 5 | | | 14 |
| **Diptera** | | | | | | | | |
| Chironomidae | | | | | | | | |
| *Brillia* sp. | 5.2 | SH | | | | 1 | | 1 |
| *Chironomus* sp. | 9.8 | CG | | 2 | | | | 2 |
| *Cryptochironomus* sp. | 7.4 | PR | | 2 | | | 7 | 9 |
| *Microtendipes* sp. | 6.2 | CF | | | 1 | 1 | 4 | 6 |
| *Polypedilum* sp. | 6.8 | SH | 35 | 2 | 1 | 2 | | 40 |
| *Stictochironomus* sp. | 6.7 | CG | | | | | 14 | 14 |
| *Thienemannimyia* sp. | 8 | CG | 3 | 19 | 2 | 2 | | 26 |
| Tipulidae | | | | | | | | |
| *Antocha* sp. | 1 | PR | | 2 | | | | 2 |
| *Tipula* sp. | 7.7 | SH | 1 | | | | | 1 |
| **Ephemeroptera** | | | | | | | | |
| Baetidae | | | | | | | | |
| *Acentrella* sp. | 3.6 | CG | 5 | 1 | | | | 6 |
| *Centroptilum* sp. | 6.3 | CG | 6 | | 15 | 2 | 1 | 24 |
| *Procleon* sp. | 5.4 | CG | 7 | 5 | | | | 12 |
| Caenidae | | | | | | | | |
| *Caenis* sp. | 7.6 | CG | 18 | | | | | 18 |
| Ephemerellidae | | | | | | | | |
| *Eurylophella* sp. | 4 | CG | | 5 | | | | 5 |
| Heptageniidae | | | | | | | | |
| *Stenacron* sp. | 4 | CG | | | 1 | | | 1 |
| *Stenonema carlsoni* | ? | SC | | | | 2 | | 2 |
| *Stenonema mediopunctatum* | 3.5 | SC | 20 | | 2 | 1 | | 23 |
| Isonychiidae | | | | | | | | |
| *Isonychia* sp. | 3.8 | CG | 94 | | 2 | 4 | | 100 |
| **Hemiptera** | | | | | | | | |
| Hydrometridae | | | | | | | | |
| *Hydrometra* sp. | 9 | PR | | 1 | | | | 1 |
| Vellidae | | | | | | | | |
| *Rhagovelia* sp. | 9 | PR | | | 1 | | | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Megaloptera** | | | | | | | | |
| Corydalidae | | | | | | | | |
| *Nigronia serricornis* | 5.5 | PR | 5 | 1 | 2 | | | 8 |
| **Odonata** | | | | | | | | |
| Anisoptera | | | | | | | | |
| Aeschnidae | | | | | | | | |
| *Boyeria vinosa* | 6.3 | PR | | 1 | | 1 | | 2 |
| Zygoptera | | | | | | | | |
| Calopterigidae | | | | | | | | |
| *Calopteryx maculata* | 8.3 | PR | | 1 | | | | 1 |
| Coenagrionidae | | | | | | | | |
| *Argia* sp. | 8.7 | PR | | | | 1 | | 1 |
| **Plecoptera** | | | | | | | | |
| Perlidae | | | | | | | | |
| *Agnetina* sp. | 0 | PR | | | 1 | | | 1 |
| *Perlesta placida* | 4.9 | PR | | 1 | | | | 1 |
| *Perlesta sp.* | 4.9 | PR | 4 | | 1 | | | 5 |
| **Trichoptera** | | | | | | | | |
| Hydropsychidae | | | | | | | | |
| *Cheumatopsyche* sp. | 6.6 | CF | 98 | 9 | 18 | 16 | 2 | 143 |
| *Hydropsyche valanis* | 4 | CF | 17 | 39 | 2 | | | 58 |
| Philopotamidae | | | | | | | | |
| *Chimarra* sp. | 2.8 | CF | 8 | | | | | 8 |
| **Malacostraca** | | | | | | | | |
| **Decapoda** | | | | | | | | |
| Cambaridae | | | | | | | | |
| *Orconectes* sp. | | CG | 4 | | | | | 4 |
| Amphipoda | | | | | | | | |
| Hyallelidae | | | | | | | | |
| *Hyalella* sp. | 6.9 | CG | | 1 | | | | 1 |
| **Isopoda** | | | | | | | | |
| Asellidae | | | | | | | | |
| *Lirceus fontinalis* | 7.7 | CG | | 1 | | | | 1 |
| **Oligochaeta** | | | | | | | | |
| Lumbriculidae | 7.3 | CG | 3 | | | | | 3 |
| **TNI** | | | 346 | 96 | 55 | 35 | 28 | 560 |

**MACROINVERTEBRATE METRICS**

| | |
|---|---|
| **TNI** | **560** |
| **TAXA RICHNESS** | **40** |
| **HBI** | **5.47** |
| **EPT INDEX** | **15** |
| **EPT/CHIRONOMIDS** | **4.15** |
| **$PCD_5$** | **65.53** |
| **H** | **2.64** |
| **d** | **14.01** |
| ***J*** | **0.72** |
| ***I*** | **0.04** |
| **$D_s$** | **0.96** |
| **% CF** | **38.39** |
| **% CG** | **39.29** |
| **% PR** | **5.71** |
| **% SC** | **9.11** |
| **% SH** | **7.5** |

**County** Larue

**Site location & number** KDOW 99-07; West Fork Otter Creek at Perking Rd. off Hwy 210, 2.4 mi SW of Ginseng

**Date** 9-Jun-99

**Det.** M. R. Thomas

| TAXON | TV | FFG | TKN | SWEEP | ROCKS | WOOD | FINES | TOTAL |
|---|---|---|---|---|---|---|---|---|
| **Insecta** | | | | | | | | |
| **Coleoptera** | | | | | | | | |
| Elmidae | | | | | | | | |
| *Dubiraphia sp.* | 6.4 | SC | | | | 1 | | 1 |
| *Macronychus glabratus* | 4.7 | CG | | | | 2 | | 2 |
| *Microcylloepus* sp. | 2.1 | SC | 10 | | | | | 10 |
| **Diptera** | | | | | | | | |
| Chironomidae | | | | | | | | |
| *Cryptochironomus* sp. | 7.4 | PR | 11 | | | | | 11 |
| *Dicrotendipes* sp. | 7.9 | CG | | | | 9 | | 9 |
| *Microtendipes* sp. | 6.2 | CF | 11 | 2 | 7 | 3 | | 23 |
| *Polypedilum* sp. | 6.8 | SH | 27 | | 5 | 9 | | 41 |
| *Stictochironomus* sp. | 6.7 | CG | | 19 | | | 34 | 53 |
| *Thienemannimyia* sp. | 8 | CG | 15 | 2 | | 9 | | 26 |
| Simulidae | | | | | | | | |
| *Simulium* sp. | 4.4 | CF | 5 | 121 | 1 | | | 127 |
| Tipulidae | | | | | | | | |
| *Antocha* sp. | 1 | PR | | 5 | | 1 | | 6 |
| *Hexatoma* sp. | 4.7 | PR | 5 | | | | | 5 |
| **Ephemeroptera** | | | | | | | | |
| Baetidae | | | | | | | | |
| *Procleon* sp. | 5.4 | CG | 37 | 11 | 30 | 4 | 1 | 83 |
| Heptageniidae | | | | | | | | |
| *Stenacron interpunctatum* | 7.1 | CG | | | 2 | | | 2 |
| *Stenonema carlsoni* | ? | SC | | | | 1 | | 1 |
| *Stenonema mediopunctatum* | 3.5 | SC | | | 1 | | | 1 |
| **Megaloptera** | | | | | | | | |
| Corydalidae | | | | | | | | |
| *Nigronia serricornis* | 5.5 | PR | 3 | | | | | 3 |
| **Odonata** | | | | | | | | |
| Zygoptera | | | | | | | | |
| Calopterigidae | | | | | | | | |
| *Calopteryx maculata* | 8.3 | PR | | | | | 1 | 1 |
| **Plecoptera** | | | | | | | | |
| Perlidae | | | | | | | | |
| *Perlesta placida* | 4.9 | PR | | 1 | | | | 1 |
| **Trichoptera** | | | | | | | | |
| Glossosomatidae | | | | | | | | |
| *Glossosoma* sp. | 1.5 | SC | 2 | | 10 | 1 | | 13 |
| Hydropsychidae | | | | | | | | |
| *Cheumatopsyche* sp. | 6.6 | CF | 44 | | 8 | 8 | 1 | 61 |
| *Hydropsyche valanis* | 4 | CF | 33 | 107 | 20 | 4 | | 164 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Philopotamidae | | | | | | | | |
| *Chimarra* sp. | 2.8 | CF | 33 | 3 | 2 | 2 | | 40 |
| Polycentropodidae | | | | | | | | |
| *Paranyctiophylax* sp. | 0.9 | CF | | | | 2 | | 2 |
| **Malacostraca** | | | | | | | | |
| **Decapoda** | | | | | | | | |
| Cambaridae | | | | | | | | |
| *Cambarus* sp. | 8.1 | CG | 1 | | | | | 1 |
| Amphipoda | | | | | | | | |
| Hyallelidae | | | | | | | | |
| *Hyalella* sp. | 6.9 | CG | 1 | | | | | 1 |
| **Isopoda** | | | | | | | | |
| Asellidae | | | | | | | | |
| *Lirceus fontinalis* | 7.7 | CG | 118 | 3 | 16 | 15 | | 152 |
| **Oligochaeta** | | | | | | | | |
| Lumbriculidae | 7.3 | CG | 6 | | | | | 6 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **TNI** | | | 362 | 274 | 102 | 71 | 37 | 846 |

**MACROINVERTEBRATE METRICS**

| | |
|---|---|
| **TNI** | **846** |
| **TAXA RICHNESS** | **28** |
| **HBI** | **5.53** |
| **EPT INDEX** | **9** |
| **EPT/CHIRONOMIDS** | **2.26** |
| **$PCD_5$** | **69.38** |
| **H** | **2.44** |
| **d** | **11.46** |
| ***J*** | **0.73** |
| ***I*** | **0.04** |
| **$D_s$** | **0.96** |
| **% CF** | **49.29** |
| **% CG** | **39.60** |
| **% PR** | **3.19** |
| **% SC** | **3.07** |
| **% SH** | **4.85** |

**County** Larue/Nelson
**Site location & number** KDOW 99-08; Rolling Fork at Gaddys Ford Rd., 3 mi. NW of Stiles
**Date** 9-Jun-99
**Det.** M. R. Thomas

| TAXON | TV | FFG | TKN | SWEEP | ROCKS | WOOD | FINES | TOTAL |
|---|---|---|---|---|---|---|---|---|
| **Insecta** | | | | | | | | |
| **Coleoptera** | | | | | | | | |
| Elmidae | | | | | | | | |
| *Macronychus glabratus* | 4.7 | CG | | 16 | | 12 | | 28 |
| *Stenelmis* sp. | 5.4 | SC | 120 | 10 | 7 | 6 | | 143 |
| Gyrinidae | | | | | | | | |
| *Dineutus* sp. | 5.5 | PR | 19 | | | 1 | | 20 |
| **Diptera** | | | | | | | | |
| Athericidae | | | | | | | | |
| *Atherix* sp. | 2.1 | PR | 1 | | | | | 1 |
| Chironomidae | | | | | | | | |
| *Cryptochironomus* sp. | 7.4 | PR | | | | | 5 | 5 |
| *Dicrotendipes* sp. | 7.9 | CG | | | | 1 | | 1 |
| *Polypedilum* sp. | 6.8 | SH | 40 | | 3 | 7 | 42 | 92 |
| *Rheocrictopus* sp. | 6.8 | CG | | | 1 | | | 1 |
| *Stenochironomus* sp. | 6.4 | CG | | | | 3 | | 3 |
| *Tanytarsus* sp. | 6.7 | PR | | | | 1 | | 1 |
| *Thienemannimyia* sp. | 8 | CG | 10 | | 2 | | | 12 |
| Simulidae | | | | | | | | |
| *Simulium* sp. | 4.4 | CF | | | 8 | 6 | | 14 |
| Tipulidae | | | | | | | | |
| *Hexatoma* sp. | 4.7 | PR | 10 | | | 1 | | 11 |
| *Hemerodromia* sp. | 8.1 | PR | 2 | | | | | 2 |
| **Ephemeroptera** | | | | | | | | |
| Baetidae | | | | | | | | |
| *Acentrella* sp. | 3.6 | CG | | | 1 | | | 1 |
| *Centroptilum* sp. | 6.3 | CG | 8 | | 2 | 8 | 1 | 19 |
| *Procleon* sp. | 5.4 | CG | 22 | 1 | | | | 23 |
| Caenidae | | | | | | | | |
| *Caenis* sp. | 7.6 | CG | 37 | | 1 | | | 38 |
| Ephemerellidae | | | | | | | | |
| *Eurylophella* sp. | 4 | CG | | 2 | | | | 2 |
| Heptageniidae | | | | | | | | |
| *Rhithrogena* sp. | 0 | SC | 25 | | | | | 25 |
| *Stenacron* sp. | 4 | CG | 1 | | 1 | | | 2 |
| *Stenonema femoratum* | 7.5 | SC | 3 | | 17 | | | 20 |
| *Stenonema mediopunctatum* | 3.5 | SC | 6 | | | | | 6 |
| *Stenonema modestum* | 5.8 | SC | 4 | | 2 | | | 6 |
| *Stenonema pulchellum* | 4.1 | SC | 34 | | 5 | 8 | | 47 |
| *Stenonema* sp. | 4.1 | SC | 2 | | | | | 2 |
| Isonychiidae | | | | | | | | |
| *Isonychia* sp. | 3.8 | CG | 109 | 1 | 2 | 4 | | 116 |
| Polymitarcyidae | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Ephoron* sp. | 1.5 | CG | 1 | | | | 2 | 3 |
| Tricorythidae | | | | | | | | |
| *Tricorythodes* sp. | 5.4 | CG | | 23 | 1 | 1 | 1 | 26 |
| **Hemiptera** | | | | | | | | |
| Mesovelidae | | | | | | | | |
| *Mesovelia* sp. | 9.8 | PR | | 9 | | | | 9 |
| **Megaloptera** | | | | | | | | |
| Corydalidae | | | | | | | | |
| *Corydalus cornutus* | 5.6 | PR | | | 1 | | | 1 |
| *Nigronia serricornis* | 5.5 | PR | 1 | | | | | 1 |
| **Odonata** | | | | | | | | |
| Anisoptera | | | | | | | | |
| Aeschnidae | | | | | | | | |
| *Boyeria vinosa* | 6.3 | PR | | 5 | | | | 5 |
| Gomphidae | | | | | | | | |
| *Gomphus* sp. | 6.2 | PR | | 2 | | | | 2 |
| *Hagenius brevistylus* | 4 | PR | | 1 | | | | 1 |
| Macromiidae | | | | | | | | |
| *Macromia* sp. | 6.7 | PR | | 1 | | | | 1 |
| Zygoptera | | | | | | | | |
| Coenagrionidae | | | | | | | | |
| *Argia* sp. | 8.7 | PR | | 2 | | | | 2 |
| *Enallagma* sp. | 9 | PR | | 1 | | | | 1 |
| **Plecoptera** | | | | | | | | |
| Perlidae | | | | | | | | |
| *Agnetina* sp. | 0 | PR | | | 1 | | | 1 |
| *Neoperla* sp. | 1.6 | PR | 14 | | 1 | | 2 | 17 |
| *Perlesta placida* | 4.9 | PR | | 2 | | 1 | | 3 |
| *Perlesta sp.* | 4.9 | PR | 1 | | 1 | | | 2 |
| **Trichoptera** | | | | | | | | |
| Hydropsychidae | | | | | | | | |
| *Cheumatopsyche* sp. | 6.6 | CF | 350 | 2 | 73 | 33 | | 458 |
| *Hydropsyche valanis* | 4 | CF | 1 | | 3 | 1 | | 5 |
| Philopotamidae | | | | | | | | |
| *Chimarra* sp. | 2.8 | CF | 19 | | 1 | 3 | 1 | 24 |
| **Malacostraca** | | | | | | | | |
| **Decapoda** | | | | | | | | |
| Cambaridae | | | | | | | | |
| *Orconectes* sp. | 8 | CG | 1 | 4 | | | | 5 |
| **Mollusca** | | | | | | | | |
| **Bivalvia** | | | | | | | | |
| Corbiculidae | | | | | | | | |
| *Corbicula fluminea* | 8 | CF | 5 | | 1 | | | 6 |
| **Oligochaeta** | | | | | | | | |
| Tubificidae | 9.8 | | | | | | | |
| Lumbriculidae | 7.3 | CG | 14 | | | | | 14 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| TNI | | | 860 | 82 | 135 | 97 | 54 | 1228 |

**MACROINVERTEBRATE METRICS**

| | |
|---|---|
| TNI | 1228 |
| TAXA RICHNESS | 48 |
| HBI | 5.72 |
| EPT INDEX | 22 |
| EPT/CHIRONOMIDS | 7.36 |
| $PCD_5$ | 69.70 |
| H | 2.50 |
| d | 12.16 |
| *J* | 0.65 |
| *I* | 0.03 |
| $D_s$ | 0.97 |
| % CF | 41.29 |
| % CG | 23.94 |
| % PR | 7.00 |
| % SC | 20.28 |
| % SH | 7.49 |

**County** Larue
**Site location & number** KDOW 99-09; Knob Creek @ Blanton Rd., 0.5 mi NE of Athertonville
**Date** 9-Jun-99
**Determiner** D. R. Jones

| TAXON | TV | FFG | TKN | SWEEP | ROCKS | WOOD | FINES | TOTAL |
|---|---|---|---|---|---|---|---|---|
| **Insecta** | | | | | | | | |
| **Coleoptera** | | | | | | | | |
| Elmidae | | | | | | | | |
| *Dubiraphia bivittata* | 6.4 | SC | | 2 | | | | 2 |
| *Dubiraphia sp.* | 6.4 | SC | | 1 | | | | 1 |
| *Macronychus glabratus* | 4.7 | CG | | 1 | | | | 1 |
| Haliplidae | | | | | | | | |
| *Peltodytes lenghi* | 8.5 | PH | | 1 | | | | 1 |
| *Peltodytes* sp. | 8.5 | PH | | 2 | | | | 2 |
| **Diptera** | | | | | | | | |
| Athericidae | | | | | | | | |
| *Atherix* sp. | 2.1 | PR | 1 | | | | | 1 |
| Chironomidae | | | | | | | | |
| *Bethbilbeckia* sp. | | | | 1 | | | | 1 |
| *Chironomus* sp. | 9.8 | CG | | 1 | | | | 1 |
| *Cryptochironomus* sp. | 7.4 | PR | | | | | 16 | 16 |
| *Dicrotendipes* sp. | 7.9 | CG | | | | | 16 | 16 |
| *Endochironomus* sp. | 7.5 | SH | | | | 14 | | 14 |
| *Krenolopia* sp. | 6.2 | PR | 2 | | | | | 2 |
| *Larsia* sp. | 8.3 | PR | 11 | | | 5 | | 16 |
| *Orthocladius* sp. | 7.3 | CG | | 2 | | | | 2 |
| *Polypedilum* sp. | 6.8 | SH | 2 | 6 | | 1 | | 9 |
| *Thiennemannimyia* sp. | 8 | CG | 19 | | | | | 19 |
| Simulidae | | | | | | | | |
| *Simulium* sp. | 4.4 | CG | | 98 | 2 | | | 100 |
| **Ephemeroptera** | | | | | | | | |
| Baetidae | | | | | | | | |
| *Baetis* sp. | 5.4 | CG | | 12 | | | | 12 |
| *Procleon* sp. | 5.4 | CG | 3 | | | | | 3 |
| Caenidae | | | | | | | | |
| *Caenis* sp. | 7.6 | CG | 5 | 4 | 5 | | | 14 |
| Heptageniidae | | | | | | | | |
| *Stenonema carlsoni* | 2.1 | SC | | | 11 | | | 11 |
| *Stenonema femoratum* | 7.5 | SC | 10 | | | 3 | 1 | 14 |
| *Stenonema vicarium* | 4.1 | SC | 1 | | | | | 1 |
| *Stenonema* sp. | 4.1 | SC | 2 | | | | | 2 |
| Leptophlebiidae | | | | | | | | |
| *Choroterpes* sp. | 2.3 | SC | 3 | | | | | 3 |
| Tricorythidae | | | | | | | | |
| *Tricorythodes* sp. | 5.4 | CG | 8 | | | | | 8 |
| **Hemiptera** | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Corixidae | 9 | PR | | | | | 2 | 2 |
| **Megaloptera** | | | | | | | | |
| Sialidae | | | | | | | | |
| *Sialis vagans* | 7.5 | PR | 2 | | | | | 2 |
| **Odonata** | | | | | | | | |
| Zygoptera | | | | | | | | |
| Coenagrionidae | | | | | | | | |
| *Argia* sp. | 8.7 | PR | | | 1 | | | 1 |
| *Chromagrion conditum* | 9 | PR | | 4 | | | | 4 |
| **Trichoptera** | | | | | | | | |
| Hydropsychidae | | | | | | | | |
| *Cheumatopsyche* sp. | 6.6 | CF | | 87 | 1 | | | 88 |
| Hydroptilidae | | | | | | | | |
| *Hydroptilla* sp. | 4 | PH | | 1 | | | | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **TNI** | | | 69 | 223 | 20 | 23 | 35 | 370 |

**MACROINVERTEBRATE METRICS**

| | |
|---|---|
| **TNI** | **370** |
| **TAXA RICHNESS** | **31** |
| **HBI** | **6.12** |
| **EPT INDEX** | **11** |
| **EPT/CHIRONOMIDS** | **1.64** |
| **$PCD_5$** | **64.59** |
| **H** | **2.48** |
| **d** | **11.99** |
| ***J*** | **0.72** |
| ***I*** | **0.14** |
| **$D_s$** | **0.86** |
| **% CF** | **23.85** |
| **% CG** | **47.70** |
| **% PH** | **1.08** |
| **% PR** | **11.92** |
| **% SC** | **9.21** |
| **% SH** | **6.23** |

**County** Hardin
**Site location & number** 99-10; Younger Creek @ Hwy 2799 (Miller Rd.), 3 mi SW of Youngers Creek
**Date** 9-Jun-99
**Determiner** D. R. Jones

| TAXON | TV | FFG | TKN | SWEEP | ROCKS | WOOD | FINES | TOTAL |
|---|---|---|---|---|---|---|---|---|
| **Insecta** | | | | | | | | |
| **Coleoptera** | | | | | | | | |
| Elmidae | | | | | | | | |
| *Dubiraphia bivittata* | 6.4 | SC | | 1 | | | | 1 |
| *Dubiraphia sp.* | 6.4 | SC | | 1 | | | | 1 |
| *Stenelmis* sp. | 5.4 | SC | 3 | | | | | 3 |
| Gyrinidae | | | | | | | | |
| *Gyrinus* sp. | 6.3 | PR | | 4 | | | | 4 |
| Haliplidae | | | | | | | | |
| Hydrophilidae | | | | | | | | |
| *Berosus* sp. | 8.6 | PH | | 1 | | | | 1 |
| Psephenidae | | | | | | | | |
| *Psephenus herricki* | 5 | SC | 12 | 2 | 2 | | | 16 |
| **Diptera** | | | | | | | | |
| Chironomidae | | | | | | (87) | (5) | |
| *Chironomus* sp. | 9.8 | CG | | | | 19 | | 19 |
| *Cricotopus* sp. | 7 | SH | 8 | 1 | 8 | | | 17 |
| *Cryptochironomus* sp. | 7.4 | PR | 3 | | | | 3 | 6 |
| *Dicrotendipes* sp. | 7.9 | CG | 5 | 2 | 3 | 50 | | 60 |
| *Endochironomus* sp. | 7.5 | SH | | | | 18 | | 18 |
| *Eukerefferiella* sp. | 3.4 | CG | 5 | | | | | 5 |
| *Metriochnemus* sp. | | | 5 | | | | | 5 |
| *Polypedilum* sp. | 6.8 | SH | 10 | | 1 | | | 11 |
| *Procladius* sp. | 9.3 | PR | | 3 | | | | 3 |
| *Rheocrictopus* sp. | 6.8 | CG | | | 1 | | | 1 |
| *Rheotanytarsus* sp. | 6.4 | CF | 2 | | 3 | | | 5 |
| *Tanytarsus* sp. | 6.7 | PR | 1 | 7 | | | | 8 |
| *Thiennemannimyia* sp. | 8 | CG | 46 | 11 | 1 | | 1 | 59 |
| Simulidae | | | | | | | | |
| *Simulium* sp. | 4.4 | CG | | | 9 | | | 9 |
| Tabanidae | | | | | | | | |
| *Chrysops* sp. | 7.3 | PR | | 1 | | | | 1 |
| Tipulidae | | | | | | | | |
| *Hexatoma* sp. | 4.7 | PR | 1 | | | | | 1 |
| **Ephemeroptera** | | | | | | | | |
| Baetidae | | | | 2 | | | | 2 |
| *Centroptilum* sp. | 6.3 | CG | | | | 2 | | 2 |
| *Procleon* sp. | 5.4 | CG | 11 | | 4 | | | 15 |
| Caenidae | | | | | | | | |
| *Caenis* sp. | 7.6 | CG | 37 | | | 1 | | 38 |
| Heptageniidae | | | | | | | | |
| *Stenonema femoratum* | 7.5 | SC | | | | 5 | | 5 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Stenonema mediopunctatum* | 3.5 | SC | | 1 | | | | 1 |
| *Stenonema* sp. | 4.1 | SC | | | 1 | | | 1 |
| Isonychiidae | | | | | | | | |
| *Isonychia* sp. | 3.8 | CG | 3 | | | | | 3 |
| **Megaloptera** | | | | | | | | |
| Sialidae | | | | | | | | |
| *Sialis vagans* | 7.5 | PR | | 1 | | | | 1 |
| **Odonata** | | | | | | | | |
| Zygoptera | | | | | | | | |
| Coenagrionidae | | | | | | | | |
| *Chromagrion conditum* | 9 | PR | | 2 | | | | 2 |
| **Plecoptera** | | | | | | | | |
| Perlidae | | | | | | | | |
| *Agnetina* sp. | 0 | PR | | | 1 | | | 1 |
| *Attaneuria ruralis* | 3 | PR | | 1 | | | | 1 |
| *Perlesta sp.* | 4.9 | PR | 2 | 2 | | | | 4 |
| **Trichoptera** | | | | | | | | |
| Hydropsychidae | | | | | | | | |
| *Cheumatopsyche* sp. | 6.6 | CF | 71 | | 23 | | | 94 |
| Hydroptilidae | | | | | | | | |
| *Hydroptilla* sp. | 4 | PH | 1 | | 1 | | | 2 |
| Philopotamidae | | | | | | | | |
| *Chimarra* sp. | 2.8 | CF | 2 | | | | | 2 |
| **Malacostraca** | | | | | | | | |
| **Decapoda** | | | | | | | | |
| Cambaridae | | | | | | | | |
| *Orconectes* sp. | 8 | CG | | 1 | | | | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **TNI** | | | 228 | 44 | 58 | 95 | 4 | 429 |

**MACROINVERTEBRATE METRICS**

| | |
|---|---|
| **TNI** | **429** |
| **TAXA RICHNESS** | **38** |
| **HBI** | **6.91** |
| **EPT INDEX** | **13** |
| **EPT/CHIRONOMIDS** | **0.79** |
| **$PCD_5$** | **62.94** |
| **H** | **2.74** |
| **d** | **15.44** |
| ***J*** | **0.75** |
| ***I*** | **0.10** |
| **$D_s$** | **0.90** |
| **% CF** | **23.93** |
| **% CG** | **50.24** |
| **% PH** | **0.71** |
| **% PR** | **7.58** |
| **% SC** | **6.64** |
| **% SH** | **10.90** |

**County** Washington/ Marion
**Site location & number** KDOW 99-11; Beech Fork at Beech Rd., ca. 1 mi E of Texas
**Date** 16-Jun-99
**Det.** M. R. Thomas

| TAXON | TV | FFG | TKN | SWEEP | ROCKS | WOOD | FINES | TOTAL |
|---|---|---|---|---|---|---|---|---|
| **Insecta** | | | | | | | | |
| **Coleoptera** | | | | | | | | |
| Elmidae | | | | | | | | |
| *Macronychus glabratus* | 4.7 | CG | | | | 2 | | 2 |
| *Stenelmis* sp. | 5.4 | SC | 708 | 2 | 15 | | | 725 |
| Haliplidae | | | | | | | | |
| *Peltodytes* sp. | 8.5 | PH | | 1 | | | | 1 |
| Hydrophilidae | | | | | | | | |
| *Laccobius* sp. | 8 | PR | | 1 | | | | 1 |
| Psephenidae | | | | | | | | |
| *Psephenus herricki* | 5 | SC | 201 | | 24 | 1 | | 226 |
| **Diptera** | | | | | | | | |
| Chironomidae | | | | | | | | |
| *Ablabesmyia* sp. | 6.4 | PR | | | 3 | | | 3 |
| *Dicrotendipes* sp. | 7.9 | CG | 9 | | | | | 9 |
| *Microtendipes* sp. | 6.2 | CF | 23 | | 4 | | 10 | 37 |
| *Paratendipes* sp. | 5.3 | CG | | | 35 | | | 35 |
| *Polypedilum* sp. | 6.8 | SH | 18 | | | | | 18 |
| *Procladius* sp. | 9.3 | PR | 5 | | | | | 5 |
| *Stenochironomus* sp. | 6.4 | CG | | | | | 3 | 3 |
| *Stictochironomus* sp. | 6.7 | CG | 5 | | | | | 5 |
| *Thienemannimyia* sp. | 8 | CG | | | | | 27 | 27 |
| Tipulidae | | | | | | | | |
| *Hexatoma* sp. | 4.7 | PR | 15 | | | | | 15 |
| *Tipula* sp. | 7.7 | SH | 2 | | | | | 2 |
| Empididae | | | | | | | | |
| *Hemerodromia* sp. | 8.1 | PR | 1 | | | | | 1 |
| **Ephemeroptera** | | | | | | | | |
| Baetidae | | | | | | | | |
| *Baetis* sp. | ? | CG | 4 | | | | | 4 |
| *Centroptilum* sp. | 6.3 | CG | | | 2 | | | 2 |
| *Procleon* sp. | 5.4 | CG | | 1 | 4 | 5 | | 10 |
| Caenidae | | | | | | | | |
| *Caenis* sp. | 7.6 | CG | | 2 | | | 1 | 3 |
| Ephemeridae | | | | | | | | |
| *Hexagenia* sp. | 4.7 | CG | | 2 | | | | 2 |
| Heptageniidae | | | | | | | | |
| *Stenacron* sp. | 4 | CG | 9 | | 10 | | | 19 |
| *Stenonema femoratum* | 7.5 | SC | 7 | | 10 | 11 | 1 | 29 |
| *Stenonema mediopunctatum* | 3.5 | SC | 2 | | | | | 2 |
| *Isonychia* sp. | 3.8 | SC | 4 | | | | | 4 |
| **Hemiptera** | | | | | | | | |
| Gerridae | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Rheumatobates* sp. | 9 | PR | | 1 | | | | 1 |
| *Trepobates* sp. | 9 | PR | | 2 | | | | 2 |
| Mesovelidae | | | | | | | | |
| *Mesovelia* sp. | 9.8 | PR | | 16 | | | | 16 |
| **Megaloptera** | | | | | | | | |
| Corydalidae | | | | | | | | |
| *Corydalus cornutus* | 5.6 | PR | 3 | | | | | 3 |
| *Nigronia serricornis* | 5.5 | PR | 37 | 1 | 2 | | 1 | 41 |
| Sialidae | | | | | | | | |
| *Sialis* sp. | 7.5 | PR | 1 | | | | | 1 |
| **Odonata** | | | | | | | | |
| Gomphidae | | | | | | | | |
| *Gomphus* sp. | 6.2 | PR | | 1 | | | | 1 |
| Macromiidae | | | | | | | | |
| *Macromia* sp. | 6.7 | PR | | 1 | | | | 1 |
| **Zygoptera** | | | | | | | | |
| Coenagrionidae | | | | | | | | |
| *Argia* sp. | 8.7 | PR | | 7 | | | | 7 |
| *Enallagma* sp. | 9 | PR | | 3 | | | | 3 |
| **Plecoptera** | | | | | | | | |
| Perlidae | | | | | | | | |
| *Neoperla* sp. 1 | 1.6 | PR | 170 | 1 | 6 | 6 | | 183 |
| *Neoperla* sp. 2 | 1.6 | PR | 2 | | | 1 | | 3 |
| **Trichoptera** | | | | | | | | |
| Hydropsychidae | | | | | | | | |
| *Cheumatopsyche* sp. | 6.6 | CF | 127 | 1 | 29 | | 1 | 158 |
| Philopotamidae | | | | | | | | |
| *Chimarra* sp. | 2.8 | CF | 4 | | 2 | | | 6 |
| Polycentropodidae | | | | | | | | |
| *Polycentropus* sp. | 3.5 | CF | | | 5 | | | 5 |
| **Malacostraca** | | | | | | | | |
| **Decapoda** | | | | | | | | |
| Cambaridae | | | | | | | | |
| *Orconectes* sp. | | CG | 1 | 5 | | | | 6 |
| **Mollusca** | | | | | | | | |
| **Bivalvia** | | | | | | | | |
| Corbiculidae | | | | | | | | |
| *Corbicula fluminea* | 8 | CF | | 15 | 2 | | | 17 |
| **Gastropoda** | | | | | | | | |
| Ancylidae | | | | | | | | |
| *Ferrissia* sp. | 6.9 | SC | | | 7 | | | 7 |
| Physidae | | | | | | | | |
| *Physa* sp. | 9 | SC | 1 | | | | | 1 |
| **Oligochaeta** | | | | | | | | |
| Tubificidae | 9.8 | CG | | | | | 3 | 3 |
| Lumbriculidae | 7.3 | CG | 4 | 3 | | | 2 | 9 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **TNI** | | | 1363 | 66 | 160 | 26 | 49 | 1664 |

**MACROINVERTEBRATE METRICS**

| | | | |
|---|---|---|---|
| TNI | | | 1664 |
| TAXA RICHNESS | | | 44 |
| HBI | | | 5.24 |
| EPT INDEX | | | 14 |
| EPT/CHIRONOMIDS | | | 47.78 |
| $PCD_5$ | | | 80.11 |
| H | | | 2.15 |
| d | | | 8.56 |
| *J* | | | 0.57 |
| *I* | | | 0.21 |
| $D_s$ | | | 0.79 |
| % CF | | | 13.40 |
| % CG | | | 8.35 |
| % PR | | | 17.25 |
| % SC | | | 59.74 |
| % SH | | | 1.20 |
| % PH | | | 0.06 |

**County** Washington
**Site location & number** KDOW 99-12; East Fork Beech Fork at Beech Rd., ca. 1 mi E. of Texas
**Date** 16-Jun-99
**Det.** M. R. Thomas

| TAXON | TV | FFG | TKN | SWEEP | ROCKS | WOOD | FINES | TOTAL |
|---|---|---|---|---|---|---|---|---|
| **Insecta** | | | | | | | | |
| **Coleoptera** | | | | | | | | |
| Elmidae | | | | | | | | |
| *Stenelmis* sp. | 5.4 | SC | 126 | 23 | 1 | 2 | 1 | 153 |
| Psephenidae | | | | | | | | |
| *Psephenus herricki* | 5 | SC | 8 | | 6 | | | 14 |
| **Diptera** | | | | | | | | |
| Chironomidae | | | | | | | | |
| *Microtendipes* sp. | 6.2 | CF | 1 | | | 2 | | 3 |
| *Parachironomus* sp. | 9.2 | PR | | | | 2 | | 2 |
| *Polypedilum* sp. | 6.8 | SH | | | | 13 | | 13 |
| *Stictochironomus* sp. | 6.7 | CG | | 6 | | 26 | 165 | 197 |
| Simulidae | | | | | | | | |
| *Simulium* sp. | 4.4 | CF | | 1 | | | | 1 |
| Tipulidae | | | | | | | | |
| *Hexatoma* sp. | 4.7 | PR | 7 | | | | | 7 |
| **Ephemeroptera** | | | | | | | | |
| Ephemeridae | | | | | | | | |
| *Hexagenia* sp. | 4.7 | CG | | 1 | | | | 1 |
| Heptageniidae | | | | | | | | |
| *Stenacron interpunctatum* | 7.1 | CG | 8 | | 3 | 3 | 1 | 15 |
| *Stenonema femoratum* | 7.5 | SC | 6 | | 22 | | 2 | 30 |
| **Hemiptera** | | | | | | | | |
| Mesovelidae | | | | | | | | |
| *Mesovelia* sp. | 9.8 | PR | 1 | | | | | 1 |
| Corixidae | | | | | | | | |
| *Sigara* sp. | 9 | PH | | 1 | | | | 1 |
| **Megaloptera** | | | | | | | | |
| Corydalidae | | | | | | | | |
| *Nigronia serricornis* | 5.5 | PR | 1 | | | | | 1 |
| **Odonata** | | | | | | | | |
| Anisoptera | | | | | | | | |
| Libellulidae | | | | | | | | |
| *Libellula* sp. | 9.8 | PR | | 1 | | | | 1 |
| Zygoptera | | | | | | | | |
| Coenagrionidae | | | | | | | | |
| *Argia* sp. | 8.7 | PR | | 2 | | | | 2 |
| *Enallagma* sp. | 9 | PR | | 2 | | | | 2 |
| **Plecoptera** | | | | | | | | |
| Perlidae | | | | | | | | |
| *Neoperla* sp. | 1.6 | PR | 68 | 1 | 2 | | | 71 |
| **Trichoptera** | | | | | | | | |
| Hydropsychidae | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Cheumatopsyche* sp. | 6.6 | CF | 22 | 30 | 3 | | 1 | 56 |
| Polycentropodidae | | | | | | | | |
| *Polycentropus* sp. | 3.5 | CF | | | 1 | | | 1 |
| **Malacostraca** | | | | | | | | |
| **Isopoda** | | | | | | | | |
| Asellidae | | | | | | | | |
| *Lirceus fontinalis* | 7.7 | CG | 6 | 30 | 1 | 12 | | 49 |
| **Mollusca** | | | | | | | | |
| **Bivalvia** | | | | | | | | |
| Corbiculidae | | | | | | | | |
| *Corbicula fluminea* | 8 | CF | | 1 | | 1 | 4 | 6 |
| **Oligochaeta** | | | | | | | | |
| Tubificidae | 9.8 | CG | | | | | 2 | 2 |
| Lumbriculidae | 7.3 | CG | 1 | | | | | 1 |
| **TNI** | | | 255 | 99 | 39 | 61 | 176 | 630 |

**MACROINVERTEBRATE METRICS**

| | |
|---|---|
| **TNI** | **630** |
| **TAXA RICHNESS** | **19** |
| **HBI** | **5.91** |
| **EPT INDEX** | **5** |
| **EPT/CHIRONOMIDS** | **0.81** |
| **$PCD_5$** | **83.50** |
| **H** | **2.04** |
| **d** | **7.69** |
| ***J*** | **0.69** |
| ***I*** | **0.16** |
| **$D_s$** | **0.84** |
| **% CF** | **10.63** |
| **% CG** | **42.06** |
| **% PR** | **13.81** |
| **% SC** | **31.27** |
| **% SH** | **2.06** |
| **% PH** | **0.16** |

**County** Washington/Marion
**Site location & number** KDOW 99-13: Pleasant Run, Tick Creek Rd., 4 mi. NE of Springfield.
**Date** 15-Jun-99
**Det.** M. R. Thomas

| TAXON | TV | FFG | TKN | SWEEP | ROCKS | WOOD | FINES | TOTAL |
|---|---|---|---|---|---|---|---|---|
| **Insecta** | | | | | | | | |
| **Coleoptera** | | | | | | | | |
| Elmidae | | | | | | | | |
| *Stenelmis* sp. | 5.4 | SC | 1080 | 44 | 36 | 3 | | 1163 |
| Hydrophilidae | | | | | | | | |
| *Troposternis* sp. | 9.8 | CG | | 1 | | | | 1 |
| *Laccobius* sp. | 8 | PR | | 1 | | 7 | | 8 |
| Psephenidae | | | | | | | | |
| *Psephenus herricki* | 5 | SC | 60 | | 41 | 1 | | 102 |
| *Ectopria* sp. | 4.3 | SC | 1 | | | | | 1 |
| Ceratopogonidae | | | | | | | | |
| *Probezzia* sp. | 6.9 | PR | | | | | 4 | 4 |
| Chironomidae | | | | | | | | |
| *Apedilum* sp. | ? | ? | 6 | | 4 | | | 10 |
| *Cladotanytarsus* sp. | 3.7 | CG | | 6 | | | | 6 |
| *Cryptochironomus* sp. | 7.4 | PR | | 3 | | 162 | | 165 |
| *Dicrotendipes* sp. | 7.9 | CG | 2 | 1 | 1 | | | 4 |
| *Paratendipes* sp. | 5.3 | CG | 10 | 6 | 2 | | | 18 |
| *Procladius* sp. | 9.3 | PR | | 2 | | | | 2 |
| *Tanytarsus* sp. | 6.7 | CG | 4 | 6 | 4 | | | 14 |
| *Thienemannimyia* sp. | 8 | CG | | 3 | | | | 3 |
| Tabanidae | | | | | | | | |
| *Tabanis* sp. | 9.7 | PR | 2 | | | | | 2 |
| Tipulidae | | | | | | | | |
| *Limonia* sp. | 10 | SC | | | | | 1 | 1 |
| *Hexatoma* sp. | 4.7 | PR | 23 | | | | | 23 |
| Empididae | | | | | | | | |
| *Hemerodromia* sp. | 8.1 | PR | | | | 1 | | 1 |
| **Ephemeroptera** | | | | | | | | |
| Ameletidae | | | | | | | | |
| *Ameletus* sp. | 2 | SC | | 1 | | | | 1 |
| Baetidae | | | | | | | | |
| *Baetis* sp. | 5.4 | CG | 10 | | 1 | | | 11 |
| *Centroptilum* sp. | 6.3 | CG | | | | 1 | | 1 |
| Caenidae | | | | | | | | |
| *Caenis* sp. | 7.6 | CG | | 7 | 4 | 62 | | 73 |
| Ephemeridae | | | | | | | | |
| *Hexagenia* sp. | 4.7 | CG | | 5 | | | 2 | 7 |
| Heptageniidae | | | | | | | | |
| *Stenacron* sp. | 4 | CG | 3 | | | | | 3 |
| *Stenonema femoratum* | 7.5 | SC | | | 6 | | | 6 |
| *Stenonema* sp. | 4.1 | SC | 1 | | | | | 1 |
| Isonychiidae | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Isonychia* sp. | 3.8 | CG | 2 | | | | | 2 |
| **Hemiptera** | | | | | | | | |
| Vellidae | | | | | | | | |
| *Microvelia* sp. | 9 | PR | | 1 | | | | 1 |
| **Megaloptera** | | | | | | | | |
| Corydalidae | | | | | | | | |
| *Sialis vagans* | 7.5 | PR | | 1 | | | 1 | 2 |
| **Odonata** | | | | | | | | |
| Zygoptera | | | | | | | | |
| Coenagrionidae | | | | | | | | |
| *Argia* sp. | 8.7 | PR | | 2 | | | | 2 |
| *Enallagma* sp. | 9 | PR | | 1 | | | | 1 |
| **Plecoptera** | | | | | | | | |
| Perlidae | | | | | | | | |
| *Acroneuria* sp. | 1.4 | PR | 245 | 24 | | | | 269 |
| *Neoperla* sp. | 1.6 | PR | | | 16 | 5 | | 21 |
| *Perlesta placida* | 4.9 | PR | | | 1 | | | 1 |
| **Trichoptera** | | | | | | | | |
| Hydropsychidae | | | | | | | | |
| *Cheumatopsyche* sp. | 6.6 | CF | 350 | 2 | 57 | | | 409 |
| Hydroptilidae | | | | | | | | |
| *Hydroptila* sp. | 4 | PH | | 4 | | 10 | | 14 |
| Polycentropodidae | | | | | | | | |
| *Polycentropus* sp. | 3.5 | CF | | | | 1 | | 1 |
| Rhyacophilidae | | | | | | | | |
| *Rhyacophila* sp. | 0.8 | PR | 1 | | | | | 1 |
| **Malacostraca** | | | | | | | | |
| **Decapoda** | | | | | | | | |
| Cambaridae | | | | | | | | |
| *Orconectes* sp. | 8 | CG | | 1 | | 1 | | 2 |
| Amphipoda | | | | | | | | |
| Hyallelidae | | | | | | | | |
| *Hyalella* sp. | 6.9 | CG | 1 | | | | | 1 |
| **Isopoda** | | | | | | | | |
| Asellidae | | | | | | | | |
| *Lirceus fontinalis* | 7.7 | CG | 5 | 18 | | 4 | | 27 |
| **Mollusca** | | | | | | | | |
| **Bivalvia** | | | | | | | | |
| Corbiculidae | | | | | | | | |
| *Corbicula fluminea* | 8 | CF | 38 | 1 | 1 | | | 40 |
| **Gastropoda** | | | | | | | | |
| Ancylidae | | | | | | | | |
| *Ferrissia* sp. | 6.9 | SC | 3 | | 6 | 3 | | 12 |
| Pleuroceridae | | | | | | | | |
| *Elimia* sp. | 2.5 | SC | | 8 | 10 | 28 | 3 | 49 |
| **Oligochaeta** | | | | | | | | |
| Tubificidae | 9.8 | CG | | 1 | | | 5 | 6 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Turbellaria** | | | | | | | | |
| Planariidae | **5** | **CG** | **13** | **1** | **6** | | | **20** |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **TNI** | | | **1860** | **151** | **196** | **289** | **16** | **2512** |

**MACROINVERTEBRATE METRICS**

| | |
|---|---|
| **TNI** | **2512** |
| **TAXA RICHNESS** | **44** |
| **HBI** | **5.30** |
| **EPT INDEX** | **13** |
| **EPT/CHIRONOMIDS** | **3.70** |
| **$PCD_5$** | **83.91** |
| **H** | **1.57** |
| **d** | **4.83** |
| ***J*** | **0.42** |
| ***I*** | **0.22** |
| **$D_s$** | **0.78** |
| **% CF** | **17.99** |
| **% CG** | **7.95** |
| **% PR** | **20.10** |
| **% SC** | **53.40** |
| **% PH** | **0.56** |

**County** Washington
**Site location & number** KDOW 99-14; Beech Fork at Hardesty Rd., 1.5 mi. SE of Hardesty
**Date** 17-Jun-99
**Det.** M. R. Thomas

| TAXON | TV | FFG | TKN | SWEEP | ROCKS | WOOD | FINES | TOTAL |
|---|---|---|---|---|---|---|---|---|
| **Insecta** | | | | | | | | |
| **Coleoptera** | | | | | | | | |
| Elmidae | | | | | | | | |
| *Dubiraphia sp.* | 6.4 | SC | | 5 | | | | 5 |
| *Macronychus glabratus* | 4.7 | CG | | | | 3 | | 3 |
| *Stenelmis* sp. | 5.4 | SC | 770 | 108 | 16 | 2 | | 896 |
| Psephenidae | | | | | | | | |
| *Psephenus herricki* | 5 | SC | 217 | 2 | 31 | 1 | | 251 |
| Dytiscidae | | | | | | | | |
| *Laccophilus* sp. | 10 | PR | | 3 | | | | 3 |
| Scirtidae | | | | | | | | |
| *Elodes* sp. | 5 | SC | | 3 | | | | 3 |
| **Diptera** | | | | | | | | |
| Ceratopogonidae | | | | | | | | |
| *Atrichopogon* sp. | 6.8 | PR | | | | 1 | 1 | 2 |
| *Probezzia* sp. | 6.9 | PR | | | 1 | | | 1 |
| Chironomidae | | | | | | | | |
| *Dicrotendipes* sp. | 7.9 | CG | 5 | | | | | 5 |
| *Microtendipes* sp. | 6.2 | CF | 20 | | 4 | | | 24 |
| *Polypedilum* sp. | 6.8 | SH | 60 | 4 | | 36 | 5 | 105 |
| *Stenochironomus* sp. | 6.4 | CG | | | | 7 | | 7 |
| *Stictochironomus* sp. | 6.7 | CG | | 2 | | | 50 | 52 |
| *Thienemannimyia* sp. | 8 | CG | 30 | 3 | | | | 33 |
| Simulidae | | | | | | | | |
| *Simulium* sp. | 4.4 | CF | 1 | | | | | 1 |
| Tabanidae | | | | | | | | |
| *Tabanis* sp. | 9.7 | PR | 19 | | | | | 19 |
| Tipulidae | | | | | | | | |
| *Hexatoma* sp. | 4.7 | PR | 18 | | | | | 18 |
| Empididae | | | | | | | | |
| *Hemerodromia* sp. | 8.1 | PR | 2 | | | | | 2 |
| **Ephemeroptera** | | | | | | | | |
| Baetidae | | | | | | | | |
| *Baetis* sp. | ? | CG | | | 6 | | | 6 |
| *Centroptilum* sp. | 6.3 | CG | 116 | 2 | | 11 | 1 | 130 |
| *Procleon* sp. | 5.4 | CG | | 2 | | | | 2 |
| Caenidae | | | | | | | | |
| *Caenis* sp. | 7.6 | CG | 2 | | | 4 | 1 | 7 |
| Ephemeridae | | | | | | | | |
| Heptageniidae | | | | | | | | |
| *Stenacron* sp. | 4 | CG | | | 1 | | | 1 |
| *Stenacron interpunctatum* | 7.1 | CG | 1 | | | 6 | | 7 |
| *Stenonema femoratum* | 7.5 | SC | | | 3 | | | 3 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Stenonema pulchellum* | 4.1 | SCC | 35 | | | | | 35 |
| Isonychiidae | | | | | | | | |
| *Isonychia* sp. | 3.8 | CG | 63 | | | | | 63 |
| **Hemiptera** | | | | | | | | |
| Gerridae | | | | | | | | |
| *Rheumatobates* sp. | 9 | PR | 2 | 2 | | | | 4 |
| *Trepobates* sp. | 9 | PR | 5 | 4 | | | | 9 |
| Mesovelidae | | | | | | | | |
| *Mesovelia* sp. | 9.8 | PR | | 17 | | | | 17 |
| Vellidae | | | | | | | | |
| *Rhagovelia* sp. | 9 | PR | | 1 | | | | 1 |
| **Megaloptera** | | | | | | | | |
| Corydalidae | | | | | | | | |
| *Nigronia serricornis* | 5.5 | PR | 1 | | | | | 1 |
| **Odonata** | | | | | | | | |
| Anisoptera | | | | | | | | |
| Aeschnidae | | | | | | | | |
| *Boyeria vinosa* | 6.3 | PR | | 2 | | | | 2 |
| Zygoptera | | | | | | | | |
| Coenagrionidae | | | | | | | | |
| *Argia* sp. | 8.7 | PR | | 1 | | | | 1 |
| *Enallagma* sp. | 9 | PR | | 1 | | | | 1 |
| **Plecoptera** | | | | | | | | |
| Perlidae | | | | | | | | |
| *Agnetina* sp. | 0 | PR | 1 | | | | | 1 |
| *Neoperla* sp. | 1.6 | PR | 148 | 2 | 5 | 7 | 1 | 163 |
| **Trichoptera** | | | | | | | | |
| Hydropsychidae | | | | | | | | |
| *Cheumatopsyche* sp. | 6.6 | CF | 451 | 3 | 21 | | | 475 |
| Philopotamidae | | | | | | | | |
| *Chimarra* sp. | 2.8 | CF | 7 | | | | | 7 |
| Polycentropodidae | | | | | | | | |
| *Polycentropus* sp. | 3.5 | CF | | 1 | | | | 1 |
| Uenoidae | | | | | | | | |
| *Neophylax concinnum* | ? | SC | | | | 1 | | 1 |
| **Lepidoptera** | | | | | | | | |
| Pyralidae | | | | | | | | |
| *Petrophila fulicalis* | 1.8 | SC | | | 26 | | | 26 |
| **Malacostraca** | | | | | | | | |
| **Decapoda** | | | | | | | | |
| Cambaridae | | | | | | | | |
| *Orconectes* sp. | | CG | | 2 | | | | 2 |
| **Isopoda** | | | | | | | | |
| Asellidae | | | | | | | | |
| *Lirceus fontinalis* | 7.7 | CG | 2 | 580 | | | | 582 |
| **Mollusca** | | | | | | | | |
| **Bivalvia** | | | | | | | | |
| Corbiculidae | | | | | | | | |
| *Corbicula fluminea* | 8 | CF | 8 | 13 | 1 | | 11 | 33 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Gastropoda** | | | | | | | | |
| Ancylidae | | | | | | | | |
| *Ferrissia* sp. | 6.9 | SC | | | 1 | | | 1 |
| Physidae | | | | | | | | |
| *Physa* sp. | 9 | SC | | 12 | | 1 | | 13 |
| Pleuroceridae | | | | | | | | |
| *Elimia* sp. | 2.5 | SC | 2 | 5 | | 3 | | 10 |
| *Gyraulis* sp. | ? | SC | | 4 | | | | 4 |
| **Turbellaria** | | | | | | | | |
| Planariidae | 5 | CG | 24 | 7 | | | | 31 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **TNI** | | | **2010** | **791** | **116** | **83** | **70** | **3070** |

**MACROINVERTEBRATE METRICS**

| | |
|---|---|
| **TNI** | **3070** |
| **TAXA RICHNESS** | **48** |
| **HBI** | **5.89** |
| **EPT INDEX** | **15** |
| **EPT/CHIRONOMIDS** | **3.99** |
| **$PCD_5$** | **77.10** |
| **H** | **2.28** |
| **d** | **9.81** |
| ***J*** | **0.59** |
| ***I*** | **0.01** |
| **$D_s$** | **0.99** |
| **% CF** | **17.62** |
| **% CG** | **30.33** |
| **% PR** | **7.98** |
| **% SC** | **40.65** |
| **% SH** | **3.42** |

**County** Washington
**Site location & number** KDOW 99 15; Long Lick Creek at Hardesty Rd., 1.5 mi SE of Hardesty
**Date** 17-Jun-99
**Determiner** D. R. Jones

| TAXON | TV | FFG | TKN | SWEEP | ROCKS | WOOD | FINES | TOTAL |
|---|---|---|---|---|---|---|---|---|
| **Insecta** | | | | | | | | |
| **Coleoptera** | | | | | | | | |
| Elmidae | | | | | | | | |
| *Dubiraphia sp.* | 6.4 | SC | | 2 | | | | 2 |
| *Stenelmis* sp. | 5.4 | SC | 140 | | 3 | 1 | | 144 |
| Psephenidae | | | | | | | | |
| *Psephenus herricki* | 5 | SC | 25 | | 2 | | | 27 |
| **Diptera** | | | | | | | | |
| Chironomidae | | | | | | | | |
| *Ablesmyia* sp. | 6.4 | PR | | | | 1 | | 1 |
| *Apedelium* sp. | | | | 1 | | | | 1 |
| *Cladopelma* sp. | 9.5 | CG | 24 | | | | | 24 |
| *Endochironomus* sp. | 7.5 | SH | | | | 6 | | 6 |
| *Glyptotendipes* sp. | 8.5 | SH | | | | 15 | | 15 |
| *Polypedilum* sp. | 6.8 | SH | | | 1 | 2 | | 3 |
| *Stictochironomus* sp. | 6.7 | CG | | 3 | | | 12 | 15 |
| Tabanidae | | | | | | | | |
| *Tabanis* sp. | 9.7 | PR | 1 | | | | | 1 |
| Tipulidae | | | | | | | | |
| *Tipula* sp. | 7.7 | SH | | | | 1 | | 1 |
| **Ephemeroptera** | | | | | | | | |
| Baetidae | | | | | | | | |
| *Centroptilum* sp. | 6.3 | CG | | | | 1 | | 1 |
| Caenidae | | | | | | | | |
| *Caenis* sp. | 7.6 | CG | | 2 | 1 | | | 3 |
| Ephemeridae | | | | | | | | |
| *Hexagenia atrocaudata* | 4.7 | CG | | 17 | | | 1 | 18 |
| *Hexagenia rigida* | 4.7 | CG | | 1 | | | | 1 |
| Heptageniidae | | | | | | | | |
| *Stenacron candidum* | 4 | CG | | | 2 | | | 2 |
| *Stenonema femoratum* | 7.5 | SC | | | 8 | 2 | | 10 |
| Isonychiidae | | | | | | | | |
| *Isonychia* sp. | 3.8 | CG | 3 | | | | | 3 |
| **Hemiptera** | | | | | | | | |
| Gerridae | | | | | | | | |
| *Rheumatobates* sp. | 9 | PR | | 1 | | | | 1 |
| Mesovelidae | | | | | | | | |
| *Mesovelia* sp. | 9.8 | PR | | 3 | | | | 3 |
| Nepidae | | | | | | | | |
| *Nepa* sp. | 9 | PR | | 1 | | | | 1 |
| **Megaloptera** | | | | | | | | |
| Corydalidae | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Corydalus cornutus* | 5.6 | PR | 10 | | | | | 10 |
| *Nigronia serricornis* | 5.5 | PR | | 1 | | | | 1 |
| Sialidae | | | | | | | | |
| *Sialis vagans* | 7.5 | PR | 2 | 3 | | | | 5 |
| **Odonata** | | | | | | | | |
| Anisoptera | | | | | | | | |
| Aeschnidae | | | | | | | | |
| *Basiaeschna janata* | 7.7 | PR | | 1 | | | | 1 |
| Gomphidae | | | | | | | | |
| *Dromogomphus spinosus* | 6.3 | PR | | 6 | | | 1 | 7 |
| *Hagenius brevistylus* | 4 | PR | | 1 | | | | 1 |
| Macromiidae | | | | | | | | |
| *Macromia* sp. | 6.7 | PR | | 1 | | | | 1 |
| Zygoptera | | | | | | | | |
| Coenagrionidae | | | | | | | | |
| *Argia* sp. | 8.7 | PR | | 3 | | | | 3 |
| *Chromagrion conditum* | 9 | PR | | 11 | | | | 11 |
| **Plecoptera** | | | | | | | | |
| Perlidae | | | | | | | | |
| *Neoperla* sp. | 1.6 | PR | 55 | | 4 | 3 | | 62 |
| **Trichoptera** | | | | | | | | |
| Hydropsychidae | | | | | | | | |
| *Cheumatopsyche* sp. | 6.6 | CF | 277 | 1 | 1 | 4 | | 283 |
| **Malacostraca** | | | | | | | | |
| **Decapoda** | | | | | | | | |
| Cambaridae | | | | | | | | |
| *Orconectes* sp. | 8 | CG | 13 | | | | | 13 |
| **Mollusca** | | | | | | | | |
| **Bivalvia** | | | | | | | | |
| Corbiculidae | | | | | | | | |
| *Corbicula fluminea* | 8 | CF | | 9 | | | | 9 |
| **Gastropoda** | | | | | | | | |
| Ancylidae | | | | | | | | |
| *Ferrissia* sp. | 6.9 | SC | | | 1 | | | 1 |
| TNI | | | 550 | 68 | 23 | 36 | 14 | 691 |

**MACROINVERTEBRATE METRICS**

| | |
|---|---|
| **TNI** | **691** |
| **TAXA RICHNESS** | **36** |
| **HBI** | **6.03** |
| **EPT INDEX** | **9** |
| **EPT/CHIRONOMIDS** | **6.52** |
| **$PCD_5$** | **78.15** |
| **H** | **2.13** |
| **d** | **8.43** |
| ***J*** | **0.59** |
| ***I*** | **0.22** |
| **$D_s$** | **0.78** |
| **% CF** | **42.32** |
| **% CG** | **11.59** |
| **% PR** | **15.80** |
| **% SC** | **26.67** |
| **% SH** | **3.62** |

**County** Boyle
**Site location & number** KDOW 99-16; Chaplin River at Claunch Rd., 2 mi N of Perryville
**Date** 14-Jun-99
**Determiner** D. R. Jones

| TAXON | TV | FFG | TKN | SWEEP | ROCKS | WOOD | FINES | TOTAL |
|---|---|---|---|---|---|---|---|---|
| **Insecta** | | | | | | | | |
| **Coleoptera** | | | | | | | | |
| Elmidae | | | | | | | | |
| *Dubiraphia sp.* | 6.4 | SC | | 2 | | 1 | | 3 |
| *Macronychus glabratus* | 4.7 | SC | 2 | | 1 | | | 3 |
| *Optioservis* sp. | 2.7 | SC | 70 | | | | | 70 |
| *Stenelmis* sp. | 5.4 | SC | 2440 | 5 | 30 | 7 | 8 | 2490 |
| Haliplidae | | | | | | | | |
| *Peltodytes* sp. | 8.5 | PH | | 3 | | | 4 | 7 |
| Psephenidae | | | | | | | | |
| *Psephenus herricki* | 5 | SC | 284 | 2 | 83 | 1 | 4 | 374 |
| **Diptera** | | | | | | | | |
| Chironomidae | | | | | | | | |
| *Ablesmyia* sp. | 6.4 | PR | | | | 1 | 5 | 6 |
| *Chironomus* sp. | 9.8 | CG | | | | 1 | | 1 |
| *Corynoneura* sp. | 6.2 | CG | | | | 1 | | 1 |
| *Cryptochironomus* sp. | 7.4 | PR | | | | | 29 | 29 |
| *Parachironomus sp.* | 9.2 | PR | | | | | 11 | 11 |
| *Paratendipes* sp. | 5.3 | CG | | | | | 25 | 25 |
| *Polypedilum* sp. | 6.8 | SH | | | | 2 | 19 | 21 |
| *Thiennemannimyia* sp. | 8 | CG | | | | 1 | | 1 |
| Empidae | | | | | | | | |
| *Chelifera* sp. | | | | 3 | | | | 3 |
| Tipulidae | | | | | | | | |
| *Hexatoma* sp. | 4.7 | PR | 6 | | | | | 6 |
| *Tipula* sp. | 7.7 | SH | 1 | 6 | | 1 | | 8 |
| **Ephemeroptera** | | | | | | | | |
| Baetidae | | | | | | | | |
| *Centroptilum* sp. | 6.3 | CG | 6 | | 4 | | | 10 |
| *Procleon* sp. | 5.4 | CG | | 7 | | | | 7 |
| Caenidae | | | | | | | | |
| *Caenis* sp. | 7.6 | CG | | | | | 9 | 9 |
| Ephemeridae | | | | | | | | |
| *Hexagenia atrocaudata* | 4.7 | CG | | 9 | | | | 9 |
| Heptageniidae | | | | | | | | |
| *Stenacron* sp. | 4 | CG | | | 2 | | | 2 |
| Isonychiidae | | | | | | | | |
| *Isonychia* sp. | 3.8 | CG | 2 | | | | | 2 |
| **Hemiptera** | | | | | | | | |
| Belostomatidae | | | | | | | | |
| *Belostoma* sp. | 9.8 | PR | | 1 | | | | 1 |
| Corixidae | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Hesperocorixa* sp. | 9 | PR | | 1 | | | | 1 |
| Gerridae | | | | | | | | |
| *Metrobates* sp. | 9 | PR | | | | | 1 | 1 |
| Vellidae | | | | | | | | |
| *Rhagovelia* sp. | 9 | PR | 1 | | | | 1 | 2 |
| **Megaloptera** | | | | | | | | |
| Corydalidae | | | | | | | | |
| *Corydalus cornutus* | 5.6 | PR | 3 | | | | | 3 |
| *Nigronia serricornis* | 5.5 | PR | 1 | | | | | 1 |
| Sialidae | | | | | | | | |
| *Sialis vagans* | 7.5 | PR | 1 | | | | | 1 |
| **Odonata** | | | | | | | | |
| Anisoptera | | | | | | | | |
| Aeschnidae | | | | | | | | |
| Corduliidae | | | | | | | | |
| *Epicordulia sp.* | 5.6 | PR | | 1 | | | | 1 |
| Gomphidae | | | | | | | | |
| *Dromogomphus spinosus* | 6.3 | PR | | 1 | | | | 1 |
| Coenagrionidae | | | | | | | | |
| *Argia* sp. | 8.7 | PR | | 1 | | | | 1 |
| **Plecoptera** | | | | | | | | |
| Perlidae | | | | | | | | |
| *Neoperla* sp. | 1.6 | PR | 113 | | 4 | | 1 | 118 |
| *Perlesta* sp. | 4.9 | PR | 1 | | | | | 1 |
| **Trichoptera** | | | | | | | | |
| Helicopsychidae | | | | | | | | |
| *Helicopsyche borealis* | 6 | SC | 1 | | 18 | 1 | 1 | 21 |
| Hydropsychidae | | | | | | | | |
| *Ceratopsyche* sp. | 1.4 | CF | 19 | | | | | 19 |
| *Cheumatopsyche* sp. | 6.6 | CF | 287 | 25 | 26 | | | 338 |
| *Hydropsyche valanis* | 4 | CF | 14 | 76 | 3 | | | 93 |
| Hydroptilidae | | | | | | | | |
| *Hydroptilla* sp. | 4 | PH | 1 | 2 | | | | 3 |
| *Ochrotrichia* sp. | 5 | CG | | 49 | | 4 | | 53 |
| Philopotamidae | | | | | | | | |
| *Chimarra* sp. | 2.8 | CF | 22 | | | | | 22 |
| Uenoidae | | | | | | | | |
| *Neophylax* sp. | 1.6 | SC | | | 1 | | | 1 |
| **Malacostraca** | | | | | | | | |
| **Decapoda** | | | | | | | | |
| Cambaridae | | | | | | | | |
| *Orconectes* sp. | 8 | CG | | 10 | | | | 10 |
| **Isopoda** | | | | | | | | |
| Asellidae | | | | | | | | |
| *Lirceus fontinalis* | 7.7 | CG | 166 | 24 | 6 | 35 | 7 | 238 |
| **Mollusca** | | | | | | | | |
| **Bivalvia** | | | | | | | | |
| Sphaeridae | | | | | | | | |
| *Sphaerium* sp. | 7.7 | CF | 81 | 18 | | | 13 | 112 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Gastropoda** | | | | | | | | |
| Physidae | | | | | | | | |
| *Physa* sp. | 9 | SC | | | | | 10 | 10 |
| Pleuroceridae | | | | | | | | |
| *Elimia* sp. | 2.5 | SC | 32 | 330 | 300 | 34 | 39 | 735 |
| **Oligochaeta** | | | | | | | | |
| Enchytraeidae | 10 | CG | | 1 | | | | 1 |
| Lumbriculidae | 7.3 | CG | 2 | | | 13 | | 15 |
| **TNI** | | | 3556 | 577 | 478 | 103 | 187 | 4901 |

**MACROINVERTEBRATE METRICS**

| | |
|---|---|
| **TNI** | **4901** |
| **TAXA RICHNESS** | **48** |
| **HBI** | **5.06** |
| **EPT INDEX** | **16** |
| **EPT/CHIRONOMIDS** | **7.22** |
| **$PCD_5$** | **85.19** |
| **H** | **1.86** |
| **d** | **6.43** |
| ***J*** | **0.48** |
| ***I*** | **0.30** |
| **$D_s$** | **0.70** |
| **% CF** | **11.92** |
| **% CG** | **7.84** |
| **% PH** | **0.20** |
| **% PR** | **3.76** |
| **% SC** | **75.68** |
| **% SH** | **0.16** |

**County** Boyle
**Site location & number** KDOW 99-17; Doctors Fork @ Shortline Rd., 3 mi SW of Perryville
**Date** 14-Jun-99
**Determiner** D. R. Jones

| TAXON | TV | FFG | TKN | SWEEP | ROCKS | WOOD | FINES | TOTAL |
|---|---|---|---|---|---|---|---|---|
| **Insecta** | | | | | | | | |
| **Coleoptera** | | | | | | | | |
| Dytiscidae | | | | | | | | |
| *Lioporus pilatei* | 9 | PR | 1 | 3 | | | | 4 |
| Elmidae | | | | | | | | |
| *Dubiraphia sp.* | 6.4 | SC | | 9 | | | | 9 |
| *Macronychus glabratus* | 4.7 | CG | | 3 | | 2 | | 5 |
| Haliplidae | | | | | | | | |
| *Peltodytes* sp. | 8.5 | PH | | 1 | | | | 1 |
| Hydrophilidae | | | | | | | | |
| *Troposternis* sp. | 9.8 | CG | 1 | | | 9 | | 10 |
| Psephenidae | | | | | | | | |
| *Psephenus herricki* | 5 | SC | 70 | 1 | 31 | | | 102 |
| **Diptera** | | | | | | | | |
| Chironomidae | | | | | | | | |
| *Ablesmyia* sp. | 6.4 | PR | 12 | | 2 | 1 | | 15 |
| *Corynoneura* sp. | 6.2 | CG | 14 | | | | | 14 |
| *Cryptochironomus* sp. | 7.4 | PR | 3 | | | | | 3 |
| *Dicrotendipes* sp. | 7.9 | CG | | | | 2 | | 2 |
| *Glyptotendipes* sp. | 8.5 | SH | | | | 8 | | 8 |
| *Larsia* sp. | 8.3 | PR | | | | 2 | | 2 |
| *Microtendipes* sp. | 6.2 | CF | | 7 | 1 | | | 8 |
| *Paratanytarsus* sp. | 7.7 | CG | | | | 2 | | 2 |
| *Pentaneura* sp. | 4.6 | PR | | 3 | | | | 3 |
| *Polypedilum* sp. | 6.8 | SH | 3 | 4 | 6 | 4 | | 17 |
| *Stictochironomus* sp. | 6.7 | CG | | 11 | | | 19 | 30 |
| Tipulidae | | | | | | | | |
| *Hexatoma* sp. | 4.7 | PR | 28 | | | | | 28 |
| *Tipula* sp. | 7.7 | SH | 1 | | | 1 | | 2 |
| **Ephemeroptera** | | | | | | | | |
| Caenidae | | | | | | | | |
| *Caenis* sp. | 7.6 | CG | 4 | 4 | | 1 | | 9 |
| Heptageniidae | | | | | | | | |
| *Stenacron* sp. | 4 | CG | 1 | | | | | 1 |
| *Stenonema femoratum* | 7.5 | SC | 4 | | 24 | 1 | | 29 |
| Leptophlebiidae | | | | | | | | |
| *Choroterpes* sp. | 2.3 | SC | 2 | | 2 | | | 4 |
| **Hemiptera** | | | | | | | | |
| Corixidae | | | | | | | | |
| *Hesperocorixa* sp. | 9 | PR | | 1 | | | | 1 |
| Vellidae | | | | | | | | |
| *Microvelia* sp. | 9 | PR | 4 | | | | | 4 |
| **Megaloptera** | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Corydalidae | | | | | | | | |
| *Nigronia* sp. | 5.5 | PR | 29 | | | | | 29 |
| Sialidae | | | | | | | | |
| *Sialis* sp. | 7.5 | PR | 2 | 2 | | | | 4 |
| **Odonata** | | | | | | | | |
| Anisoptera | | | | | | | | |
| Aeschnidae | | | | | | | | |
| *Boyeria vinosa* | 6.3 | PR | | 1 | | | | 1 |
| **Plecoptera** | | | | | | | | |
| Perlidae | | | | | | | | |
| *Neoperla* sp. | 1.6 | PR | 50 | | | 1 | | 51 |
| *Perlesta* sp. | 4.9 | PR | 1 | | | | | 1 |
| **Trichoptera** | | | | | | | | |
| Hydropsychidae | | | | | | | | |
| *Ceratopsyche* sp. | 1.4 | CF | | | 3 | | | 3 |
| *Cheumatopsyche* sp. | 6.6 | CF | 19 | | | | | 19 |
| **Malacostraca** | | | | | | | | |
| **Decapoda** | | | | | | | | |
| Cambaridae | | | | | | | | |
| *Orconectes* sp. | 8 | CG | | 9 | | | | 9 |
| **Mollusca** | | | | | | | | |
| **Bivalvia** | | | | | | | | |
| Corbiculidae | | | | | | | | |
| *Corbicula fluminea* | 8 | CF | 1 | 1 | | 7 | | 9 |
| Sphaeridae | | | | | | | | |
| *Sphaerium* sp. | 7.7 | CF | 5 | | | | 59 | 64 |
| **Gastropoda** | | | | | | | | |
| Physidae | | | | | | | | |
| *Physa* sp. | 9 | SC | 3 | | | 4 | | 7 |
| Pleuroceridae | | | | | | | | |
| *Elimia* sp. | 2.5 | SC | 15 | | | 5 | | 20 |
| **Isopoda** | | | | | | | | |
| Asellidae | | | | | | | | |
| *Lirceus fontinalis* | 7.7 | CG | 31 | 132 | 2 | | | 165 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **TNI** | | | 304 | 192 | 71 | 50 | 78 | 695 |

**MACROINVERTEBRATE METRICS**

| | |
|---|---|
| **TNI** | 695 |
| **TAXA RICHNESS** | 38 |
| **HBI** | 6.27 |
| **EPT INDEX** | 8 |
| **EPT/CHIRONOMIDS** | 1.125 |
| **$PCD_5$** | 59.28 |
| **H** | 2.79 |
| **d** | 16.31 |
| ***J*** | 0.77 |
| ***I*** | 0.18 |
| **$D_s$** | 0.82 |

| | |
|---|---|
| **% CF** | 14.82 |
| **% CG** | 35.54 |
| **% PH** | 0.14 |
| **% PR** | 21.01 |
| **% SC** | 24.60 |
| **% SH** | 2.73 |

**County** Mercer
**Site location & number** KDOW 99-18; Chaplin River @ Hwy 152, 2.4 mi SE of Bushtown
**Date** 14-Jun-99
**Determiner** D. R. Jones

| TAXON | TV | FFG | TKN | SWEEP | ROCKS | WOOD | FINES | TOTAL |
|---|---|---|---|---|---|---|---|---|
| **Insecta** | | | | | | | | |
| **Coleoptera** | | | | | | | | |
| Elmidae | | | | | | | | |
| *Macronychus glabratus* | 4.7 | CG | 120 | | | | 1 | 121 |
| Psephenidae | | | | | | | | |
| *Psephenus herricki* | 5 | SC | 1 | | | | | 1 |
| Ptilodactilidae | | | | | | | | |
| *Anchytarsus bicolor* | 2 | SH | 1 | | | | | 1 |
| **Diptera** | | | | | | | | |
| Chironomidae | | | | | | | | |
| *Ablesmyia* sp. | 6.4 | PR | 3 | | | 4 | | 7 |
| *Apedelium* sp. | | | 6 | | | 1 | | 7 |
| *Dicrotendipes* sp. | 7.9 | CG | | | | 2 | | 2 |
| *Glyptotendipes* sp. | 8.5 | SH | | | | 6 | | 6 |
| *Labrudinia* sp. | 6 | PR | | | | 2 | | 2 |
| *Paratendipes* sp. | 5.3 | CG | | | | 3 | | 3 |
| *Polypedilum* sp. | 6.8 | SH | | | | 1 | | 1 |
| *Procladius* sp. | 9.3 | PR | | | | 1 | | 1 |
| *Stempellinela* sp. | 5.3 | CG | | | | 2 | | 2 |
| *Stictochironomus* sp. | 6.7 | CG | 100 | 17 | | | 37 | 154 |
| **Ephemeroptera** | | | | | | | | |
| Baetidae | | | | | | | | |
| *Procleon* sp. | 5.4 | CG | 8 | | 1 | 5 | | 14 |
| Caenidae | | | | | | | | |
| *Caenis* sp. | 7.6 | CG | | | 2 | 1 | | 3 |
| Ephemeridae | | | | | | | | |
| *Hexagenia* sp. | 4.7 | CG | 1 | | | | | 1 |
| Heptageniidae | | | | | | | | |
| *Stenonema interpunctatum* | 7.1 | SC | | | 12 | 2 | | 14 |
| *Stenacron* sp. | 4 | SC | 19 | | | | | 19 |
| *Stenonema femoratum* | 7.5 | SC | 89 | | 7 | 8 | | 104 |
| Leptophlebiidae | | | | | | | | |
| *Choroterpes* sp. | 2.3 | CG | | | 2 | 1 | | 3 |
| **Hemiptera** | | | | | | | | |
| Mesovelidae | | | | | | | | |
| *Mesovelia* sp. | 9.8 | PR | 1 | | | | | 1 |
| **Megaloptera** | | | | | | | | |
| Sialidae | | | | | | | | |
| *Sialis* sp. | 7.5 | PR | 6 | 1 | | | | 7 |
| **Odonata** | | | | | | | | |
| Gomphidae | | | | | | | | |
| *Gomphus* sp. | 6.2 | PR | | 1 | | | | 1 |
| **Plecoptera** | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Perlidae | | | | | | | | |
| *Neoperla* sp. | 1.6 | PR | 36 | | | 1 | | 37 |
| *Perlesta placida* | 4.9 | PR | | | | 1 | | 1 |
| *Perlesta sp.* | 4.9 | PR | 4 | | 2 | | | 6 |
| **Malacostraca** | | | | | | | | |
| **Amphipoda** | | | | | | | | |
| Hyalellidae | | | | | | | | |
| *Hyalella* sp. | 7.9 | CG | | 2 | | | 1 | 3 |
| **Decapoda** | | | | | | | | |
| Cambaridae | | | | | | | | |
| *Orconectes* sp. | | CG | 11 | | | | | 11 |
| **Isopoda** | | | | | | | | |
| Asellidae | | | | | | | | |
| *Lirceus fontinalis* | 7.7 | CG | 28 | | 2 | 28 | 1 | 59 |
| **Mollusca** | | | | | | | | |
| **Bivalvia** | | | | | | | | |
| Sphaeridae | | | | | | | | |
| *Sphaerium* sp. | 7.7 | CF | 20 | 7 | | 2 | 9 | 38 |
| **Gastropoda** | | | | | | | | |
| Ancylidae | | | | | | | | |
| *Ferrissia* sp. | 6.9 | SC | | | 1 | | | 1 |
| Physidae | | | | | | | | |
| *Physa* sp. | 9 | SC | | 1 | | 2 | | 3 |
| Pleuroceridae | | | | | | | | |
| *Elimia* sp. | 2.5 | SC | 4 | 34 | 19 | 6 | 4 | 67 |
| **Oligochaeta** | | | | | | | | |
| Lumbriculidae | 7.3 | CG | | | 14 | | | 14 |
| **Turbellaria** | | | | | | | | |
| Planariidae | 5 | CG | 3 | | | 1 | 3 | 7 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| TNI | | | 461 | 63 | 62 | 80 | 56 | 722 |

**MACROINVERTEBRATE METRICS**

| | |
|---|---|
| TNI | 722 |
| TAXA RICHNESS | 35 |
| HBI | 5.69 |
| EPT INDEX | 10 |
| EPT/CHIRONOMIDS | 1.09 |
| $PCD_5$ | 69.94 |
| H | 2.53 |
| d | 12.60 |
| *J* | 0.71 |
| *I* | 0.12 |
| $D_s$ | 0.88 |
| % CF | 5.44 |
| % CG | 56.88 |
| % PR | 9.03 |
| % SC | 27.51 |
| % SH | 1.15 |

**County** Washington/Marion
**Site location & number** KDOW 99-22; Cartwright Creek at Hwy 1724, 2.4 mi. NE of Bear Wallow
**Date** 16-Jun-99
**Det.** M. R. Thomas

| TAXON | TV | FFG | TKN | SWEEP | ROCKS | WOOD | FINES | TOTAL |
|---|---|---|---|---|---|---|---|---|
| **Insecta** | | | | | | | | |
| **Coleoptera** | | | | | | | | |
| Curculionidae | | | | | | | | |
| *Listronotus* sp. | ? | ? | | 3 | | | | 3 |
| Elmidae | | | | | | | | |
| *Stenelmis* sp. | 5.4 | SC | 186 | 4 | 28 | | 1 | 219 |
| Haliplidae | | | | | | | | |
| *Peltodytes* sp. | 8.5 | PH | | 1 | | | 1 | 2 |
| Hydrophilidae | | | | | | | | |
| *Troposternis* sp. | 9.8 | CG | | 38 | | 1 | | 39 |
| *Laccobius* sp. | 8 | PR | | 3 | 3 | 4 | | 10 |
| *Hydrophilus* sp. | ? | ? | | 23 | | | | 23 |
| Noteridae | | | | | | | | |
| *Hydrocanthus* sp. | 6.9 | PR | | 1 | | | | 1 |
| Psephenidae | | | | | | | | |
| *Psephenus herricki* | 5 | SC | 1 | | | | | 1 |
| Dytiscidae | | | | | | | | |
| *Hydrovatus* sp. | ? | ? | | 4 | | | | 4 |
| *Laccophilus* sp. | 10 | PR | 4 | 2 | | | | 6 |
| **Diptera** | | | | | | | | |
| Chironomidae | | | | | | | | |
| *Apedilum* sp. | ? | ? | | | 2 | | 5 | 7 |
| Chironomini genus III | ? | ? | | 5 | | | | 5 |
| *Chironomus* sp. | 9.8 | CG | | 20 | 1 | | | 21 |
| *Dicrotendipes* sp. | 7.9 | CG | | | | 5 | | 5 |
| *Endochironomus* sp. | 7.5 | SH | | 10 | | 5 | | 15 |
| *Larsia* sp. | 8.3 | PR | 6 | | | | | 6 |
| *Microtendipes* sp. | 6.2 | CF | | 5 | | 5 | | 10 |
| *Paratendipes* sp. | 5.3 | CG | | | | 5 | | 5 |
| *Polypedilum* sp. | 6.8 | SH | 24 | 44 | | 71 | | 139 |
| *Rheocrictopus* sp. | 6.8 | CG | | | 1 | 5 | | 6 |
| *Stenochironomus* sp. | 6.4 | CG | | | | 5 | | 5 |
| *Stictochironomus* sp. | 6.7 | CG | 6 | 15 | 2 | | 1 | 24 |
| *Thienemannimyia* sp. | 8 | CG | | 1 | | 15 | | 16 |
| Ephydridae | | | | | | | | |
| *Setacera* sp. | 9 | CG | | 4 | | | | 4 |
| Syrphidae | | | | | | | | |
| *Eristalis* sp. | 10 | CG | | 1 | | | | 1 |
| Stratiomyiidae | | | | | | | | |
| *Odontomyia* sp. | 5 | CG | | 1 | | | | 1 |
| Tabanidae | | | | | | | | |
| *Phyllodromia* sp. | ? | ? | | | | 1 | | 1 |
| Tipulidae | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Antocha* sp. | 1 | PR | | | | 1 | | 1 |
| *Tipula* sp. | 7.7 | SH | | | | 2 | | 2 |
| Empididae | | | | | | | | |
| *Hemerodromia* sp. | 8.1 | PR | | | 8 | | | 8 |
| **Ephemeroptera** | | | | | | | | |
| Baetidae | | | | | | | | |
| *Callibaetis* sp. | 9.3 | CG | | 1 | | | | 1 |
| *Procleon* sp. | 5.4 | CG | 2 | | 25 | | 7 | 34 |
| Caenidae | | | | | | | | |
| *Caenis* sp. | 7.6 | CG | 45 | 2 | 2 | 2 | 1 | 52 |
| Heptageniidae | | | | | | | | |
| *Stenacron* sp. | 4 | CG | 1 | | 1 | | | 2 |
| *Stenacron interpunctatu* | 7.1 | CG | 8 | | | | | 8 |
| *Stenonema femoratum* | 7.5 | SC | 7 | 1 | | | | 8 |
| *Stenonema pulchellum* | 4.1 | SC | 1 | | | | | 1 |
| *Stenonema* sp. | 4.1 | SC | 1 | | | | | 1 |
| **Hemiptera** | | | | | | | | |
| Belostomatidae | | | | | | | | |
| *Belostoma* sp. | 9.8 | PR | | 52 | | 1 | | 53 |
| Gerridae | | | | | | | | |
| *Metrobates* sp. | 9 | PR | | 2 | | | | 2 |
| Mesovelidae | | | | | | | | |
| *Mesovelia* sp. | 9.8 | PR | | 32 | | | | 32 |
| **Megaloptera** | | | | | | | | |
| Sialidae | | | | | | | | |
| *Sialis* sp. | 7.5 | PR | 1 | 1 | | 1 | | 3 |
| **Odonata** | | | | | | | | |
| Zygoptera | | | | | | | | |
| *Enallagma* sp. | 9 | PR | | 65 | | | | 65 |
| **Plecoptera** | | | | | | | | |
| Perlidae | | | | | | | | |
| *Acroneuria* sp. | 1.4 | PR | | 1 | | | | 1 |
| *Neoperla* sp. | 1.6 | PR | 20 | | | 1 | | 21 |
| **Trichoptera** | | | | | | | | |
| Hydropsychidae | | | | | | | | |
| *Cheumatopsyche* sp. | 6.6 | CF | 103 | 28 | 72 | 2 | | 205 |
| Hydroptilidae | | | | | | | | |
| *Agraylea* sp. | 5.9 | PH | | 22 | | | | 22 |
| *Hydroptilla* sp. | 4 | PH | | | 1 | | | 1 |
| Philopotamidae | | | | | | | | |
| *Chimarra* sp. | 2.8 | CF | 2 | | 2 | 1 | | 5 |
| **Lepidoptera** | | | | | | | | |
| Pyralidae | | | | | | | | |
| *Munroessa* sp. | 5 | SH | | 132 | | | | 132 |
| **Malacostraca** | | | | | | | | |
| **Decapoda** | | | | | | | | |
| Cambaridae | | | | | | | | |
| *Orconectes* sp. | 8 | CG | 11 | 5 | | | | 16 |
| **Isopoda** | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Asellidae | | | | | | | | |
| *Caecidotea* sp. | 9.4 | CG | | | | 1 | | 1 |
| *Lirceus fontinalis* | 7.7 | CG | 22 | 7 | 2 | | 1 | 32 |
| **Mollusca** | | | | | | | | |
| **Gastropoda** | | | | | | | | |
| Lymnaeidae | | | | | | | | |
| *Lymnaea* sp. | 7 | SC | | 9 | | | | 9 |
| Physidae | | | | | | | | |
| *Physa* sp. | 9 | SC | | 67 | | | 1 | 68 |
| Pleuroceridae | | | | | | | | |
| *Elimia* sp. | 2.5 | SC | | 72 | | | 3 | 75 |
| *Gyraulis* sp. | ? | SC | | 3 | | | | 3 |
| *Pleurocera* sp. | 3 | SC | | 216 | | | | 216 |
| **Oligochaeta** | | | | | | | | |
| Lumbriculidae | 7.3 | CG | | 4 | | 1 | | 5 |
| **Turbellaria** | | | | | | | | |
| Planariidae | 5 | CG | | 1 | | | | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| TNI | | | 451 | 908 | 150 | 135 | 21 | 1665 |

**MACROINVERTEBRATE METRICS**

| | |
|---|---|
| **TNI** | **1665** |
| **TAXA RICHNESS** | **59** |
| **HBI** | **5.99** |
| **EPT INDEX** | **14** |
| **EPT/CHIRONOMIDS** | **1.37** |
| **$PCD_5$** | **54.71** |
| **H** | **2.79** |
| **d** | **16.26** |
| ***J*** | **0.68** |
| ***I*** | **0.01** |
| **$D_s$** | **0.99** |
| **% CF** | **13.56** |
| **% CG** | **17.20** |
| **% PR** | **12.89** |
| **% SC** | **37.05** |
| **% SH** | **17.76** |
| **% PH** | **1.54** |

**County** Washington
**Site location & number** KDOW 99-23; Road Run at Walker Lane, 2 mi. S of Valley Hill
**Date** 16-Jun-99
**Det.** M. R. Thomas

| TAXON | TV | FFG | TKN | SWEEP | ROCKS | WOOD | FINES | TOTAL |
|---|---|---|---|---|---|---|---|---|
| **Insecta** | | | | | | | | |
| **Coleoptera** | | | | | | | | |
| Elmidae | | | | | | | | |
| *Stenelmis* sp. | 5.4 | SC | 472 | 92 | 27 | | | 591 |
| *Optioservus* sp. | 2.7 | SC | | 9 | 13 | 2 | | 24 |
| Haliplidae | | | | | | | | |
| *Peltodytes* sp. | 8.5 | PH | | 1 | | | | 1 |
| Hydrophilidae | | | | | | | | |
| *Berosus* sp. | 8.6 | PH | | 1 | | 2 | | 3 |
| *Troposternis* sp. | 9.8 | SC | | 3 | | | | 3 |
| *Laccobius* sp. | 8 | PR | | 3 | | | | 3 |
| Psephenidae | | | | | | | | |
| *Psephenus herricki* | 5 | SC | | 1 | 7 | 1 | | 9 |
| **Diptera** | | | | | | | | |
| Chironomidae | | | | | | | | |
| *Chironomus* sp. | 9.8 | CG | | 30 | | 3 | 13 | 46 |
| *Cryptochironomus* sp. | 7.4 | PR | 18 | | | | 38 | 56 |
| *Dicrotendipes* sp. | 7.9 | CG | | | | 3 | | 3 |
| *Microtendipes* sp. | 6.2 | CF | | | | 1 | | 1 |
| *Polypedilum* sp. | 6.8 | SH | 18 | 130 | 1 | | | 149 |
| *Stictochironomus* sp. | 6.7 | CG | | 10 | | 1 | | 11 |
| *Thienemannimyia* sp. | 8 | CG | 21 | 10 | 5 | 3 | | 39 |
| Tipulidae | 1 | | | | | | | |
| *Hexatoma* sp. | 7.7 | PR | | | | 1 | | 1 |
| Empididae | | | | | | | | |
| *Hemerodromia* sp. | 8.1 | PR | | 3 | | | | 3 |
| **Ephemeroptera** | | | | | | | | |
| *Callibaetis* sp. | 6.3 | CG | 20 | 261 | 38 | | 3 | 322 |
| Caenidae | | | | | | | | |
| *Caenis* sp. | 7.6 | CG | 72 | 93 | 33 | 10 | 73 | 281 |
| Heptageniidae | | | | | | | | |
| *Stenacron candidum* | 4 | CG | 2 | | | | | 2 |
| *Stenonema pulchellum* | 4.1 | SC | 2 | | | | | 2 |
| **Hemiptera** | | | | | | | | |
| Gerridae | | | | | | | | |
| *Trepobates* sp. | 9 | PR | | 1 | | | | 1 |
| Mesovelidae | | | | | | | | |
| *Mesovelia* sp. | 9.8 | PR | | 1 | | | | 1 |
| Vellidae | | | | | | | | |
| *Microvelia* sp. | 9 | PR | | 3 | | | | 3 |
| *Rhagovelia* sp. | 9 | PR | | 2 | | | | 2 |
| Corixidae | | | | | | | | |
| *Sigara* sp. | 9 | PR | | 2 | | | | 2 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Megaloptera** | | | | | | | | |
| Corydalidae | | | | | | | | |
| *Corydalus cornutus* | 5.6 | PR | 7 | 1 | | | | 8 |
| Sialidae | | | | | | | | |
| **Odonata** | | | | | | | | |
| Zygoptera | | | | | | | | |
| Calopterigidae | | | | | | | | |
| *Calopteryx maculata* | 8.3 | PR | | 7 | | | | 7 |
| Coenagrionidae | | | | | | | | |
| *Argia* sp. | 8.7 | PR | | 3 | 1 | 2 | | 6 |
| *Enallagma* sp. | 9 | PR | | 7 | | | | 7 |
| *Coenagrion* sp. | ? | PR | | 1 | | | | 1 |
| **Plecoptera** | | | | | | | | |
| Perlidae | | | | | | | | |
| *Neoperla* sp. | 1.6 | PR | 6 | 1 | | | | 7 |
| **Trichoptera** | | | | | | | | |
| Hydropsychidae | | | | | | | | |
| *Cheumatopsyche* sp. | 6.6 | CF | 165 | 430 | 19 | 2 | | 616 |
| *Hydropsyche valanis* | 4 | CF | 2 | 1500 | | | | 1502 |
| Hydroptilidae | | | | | | | | |
| *Hydroptila* sp. | 4 | PH | | 6 | 1 | | | 7 |
| Philopotamidae | | | | | | | | |
| *Chimarra* sp. | 2.8 | CF | 5 | | 1 | | | 6 |
| Uenoidae | | | | | | | | |
| *Neophylax concinnum* | ? | SC | | | | | 2 | 2 |
| **Lepidoptera** | | | | | | | | |
| Pyralidae | | | | | | | | |
| *Munroessa* sp. | 5 | SH | | 1 | | | | 1 |
| **Malacostraca** | | | | | | | | |
| **Decapoda** | | | | | | | | |
| Cambaridae | | | | | | | | |
| *Orconectes* sp. | 8 | CG | 2 | 2 | | | | 4 |
| **Isopoda** | | | | | | | | |
| Asellidae | | | | | | | | |
| *Caecidotea* sp. | 9.4 | CG | | | | 2 | | 2 |
| *Lirceus fontinalis* | 7.7 | CG | 1 | 20 | 1 | 1 | | 23 |
| **Mollusca** | | | | | | | | |
| **Bivalvia** | | | | | | | | |
| Corbiculidae | | | | | | | | |
| *Corbicula fluminea* | 8 | CF | 1 | 1 | | | 20 | 22 |
| **Gastropoda** | | | | | | | | |
| Lymnaeidae | | | | | | | | |
| *Lymnaea* sp. | 7 | SC | | 4 | | | | 4 |
| Physidae | | | | | | | | |
| *Physa* sp. | 9 | SC | 2 | 8 | 1 | | 2 | 13 |
| **Turbellaria** | | | | | | | | |
| Planariidae | 5 | CG | 1 | 2 | | | | 3 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **TNI** | | | 817 | 2650 | 148 | 34 | 151 | 3800 |

**MACROINVERTEBRATE METRICS**

| | | | |
|---|---|---|---|
| TNI | | | 3800 |
| TAXA RICHNESS | | | 43 |
| HBI | | | 5.49 |
| EPT INDEX | | | 10 |
| EPT/CHIRONOMIDS | | | 9.01 |
| $PCD_5$ | | | 87.18 |
| H | | | 1.63 |
| d | | | 5.11 |
| *J* | | | 0.43 |
| *I* | | | 0.04 |
| $D_s$ | | | 0.96 |
| % CF | | | 56.50 |
| % CG | | | 19.37 |
| % PH | | | 0.29 |
| % PR | | | 2.84 |
| % SC | | | 17.05 |
| % SH | | | 3.95 |

**County** Nelson
**Site location & number** KDOW 99-24; Rowan Creek @ Hwy 31E, 0.5 mi S of Bardstown
**Date** 11-Jun-99
**Determiner** D. R. Jones

| TAXON | TV | FFG | TKN | SWEEP | ROCKS | WOOD | FINES | TOTAL |
|---|---|---|---|---|---|---|---|---|
| **Insecta** | | | | | | | | |
| **Coleoptera** | | | | | | | | |
| Elmidae | | | | | | | | |
| *Stenelmis* sp. | 5.4 | SC | 5 | | | | | 5 |
| Haliplidae | | | | | | | | |
| *Peltodytes* sp. | 8.5 | PH | | 1 | | | | 1 |
| Hydrophilidae | | | | | | | | |
| *Berosus* sp. | 8.6 | PH | 1 | | | | | 1 |
| Psephenidae | | | | | | | | |
| *Psephenus herricki* | 5 | SC | 2 | | | | | 2 |
| **Diptera** | | | | | | | | |
| Chironomidae | | | | | | | | |
| *Chironomus* sp. | 9.8 | CG | | 3 | 1 | 3 | 3 | 10 |
| *Cricotopus* sp. | 7 | SH | | 2 | 3 | 9 | | 14 |
| *Endochironomus* sp. | 7.5 | SH | | | | 1 | | 1 |
| *Glyptotendipes* sp. | 8.5 | SH | 1 | 21 | | | | 22 |
| *Krenolopia* sp. | 6.2 | PR | 3 | | | | | 3 |
| *Larsia* sp. | 8.3 | PR | | 6 | | | | 6 |
| *Polypedilum* sp. | 6.8 | SH | 1 | 2 | | 3 | | 6 |
| *Rheocrictopus* sp. | 6.8 | CG | | | 1 | | | 1 |
| *Thiennemannimyia* sp. | 8 | CG | | | 1 | | | 1 |
| Simulidae | | | | | | | | |
| *Simulium* sp. | 4.4 | CF | 108 | 2 | 59 | 98 | 3 | 270 |
| Tipulidae | | | | | | | | |
| *Tipula* sp. | 7.7 | SH | 1 | | | | | 1 |
| **Ephemeroptera** | | | | | | | | |
| Baetidae | | | | | | | | |
| *Centroptilum* sp. | 6.3 | CG | | 1 | | | | 1 |
| **Megaloptera** | | | | | | | | |
| Corydalidae | | | | | | | | |
| *Nigronia serricornis* | 5.5 | PR | | | | 1 | | 1 |
| **Odonata** | | | | | | | | |
| Anisoptera | | | | | | | | |
| Aeschnidae | | | | | | | | |
| *Boyeria vinosa* | 6.3 | PR | | 1 | | | | 1 |
| Libellulidae | | | | | | | | |
| *Sympetrum* sp. | 7.3 | PR | | 1 | | | | 1 |
| Zygoptera | | | | | | | | |
| Coenagrionidae | | | | | | | | |
| *Argia* sp. | 8.7 | PR | | 3 | | | | 3 |
| *Chromagrion conditum* | 9 | PR | | 3 | | | | 3 |
| **Plecoptera** | | | | | | | | |
| Perlidae | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Neoperla* sp. | 1.6 | PR | 1 | | | | | 1 |
| **Trichoptera** | | | | | | | | |
| Hydropsychidae | | | | | | | | |
| *Cheumatopsyche* sp. | 6.6 | CF | 3 | 1 | 19 | 4 | | 27 |
| *Hydropsyche valanis* | 4 | CF | 5 | 1 | 4 | | | 10 |
| | | | | | | | | |
| TNI | | | 131 | 48 | 88 | 119 | 6 | 392 |

**MACROINVERTEBRATE METRICS**

| | |
|---|---|
| TNI | 392 |
| TAXA RICHNESS | 24 |
| HBI | 5.26 |
| EPT INDEX | 4 |
| EPT/CHIRONOMIDS | 0.61 |
| $PCD_5$ | 87.5 |
| H | 1.40 |
| d | 4.05 |
| *J* | 0.44 |
| *I* | 0.48 |
| $D_s$ | 0.52 |
| % CF | 78.32 |
| % CG | 3.32 |
| % PH | 0.51 |
| % PR | 4.85 |
| % SC | 1.79 |
| % SH | 11.22 |

**County** Nelson
**Site location & number** KDOW 99-25; Lick Creek @ Lick Cr. Ln., 2 mi E of Boston
**Date** 10-Jun-99
**Determiner** D. R. Jones

| TAXON | TV | FFG | TKN | SWEEP | ROCKS | WOOD | FINES | TOTAL |
|---|---|---|---|---|---|---|---|---|
| **Insecta** | | | | | | | | |
| **Coleoptera** | | | | | | | | |
| Elmidae | | | | | | | | |
| *Dubiraphia bivittata* | 6.4 | SC | | 1 | | | | 1 |
| *Dubiraphia sp.* | 6.4 | SC | | 1 | | | | 1 |
| *Stenelmis* sp. | 5.4 | SC | 23 | | | | | 23 |
| **Diptera** | | | | | | | | |
| Chironomidae | | | | | | | | |
| *Cricotopus* sp. | 9.8 | SH | | | 1 | | | 1 |
| *Krenolopia* sp. | 7.5 | PR | | 2 | | | | 2 |
| *Larsia* sp. | 8.5 | PR | | 1 | | | | 1 |
| *Nanocladius* sp. | 8.3 | CG | 1 | | | | | 1 |
| *Procladius* sp. | 5.3 | PR | | 6 | | | | 6 |
| *Rheotanytarsus* sp. | 6.8 | CF | | 3 | | | | 3 |
| *Xylotopus* sp. | 6.7 | SH | | 3 | | | 12 | 15 |
| Tipulidae | | | | | | | | |
| *Hexatoma* sp. | 4.7 | PR | 24 | | | | | 24 |
| *Tipula* sp. | 7.7 | SH | | | | | 1 | 1 |
| **Ephemeroptera** | | | | | | | | |
| Baetidae | | | | | | | | |
| *Acerpenna* sp. | 5 | CG | | 3 | | | | 3 |
| *Centroptilum* sp. | 6.3 | CG | | 2 | | | | 2 |
| Caenidae | | | | | | | | |
| *Caenis* sp. | 7.6 | CG | | 1 | | | | 1 |
| Heptageniidae | | | | | | | | |
| *Stenonema femoratum* | 7.5 | SC | | | 7 | 3 | | 10 |
| **Hemiptera** | | | | | | | | |
| Mesovelidae | | | | | | | | |
| *Mesovelia* sp. | 9.8 | PR | 1 | | | | | 1 |
| Notonectidae | | | | | | | | |
| *Notonecta* sp. | 9 | PR | | 1 | | | | 1 |
| **Megaloptera** | | | | | | | | |
| Corydalidae | | | | | | | | |
| *Nigronia serricornis* | 5.5 | PR | | 3 | | | | 3 |
| Sialidae | | | | | | | | |
| *Sialis* sp. | 7.5 | PR | | | 1 | | | 1 |
| **Odonata** | | | | | | | | |
| Anisoptera | | | | | | | | |
| Aeschnidae | | | | | | | | |
| *Basiaeschna janata* | 7.7 | PR | | | 1 | | | 1 |
| Corduliidae | | | | | | | | |
| *Somatochlora* sp. | 8 | PR | | 1 | | | | 1 |
| Gomphidae | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Gomphus* sp. | 6.2 | PR | | | 3 | | | 3 |
| **Plecoptera** | | | | | | | | |
| Perlidae | | | | | | | | |
| *Neoperla* sp. | 1.6 | PR | 153 | 2 | 2 | 4 | 1 | 162 |
| *Perlesta* sp. | 4.9 | PR | 16 | | | 4 | | 20 |
| **Trichoptera** | | | | | | | | |
| Hydropsychidae | | | | | | | | |
| *Cheumatopsyche* sp. | 6.6 | CF | 34 | 1 | 12 | | | 47 |
| **Malacostraca** | | | | | | | | |
| **Amphipoda** | | | | | | | | |
| Hyalellidae | | | | | | | | |
| *Hyalella* sp. | 7.9 | CG | | 1 | | | | 1 |
| **Decapoda** | | | | | | | | |
| Cambaridae | | | | | | | | |
| *Orconectes* sp. | 8 | CG | 1 | 2 | | | | 3 |
| **Isopoda** | | | | | | | | |
| Asellidae | | | | | | | | |
| *Lirceus fontinalis* | 7.7 | CG | 9 | 25 | | 2 | 1 | 37 |
| **Mollusca** | | | | | | | | |
| **Bivalvia** | | | | | | | | |
| Sphaerlidae | | | | | | | | |
| *Sphaerium* sp. | 7.7 | CF | 6 | | | | | 6 |
| **Oligochaeta** | | | | | | | | |
| Tubificidae | 9.8 | CG | | 2 | | | 1 | 3 |
| Lumbriculidae | 7.3 | CG | 2 | | | | | 2 |
| TNI | | | 268 | 59 | 27 | 13 | 15 | 382 |

**MACROINVERTEBRATE METRICS**

| | |
|---|---|
| **TNI** | **382** |
| **TAXA RICHNESS** | **29** |
| **HBI** | **4.37** |
| **EPT INDEX** | **7** |
| **EPT/CHIRONOMIDS** | **8.45** |
| **$PCD_5$** | **76.70** |
| **H** | **2.17** |
| **d** | **8.74** |
| ***J*** | **0.64** |
| ***I*** | **0.21** |
| **$D_s$** | **0.79** |
| **% CF** | **14.47** |
| **% CG** | **13.70** |
| **% PR** | **58.40** |
| **% SC** | **9.04** |
| **% SH** | **4.39** |

**County** Hardin
**Site location & number** KDOW 99-26; Clear Creek @ jct. of Upper and Lower Colesburg Rds.,1 mi NE of Colesburg
**Date** 8-Jun-99
**Determiner** D. R. Jones

| TAXON | TV | FFG | TKN | SWEEP | ROCKS | WOOD | FINES | TOTAL |
|---|---|---|---|---|---|---|---|---|
| **Insecta** | | | | | | | | |
| **Coleoptera** | | | | | | | | |
| Elmidae | | | | | | | | |
| *Stenelmis* sp. | 5.4 | SC | 13 | | | | | 13 |
| Dryopidae | | | | | | | | |
| *Helichus lithophilus* | 5.4 | SC | | | | 1 | | 1 |
| Psephenidae | | | | | | | | |
| *Psephenus herricki* | 5 | SC | 3 | | 8 | 1 | | 12 |
| **Diptera** | | | | | | | | |
| Chironomidae | | | | | | | | |
| *Bethbilbeckia* sp. | | | | | | 2 | | 2 |
| *Glyptotendipes* sp. | 8.5 | SH | | | 17 | | | 17 |
| *Larsia* sp. | 8.3 | PR | | 4 | | 1 | | 5 |
| *Microtendipes* sp. | 6.2 | CF | | 2 | | | | 2 |
| *Stictochironomus* sp. | 6.7 | CG | | | | | 26 | 26 |
| Simulidae | | | | | | | | |
| *Simulium* sp. | 4.4 | CF | 1 | | | | | 1 |
| Tipulidae | | | | | | | | |
| *Antocha* sp. | 1 | PR | 1 | | 5 | | | 6 |
| *Tipula* sp. | 7.7 | SH | | 1 | | | | 1 |
| **Ephemeroptera** | | | | | | | | |
| Caenidae | | | | | | | | |
| *Caenis* sp. | 7.6 | CG | 11 | | | 3 | | 14 |
| Ephemeridae | | | | | | | | |
| *Hexagenia* sp. | 4.7 | CG | | 9 | | | | 9 |
| Heptageniidae | | | | | | | | |
| *Stenacron interpunctatum* | 7.1 | CG | 1 | | | | | 1 |
| *Stenonema femoratum* | 7.5 | SC | 2 | | 12 | 1 | | 15 |
| **Hemiptera** | | | | | | | | |
| Vellidae | | | | | | | | |
| *Microvelia* sp. | 9 | PR | 1 | | | | | 1 |
| **Lepidoptera** | | | | | | | | |
| Pyralidae | | | | | | | | |
| *Petrophila* sp. | 1.8 | SH | | | 2 | | | 2 |
| **Megaloptera** | | | | | | | | |
| Corydalidae | | | | | | | | |
| *Corydalus cornutus* | 5.6 | PR | | 3 | | | | 3 |
| **Odonata** | | | | | | | | |
| Anisoptera | | | | | | | | |
| Gomphidae | | | | | | | | |
| *Dromogomphus spinosus* | 6.3 | PR | | | | | 1 | 1 |
| Zygoptera | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Coenagrionidae | | | | | | | | |
| *Argia* sp. | 8.7 | PR | 1 | | | 2 | | 3 |
| **Plecoptera** | | | | | | | | |
| Leuctridae | | | | | | | | |
| *Leuctra* sp. | 0.7 | SH | 1 | | | | | 1 |
| Perlidae | | | | | | | | |
| *Perlesta* sp. | 4.9 | PR | 1 | | | | | 1 |
| **Trichoptera** | | | | | | | | |
| Hydropsychidae | | | | | | | | |
| *Cheumatopsyche* sp. | 6.6 | CF | 11 | | 9 | 1 | | 21 |
| *Hydropsyche valanis* | 4 | CF | | | 2 | | | 2 |
| **Malacostraca** | | | | | | | | |
| **Decapoda** | | | | | | | | |
| Cambaridae | | | | | | | | |
| *Orconectes* sp. | | CG | 3 | 1 | | | | 4 |
| **Mollusca** | | | | | | | | |
| **Bivalvia** | | | | | | | | |
| Corbiculidae | | | | | | | | |
| *Corbicula fluminea* | 8 | CF | | 2 | | | | 2 |
| **Gastropoda** | | | | | | | | |
| Pleuroceridae | | | | | | | | |
| *Elimia* sp. | 2.5 | SC | | | | | 6 | 6 |
| **Oligochaeta** | | | | | | | | |
| Lumbriculidae | 7.3 | CG | | | | 1 | | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **TNI** | | | 50 | 22 | 55 | 13 | 33 | 173 |

**MACROINVERTEBRATE METRICS**

| | |
|---|---|
| **TNI** | **173** |
| **TAXA RICHNESS** | **28** |
| **HBI** | **6.05** |
| **EPT INDEX** | **8** |
| **EPT/CHIRONOMIDS** | **1.23** |
| **$PCD_5$** | **53.76** |
| **H** | **2.81** |
| **d** | **16.56** |
| ***J*** | **0.84** |
| ***I*** | **0.07** |
| **$D_s$** | **0.93** |
| **% CF** | **16.37** |
| **% CG** | **32.16** |
| **% PR** | **11.70** |
| **% SC** | **27.49** |
| **% SH** | **12.28** |

**County** Bullitt/ Hardin
**Site location & number** KDOW 99-27; Rolling Fork @ Hwy 434, 1.5 mi NE of Booth
**Date** 8-Jun-99
**Determiner** D. R. Jones

| TAXON | TV | FFG | TKN | SWEEP | ROCKS | WOOD | FINES | TOTAL |
|---|---|---|---|---|---|---|---|---|
| **Insecta** | | | | | | | | |
| **Coleoptera** | | | | | | | | |
| Dryopidae | | | | | | | | |
| *Helichus* sp. | 5.4 | SC | | | | 1 | | 1 |
| Elmidae | | | | | | | | |
| *Stenelmis* sp. | 5.4 | SC | 4 | | 1 | 23 | | 28 |
| Psephenidae | | | | | | | | |
| *Psephenus herricki* | 5 | SC | | | 1 | | | 1 |
| **Diptera** | | | | | | | | |
| Chironomidae | | | | | | | | |
| *Cardiocladius* sp. | 6.2 | PR | | 4 | | | | 4 |
| *Cryptochironomus* sp. | 7.4 | PR | 2 | | | | | 2 |
| *Endochironomus* sp. | 7.5 | SH | | 1 | | 2 | | 3 |
| *Larsia* sp. | 8.3 | PR | 2 | 1 | | | | 3 |
| *Polypedilum* sp. | 6.8 | SH | 2 | | | | | 2 |
| *Rheotanytarsus* sp. | 6.4 | CF | | 2 | | | | 2 |
| *Tanytarsus* sp. | 6.7 | PR | | | | | 1 | 1 |
| **Ephemeroptera** | | | | | | | | |
| Baetidae | | | | | | | | |
| *Centroptilum* sp. | 6.3 | CG | | 1 | 6 | 1 | | 8 |
| Ephemeridae | | | | | | | | |
| *Hexagenia rigida* | 4.7 | CG | 33 | | 2 | | | 35 |
| Heptageniidae | | | | | | | | |
| *Stenacron interpunctatum* | 7.1 | CG | | 2 | 40 | 4 | | 46 |
| *Stenonema carlsoni* | 2.1 | SC | | 3 | 1 | | | 4 |
| *Stenonema femoratum* | 7.5 | SC | | | | 8 | | 8 |
| Isonychiidae | | | | | | | | |
| *Isonychia* sp. | 3.8 | CG | 1 | 1 | | | | 2 |
| Leptophlebiidae | | | | | | | | |
| *Paraleptophlebia* sp. | 1.2 | CG | | | | 2 | | 2 |
| Polymytarcidae | | | | | | | | |
| *Ephoron* sp. | 1.5 | CG | | | 1 | | 2 | 3 |
| Potamanthidae | | | | | | | | |
| *Anthropotamus* sp. | 1.6 | CG | 1 | | | | | 1 |
| Tricorythidae | | | | | | | | |
| *Tricorythodes* sp. | 5.4 | CG | | | 2 | | 5 | 7 |
| **Megaloptera** | | | | | | | | |
| Corydalidae | | | | | | | | |
| *Corydalus cornutus* | 5.6 | PR | 1 | | | | | 1 |
| **Odonata** | | | | | | | | |
| Anisoptera | | | | | | | | |
| Gomphidae | | | | | | | | |
| *Gomphus* sp. | 6.2 | PR | | 1 | | | | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Zygoptera | | | | | | | | |
| Coenagrionidae | | | | | | | | |
| *Argia* sp. | 8.7 | PR | | | 1 | | | 1 |
| **Plecoptera** | | | | | | | | |
| Perlidae | | | | | | | | |
| *Neoperla* sp. | 1.6 | PR | 3 | | 6 | 3 | | 12 |
| **Trichoptera** | | | | | | | | |
| Hydropsychidae | | | | | | | | |
| *Cheumatopsyche* sp. | 6.6 | CF | 7 | 3 | | | | 10 |
| *Hydropsyche valanis* | 4 | CF | | | | 84 | | 84 |
| Hydroptilidae | | | | | | | | |
| *Ochrotrichia* sp. | 5 | CG | | | 1 | | | 1 |
| **Mollusca** | | | | | | | | |
| **Bivalvia** | | | | | | | | |
| Corbiculidae | | | | | | | | |
| *Corbicula fluminea* | 8 | CF | 3 | | | | | 3 |
| Sphaeridae | | | | | | | | |
| *Sphaerium* sp. | 7.7 | CF | 1 | | | | | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **TNI** | | | 60 | 19 | 62 | 128 | 8 | 277 |

**MACROINVERTEBRATE METRICS**

| | |
|---|---|
| **TNI** | **277** |
| **TAXA RICHNESS** | **29** |
| **HBI** | **5.14** |
| **EPT INDEX** | **14** |
| **EPT/CHIRONOMIDS** | **13.12** |
| **$PCD_5$** | **74.01** |
| **H** | **2.39** |
| **d** | **10.87** |
| ***J*** | **0.71** |
| ***I*** | **0.15** |
| **$D_s$** | **0.85** |
| **% CF** | **36.10** |
| **% CG** | **37.91** |
| **% PR** | **9.03** |
| **% SC** | **15.16** |
| **% SH** | **1.81** |

Appendix 3. Summary assessment sheets for each sampling site within the Salt River Basin

# North Rolling Fork 4

| | | | | | |
|---|---|---|---|---|---|
| **Location:** | Hwy 37, 2.5 mi E Forkland | | | | |
| **County:** | Boyle | | | **Date Sampled:** | 6/15/99 |
| **Site Number:** | 1 | **Secondary No.** | | **Mile Point:** | |
| **Stream Order:** | | **Latitude** | 37-33-15 | **Longitude:** | 84-57-41 |
| **Ecoregion** | Interior Plateau | | | **Drainage Area:** | 20.86 |
| **USGS Topo** | | | | **GNIS:** | |
| **11-digit HUC:** | 05140103010 | | | **WQ Sample Date:** | |
| **Assessed Reach** | | | | **Miles Assessed:** | |

**Habitat Assessment**

The habitat assessment of this site indicated poor riparian vegetative zone width, and marginal vegetative protection, sediment deposition and velocity/depth regime. All other habitat categories scored in the suboptimal range. The total habitat assessment score for this site was 107, which is supporting but threatened.

**Macroinvertebrate Assessment**

The total number of individuals collected was 681. PCD-5 scored 4; Taxa richness scored 3; HBI and EPT scored 4; %EPT-TOT scored 5. The total MBI score is 20, which indicates Good water quality. The predominant functional feeding groups in the community were collector/gatherers (24.5%) and scrapers (34.8%).

**Fish Community Assessment**

There were 291 individuals and 22 species of fishes collected at this site. Cyprinidae was the most diverse family with 11 species, followed by Percidae with four species. Notable fishes in the collection were the following KDOW-classified intolerant species: *Cyprinella whipplei, Hybopsis amblops, Notropis rubellus, Moxostoma duquesnei, Amploplites rupestris*, and *Lepomis megalotis*. The percent omnivore and insectivores scored low for this site. The IBI score was 50, classifying the site as Good

## Scrubgrass Branch

| | | | | | |
|---|---|---|---|---|---|
| **Location:** | Junction of Hwy 243 & 1856, 3 mi N Forkland | | | | |
| **County:** | Boyle | | | **Date Sampled:** | 6-15-99 |
| **Site Number:** | 2 | **Secondary No.** | | **Mile Point:** | |
| **Stream Order:** | | **Latitude** | 37-33-31 | **Longitude:** | 85-01-41 |
| **Ecoregion** | Interior Plateau | | | **Drainage Area:** | 8.29 |
| **USGS Topo** | | | | **GNIS:** | |
| **11-digit HUC:** | 05140103010 | | | **WQ Sample Date:** | |
| **Assessed Reach** | | | | **Miles Assessed:** | |

### Habitat Assessment

The habitat assessment of this site indicated poor vegetative protection and riparian vegetative zone width. Epifaunal substrate/ available cover, velocity/depth regime, sediment deposition, channel flow status, and left and right bank stability all scored a marginal rating. All other habitat categories scored in the suboptimal range. The total habitat assessment score for this site was 86, which is considered to be supporting but threatened.

### Macroinvertebrate Assessment

The total number of individuals collected was 413. TR and EPT scored 3; PCD-5 scored 5 and HBI and %EPT-TOT scored 2. The total MBI score is 15, which indicates Fair water quality. The predominant functional feeding groups in the community were collector/gatherers (44.1%) and predators (28.8%).

### Fish Community Assessment

There were 114 individuals and 12 species of fishes collected at this site. Cyprinidae was the most diverse family with 6 species, followed by Centrarchidae with three species. Notable fishes in the collection were the following KDOW-classified intolerant species: *Phoxinus erythrogaster, Amploplites rupestris*, and *Lepomis megalotis*. The IBI score was 52, classifying the site as Good

## Jones Creek

| | | | | | |
|---|---|---|---|---|---|
| **Location:** | Jones Cr. Rd, 3.8 mi NE Bradfordsville | | | | |
| **County:** | Marion | | | **Date Sampled:** | 6-15-99 |
| **Site Number:** | 3 | **Secondary No.** | | **Mile Point:** | |
| **Stream Order:** | | **Latitude** | 37-30-59 | **Longitude:** | 85-05-49 |
| **Ecoregion** | Interior Plateau | | | **Drainage Area:** | 7.3 |
| **USGS Topo** | | | | **GNIS:** | |
| **11-digit HUC:** | 05140103010 | | | **WQ Sample Date:** | |
| **Assessed Reach** | | | | **Miles Assessed:** | |

### Habitat Assessment

The habitat assessment of this site indicated marginal to poor vegetative protection and riparian vegetative zone width. Embeddedness, velocity/depth regime, sediment deposition, and channel flow status all scored a marginal rating. All other habitat categories scored in the suboptimal range with the exception of channel alteration which scored as optimal. The total habitat assessment score for this site was 108, which is considered to be supporting but threatened.

### Macroinvertebrate Assessment

The total number of individuals collected was 874. Taxa richness scored 4; HBI, PCD-5, and EPT scored 3; %EPT-TOT scored 2. The total MBI score is 15, which indicates Fair water quality. The predominant functional feeding groups in the community were scrapers (37.6%) and shredders (18.2%).

### Fish Community Assessment

There were 200 individuals and 13 species of fishes collected at this site. Cyprinidae was the most diverse family with 8 species, followed by Percidae with two species. Notable fishes in the collection were the following KDOW-classified intolerant species: *Phoxinus erythrogaster,* and *Lepomis megalotis*. The IBI score was 48, classifying the site as Good.

# North Rolling Fork 1

| | | | | | |
|---|---|---|---|---|---|
| **Location:** | River Rd., 1.5 mi NE Bradfordsville | | | | |
| **County:** | Marion | | | **Date Sampled:** | 6-10-99 |
| **Site Number:** | 4 | **Secondary No.** | | **Mile Point:** | |
| **Stream Order:** | | **Latitude** | 37-30-2 | **Longitude:** | 85-08-34 |
| **Ecoregion** | Interior Plateau | | | **Drainage Area:** | 95.88 |
| **USGS Topo** | | | | **GNIS:** | |
| **11-digit HUC:** | 05140103010 | | | **WQ Sample Date:** | |
| **Assessed Reach** | | | | **Miles Assessed:** | |

**Habitat Assessment**

The habitat assessment for this site did not score poor for any category. Frequency of riffles and bank stability each was rated as optimal, while all other categories received a suboptimal rating. The total habitat assessment score for this site was 141, which is considered to be fully supporting.

**Macroinvertebrate Assessment**

The total number of individuals collected was 362. Taxa richness scored 2; PCD-5 scored 3; EPT scored 4; HBI and %EPT-TOT scored 5. The total MBI score is 19, which indicates Good water quality. The predominant functional feeding groups in the community were scrapers (32.1%) and collector/filterers and collector/gatherers (each with 22.7%).

**Fish Community Assessment**

There were 403 individuals and 21 species of fishes collected at this site. Cyprinidae was the most diverse family with 9 species, followed by Percidae with 5 species. Notable fishes in the collection were the following KDOW-classified intolerant species: *Erimystax dissimilis, Noturus miurus, Phoxinus erythrogaster, Amploplites rupestris, Lepomis megalotis, Etheostoma zonale,* and *Percina caprodes*. The single lowest metric was number of sunfish species. The IBI score was 52, classifying the site as Good.

## Prather Creek

| | | | | | |
|---|---|---|---|---|---|
| **Location:** | Hwy 527, about 1 mi W Raywick | | | | |
| **County:** | Marion | | | **Date Sampled:** | 6-10-99 |
| **Site Number:** | 5 | **Secondary No.** | | **Mile Point:** | |
| **Stream Order:** | | **Latitude** | 37-33-46 | **Longitude:** | 85-25-49 |
| **Ecoregion** | Interior Plateau | | | **Drainage Area:** | 14.66 |
| **USGS Topo** | | | | **GNIS:** | |
| **11-digit HUC:** | 05140103030 | | | **WQ Sample Date:** | |
| **Assessed Reach** | | | | **Miles Assessed:** | |

### Habitat Assessment

The habitat assessment of this site indicated poor channel flow and frequency of riffles. All other habitat categories scored in the suboptimal or marginal range. The total habitat assessment score for this site was 83, which is considered to be supporting but threatened.

### Macroinvertebrate Assessment

The total number of individuals collected was 474. All macroinvertebrate metrics scored 1. The total MBI score is 5, which indicates Very Poor water quality. The predominant functional feeding group in the community was collector/gatherers (73.5%).

### Fish Community Assessment

There were 186 individuals and 20 species of fishes collected at this site. Cyprinidae was the most diverse family with 8 species, followed by Centrarchidae with 4 species, and 3 species of Percidae. Notable fishes in the collection were the following KDOW-classified intolerant species: *Moxostoma duquesnei, Lepomis megalotis,* and *Percina maculata.* The IBI score was 54, classifying the site as Good/Excellent.

# Middle Fork Otter Creek 1

| | | | | | |
|---|---|---|---|---|---|
| **Location:** | Wayne-Ennis Rd., 0.5 mi SE Ginseng | | | | |
| **County:** | Larue | | | **Date Sampled:** | 6-10-99 |
| **Site Number:** | 6 | **Secondary No.** | | **Mile Point:** | |
| **Stream Order:** | | **Latitude** | 37-29-41 | **Longitude:** | 85-34-34 |
| **Ecoregion** | Interior Plateau | | | **Drainage Area:** | 6.1 |
| **USGS Topo** | | | | **GNIS:** | |
| **11-digit HUC:** | 05140103050 | | | **WQ Sample Date:** | |
| **Assessed Reach** | | | | **Miles Assessed:** | |

**Habitat Assessment**

The habitat assessment of this site indicated a marginal rating for riparian vegetative zone width. Epifaunal substrate/available cover, sediment deposition, and frequency of riffles were rated optimal, while the rest of the categories scored in the suboptimal range. The total habitat assessment score for this site was 144, which is considered to be fully supporting.

**Macroinvertebrate Assessment**

The total number of individuals collected was 560. PCD-5 scored 2; taxa richness scored 3; HBI and EPT each scored 4; %EPT-TOT scored 5. The total MBI score is 18, which indicates Good water quality. The predominant functional feeding groups in the community were collector/filterers (38.4%) and collector/gatherers (39.3%).

**Fish Community Assessment**

There were 148 individuals and 16 species of fishes collected at this site. Cyprinidae was the most diverse family with 7 species, followed by Percidae with 3 species. Notable fishes in the collection were the following KDOW-classified intolerant species: *Cyprinella whipplei, Moxostoma duquesnei,* and *Lepomis megalotis.* The IBI score was 58, classifying the site as Excellent.

# West Fork Otter Creek

| | | | | | |
|---|---|---|---|---|---|
| **Location:** | Perking Rd. off Hwy 210, 2.4 mi SW Ginseng | | | | |
| **County:** | Larue | | | **Date Sampled:** | 6-9-99 |
| **Site Number:** | 7 | **Secondary No.** | | **Mile Point:** | |
| **Stream Order:** | | **Latitude** | 37-29-04 | **Longitude:** | 85-36-44 |
| **Ecoregion** | Interior Plateau | | | **Drainage Area:** | 1.7 |
| **USGS Topo** | | | | **GNIS:** | |
| **11-digit HUC:** | 05140103050 | | | **WQ Sample Date:** | |
| **Assessed Reach** | | | | **Miles Assessed:** | |

**Habitat Assessment**

The habitat assessment of this site indicated poor epifaunal substrate/available cover and sediment deposition. Embeddedness, velocity/depth regime, and left bank stability scored a marginal rating. All other habitat categories scored in the suboptimal range, with the exception of channel flow status which was rated optimal. The total habitat assessment score for this site was 105, which is considered to be supporting but threatened.

**Macroinvertebrate Assessment**

The total number of individuals collected was 846. Taxa richness scored 1; PCD-5 and EPT scored 2; EPT %EPT-TOT scored 3; HBI scored 4. The total MBI score is 12, which indicates Poor water quality. The predominant functional feeding groups in the community were collector/filterers (49.3%) and collector/gatherers (39.6%).

**Fish Community Assessment**

There were 31 individuals and 2 species of fishes collected at this site. Both species belong to the family Cyprinidae, and are considered headwater species. Because there was such low diversity and low numbers of individuals the IBI score was 28, classifying the site as Poor.

# Rolling Fork 8

| | | | | | |
|---|---|---|---|---|---|
| **Location:** | Gaddy's Ford Rd., 3 mi NW of Stiles | | | | |
| **County:** | Larue/Nelson | | | **Date Sampled:** | 6-9-99 |
| **Site Number:** | 8 | **Secondary No.** | | **Mile Point:** | |
| **Stream Order:** | | **Latitude** | 37-32-37 | **Longitude:** | 85-37-33 |
| **Ecoregion** | Interior Plateau | | | **Drainage Area:** | 383.66 |
| **USGS Topo** | | | | **GNIS:** | |
| **11-digit HUC:** | 05140103020 | | | **WQ Sample Date:** | |
| **Assessed Reach** | | | | **Miles Assessed:** | |

**Habitat Assessment**

Riparian vegetative zone width was rated marginal. Sediment deposition, frequency of riffles, bank stability and vegetative protection were rated suboptimal. All other categories were rated optimal. The total assessment score was 149, which is fully supporting.

**Macroinvertebrate Assessment**

The total number of individuals collected was 1,228. PCD-5 scored 2; TR and HBI scored 3; EPT and %EPT-TOT each scored 5. The total MBI score is 18, which indicates Good water quality. The predominant functional feeding groups in the community were collector/filterers (41.3%) and collector/gatherers (23.9%).

**Fish Community Assessment**

There were 258 individuals and 21 species of fishes collected at this site. Cyprinidae was the most diverse family with 9 species, followed by Percidae with six species, all of which were darters. Notable fishes in the collection were the following KDOW-classified intolerant species: *Cyprinella whipplei, Notropis rubellus, Noturus flavus, Noturus stigmosus, Lepomis megalotis, Etheostoma zonale, Percina caprodes* and *Percina phoxocephala.* The IBI score was 54, classifying the site as Good/Excellent.

# Knob Creek

| | | | | | |
|---|---|---|---|---|---|
| **Location:** | Blanton Rd., 5 mi E Athertonville | | | | |
| **County:** | Larue | | | **Date Sampled:** | 6-9-99 |
| **Site Number:** | 9 | **Secondary No.** | | **Mile Point:** | |
| **Stream Order:** | | **Latitude** | 37-38-10 | **Longitude:** | 85-35-57 |
| **Ecoregion** | Interior Plateau | | | **Drainage Area:** | 16.1 |
| **USGS Topo** | | | | **GNIS:** | |
| **11-digit HUC:** | 05140103070 | | | **WQ Sample Date:** | |
| **Assessed Reach** | | | | **Miles Assessed:** | |

**Habitat Assessment**

Riparian vegetative zone width was rated poor. Embeddedness, channel flow status and channel alteration were rated suboptimal. All other categories were rated marginal. The total assessment score was 93, which is rated supporting but threatened.

**Macroinvertebrate Assessment**

The total number of individuals collected was 370. Taxa richness scored 2; HBI, %EPT-TOT, and EPT scored 3; PCD-5 scored 5. The total MBI score is 12, which indicates Poor water quality. The predominant functional feeding groups in the community were collector/filterers (23.8%) and collector/gatherers (47.7%).

**Fish Community Assessment**

There were 315 individuals and 20 species of fishes collected at this site. Cyprinidae was the most diverse family with 9 species, followed by Centrarchidae and Percidae each with 4 species. Notable fishes in the collection were the following KDOW-classified intolerant *Notropis rubellus,* and *Lepomis megalotis*. The IBI score was 52, classifying the site as Good

# Younger Creek

| | | | | | |
|---|---|---|---|---|---|
| **Location:** | Hwy 2799 (Miller Rd.), 3 mi SW of Yongers Creek | | | | |
| **County:** | Hardin | | | **Date Sampled:** | 6-9-99 |
| **Site Number:** | 10 | **Secondary No.** | | **Mile Point:** | |
| **Stream Order:** | | **Latitude** | 37-43-37 | **Longitude:** | 85-43-34 |
| **Ecoregion** | Interior Plateau | | | **Drainage Area:** | 17.7 |
| **USGS Topo** | | | | **GNIS:** | |
| **11-digit HUC:** | 05140103090 | | | **WQ Sample Date:** | |
| **Assessed Reach** | | | | **Miles Assessed:** | |

**Habitat Assessment**

Riparian vegetative zone width was rated poor. Sediment deposition and velocity/depth regime were rated marginal. Epifaunal substrate/available cover was rated optimal. All other categories were rated suboptimal. The total assessment score was 118, which is fully supporting.

**Macroinvertebrate Assessment**

The total number of individuals collected was 429. HBI scored 1; TR scored 2; EPT, %EPT-TOT and PCD-5 all scored 3. The total MBI score is 12, which indicates Poor water quality. The predominant functional feeding groups in the community were collector/filterers (23.9%) and collector/gatherers (50.2%).

**Fish Community Assessment**

There were 285 individuals and 13 species of fishes collected at this site. Cyprinidae was represented by only 2 species, while the family Centrarchidae had 5 species. Notable fishes in the collection were the following KDOW-classified intolerant species: *Moxostoma duquesnei, Amploplites rupestris*, and *Lepomis megalotis*. The IBI score was 48, classifying the site as Good.

# Beech Fork 9

| | | | | | |
|---|---|---|---|---|---|
| **Location:** | Beech Rd., about 1 mi E Texas | | | | |
| **County:** | Washington/Marion | | | **Date Sampled:** | 6-16-99 |
| **Site Number:** | 11 | **Secondary No.** | | **Mile Point:** | |
| **Stream Order:** | | **Latitude** | 37-38-38 | **Longitude:** | 85-06-41 |
| **Ecoregion** | Interior Plateau | | | **Drainage Area:** | 25.59 |
| **USGS Topo** | | | | **GNIS:** | |
| **11-digit HUC:** | 05140103100 | | | **WQ Sample Date:** | |
| **Assessed Reach** | | | | **Miles Assessed:** | |

**Habitat Assessment**

Channel alteration, frequency of riffles and bank stability were rated suboptimal. All other categories were rated marginal. The total assessment score was 94, which is considered supporting but threatened.

**Macroinvertebrate Assessment**

The total number of individuals collected was 1,664. PCD-5 scored 1; %EPT scored 2; TR scored 3; EPT scored 4; HBI scored 5. The total MBI score is 15, which indicates Fair water quality. The predominant functional feeding groups in the community were scrapers (59.7%) and predators (17.2%).

**Fish Community Assessment**

There were 239 individuals and 20 species of fishes collected at this site. Cyprinidae was the most diverse family with 8 species, followed by Percidae with 4 and Centrarchidae with 3 species. Notable fishes in the collection were the following KDOW-classified intolerant species: *Noturus flavus, Amploplites rupestris*, and *Lepomis megalotis*. The IBI score was 48, classifying the site as Good.

# East Fork Beech Fork

| | | | | | |
|---|---|---|---|---|---|
| **Location:** | Beech Rd., about 1 mi E Texas | | | | |
| **County:** | Washington | | | **Date Sampled:** | 6-16-99 |
| **Site Number:** | 12 | **Secondary No.** | | **Mile Point:** | |
| **Stream Order:** | | **Latitude** | 37-38-49 | **Longitude:** | 85-06039 |
| **Ecoregion** | Interior Plateau | | | **Drainage Area:** | 9.31 |
| **USGS Topo** | | | | **GNIS:** | |
| **11-digit HUC:** | 05140103100 | | | **WQ Sample Date:** | |
| **Assessed Reach** | | | | **Miles Assessed:** | |

**Habitat Assessment**

Embeddedness and riparian vegetative zone width were rated poor. Channel alteration, frequency of riffles, and bank stability were rated suboptimal. All other categories were rated marginal. The total assessment score was 82, which is considered supporting but threatened.

**Macroinvertebrate Assessment**

The total number of individuals collected was 630. Taxa richness, PCD-5 and EPT scored 1; %EPT scored 2; HBI scored 3. The total MBI score is 8, which indicates Very Poor water quality. The predominant functional feeding groups in the community were scrapers (31.3%) and collector/gatherers (42.1%).

**Fish Community Assessment**

There were 219 individuals and 15 species of fishes collected at this site. Cyprinidae was the most diverse family with 6 species, followed by Centrarchidae with 3 and Percidae with 4 species. The only KDOW-classified intolerant species collected at this site was *Lepomis megalotis*. The IBI score was 46, classifying the site as Fair/Good.

# Pleasant Run

| | | | | | |
|---|---|---|---|---|---|
| **Location:** | Tick Cr. Rd., 4 mi NE Springfield | | | | |
| **County:** | Washington/Marion | | | **Date Sampled:** | 6-15-99 |
| **Site Number:** | 13 | **Secondary No.** | | **Mile Point:** | |
| **Stream Order:** | | **Latitude** | 37-41-34 | **Longitude:** | 85-08-51 |
| **Ecoregion** | Interior Plateau | | | **Drainage Area:** | 21.34 |
| **USGS Topo** | | | | **GNIS:** | |
| **11-digit HUC:** | 05140103100 | | | **WQ Sample Date:** | |
| **Assessed Reach** | | | | **Miles Assessed:** | |

**Habitat Assessment**

Epifaunal substrate/available cover and riparian vegetative zone width were rated poor. Sediment deposition, channel alteration, and bank stability were rated suboptimal. All other categories were rated marginal. The total assessment score was 85, which is considered supporting but threatened.

**Macroinvertebrate Assessment**

The total number of individuals collected was 2,512. PCD-5 scored 1; %EPT scored 2; TR and EPT scored 3; HBI scored 4. The total MBI score is 13, which indicates Poor water quality. The predominant functional feeding groups in the community were scrapers (53.4%) and predators (20.1%).

**Fish Community Assessment**

There were 130 individuals and 16 species of fishes collected at this site. Cyprinidae was the most diverse family with 6 species, followed by Percidae with 4 species. The only KDOW-classified intolerant species collected at this site was *Lepomis megalotis*. The IBI score was 48, classifying the site as Good.

# Beech Fork 7

| | | | | | |
|---|---|---|---|---|---|
| **Location:** | Hardesty Rd., 1.5 mi SE Hardesty | | | | |
| **County:** | Washington | | | **Date Sampled:** | 6-17-99 |
| **Site Number:** | 14 | **Secondary No.** | | **Mile Point:** | |
| **Stream Order:** | | **Latitude** | 37-47-26 | **Longitude:** | 85-11-42 |
| **Ecoregion** | Interior Plateau | | | **Drainage Area:** | 113.0 |
| **USGS Topo** | | | | **GNIS:** | |
| **11-digit HUC:** | 05140103100 | | | **WQ Sample Date:** | |
| **Assessed Reach** | | | | **Miles Assessed:** | |

**Habitat Assessment**

Vegetative protection and riparian vegetative zone width were rated marginal. Channel alteration and Frequency of riffles were rated optimal. All other categories were rated suboptimal. The total assessment score was 138, which is considered fully supporting.

**Macroinvertebrate Assessment**

The total number of individuals collected was 3,070. PCD-5 scored 1; %EPT scored 2; HBI and TR scored 3; EPT scored 4. The total MBI score is 13, which indicates Poor water quality. The predominant functional feeding groups in the community were scrapers (40.6%) and collector/gatherers (30.3%).

**Fish Community Assessment**

There were 427 individuals and 20 species of fishes collected at this site. Cyprinidae was the most diverse family with 10 species, followed by Percidae with 4 and Centrarchidae with 3 species. Notable fishes in the collection were the following KDOW-classified intolerant species: *Cyprinella whipplei, Amploplites rupestris, Lepomis megalotis* and *Percina maculata.* The IBI score was 46, classifying the site as Fair/Good.

# Long Lick Creek

| | | | | | |
|---|---|---|---|---|---|
| **Location:** | Hardesty Rd., 1 mi S Polin | | | | |
| **County:** | Washington | | | **Date Sampled:** | 6-17-99 |
| **Site Number:** | 15 | **Secondary No.** | | **Mile Point:** | |
| **Stream Order:** | | **Latitude** | 37-48-48 | **Longitude:** | 85-12-23 |
| **Ecoregion** | Interior Plateau | | | **Drainage Area:** | 22.34 |
| **USGS Topo** | | | | **GNIS:** | |
| **11-digit HUC:** | 05140103100 | | | **WQ Sample Date:** | |
| **Assessed Reach** | | | | **Miles Assessed:** | |

**Habitat Assessment**

Embeddedness, frequency of riffles, and vegetative protection were all rated as marginal. All other categories were rated as suboptimal. The total assessment score was 123, which is considered fully supporting.

**Macroinvertebrate Assessment**

The total number of individuals collected was 691. PCD-5 scored 1; TR and EPT scored 2; %EPT-TOT and HBI scored 3. The total MBI score is 11, which indicates Poor water quality. The predominant functional feeding groups in the community were collector/filterers (42.3%) and collector/gatherers (26.7%).

**Fish Community Assessment**

There were 181 individuals and 21 species of fishes collected at this site. Cyprinidae was the most diverse family with 9 species, followed by Percidae with 4 and Centrarchidae with 4 species. Notable fishes in the collection were the following KDOW-classified intolerant species: *Cyprinella whipplei, Amploplites rupestris*, and *Lepomis megalotis*. The IBI score was 54, classifying the site as Good/Excellent.

## Chaplin River 7

| | | | | | |
|---|---|---|---|---|---|
| **Location:** | Claunch Rd., 2 mi N Perryville | | | | |
| **County:** | Boyle | | | **Date Sampled:** | 6-14-99 |
| **Site Number:** | 16 | **Secondary No.** | | **Mile Point:** | |
| **Stream Order:** | | **Latitude** | 37-40-42 | **Longitude:** | 84-56-53 |
| **Ecoregion** | Interior Plateau | | | **Drainage Area:** | 21.99 |
| **USGS Topo** | | | | **GNIS:** | |
| **11-digit HUC:** | 05140103100 | | | **WQ Sample Date:** | |
| **Assessed Reach** | | | | **Miles Assessed:** | |

### Habitat Assessment

Epifaunal substrate/available cover was rated poor. Velocity/depth regime, riparian vegetative zone and channel flow were rated submarginal. Embeddedness, sediment deposition, channel alterations, and vegetative protection were all rated as suboptimal. Frequency of riffles and bank stability were rated optimal. The total assessment score was 117, which is considered fully supporting.

### Macroinvertebrate Assessment

The total number of individuals collected was 4,901. PCD-5 and %EPT-TOT scored 1; TR scored 3; EPT scored 4; HBI scored 5. The total MBI score is 14, which indicates Fair water quality. The predominant functional feeding group in the community was scrapers (75.7%).

### Fish Community Assessment

There were 235 individuals and 16 species of fishes collected at this site. Cyprinidae was the most diverse family with 6 species, followed by Percidae with 4 and Centrarchidae with 4 species. Notable fishes in the collection were the following KDOW-classified intolerant species: *Cottus carolinae, Amploplites rupestris*, and *Lepomis megalotis*. The IBI score was 48, classifying the site as Good.

# Doctors Fork

| | | | | | |
|---|---|---|---|---|---|
| **Location:** | Shortline Rd., 3 mi SW Perryville | | | | |
| **County:** | Boyle | | | **Date Sampled:** | 6-14-99 |
| **Site Number:** | 17 | **Secondary No.** | | **Mile Point:** | |
| **Stream Order:** | | **Latitude** | 37-37-08 | **Longitude:** | 84-59-59 |
| **Ecoregion** | Interior Plateau | | | **Drainage Area:** | 3.24 |
| **USGS Topo** | | | | **GNIS:** | |
| **11-digit HUC:** | 05140103100 | | | **WQ Sample Date:** | |
| **Assessed Reach** | | | | **Miles Assessed:** | |

**Habitat Assessment**

Epifaunal substrate/available cover, embeddedness, velocity/depth regime, sediment deposition, vegetative protection, and riparian vegetative zone were rated marginal. Channel alterations, channel flow, frequency of riffles and bank stability were rated suboptimal. The total assessment score was 93, which is considered supporting but threatened.

**Macroinvertebrate Assessment**

The total number of individuals collected was 695. %EPT-TOT scored 1; TR, HBI and EPT each scored 2; PCD-5 scored 3. The total MBI score is 10, which indicates Poor water quality. The predominant functional feeding groups in the community were scrapers (24.6%) and collector/gatherers (35.5%).

**Fish Community Assessment**

There were 184 individuals and 15 species of fishes collected at this site. Cyprinidae was the most diverse family with 6 species, followed by Percidae with 4 and Centrarchidae with 3 species. The only KDOW-classified intolerant species present was *Lepomis megalotis*. The IBI score was 54, classifying the site as Good/Excellent.

# Chaplin River 6

| | | | | | |
|---|---|---|---|---|---|
| **Location:** | Hwy 152, 2.4 mi SE Bushtown | | | | |
| **County:** | Mercer | | | **Date Sampled:** | 6-14-99 |
| **Site Number:** | 18 | **Secondary No.** | | **Mile Point:** | |
| **Stream Order:** | | **Latitude** | 37-44-44 | **Longitude:** | 85-58-13 |
| **Ecoregion** | Interior Plateau | | | **Drainage Area:** | 68.58 |
| **USGS Topo** | | | | **GNIS:** | |
| **11-digit HUC:** | 05140103100 | | | **WQ Sample Date:** | |
| **Assessed Reach** | | | | **Miles Assessed:** | |

**Habitat Assessment**

Epifaunal substrate/available cover, embeddedness, velocity/depth regime, sediment deposition, frequency of riffles, bank stability, left bank vegetative protection, left bank riparian vegetative zone were rated marginal. Channel flow, channel alterations, right bank vegetative protection, and right bank riparian vegetative zone were all rated as suboptimal. The total assessment score was 96, which is considered supporting but threatened.

**Macroinvertebrate Assessment**

The total number of individuals collected was 722. Taxa richness, PCD-5 and % EPT-TOTall scored 2; EPT and HBI scored 3. The total MBI score is 12, which indicates Poor water quality. The predominant functional feeding groups in the community were scrapers (27.5%) and collector/gatherers (56.9%).

**Fish Community Assessment**

There were 198 individuals and 16 species of fishes collected at this site. Cyprinidae was the most diverse family with 7 species, followed by Percidae with 4 and Centrarchidae with 4 species. Notable fishes in the collection were the following KDOW-classified intolerant species: *Hybopsis amblops, Amploplites rupestris, Lepomis megalotis,* and *Percina maculata.* The IBI score was 42, classifying the site as Fair.

# Cartwright Creek 2

| | | | | | |
|---|---|---|---|---|---|
| **Location:** | Hwy 1724, 2.4 mi NE Bear Wallow | | | | |
| **County:** | Washington/Mercer | | | **Date Sampled:** | 6-16-99 |
| **Site Number:** | 22 | **Secondary No.** | | **Mile Point:** | |
| **Stream Order:** | | **Latitude** | 37-43-46 | **Longitude:** | 85-17-08 |
| **Ecoregion** | Interior Plateau | | | **Drainage Area:** | 48.44 |
| **USGS Topo** | | | | **GNIS:** | |
| **11-digit HUC:** | 05140103160 | | | **WQ Sample Date:** | |
| **Assessed Reach** | | | | **Miles Assessed:** | |

**Habitat Assessment**

Epifaunal substrate/available cover, frequency of riffles, bank vegetative protection, vegetative zone width were rated poor. Embeddedness, velocity/depth regime, channel flow, right bank stability were all rated as marginal. Channel alteration, left bank stability were rated as suboptimal. Sediment deposition was rated as optimal. The total assessment score was 75, which is considered supporting but threatened.

**Macroinvertebrate Assessment**

The total number of individuals collected was 1,665. %EPT-TOT scored 1; HBI scored 3; TR, EPT and PCD-5 all scored 4. The total MBI score is 16, which indicates Fair water quality. The predominant functional feeding groups in the community were scrapers (37.0%), collector/gatherers (17.2%) and shredders (17.8%).

**Fish Community Assessment**

There were 185 individuals and 13 species of fishes collected at this site. Cyprinidae was the most diverse family with 5 species, followed by Percidae with 4 and Centrarchidae with 3 species. Notable fishes in the collection were the following KDOW-classified intolerant species: *Notropis volucellus,* and *Lepomis megalotis.* The IBI score was 40, classifying the site as Fair.

# Road Run

| | | | | | |
|---|---|---|---|---|---|
| **Location:** | Walker Ln., 2 mi S Valley Hill | | | | |
| **County:** | Washington | | | **Date Sampled:** | 6-16-99 |
| **Site Number:** | 23 | **Secondary No.** | | **Mile Point:** | |
| **Stream Order:** | | **Latitude** | 37-44-08 | **Longitude:** | 85-15-25 |
| **Ecoregion** | Interior Plateau | | | **Drainage Area:** | 10.75 |
| **USGS Topo** | | | | **GNIS:** | |
| **11-digit HUC:** | 05140103160 | | | **WQ Sample Date:** | |
| **Assessed Reach** | | | | **Miles Assessed:** | |

**Habitat Assessment**

Epifaunal substrate/available cover, vegetative protection, riparian vegetative zone were rated as poor. Embeddedness, velocity/depth regime, sediment deposition, channel flow, and bank stability were rated marginal. Channel alteration and frequency of riffles were rated as suboptimal. The total assessment score was 75, which is considered supporting but threatened.

**Macroinvertebrate Assessment**

The total number of individuals collected was 3,800. PCD-5 scored 1; TR and EPT scored 3; HBI scored 4; %EPT-TOT scored 5. The total MBI score is 16, which indicates Fair water quality. The predominant functional feeding groups in the community were collector/filterers (56.5%) and collector/gatherers (19.4%).

**Fish Community Assessment**

There were 259 individuals and 14 species of fishes collected at this site. Cyprinidae was the most diverse family with 8 species, followed by Centrarchidae with 3 species. Notable fishes in the collection were the following KDOW-classified intolerant species: *Cyprinella whipplei,* and *Lepomis megalotis*. The IBI score was 42, classifying the site as Fair.

# Rowan Creek

| | | | | | |
|---|---|---|---|---|---|
| **Location:** | Hwy 31E, 0.5 mi S Bardstown | | | | |
| **County:** | Nelson | | | **Date Sampled:** | 6-11-99 |
| **Site Number:** | 24 | **Secondary No.** | | **Mile Point:** | |
| **Stream Order:** | | **Latitude** | 37-47-46 | **Longitude:** | 85-28-38 |
| **Ecoregion** | Interior Plateau | | | **Drainage Area:** | 11.72 |
| **USGS Topo** | | | | **GNIS:** | |
| **11-digit HUC:** | 05140103150 | | | **WQ Sample Date:** | |
| **Assessed Reach** | | | | **Miles Assessed:** | |

**Habitat Assessment**

Channel flow was rated marginal. Epifaunal substrate/available cover was rated optimal. All other categories were rated suboptimal. The total assessment score was 139, which is considered fully supporting.

**Macroinvertebrate Assessment**

The total number of individuals collected was 392. Taxa richness, EPT, PCD-5 and %EPT-TOT scored 1; HBI scored 4. The total MBI score is 8, which indicates Very Poor water quality. The predominant functional feeding group in the community was collector/filterers (78.3%).

**Fish Community Assessment**

There were 482 individuals and 18 species of fishes collected at this site. Cyprinidae was the most diverse family with 6 species, followed by Percidae with 4 and Centrarchidae with 4 species. Notable fishes in the collection were the following KDOW-classified intolerant species: *Cyprinella whipplei, Noturus flavus, Noturus stigmosus, Lepomis megalotis* and *Percina caprodes*. The IBI score was 54, classifying the site as Good/Excellent.

# Lick Creek

| | | | | | |
|---|---|---|---|---|---|
| **Location:** | Lick Creek Ln., 2 mi E Boston | | | | |
| **County:** | Nelson | | | **Date Sampled:** | 6-11-99 |
| **Site Number:** | 25 | **Secondary No.** | | **Mile Point:** | |
| **Stream Order:** | | **Latitude** | 37-47-46 | **Longitude:** | 85-28-38 |
| **Ecoregion** | Interior Plateau | | | **Drainage Area:** | 13.96 |
| **USGS Topo** | | | | **GNIS:** | |
| **11-digit HUC:** | 05140103190 | | | **WQ Sample Date:** | |
| **Assessed Reach** | | | | **Miles Assessed:** | |

**Habitat Assessment**

Frequency of riffles was rated poor. Channel flow and channel alteration were rated suboptimal. All other categories were rated marginal. The overall assessment score was 83, which is supporting but threatened.

**Macroinvertebrate Assessment**

The total number of individuals collected was 382. PCD-5 scored 1; TR and EPT scored 2; HBI and %EPT-TOT scored 5. The total MBI score is 15, which indicates Fair water quality. The predominant functional feeding groups in the community were predators (58.4%), collector/filterers (14.5%) and collector/gatherers (13.7%).

**Fish Community Assessment**

There were 71 individuals and 20 species of fishes collected at this site. Cyprinidae was the most diverse family with 6 species, followed by Percidae with 4 and Centrarchidae with 5 species. The only KDOW-classified intolerant species present was *Lepomis megalotis*. The IBI score was 48, classifying the site as Good.

## Clear Creek

| | | | | | |
|---|---|---|---|---|---|
| **Location:** | Junction of Upper and Lower Colesburg Rds., 1 mi NE Colesburg | | | | |
| **County:** | Hardin | | | **Date Sampled:** | 6-8-99 |
| **Site Number:** | 26 | **Secondary No.** | | **Mile Point:** | |
| **Stream Order:** | | **Latitude** | 37-47-08 | **Longitude:** | 85-46-16 |
| **Ecoregion** | Interior Plateau | | | **Drainage Area:** | 17.02 |
| **USGS Topo** | | | | **GNIS:** | |
| **11-digit HUC:** | 05140103210 | | | **WQ Sample Date:** | |
| **Assessed Reach** | | | | **Miles Assessed:** | |

### Habitat Assessment

Riparian vegetative zone was rated poor. Embeddedness, sediment deposition and vegetative protection were rated marginal. All other categories were rated as suboptimal. The overall assessment score was 107, which is supporting but threatened.

### Macroinvertebrate Assessment

The total number of individuals collected was 173. Taxa richness scored 1; EPTand %EPT-TOT scored 2; PCD-5 and HBI scored 3. The total MBI score is 11, which indicates Poor water quality. The predominant functional feeding groups in the community were scrapers (27.49%) and collector/gatherers (32.2%).

### Fish Community Assessment

There were 243 individuals and 14 species of fishes collected at this site. Cyprinidae was the most diverse family with 6 species, followed by Percidae and Centrarchidae each with 3 species. Notable fishes in the collection were the following KDOW-classified intolerant species: *Cottus carolinae, Amploplites rupestris*, and *Lepomis megalotis*. The IBI score was 44, classifying the site as Fair.

# Rolling Fork 3

| | | | | | |
|---|---|---|---|---|---|
| **Location:** | Hwy 434,1.5 mi NE Booth | | | | |
| **County:** | Bullitt/Hardin | | | **Date Sampled:** | 6-8-99 |
| **Site Number:** | 27 | **Secondary No.** | | **Mile Point:** | |
| **Stream Order:** | | **Latitude** | 37-49-42 | **Longitude:** | 85-44-52 |
| **Ecoregion** | Interior Plateau | | | **Drainage Area:** | 1341.03 |
| **USGS Topo** | | | | **GNIS:** | |
| **11-digit HUC:** | 05140103200 | | | **WQ Sample Date:** | |
| **Assessed Reach** | | | | **Miles Assessed:** | |

**Habitat Assessment**

Embeddedness, velocity/depth regime, sediment deposition, frequency of riffles, bank stability, and vegetative protection were all rated as marginal. Channel alteration and riparian vegetative zone width were rated suboptimal. Epifaunal substrate/available cover and channel flow were rated optimal. The overall assessment score was 110, which is supporting but threatened.

**Macroinvertebrate Assessment**

The total number of individuals collected was 277. PCD-5 scored 1; TR scored 2; EPT scored 4, HBI and %EPT-TOT scored 5. The total MBI score is 17, which indicates Good water quality. The predominant functional feeding groups in the community were collector/filterers (36.1%) and collector/gatherers (37.9%).

**Fish Community Assessment**

There were 111 individuals and 13 species of fishes collected at this site. Cyprinidae was the most diverse family with 5 species, followed by Percidae with 3 species. Notable fishes in the collection were the following KDOW-classified intolerant species: *Notropis rubellus, Noturus flavus, Noturus stigmosus, Cottus carolinae,* and *Percina phoxocephala.* The IBI score was 32, classifying the site as Poor. The reason this low IBI was that it scored a value of 1 in six of the 12 individual IBI metrics.