



# River Raisin

## Volunteer Monitoring Program

### Report and Analysis

2006

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## Summary of Results

In general, there has been an overall decline in the total number of families collected in the past 5-year period. Of the 14 sites sampled, seven showed a decline, five remained about the same while only two sites reported an overall increase in the number of families found.

The Spring 2006 sampling event reflected this trend. Nine (9) of the sites showed a decrease in the total number of families collected compared to the 2005 Spring event while five (5) sites showed an increase.

The three (3) sites producing the largest number of families in Spring 2006 were sites RR5 on Sharon Valley Road with 18 families, site G1 on Goose Creek with 12 families, and site RR7 with 11 families. These sites are located in relatively undeveloped headwaters areas and are reasonably expected to contain more macroinvertebrate families. The samples were ranked according to richness (the total number of families represented) and the total number of sensitive families found. The results of the Spring 2006 sampling is summarized on page 9.

The Fall 2006 sampling event produced a greater number of macroinvertebrate families than were seen in the Spring event. This increase seems to indicate that a wider variety of families are present in the Fall and appears to confirm the initial decision to separate the data from these events. Additional Fall sampling events will be needed to establish any trends in the data. The results of the Fall 2006 sampling are summarized on page 12.

Appendix A provides a listing of the sampling site locations for 2006. Appendix B contains a summary of the macroinvertebrates collected during the spring sampling events between 2002 and 2006. Data from events prior to 2002 were not available. The data summarizes the total number of families (richness), which includes the number of EPT families and the total number of sensitive families collected.

The purpose of this report was to present a summary of the 2006 Spring and Fall Sampling Events to a general audience. It was not intended as a detailed technical analysis of macroinvertebrate populations across the River Raisin Watershed.

This summary report was prepared from data previously compiled and tabulated by others. These tabulations were accepted as they currently exist in the file of the River Raisin Watershed Council. No attempt was made to validate these data.

## Introduction

The 2006 Spring sampling for macroinvertebrates was conducted on Saturday April 29, 2006. A total of fourteen (14) sites were sampled by staff and volunteers of the River Raisin Watershed Council. On May 13, 2006, the macroinvertebrates were examined and identified. The first section of this report summarizes the results of the Spring sampling.

In September, 2006 a second sampling event was added, called the Fall sampling event. This event included sampling at six (6) new sites as well as the original 14 sites sampled in the Spring. The locations of all 20 sites are shown on Map 1 and are described in Appendix A by water course, township and street.

The additional Fall sampling event was designed to survey the population of organisms that, because of differences in life cycle, may not be present in the spring. Because of the potential difference in populations of macroinvertebrates the data from the Spring and Fall events are not combined. The results of the Fall event represent only a single data point and therefore cannot yet be used to establish a trend in the macroinvertebrate populations. Subsequent Fall sampling will, hopefully, establish trends that can be analyzed. The second part of this report describes the results of the Fall sampling.

## Spring Sampling

All sites were ranked based on sample "richness". Richness is the simplest measure of biodiversity in that it counts only the total number of different organisms observed in the sample. Richness does not consider the relative abundance of each organism and may therefore not fully

capture the presence of sensitive organisms; however it is a recognized measure of biodiversity and perhaps the safest one to use given our sampling protocols.

Sites were also ranked based on sensitive families. Sensitive families include Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (caddisflies), referred to as the EPT families and a variety of other macro-invertebrate groups. These families require high quality water and are therefore good indicators of potential problems in the watershed. A summary of the total number of families, the EPT families and total sensitive families collected at each site are shown in Appendix B.

The various sites were ranked by richness (total number of macroinvertebrate families collected) and the total number of sensitive families. This ranking indicates the sites reporting the highest and lowest number of richness and sensitive families. This ranking is shown on page 7.

The total richness and total sensitive families collected in the Spring are summarized by site on Table 1 (see page 9).

Figure 2 graphically represents the richness and number of sensitive families collected at each site (see page 9).

# Spring 2006 Sample Ranking

## Ranked by Richness

### Ranked #1

**Site RR5** located on Sharon Valley Road in Sharon Township, Washtenaw County, ranked highest in sample richness with 18 families identified.

### Ranked #2

**Site G1** on Goose Creek at M-50 in Columbia Township, Jackson County, ranked second in richness with 12 families.

### Ranked #3

**Site RR7** located on the River Raisin on Clinton Road in Bridgewater Township, Washtenaw County, ranked third in richness with 11 families.

### Ranked #4

**Site RR6** located on Blood Road in Tecumseh Township, Lenawee County, reported a total of seven (7) families.

### Lowest Rankings

- **Site RR1** on Telegraph Road in Frenchtown Township, Monroe County, reported three (3) richness families.
- **Site S3** on the Saline River on Millpond Park in Lodi Township, Washtenaw County, reported three (3) richness families.
- **Site RR2** located on the River Raisin at Ida-Maybee Road in Raisinville Township, Monroe County, was ranked the lowest in richness. This site reported only two (2) families.

## Ranked by Sensitive Families

### Ranked #1

**Site RR5** located on Sharon Valley Road in Sharon Township, Washtenaw County, reported the highest number of sensitive families with four (4).

### Ranked #2

**Site RR6** located on Blood Road in Tecumseh Township, Lenawee County, reported a total of three (3) sensitive families.

### Ranked #3

**Site RR7** located on the River Raisin River on Clinton Road in Bridgewater Township, Washtenaw County, reported only two (2) sensitive families.

### Ranked #4

**Site G1** on Goose Creek at M-50 in Columbia Township, Jackson County, reported two (2) sensitive families.

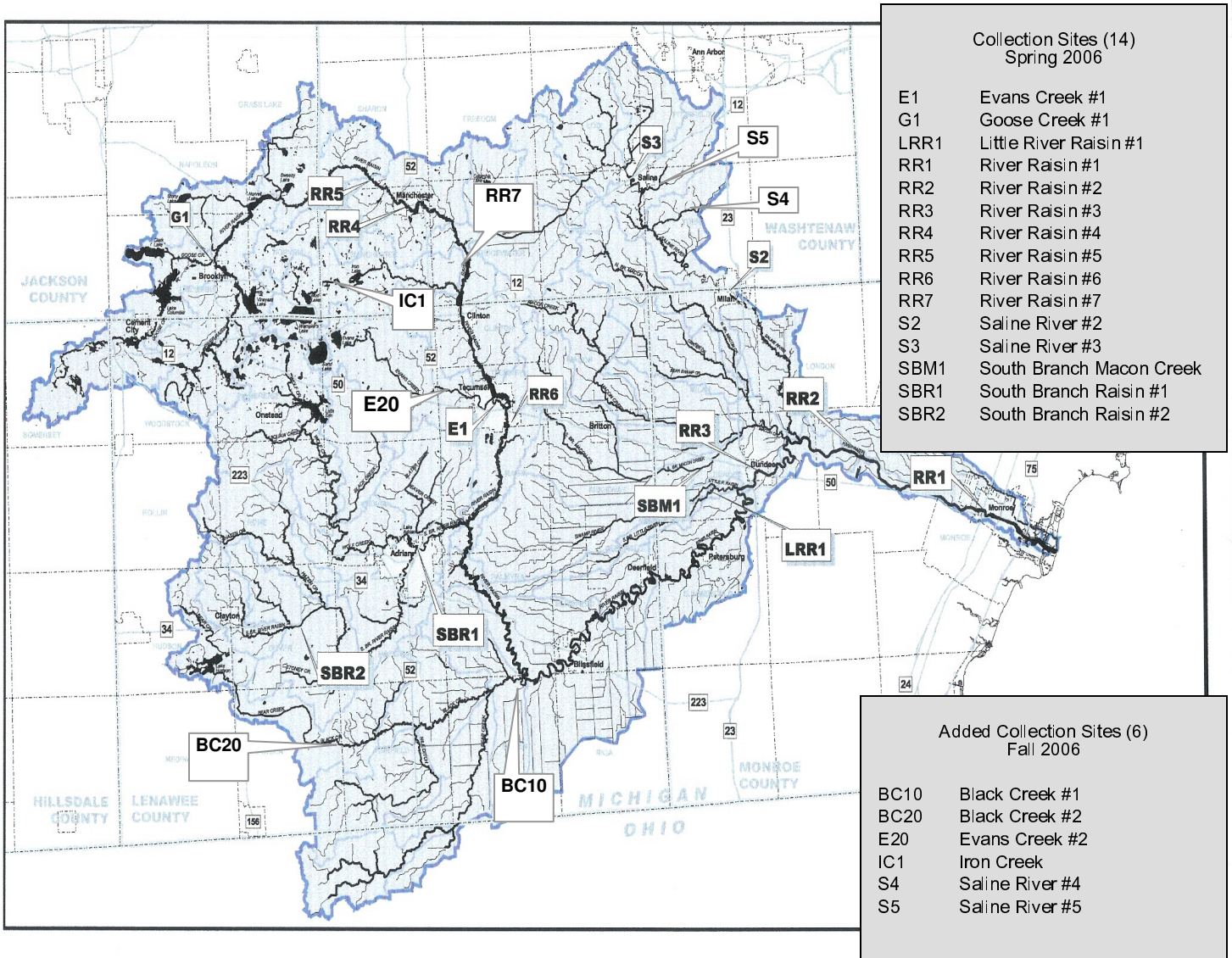
### Lowest Rankings

The following sites received the lowest ranking. Each site only reported one (1) sensitive family:

**Site RR2** located on the River Raisin at Ida-Maybee Road in Raisinville Township, Monroe County

**Site RR1** on Telegraph Road in Frenchtown Township, Monroe County

**Site S3** located on the Saline River on Millpond Park in Lodi Township, Washtenaw County



**Map 1**

**River Raisin Watershed  
Sampling Sites**

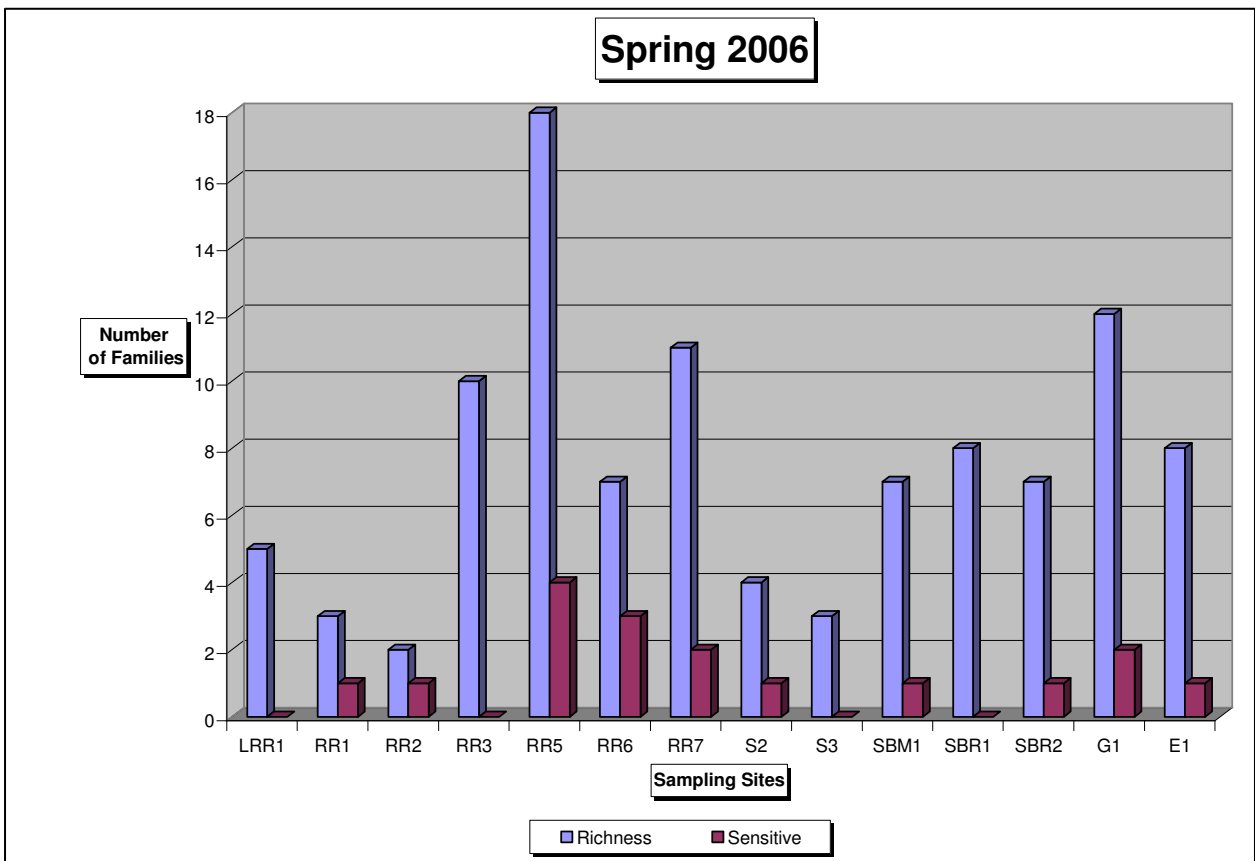
## Table 1 – Sampling Data

Table 1 lists the various sites which were sampled and the total number of different macroinvertebrate families that were identified at each site.

Spring 2006		
Site	Richness	Sensitive
LRR1	5	0
RR1	3	1
RR2	2	1
RR3	10	0
RR5	18	4
RR6	7	3
RR7	11	2
S2	4	1
S3	3	0
SBM1	7	1
SBR1	8	0
SBR2	7	1
G1	12	2
E1	8	1

## Figure 1 – Comparison of Richness and Sensitive Families

A graphical comparison of the richness and sensitive families for each site is shown in Figure 1.



## Fall Sampling

The Fall sampling event in September 2006 was the first time that the River Raisin Watershed Council had sampled macroinvertebrates in the Fall. Six additional sites were added making a total of 20 sites. These 20 sites will be the basis for future Spring and Fall sampling events.

Because the various organisms have different life cycles, it is possible that some families collected in the Spring event may not be present in the Fall. Similarly, new families may appear in the Fall. For this reason, it was decided that data from the Spring and Fall events may not be comparable and should not be tabulated together. If future sampling indicates that the populations are, in fact comparable, the data will be consolidated.

The sampling sites were ranked to indicate the sites reporting the highest and lowest number of richness and sensitive families. This ranking is shown on page 11.

The total richness and total sensitive families collected in September are summarized by site on Table 2 (see page 12). The most immediate apparent result is the increased number of families collected at several sites. This observation appears to confirm that there are more families present in the Fall and supports the separation of data for the Spring and Fall sampling events.

Figure 2 graphically represents the richness and number of sensitive families collected at each site (see page 12).

# Fall 2006 Sample Ranking

## Ranked by Richness

### Ranked #1

**Site RR5**, River Raisin, Sharon Valley Road, Sharon Township, Washtenaw County, ranked highest in richness with 22 families.

### Ranked #2

**Site IC1**, Iron Creek, Manchester Township, Washtenaw County, ranked second with 18 families.

### Ranked #3

- **Site S3**, Saline River, Millpond Park, Lodi Township, Washtenaw County, reported 14 families
- **Site S5**, Saline River, Moon Road, Pittsfield Township, Washtenaw County, reported 14 families

### Ranked #4

**Site SBR2**, South Branch of the River Raisin, Benner Road, Dover Township, Lenawee County, reported 13 families.

### Lowest Ranking

The following three (3) sites received the lowest ranking. Each site reported no sensitive families:

- **Site G1**, Goose Creek, M-50, Columbia Township, Jackson County
- **Site S2**, Saline River, Wilson Park, Milan Township, Monroe County
- **Site SBM1**, Macon Creek, Petersburg Road, Dundee Township, Monroe County

## Ranked by Sensitive Families

### Ranked #1

**Site RR5**, Sharon Valley Road, Sharon Township, Washtenaw County, ranked highest in the number of sensitive families with five (5).

### Ranked #2

**Site RR7**, River Raisin, Clinton Road, Bridgewater Township, Washtenaw County, ranked second with a reported three (3) sensitive families.

### Ranked #3

**Site IC1**, Iron Creek, Manchester Township, Washtenaw County, ranked third with two (2) sensitive families.

### Lowest Ranking

The following 13 sites reported no sensitive families:

- **E1**, Evans Creek, Maumee Street, Tecumseh Township, Lenawee County
- **G1**, Goose Creek, M-50, Brooklyn Township, Jackson County
- **LRR1**, Little River Raisin, Brewer Road, Dundee Township, Monroe County
- **RR2**, River Raisin, Telegraph Road, Monroe Township, Monroe County
- **RR3**, River Raisin, M-50, Dundee Township, Monroe County
- **S2**, Saline River, Wilson Park, Milan Township, Monroe County
- **SBM1**, Macon Creek, Petersburg Road, Dundee Township, Monroe County
- **SBR1**, South Branch River Raisin, Heritage Park, Adrian Township, Lenawee County
- **SBR2**, South Branch River Raisin, Benner Road, Cadmus Township, Lenawee County
- **E20**, Evans Creek, Adrian Highway, Tecumseh Township, Lenawee County
- **BC20**, Black Creek, Sand Creek Highway, Fairfield Township, Lenawee County
- **S4**, Saline River, Maple Road, Pittsfield Township, Washtenaw County
- **S5**, Saline River, Moon Road, Pittsfield Township, Washtenaw County

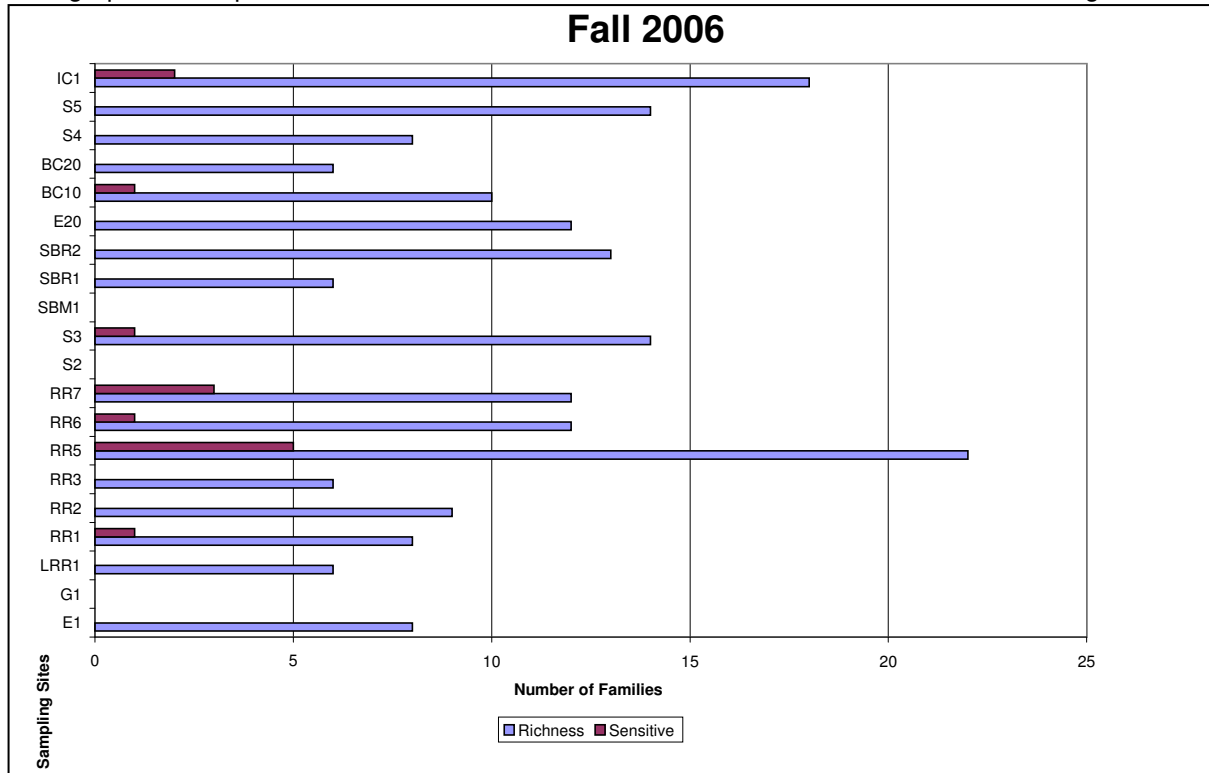
## Table 2 – Sampling Data

Table 2 lists the various sites which were sampled and the total number of different macroinvertebrate families that were identified at each site.

Fall 2006		
Sites	Richness	Sensitive
E1	8	0
G1	0	0
LRR1	6	0
RR1	8	1
RR2	9	0
RR3	6	0
RR5	22	5
RR6	12	1
RR7	12	3
S2	0	0
S3	14	1
SBM1	0	0
SBR1	6	0
SBR2	13	0
E20	12	0
BC10	10	1
BC20	6	0
S4	8	0
S5	14	0
IC1	18	2

## Figure 2 – Comparison of Richness and Sensitive Families

A graphical comparison of the richness and sensitive families for each site is shown in Figure 1.



**Appendix A**  
**Sampling Site Locations**  
**2006**

<u>Site</u>	<u>Water Course</u>	<u>Township</u>	<u>Street</u>
BC10	Black Creek	Ogden	Crockett Hwy.
BC20	Black Creek	Fairfield	Sand Creek Hwy.
E1	Evans Creek	Tecumseh	Maumee St.
E20	Evans Creek	Tecumseh	Adrian Hwy.
G1	Goose Creek	Brooklyn	M-50
IC1	Iron Creek	Manchester	Noggles Rd.
LRR1	Little River Raisin	Dundee	Brewer Rd.
RR1	River Raisin	Monroe	Telegraph Rd.
RR2	River Raisin	Monroe	Ida-Maybee Rd.
RR3	River Raisin	Dundee	M-50
RR5	River Raisin	Manchester	Sharon Valley Rd.
RR6	River Raisin	Tecumseh	Blood Rd.
RR7	River Raisin	Clinton	M-52
S2	Saline River	Milan	Wilson Park
S3	Saline River	Saline	Millpond Park
S4	Saline River	Pittsfield	Maple Rd.
S5	Saline River	Pittsfield	Moon Rd.
SBM1	Macon Creek	Dundee	Petersburg Rd.
SBR1	South Branch River Raisin	Adrian	Heritage Park
SBR2	South Branch River Raisin	Cadmus	Benner Rd.

## Appendix B

### 2002-2006 Macroinvertebrate Spring Samples

Appendix B shows a comparison of the total number of families, total EPT families, and total sensitive families reported for each sampling site between 2002 and 2006. Miscellaneous refers to other types of macro-invertebrates reported, such as clams and crawfish.

2002-2006 MACROINVERTEBRATE SUMMARY SPRING SAMPLES						
	2002	2003	2004	2005	2006	Mean
<b>SITE LLR1</b>						
<b>Number of Families</b>	11	13	8	7	5	8.8
<b>EPT</b>	3	6	0	0	1	
<b>Sensitive Families</b>	2	2	1	0	0	
<b>Miscellaneous</b>	4	3	3	3	3	
<b>SITE RR1</b>						
<b>Number of Families</b>	11	12	5	8	3	7.8
<b>EPT</b>	5	6	0	4	1	
<b>Sensitive Families</b>	1	1	1	1	1	
<b>Miscellaneous</b>	9	7	4	3	1	
<b>Site RR2</b>						
<b>Number of Families</b>	10	10	4	7	2	6.6
<b>EPT</b>	3	4	1	4	0	
<b>Sensitive Families</b>	0	1	0	1	1	
<b>Miscellaneous</b>	6	7	3	4	3	
<b>SITE RR3</b>						
<b>Number of Families</b>	9	0	5	6	10	6
<b>EPT</b>	4	0	1	3	3	
<b>Sensitive Families</b>	0	0	0	0	0	
<b>Miscellaneous</b>	8	0	4	3	4	
<b>SITE RR5</b>						
<b>Number of Families</b>	17	15	10	15	18	15
<b>EPT</b>	8	7	3	8	9	
<b>Sensitive Families</b>	2	2	2	4	4	
<b>Miscellaneous</b>	3	2	2	1	3	
<b>SITE RR6</b>						
<b>Number of Families</b>	14	10	9	9	7	9.8
<b>EPT</b>	5	5	2	5	6	
<b>Sensitive Families</b>	2	1	3	3	3	
<b>Miscellaneous</b>	3	2	4	2	1	

2002-2006 MACROINVERTEBRATE SUMMARY SPRING SAMPLES						
	2002	2003	2004	2005	2006	Mean
<b>SITE RR7</b>						
Number of Families	0	0	5	16	11	6.4
EPT	0	0	0	8	7	
Sensitive Families	0	0	1	2	2	
Miscellaneous	0	0	0	3	2	
<b>SITE S2</b>						
Number of Families	2	6	2	7	4	4.2
EPT	2	4	1	4	2	
Sensitive Families	0	1	0	1	1	
Miscellaneous	4	5	3	4	4	
<b>SITE S3</b>						
Number of Families	9	7	6	11	3	7.2
EPT	4	3	2	5	1	
Sensitive Families	1	1	1	1	0	
Miscellaneous	1	2	4	1	2	
<b>SITE SBM1</b>						
Number of Families	13	9	3	8	7	8
EPT	5	5	0	3	1	
Sensitive Families	1	1	0	1	1	
Miscellaneous	7	4	5	2	0	
<b>SITE SBR1</b>						
Number of Families	9	9	10	6	8	8.4
EPT	4	3	2	4	3	
Sensitive Families	0	1	1	0	0	
Miscellaneous	2	3	5	3	4	
<b>SITE SBR2</b>						
Number of Families	12	10	12	9	7	10
EPT	7	5	1	5	1	
Sensitive Families	3	2	2	1	1	
Miscellaneous	3	6	2	3	1	
<b>SITE G1</b>						
Number of Families	17	13	14	11	12	13.4
EPT	6	7	5	5	6	
Sensitive Families	2	0	3	2	2	
Miscellaneous	8	4	3	4	2	
<b>SITE E1</b>						
Number of Families	13	9	10	7	8	9.4
EPT	5	3	1	2	1	
Sensitive Families	3	0	0	1	1	
Miscellaneous	5	2	3	0	6	

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