NEW WORLD MINE:
2015 MACROINVERTEBRATE AND PERIPHYTON SAMPLING

Data Summary Memo 2/11/2016

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This document constitutes the QA/QC and Data Summary Report for the completion of the 2015 macroinvertebrate and periphyton sampling at the New World Mine Site. This monitoring event fulfils the current scope of the Sampling and Analysis Plan (SAP). Extension of the monitoring period is provided for in the SAP, if deemed necessary by the project management.

1. FIELD ACTIVITIES SUMMARY

Confluence Consulting, Inc. conducted macroinvertebrate and periphyton sampling at eight stream locations on the New World Mine Site. Four sites within each of the two primary drainages were sampled. Figure 1 presents a map of the sample locations in the context of the larger project site. Samples were collected during a three day sampling event, according to the schedule presented in Table 1.

Table 1 Sample Events

Site ID	Waterbody	Sampling Date
SW-7	Stillwater River	9/14/2015
SR-1	Stillwater River	9/14/2015
DC-5	Daisy Creek	9/15/2015
DC-2	Daisy Creek	9/15/2015
SW-3	Fisher Creek	9/15/2015
SW-4	Fisher Creek	9/15/2015
CFY-2	Clarks Fork of the Yellowstone River *	9/16/2015
SW-6	Clarks Fork of the Yellowstone River	9/16/2015

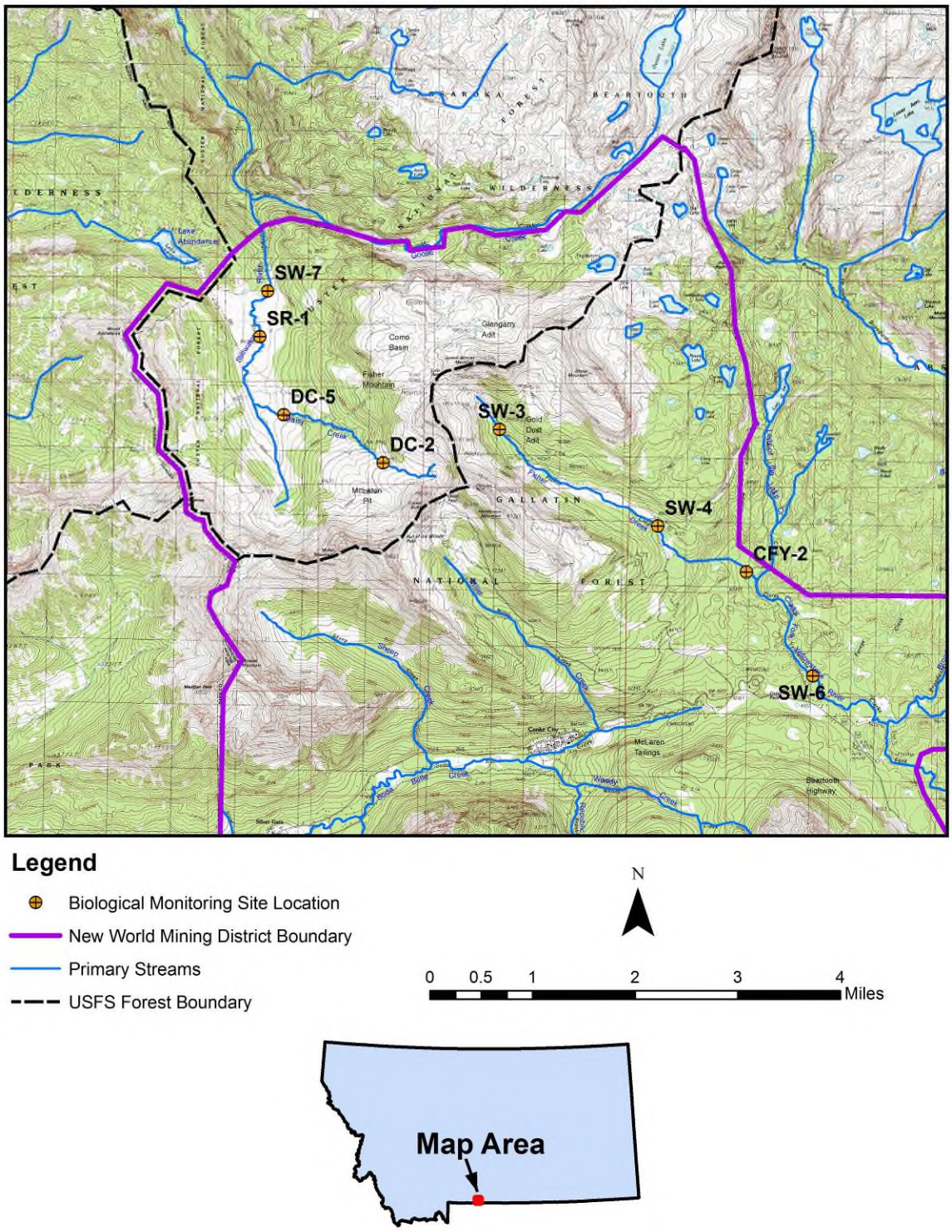
* See Section 2 for discussion of potential nomenclature discrepancy at this site.

At each sample location, a macroinvertebrate sample and a periphyton sample were each collected as single samples composited from 11 sub-samples per the current MTDEQ sampling protocols. Further specifics of the sampling regime are presented in the document *New World Mine Site Reclamation Macroinvertebrate and Periphyton Monitoring - Sampling and Analysis Plan* (SAP) and its referenced documents.

Though not required by the SAP, field parameters for water quality were collected at each sample location and the results are reported here. These parameters included water temperature, pH, specific conductivity, and dissolved oxygen. They were collected with a YSI Inc model 556 multi-parameter water quality meter.

Field photographs documenting site conditions were taken at all sample locations, towards the upstream and downstream directions, the site itself, and of the substrate.

Figure 1 - Map of Sample Locations



2. ANALYTICAL DATA QUALITY CONTROL SUMMARY

All monitoring locations specified in the SAP were visited during this sampling event, and the specified monitoring samples collected. All samples were properly preserved, labeled according to SAP specifications, and presented to the laboratory intact and in a timely fashion. All samples were analyzed by the laboratory within the method specific holding times.

Per the DEQ protocols referenced in the SAP, field replicate samples were collected at two of the eight sites (SR-1 and CFY-2). Both periphyton and macroinvertebrate samples were collected at each site, and when analyzed show characteristic similarity. At SR-1, both the natural sample and the replicate display a similar array of macroinvertebrate and periphyton species. The dominate macroinvertebrate species in both the natural sample and replicate sample were identical (Orthocladiinae *Orthocladius*), as well as the two most dominate periphyton species (*Achnanthidium minutissimum and Encyonema ventricosum*). Similarly, the two most dominant macroinvertebrates at CFY-2 in both the natural and replicate samples were the same (Chloroperlidae *Sweltsa* and Nemouridae *Zapada columbiana*), as was the dominant periphyton species (*Achnanthidium minutissimum*).

Per the QAQC standards included by reference in the SAP, field sampling methods should return replicate results with a Relative Percent Difference (RPD) less than or equal to 50% vs natural samples for solid materials. As shown in Tables 2 and 3 below, the natural samples and the replicate samples differ only slightly at SR-1 and CFY-2. The average RPD for each replicate pair is below 50%. The RDP for some individual species exceeds the 50% standard, but for species that individually make up a very small percentage of the total sample.

Table 2: Natural vs Replicate sample comparison, Macroinvertebrates

Site SR-1

Species Name	Site ID	Count	Sample %	Site ID	Count	Sample %	RPD
Orthocladius	SR-1	485	88.99%	SR-1 dup	341	63.38%	16.81%
Acari	SR-1	16	2.94%	SR-1 dup	27	5.02%	26.18%
Megarcys	SR-1	1	0.18%	SR-1 dup	2	0.37%	33.91%
Ameletus	SR-1	13	2.39%	SR-1 dup	31	5.76%	41.45%
Polycelis	SR-1	4	0.73%	SR-1 dup	13	2.42%	53.40%
Ceratopogoninae	SR-1	15	2.75%	SR-1 dup	51	9.48%	55.00%
Baetis	SR-1	3	0.55%	SR-1 dup	12	2.23%	60.41%
Sweltsa	SR-1	5	0.92%	SR-1 dup	21	3.90%	61.94%
Chloroperlidae	SR-1	2	0.37%	SR-1 dup	12	2.23%	71.74%
						Average RPD	**46.76%**

Site CFY-2

Species Name	Site ID	Count	Sample %	Site ID	Count	Sample %	RPD
Rhithrogena	CFY-2	9	4.89%	CFY-2 dup	11	5.37%	4.63%
Rhyacophila vofixa	CFY-2	3	1.63%	CFY-2 dup	3	1.46%	5.40%
Eukiefferiella claripennis	CFY-2	1	0.54%	CFY-2 dup	1	0.49%	5.40%
Parapsyche elsis	CFY-2	9	4.89%	CFY-2 dup	7	3.41%	17.78%
Zapada columbiana	CFY-2	44	23.91%	CFY-2 dup	34	16.59%	18.09%
Ameletus	CFY-2	9	4.89%	CFY-2 dup	15	7.32%	19.87%
Rheocricotopus	CFY-2	8	4.35%	CFY-2 dup	14	6.83%	22.20%
Sweltsa	CFY-2	19	10.33%	CFY-2 dup	35	17.07%	24.63%
Doroneuria	CFY-2	18	9.78%	CFY-2 dup	12	5.85%	25.13%
Acari	CFY-2	1	0.54%	CFY-2 dup	2	0.98%	28.45%
Limnephilidae	CFY-2	1	0.54%	CFY-2 dup	2	0.98%	28.45%
Rhyacophila betteni	CFY-2	3	1.63%	CFY-2 dup	6	2.93%	28.45%
Cinygmula	CFY-2	9	4.89%	CFY-2 dup	19	9.27%	30.91%
Rhyacophila pellisa	CFY-2	2	1.09%	CFY-2 dup	1	0.49%	38.05%
Visoka cataractae	CFY-2	1	0.54%	CFY-2 dup	3	1.46%	45.84%
Epeorus grandis	CFY-2	17	9.24%	CFY-2 dup	7	3.41%	46.03%
Rhyacophila brunnea	CFY-2	3	1.63%	CFY-2 dup	1	0.49%	53.94%
Brillia	CFY-2	7	3.80%	CFY-2 dup	2	0.98%	59.18%
Orthocladius	CFY-2	4	2.17%	CFY-2 dup	1	0.49%	63.35%
Rhyacophila narvae	CFY-2	1	0.54%	CFY-2 dup	5	2.44%	63.56%
						Average RPD	31.47%

Table 3: Natural vs Replicate sample comparison, Periphyton

Site SR-1

Species Name	Site ID	Count	Sample %	Site ID	Count	Sample %	RPD
Staurosirella leptostauron	SR-1	1	0.12%	SR-1 dup	1	0.12%	0.56%
Diatoma mesodon	SR-1	5	0.62%	SR-1 dup	6	0.75%	9.64%
Nitzschia palea	SR-1	28	3.46%	SR-1 dup	21	2.62%	13.74%
Gomphonema micropus	SR-1	49	6.05%	SR-1 dup	35	4.37%	16.12%
Encyonema silesiacum	SR-1	59	7.28%	SR-1 dup	86	10.74%	19.16%
Mayamaea atomus	SR-1	3	0.37%	SR-1 dup	2	0.25%	19.46%
Encyonema ventricosum	SR-1	381	47.04%	SR-1 dup	241	30.09%	21.98%
Achnanthidium minutissimum	SR-1	178	21.98%	SR-1 dup	307	38.33%	27.12%
Meridion circulare	SR-1	23	2.84%	SR-1 dup	43	5.37%	30.81%
Pinnularia borealis	SR-1	4	0.49%	SR-1 dup	2	0.25%	32.84%
Surirella angusta	SR-1	37	4.57%	SR-1 dup	15	1.87%	41.85%
Navicula antonii	SR-1	2	0.25%	SR-1 dup	6	0.75%	50.42%
Planothidium frequentissimum	SR-1	2	0.25%	SR-1 dup	8	1.00%	60.36%
Hannaea arcus	SR-1	5	0.62%	SR-1 dup	1	0.12%	66.36%
Eunotia exigua	SR-1	6	0.74%	SR-1 dup	1	0.12%	71.15%
Navicula cryptocephala	SR-1	6	0.74%	SR-1 dup	1	0.12%	71.15%
						Average RPD	**34.54%**

Site CFY-2

Species Name	Site ID	Count	Sample %	Site ID	Count	Sample %	RPD
Cocconeis placentula var. lineata	CFY-2	1	0.12%	CFY-2 dup	1	0.12%	1.46%
Staurosira construens var. venter	CFY-2	1	0.12%	CFY-2 dup	1	0.12%	1.46%
Achnanthidium minutissimum	CFY-2	714	88.37%	CFY-2 dup	707	84.98%	1.96%
Encyonema ventricosum	CFY-2	31	3.84%	CFY-2 dup	39	4.69%	9.98%
Fragilaria capucina var. gracilis	CFY-2	30	3.71%	CFY-2 dup	45	5.41%	18.59%
Diatoma mesodon	CFY-2	4	0.50%	CFY-2 dup	2	0.24%	34.63%
Encyonema silesiacum	CFY-2	8	0.99%	CFY-2 dup	18	2.16%	37.21%
Eunotia exigua	CFY-2	2	0.25%	CFY-2 dup	8	0.96%	59.06%
						Average RPD	**20.54%**

Laboratory QAQC evaluated sorting efficiency for macroinvertebrate analysis, which averaged 98.905% for all samples, with all values above 95.85% after rectification. In addition, one each of a randomly selected sample from the macroinvertebrate and periphyton analyses were re-identified for taxonomy and re-enumerated. Comparison was then made against the original analyses for Bray-Curtis similarity. The B-C index for the macroinvertebrate check was 99.63%, and for the randomly selected invertebrate taxonomic QC sample the percent taxonomic disagreement (PTD) was 0.37% and had a 0.00% percent difference in enumeration (PDE). All laboratory QA/QC statistics fell within acceptable industry criteria.

Prior to field sampling, it was noted that site CFY-2 is recorded as being located on the Clark's Fork of the Yellowstone River, but the actual monitoring location is on Fish creek, just above its confluence with Lady of the Lake creek, which marks the beginning of the Clark's Fork of the Yellowstone

3. RESULTS

Field parameters

Table 3 presents the results of the field water quality measurements.

Table 3 Field parameter water quality results

Site ID	Water Temp °C	Specific Conductivity mS/cm	Dissolved Oxygen mg/L
SW-7	10.33	0.197	6.13
SR-1	7.43	0.177	5.8
DC-5	4.82	0.189	7.22
DC-2	4.34	0.256	6.1
SW-3	3.88	0.19	6.67
SW-4	5.34	0.113	6.48
CFY-2	3.78	0.112	8.55
SW-6	4.31	0.085	-

Field photos

Appendix A presents the field photographs taken during the 2015 sampling event.

Technical Summary

Appendix B presents a technical summary of all laboratory methods and results, prepared by the laboratory, Rhithron Associates Inc.

Data Deliverables

Enclosed with this memo are six data deliverables in MS Excel spreadsheet format. They are:

1. **New World Mine 2015_Periphyton_EDD.xlsx**
   This file is an electronic data deliverable of the raw taxonomic and enumeration data from the analysis of the periphyton samples.
2. **New World Mine 2015 Diatom Metric Data.xlsx**
   This file contains derivative metrics calculated from the diatom component of the raw periphyton data.
3. **New World Mine 2015 Diatom Teply 2010 results.xlsx**
   This file contains derivative metrics calculated from the diatom component of the raw periphyton data. The metrics are presented consistent with the *Teply 2010a* and *Teply2010b* methods employed by MT DEQ.
4. **New World Mine 2015 Non-diatom algae Data.xlsx**
   This file contains the relative abundance (RA) and relative bio-volume (RB) rankings of the non-diatom component of the periphyton data.
5. **New World Mine 2015 Macroinvertebrate Metric Data**
   This file contains derivative metrics calculated from various assemblages present in the raw macroinvertebrate data.

6. **New World Mine 2015_Macroinvertebrate_EDD.xlsx**
   This file is an electronic data deliverable of the raw taxonomic and enumeration data from the analysis of the macroinvertebrate samples.

Appendix A
Field Photographs

Photo 1. SW-7 (Stillwater River) Looking Upstream.

Photo 2. SW-7 (Stillwater River) Looking Downstream.

Photo 3. SW-7 (Stillwater River) Site.

Photo 4. SW-7 (Stillwater River) Substrate.

Photo 5. SR-1 (Stillwater River) Looking Upstream.

Photo 6. SR-1 (Stillwater River) Looking Downstream

Photo 7. SR-1 (Stillwater River) Site.

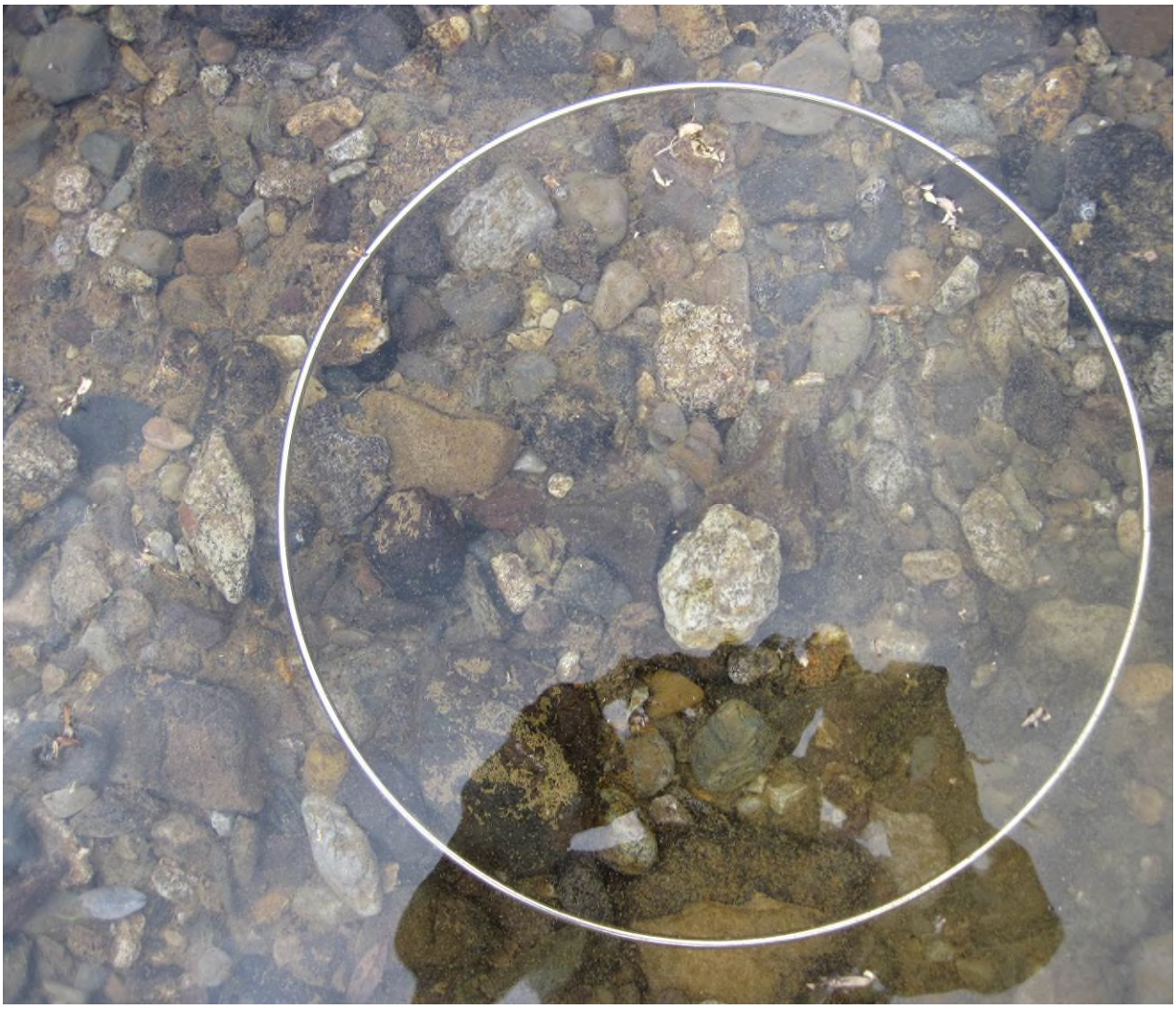


Photo 8. SR-1 (Stillwater River) Substrate.

Photo 9. DC-5 (Daisy Creek) Looking Upstream.

Photo 10. DC-5 (Daisy Creek) Looking Downstream.

Photo 11. DC-5 (Daisy Creek) Site.

Photo 12. DC-5 (Daisy Creek) Substrate.

Photo 13. DC-2 (Daisy Creek) Looking Upstream.

Photo 14. DC-2 (Daisy Creek) Looking Downstream.


Photo 15. DC-2 (Daisy Creek) Site.

Photo 16. DC-2 (Daisy Creek) Substrate.

Photo 17. SW-3 (Fisher Creek) Looking Upstream.

Photo 18. SW-3 (Fisher Creek) Looking Downstream.

Photo 19. SW-3 (Fisher Creek) Site.

Photo 20. SW-3 (Fisher Creek) Substrate.

Photo 21. SW-4 (Fisher Creek) Looking Upstream.

Photo 22. SW-4 (Fisher Creek) Looking Downstream.


Photo 23. SW-4 (Fisher Creek) Site.

Photo 24. SW-4 (Fisher Creek) Substrate.

Photo 25. CFY-2 (Clarks Fork of the Yellowstone River) Looking Upstream.

Photo 26. CFY-2 (Clarks Fork of the Yellowstone River) Looking Downstream.

Photo 27. CFY-2 (Clarks Fork of the Yellowstone River) Site.

Photo 28. CFY-2 (Clarks Fork of the Yellowstone River) Substrate.

Photo 29. SW-6 (Clarks Fork of the Yellowstone River) Looking Upstream.

Photo 30. SW-6 (Clarks Fork of the Yellowstone River) Looking Downstream.

Photo 31. SW-6 (Clarks Fork of the Yellowstone River) Site.

Photo 32. SW-6 (Clarks Fork of the Yellowstone River) Substrate.

Appendix B
Technical Summary

Analysis of biological samples:
Technical summary of methods and quality assurance procedures
Prepared for Confluence Consulting, Inc.
Jim Johnson, Project Manager
December 18, 2015

by
W. Bollman, Chief Biologist
Rhithron Associates, Inc.
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METHODS

Sample processing

Ten macroinvertebrate samples and 10 periphyton samples collected for the New World Mine Project were delivered to Rhithron's laboratory facility in Missoula, Montana on September 18, 2015. All samples arrived in good condition. Upon arrival, samples were unpacked and examined, and checked against the inventory provided. An inventory spreadsheet was created which included project code and internal laboratory identification numbers and was uploaded into the Rhithron database prior to sample processing.

Subsamples of a minimum of 500 organisms were obtained using EMAP protocols (USEPA 2004) and Montana Department of Environmental Quality (MDEQ) standard procedures (MDEQ 2012): Caton sub-sampling devices (Caton 1991), divided into 30 grids, each approximately 6 cm by 6 cm were used. Each individual sample was thoroughly mixed in its jar(s), poured out and evenly spread into the Caton tray, and individual grids were randomly selected. Technicians assessed organism density in each sample prior to sorting in order to comply with the multiple MDEQ SOP requirements of a) a target number of 500 (± 10%) organisms and b) the need to completely pick the last selected grid. If organism density was high, technicians reduced the grid size and created a 120 grid matrix on the tray. If organism density was moderate, the entire Caton tray was divided into 30 grids. If the amount of detritus was too sparse to spread over the entire Caton tray, technicians evenly distributed it over a smaller portion of the tray and divided that portion into 30 appropriately sized grids. Once the sample was distributed appropriately individual grids were randomly selected. The contents of each grid were examined under stereoscopic microscopes using 10x-30x magnification. All aquatic invertebrates from each selected grid were sorted from the substrate, and placed in 80% ethanol for subsequent identification. Grid selection, examination, and sorting continued until at least 500 organisms were sorted or until the entire sample was processed. The final grid was completely sorted of all organisms.

Organisms were individually examined by certified taxonomists, using 10x – 80x stereoscopic dissecting scopes (Leica S8E) and identified to the lowest practical level consistent with MDEQ (MDEQ 2012) data requirements, using appropriate published taxonomic references and keys.

Identification, counts, life stages, and information about the condition of specimens were recorded on electronic bench sheets. Organisms that could not be identified to the taxonomic targets because of immaturity, poor condition, or lack of complete current regionally-applicable published keys were left at appropriate taxonomic levels that were coarser than those specified. To obtain accuracy in richness measures, these organisms were designated as "not unique" if other specimens from the same group could be taken to target levels. Organisms designated as "unique" were those that could be definitively distinguished from other organisms in the sample. Identified organisms were preserved in 80% ethanol in labeled vials, and archived at the Rhithron laboratory.

Chironomids and oligochaetes were carefully morphotyped using 10x – 80x stereoscopic dissecting microscopes (Leica S8E) and representative specimens were slide mounted and

examined at 200x – 1000x magnification using an Olympus BX 51 or Leica DM 1000 compound microscope. Slide mounted organisms were archived at the Rhithron laboratory.

Representatives of specimens identified to the target level were placed in reference collection vials. Each reference specimen was verified by two additional taxonomists. Specimens added to the collection and taxonomist verifications were tracked on a reference collection form.

The periphyton samples, preserved with Lugol's solution, were topped-off upon arrival at the laboratory. Samples were thoroughly mixed by shaking. Permanent diatom slides were prepared: subsamples were taken and treated with 70% Nitric acid (HNO_3) and digested using a closed-vessel microwave digestion system (Milestone Ethos EZ), following the method developed by the Academy of Natural Sciences, Philadelphia (ANSP 2002). Samples were neutralized by rinses with distilled water, and subsample volumes were adjusted to obtain adequate densities. Small amounts of each sample were dried onto 22-mm square coverslips. Coverslips were mounted on slides using Naphrax diatom mount. To ensure a high quality mount for identification and to make replicates available for archives, 3 slide mounts were made from each sample. One of the replicates was selected from each sample batch for identification. A diamond scribe mark was made to define a transect line on the cover slip, and a minimum of 800 diatom valves were identified along the transect mark. A Leica DM 2500 compound microscope, Nomarski contrast, and 1000x magnification were used for identifications. Diatoms were identified to the lowest possible taxonomic level, generally species, following standard taxonomic references.

For soft-bodied algae samples, the raw periphyton sample was manually homogenized and emptied into a porcelain evaporating dish. A small, random sub-sample of algal material was pipetted onto a standard Palmer-Maloney microscope slide using a disposable pasture pipette. Visible (macroscopic) algae were also sub-sampled, in proportion to their estimated abundance relative to the total volume of algal material in the sample, and added to the liquid fraction on the slide. The wet mount was then covered with a 22 x 30 mm cover slip.

Soft-bodied (non-diatom) algae were identified to genus using a Leica DM 2500 compound microscope under 200X and 400X. The relative abundance of each algal genus (and of all diatom genera collectively) was estimated for comparative purposes, according to the following system (consistent with updated Montana DEQ data requirements):

- rare (R): fewer than 1 cell per field of view at 200X, on the average;
- common (C): at least 1 but fewer than 5 cells per field of view;
- very common (VC): between 5 and 25 cells per field of view;
- abundant (A): more than 25 cells per field of view, but countable;
- very abundant (VA): number of cells per field of view too numerous to count.

Soft-bodied genera (and the diatom component) were also ranked according to their estimated contribution to the total algal biovolume present in the sample. The genus with the most biomass ranked number 1; the genus with the next most biomass ranked number 2, and so on.

Consistent with 2014, sample CC15NWMP005 (Daisy Creek, DC-2) was noted as a barren sample with very few algal cells present. There were also very few invertebrates found in the Daisy Creek, DC-2 sample.

Quality control procedures

Internal quality control procedures for initial sample processing and subsampling involved checking sorting efficiency. These checks were conducted on 100% of the samples by independent observers who microscopically re-examined at least 25% of sorted substrate from each sample. Quality control procedures for each sample proceeded as follows:

The quality control technician poured the sorted substrate from a processed sample out into a Caton tray, redistributing the substrate so that 25% of it could be accurately lifted out by removing entire grids in a random fashion. Grids were selected, and re-examined until 25% of the substrate was re-sorted. All organisms that were missed were counted and this number was

added to the total number obtained in the original sort. Sorting efficiency was evaluated by applying the following calculation:

$$SE = \frac{n_1}{n_1 + n_2} \times 100$$

where: SE is the sorting efficiency, expressed as a percentage, n_1 is the total number of specimens in the first sort, and n_2 is the total number of specimens expected in the second sort, based on the results of the re-sorted 25%.

Internal quality control procedures for taxonomic determinations of invertebrates involved checking accuracy, precision and enumeration. One sample was randomly selected and all organisms re-identified and counted by an independent taxonomist. Taxa lists and enumerations were compared by calculating a Bray-Curtis similarity statistic (Bray and Curtis 1957), Percent Taxonomic Disagreement (PTD) and Percent Difference in Enumeration (PDE) for the selected sample. Routinely, discrepancies between the original identifications and the QC identifications are discussed among the taxonomists, and necessary rectifications to the data are made. Discrepancies that cannot be rectified by discussions are routinely sent out to taxonomic specialists for identification.

Six taxonomists independently reviewed the reference collection to verify consistency of identifications.

Data analysis

Taxa lists and counts for each sample were constructed. Standard metric calculations for aquatic invertebrate and periphyton assemblages were made using Rhithron's customized database software. Formatted data files for upload to the MT-eWQX database were generated.

For invertebrate samples, a sites-by-metrics data matrix was compiled in Microsoft Excel. This matrix included the updated Montana DEQ HBI values and O:E model scores (MDEQ 2012).

Diatom metrics were formatted consistent with updated Montana DEQ requirements (Teply 2010).

RESULTS

Quality Control Procedures

Results of internal quality control procedures for subsampling and taxonomy are given in Table 1. Sorting efficiency averaged 98.91%. Taxonomic precision for identification and enumeration was 99.63% measured by the Bray-Curtis index, 0.37% PTD and 0% PDE for the randomly selected invertebrate taxonomic QC sample. Data entry efficiency was 100% for the project. These similarity statistics fall within acceptable industry criteria (Stribling et al. 2003).

Data analysis

Excel files were sent to the Confluence Project Manager via e-mail. Taxa lists and metric summary pages are provided in an Appendix to this report. The complete, verified reference collection will be shipped to the Confluence Project Manager.

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Table 1. *Results of internal quality control procedures for macroinvertebrate subsampling and taxonomy.* New World Mine Project, 2015.

RAI Sample ID	Activity ID	Site name	Sorting efficiency	Bray-Curtis similarity for taxonomy and enumeration	Percent Taxonomic Disagreement (PTD)	Percent Difference in Enumeration (PDE)
CC15NWM001	SW-7	Stillwater River	98.37%			
CC15NWM002	SR-1	Stillwater River	100.00%	99.63%	0.37%	0.00%
CC15NWM003	SR-1 dup	Stillwater River duplicate	99.26%			
CC15NWM004	DC-5	Daisy Creek	97.06%			
CC15NWM005	DC-2	Daisy Creek	100.00%			
CC15NWM006	SW-3	Fisher Creek	98.51%			
CC15NWM007	SW-4	Fisher Creek	100.00%			
CC15NWM008	CFY-2	Clark Fork (Fisher Creek)	95.85%			
CC15NWM009	CFY-2 dup	Clark Fork (Fisher Creek) duplicate	100.00%			
CC15NWM010	SW-6	Clark Fork River	100.00%			

APPENDIX

Invertebrate taxa lists and metric summaries
Diatom taxa lists and metric summaries
Non-diatom algae results

New World Mine Project
2015

Taxa Listing

Project ID: CC15NWM
RAI No.: CC15NWM001

RAI No.: CC15NWM001 **Sta. Name:** Stillwater River
Client ID: SW-7
Date Coll.: 9/14/2015 **No. Jars:** 1 **STORET ID:**

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Other Non-Insect							
Planariidae							
Polycelis sp.	3	1.25%	Yes	Unknown		1	OM
Nemata							
Nemata	1	0.42%	Yes	Unknown		5	UN
Ostracoda							
Ostracoda	31	12.92%	Yes	Unknown		8	CG
Acari							
Acari	18	7.50%	Yes	Unknown		5	PR
Plecoptera							
Chloroperlidae							
Sweltsa sp.	19	7.92%	Yes	Larva		0	PR
Trichoptera							
Apataniidae							
Apatania sp.	1	0.42%	Yes	Larva		3	SC
Limnephilidae							
Limnephilidae	1	0.42%	No	Pupa		3	SH
Limnephilidae	1	0.42%	Yes	Larva	Early Instar	3	SH
Rhyacophilidae							
Rhyacophila Vofixa Gr.	2	0.83%	Yes	Larva		0	PR
Coleoptera							
Dytiscidae							
Dytiscidae	1	0.42%	Yes	Larva		5	PR
Diptera							
Ceratopogonidae							
Ceratopogoninae	54	22.50%	Yes	Larva		6	PR
Tipulidae							
Dicranota sp.	5	2.08%	Yes	Larva		3	PR
Chironomidae							
Diamesinae							
Pagastia sp.	1	0.42%	Yes	Larva		1	CG
Orthocladiinae							
Brillia sp.	1	0.42%	Yes	Larva		4	SH
Cricotopus (Cricotopus) sp.	1	0.42%	Yes	Larva		7	SH
Orthocladiinae	1	0.42%	Yes	Larva	Damaged	6	CG
Orthocladius sp.	83	34.58%	Yes	Larva		6	CG
Psectrocladius sp.	8	3.33%	Yes	Larva		8	CG
Tanypodinae							
Ablabesmyia sp.	1	0.42%	Yes	Larva		8	CG
Procladius sp.	2	0.83%	Yes	Larva		9	PR
Radotanypus sp.	5	2.08%	Yes	Larva		7	PR
Sample Count	**240**						

Taxa Listing

Project ID: CC15NWM
RAI No.: CC15NWM002

RAI No.: CC15NWM002 **Sta. Name:** Stillwater River
Client ID: SR-1
Date Coll.: 9/14/2015 **No. Jars:** 1 **STORET ID:**

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Other Non-Insect							
Planariidae							
Polycelis sp.	4	0.73%	Yes	Unknown		1	OM
Acari							
Acari	16	2.94%	Yes	Unknown		5	PR
Ephemeroptera							
Ameletidae							
Ameletus sp.	13	2.39%	Yes	Larva		0	SC
Baetidae							
Baetis Rhodani Gr.	3	0.55%	Yes	Larva	Early Instar	11	CG
Plecoptera							
Capniidae							
Capniidae	1	0.18%	Yes	Larva	Early Instar	1	SH
Chloroperlidae							
Chloroperlidae	2	0.37%	No	Larva	Early Instar	1	PR
Sweltsa sp.	5	0.92%	Yes	Larva		0	PR
Perlodidae							
Megarcys sp.	1	0.18%	Yes	Larva		1	PR
Diptera							
Ceratopogonidae							
Ceratopogoninae	15	2.75%	Yes	Larva		6	PR
Chironomidae							
Orthocladiinae							
Orthocladius sp.	485	88.99%	Yes	Larva		6	CG
Sample Count	**545**						

Taxa Listing

Project ID: CC15NWM
RAI No.: CC15NWM003

RAI No.: CC15NWM003 **Sta. Name:** Stillwater River duplicate
Client ID: SR-1 dup
Date Coll.: 9/14/2015 **No. Jars:** 1 **STORET ID:**

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Other Non-Insect							
Planariidae							
Polycelis sp.	13	2.42%	Yes	Unknown		1	OM
Nemata							
Nemata	5	0.93%	Yes	Unknown		5	UN
Ostracoda							
Ostracoda	1	0.19%	Yes	Unknown		8	CG
Acari							
Acari	27	5.02%	Yes	Unknown		5	PR
Ephemeroptera							
Ameletidae							
Ameletus sp.	31	5.76%	Yes	Larva		0	SC
Baetidae							
Baetis Rhodani Gr.	12	2.23%	Yes	Larva	Early Instar	11	CG
Heptageniidae							
Rhithrogena sp.	3	0.56%	Yes	Larva		0	SC
Plecoptera							
Chloroperlidae							
Chloroperlidae	12	2.23%	No	Larva	Early Instar	1	PR
Sweltsa sp.	21	3.90%	Yes	Larva		0	PR
Perlodidae							
Megarcys sp.	2	0.37%	Yes	Larva		1	PR
Trichoptera							
Apataniidae							
Apatania sp.	1	0.19%	Yes	Larva		3	SC
Hydropsychidae							
Parapsyche elsis	1	0.19%	Yes	Larva		1	PR
Limnephilidae							
Limnephilidae	1	0.19%	Yes	Larva	Early Instar	3	SH
Rhyacophilidae							
Rhyacophila sp.	1	0.19%	No	Larva	Early Instar	1	PR
Rhyacophila Vofixa Gr.	2	0.37%	Yes	Larva		0	PR
Coleoptera							
Elmidae							
Heterlimnius corpulentus	2	0.37%	Yes	Adult		3	CG
Diptera							
Ceratopogonidae							
Ceratopogoninae	51	9.48%	Yes	Larva		6	PR
Tipulidae							
Dicranota sp.	1	0.19%	Yes	Larva		3	PR
Limnophila sp.	2	0.37%	Yes	Larva		3	PR

Taxa Listing

Project ID: CC15NWM
RAI No.: CC15NWM003

RAI No.: CC15NWM003 **Sta. Name:** Stillwater River duplicate
Client ID: SR-1 dup
Date Coll.: 9/14/2015 **No. Jars:** 1 **STORET ID:**

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Chironomidae							
Diamesinae							
Diamesa sp.	2	0.37%	Yes	Larva		5	CG
Diamesa sp.	5	0.93%	No	Pupa		5	CG
Orthocladiinae							
Orthocladius sp.	341	63.38%	Yes	Larva		6	CG
Tanypodinae							
Thienemannimyia Gr.	1	0.19%	Yes	Larva	Early Instar	5	PR
Sample Count	**538**						

Taxa Listing

Project ID: CC15NWM
RAI No.: CC15NWM004

RAI No.: CC15NWM004 **Sta. Name:** Daisy Creek
Client ID: DC-5
Date Coll.: 9/15/2015 **No. Jars:** 1 **STORET ID:**

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Other Non-Insect							
Planariidae							
Polycelis sp.	1	3.03%	Yes	Unknown		1	OM
Acari							
Acari	7	21.21%	Yes	Unknown		5	PR
Oligochaeta							
Enchytraeidae							
Enchytraeus sp.	1	3.03%	Yes	Unknown		4	CG
Ephemeroptera							
Heptageniidae							
Epeorus grandis	1	3.03%	Yes	Larva		0	SC
Plecoptera							
Chloroperlidae							
Sweltsa sp.	1	3.03%	Yes	Larva		0	PR
Nemouridae							
Visoka cataractae	2	6.06%	Yes	Larva		0	SH
Trichoptera							
Hydropsychidae							
Parapsyche sp.	4	12.12%	Yes	Larva	Early Instar	0	PR
Limnephilidae							
Limnephilidae	3	9.09%	Yes	Larva	Early Instar	3	SH
Rhyacophilidae							
Rhyacophila sp.	2	6.06%	No	Larva	Early Instar	1	PR
Rhyacophila Hyalinata Gr.	3	9.09%	Yes	Larva		0	PR
Rhyacophila Vofixa Gr.	1	3.03%	Yes	Larva		0	PR
Diptera							
Ceratopogonidae							
Ceratopogoninae	2	6.06%	Yes	Larva		6	PR
Empididae							
Oreogeton sp.	1	3.03%	Yes	Larva		4	PR
Chironomidae							
Orthocladiinae							
Orthocladius sp.	4	12.12%	Yes	Larva		6	CG
Sample Count	**33**						

Taxa Listing

Project ID: CC15NWM
RAI No.: CC15NWM005

RAI No.: CC15NWM005 **Sta. Name:** Daisy Creek
Client ID: DC-2
Date Coll.: 9/15/2015 **No. Jars:** 1 **STORET ID:**

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Oligochaeta							
Enchytraeidae							
Enchytraeus sp.	2	25.00%	Yes	Unknown		4	CG
Plecoptera							
Nemouridae							
Visoka cataractae	1	12.50%	Yes	Larva		0	SH
Diptera							
Tipulidae							
Rhabdomastix Setigera Gr.	1	12.50%	Yes	Larva		3	CG
Chironomidae							
Orthocladiinae							
Orthocladius sp.	4	50.00%	Yes	Larva		6	CG
Sample Count	**8**						

Taxa Listing

Project ID: CC15NWM
RAI No.: CC15NWM006

RAI No.: CC15NWM006 **Sta. Name:** Fisher Creek
Client ID: SW-3
Date Coll.: 9/15/2015 **No. Jars:** 1 **STORET ID:**

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Other Non-Insect							
Acari							
Acari	1	0.19%	Yes	Unknown		5	PR
Plecoptera							
Chloroperlidae							
Sweltsa sp.	1	0.19%	Yes	Larva		0	PR
Leuctridae							
Leuctridae	1	0.19%	Yes	Larva	Early Instar	0	SH
Trichoptera							
Limnephilidae							
Psychoglypha sp.	6	1.14%	Yes	Larva		0	SH
Diptera							
Ceratopogonidae							
Ceratopogoninae	1	0.19%	Yes	Larva		6	PR
Empididae							
Clinocera sp.	2	0.38%	Yes	Larva		5	PR
Oreogeton sp.	1	0.19%	Yes	Larva		4	PR
Tipulidae							
Dicranota sp.	2	0.38%	Yes	Larva		3	PR
Rhabdomastix Setigera Gr.	1	0.19%	Yes	Larva		3	CG
Chironomidae							
Orthocladiinae							
Chaetocladius sp.	509	96.58%	Yes	Larva		6	CG
Diplocladius cultriger	1	0.19%	Yes	Larva		8	CG
Orthocladius sp.	1	0.19%	Yes	Larva		6	CG
Sample Count	**527**						

Taxa Listing

Project ID: CC15NWM
RAI No.: CC15NWM007

RAI No.: CC15NWM007 **Sta. Name:** Fisher Creek
Client ID: SW-4
Date Coll.: 9/15/2015 **No. Jars:** 1 **STORET ID:**

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Ephemeroptera							
Ameletidae							
Ameletus sp.	3	0.57%	Yes	Larva		0	SC
Baetidae							
Baetis Rhodani Gr.	1	0.19%	Yes	Larva	Early Instar	11	CG
Heptageniidae							
Epeorus grandis	1	0.19%	Yes	Larva		0	SC
Plecoptera							
Capniidae							
Capniidae	4	0.76%	Yes	Larva	Early Instar	1	SH
Chloroperlidae							
Sweltsa sp.	26	4.92%	Yes	Larva		0	PR
Nemouridae							
Zapada columbiana	1	0.19%	Yes	Larva		2	SH
Perlodidae							
Megarcys sp.	4	0.76%	Yes	Larva		1	PR
Trichoptera							
Hydropsychidae							
Hydropsychidae	3	0.57%	Yes	Larva	Early Instar	4	CF
Limnephilidae							
Limnephilidae	12	2.27%	Yes	Larva	Early Instar	3	SH
Diptera							
Ceratopogonidae							
Ceratopogoninae	9	1.70%	Yes	Larva		6	PR
Thaumaleidae							
Thaumaleidae	1	0.19%	Yes	Larva		11	SC
Tipulidae							
Dicranota sp.	5	0.95%	Yes	Larva		3	PR
Rhabdomastix Setigera Gr.	1	0.19%	Yes	Larva		3	CG
Chironomidae							
Diamesinae							
Pagastia sp.	1	0.19%	Yes	Larva		1	CG
Orthocladiinae							
Chaetocladius sp.	5	0.95%	Yes	Larva		6	CG
Limnophyes sp.	1	0.19%	Yes	Larva		8	CG
Orthocladiinae	1	0.19%	No	Larva	Early Instar	6	CG
Orthocladius sp.	2	0.38%	Yes	Larva		6	CG
Rheocricotopus sp.	447	84.66%	Yes	Larva		4	CG
Sample Count	**528**						

Taxa Listing

Project ID: CC15NWM
RAI No.: CC15NWM008

RAI No.: CC15NWM008 **Sta. Name:** Clark Fork (Fisher Creek)
Client ID: CFY-2
Date Coll.: 9/16/2015 **No. Jars:** 1 **STORET ID:**

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Other Non-Insect							
Acari							
Acari	1	0.54%	Yes	Unknown		5	PR
Ephemeroptera							
Ameletidae							
Ameletus sp.	9	4.89%	Yes	Larva		0	SC
Baetidae							
Baetis bicaudatus complex	2	1.09%	Yes	Larva		1	CG
Heptageniidae							
Cinygmula sp.	9	4.89%	Yes	Larva		0	SC
Epeorus grandis	17	9.24%	Yes	Larva		0	SC
Rhithrogena sp.	9	4.89%	Yes	Larva		0	SC
Plecoptera							
Chloroperlidae							
Sweltsa sp.	19	10.33%	Yes	Larva		0	PR
Nemouridae							
Visoka cataractae	1	0.54%	Yes	Larva		0	SH
Zapada columbiana	44	23.91%	Yes	Larva		2	SH
Perlidae							
Doroneuria sp.	18	9.78%	Yes	Larva		0	PR
Trichoptera							
Hydropsychidae							
Arctopsychinae	9	4.89%	No	Larva	Early Instar	2	PR
Parapsyche elsis	9	4.89%	Yes	Larva		1	PR
Limnephilidae							
Limnephilidae	1	0.54%	Yes	Larva	Early Instar	3	SH
Rhyacophilidae							
Rhyacophila atrata complex	2	1.09%	Yes	Larva		0	PR
Rhyacophila Betteni Gr.	3	1.63%	Yes	Larva		0	PR
Rhyacophila Brunnea/Vemna Gr.	3	1.63%	Yes	Larva		2	PR
Rhyacophila Hyalinata Gr.	2	1.09%	Yes	Larva		0	PR
Rhyacophila narvae	1	0.54%	Yes	Larva		0	PR
Rhyacophila Vofixa Gr.	3	1.63%	Yes	Larva		0	PR
Uenoidae							
Oligophlebodes sp.	1	0.54%	Yes	Larva		3	SC
Chironomidae							
Orthocladiinae							
Brillia sp.	7	3.80%	Yes	Larva		4	SH
Eukiefferiella sp.	1	0.54%	No	Larva	Early Instar	8	CG
Eukiefferiella Claripennis Gr.	1	0.54%	Yes	Larva		8	CG
Orthocladius sp.	3	1.63%	Yes	Larva		6	CG
Orthocladius sp.	1	0.54%	No	Pupa		6	CG
Rheocricotopus sp.	8	4.35%	Yes	Larva		4	CG
Sample Count	**184**						

Taxa Listing

Project ID: CC15NWM
RAI No.: CC15NWM009

RAI No.: CC15NWM009 **Sta. Name:** Clark Fork (Fisher Creek) duplicate
Client ID: CFY-2 dup
Date Coll.: 9/16/2015 **No. Jars:** 1 **STORET ID:**

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Other Non-Insect							
Nemata							
Nemata	2	0.98%	Yes	Unknown		5	UN
Acari							
Acari	2	0.98%	Yes	Unknown		5	PR
Ephemeroptera							
Ameletidae							
Ameletus sp.	15	7.32%	Yes	Larva		0	SC
Baetidae							
Baetis Rhodani Gr.	12	5.85%	Yes	Larva	Early Instar	11	CG
Heptageniidae							
Cinygmula sp.	19	9.27%	Yes	Larva		0	SC
Epeorus grandis	7	3.41%	Yes	Larva		0	SC
Rhithrogena sp.	11	5.37%	Yes	Larva		0	SC
Plecoptera							
Capniidae							
Capniidae	2	0.98%	Yes	Larva	Early Instar	1	SH
Chloroperlidae							
Sweltsa sp.	35	17.07%	Yes	Larva		0	PR
Nemouridae							
Visoka cataractae	3	1.46%	Yes	Larva		0	SH
Zapada columbiana	34	16.59%	Yes	Larva		2	SH
Perlidae							
Doroneuria sp.	12	5.85%	Yes	Larva		0	PR
Trichoptera							
Hydropsychidae							
Hydropsychidae	4	1.95%	No	Larva	Early Instar	4	CF
Parapsyche elsis	7	3.41%	Yes	Larva		1	PR
Limnephilidae							
Limnephilidae	2	0.98%	Yes	Larva	Early Instar	3	SH
Rhyacophilidae							
Rhyacophila atrata complex	1	0.49%	Yes	Larva		0	PR
Rhyacophila Betteni Gr.	6	2.93%	Yes	Larva		0	PR
Rhyacophila Brunnea/Vemna Gr.	1	0.49%	Yes	Larva		2	PR
Rhyacophila narvae	5	2.44%	Yes	Larva		0	PR
Rhyacophila Vofixa Gr.	3	1.46%	Yes	Larva		0	PR
Diptera							
Ceratopogonidae							
Ceratopogoninae	1	0.49%	Yes	Larva		6	PR
Tipulidae							
Rhabdomastix Fascigera Gr.	1	0.49%	Yes	Larva		1	PR

Taxa Listing

Project ID: CC15NWM
RAI No.: CC15NWM009

RAI No.: CC15NWM009 **Sta. Name:** Clark Fork (Fisher Creek) duplicate
Client ID: CFY-2 dup
Date Coll.: 9/16/2015 **No. Jars:** 1 **STORET ID:**

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Chironomidae							
Orthocladiinae							
Brillia sp.	2	0.98%	Yes	Larva		4	SH
Chaetocladius sp.	1	0.49%	Yes	Larva		6	CG
Eukiefferiella Claripennis Gr.	1	0.49%	Yes	Larva		8	CG
Orthocladius sp.	1	0.49%	Yes	Larva		6	CG
Parorthocladius sp.	1	0.49%	Yes	Pupa		6	CG
Rheocricotopus sp.	14	6.83%	Yes	Larva		4	CG
Sample Count	**205**						

Taxa Listing

Project ID: CC15NWM
RAI No.: CC15NWM010

RAI No.: CC15NWM010 **Sta. Name:** Clark Fork River
Client ID: SW-6
Date Coll.: 9/16/2015 **No. Jars:** 1 **STORET ID:**

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Other Non-Insect							
Nemata							
Nemata	1	0.29%	Yes	Unknown		5	UN
Acari							
Acari	3	0.88%	Yes	Unknown		5	PR
Ephemeroptera							
Ameletidae							
Ameletus sp.	12	3.51%	Yes	Larva		0	SC
Baetidae							
Baetis bicaudatus complex	45	13.16%	Yes	Larva		1	CG
Baetis Rhodani Gr.	8	2.34%	No	Larva	Damaged	11	CG
Baetis tricaudatus complex	1	0.29%	Yes	Larva		5	CG
Ephemerellidae							
Drunella sp.	2	0.58%	Yes	Larva	Early Instar	1	SC
Drunella doddsii	1	0.29%	Yes	Larva		1	SC
Heptageniidae							
Cinygmula sp.	4	1.17%	Yes	Larva		0	SC
Epeorus grandis	2	0.58%	Yes	Larva		0	SC
Rhithrogena sp.	49	14.33%	Yes	Larva		0	SC
Plecoptera							
Chloroperlidae							
Sweltsa sp.	42	12.28%	Yes	Larva		0	PR
Nemouridae							
Visoka cataractae	3	0.88%	Yes	Larva		0	SH
Zapada cinctipes	1	0.29%	Yes	Larva		3	SH
Zapada columbiana	46	13.45%	Yes	Larva		2	SH
Perlidae							
Doroneuria sp.	12	3.51%	Yes	Larva		0	PR
Perlodidae							
Kogotus sp.	6	1.75%	Yes	Larva		1	PR
Megarcys sp.	1	0.29%	Yes	Larva		1	PR
Skwala sp.	1	0.29%	Yes	Larva		3	PR
Trichoptera							
Apataniidae							
Apatania sp.	3	0.88%	Yes	Larva		3	SC
Brachycentridae							
Micrasema sp.	4	1.17%	Yes	Larva		1	SH
Hydropsychidae							
Arctopsyche sp.	2	0.58%	Yes	Larva		2	PR
Parapsyche elsis	20	5.85%	Yes	Larva		1	PR
Rhyacophilidae							
Rhyacophila atrata complex	4	1.17%	Yes	Larva		0	PR
Rhyacophila Brunnea/Vemna Gr.	2	0.58%	Yes	Larva		2	PR
Rhyacophila Hyalinata Gr.	1	0.29%	Yes	Larva		0	PR

Taxa Listing

Project ID: CC15NWM
RAI No.: CC15NWM010

RAI No.: CC15NWM010 **Sta. Name:** Clark Fork River
Client ID: SW-6
Date Coll.: 9/16/2015 **No. Jars:** 1 **STORET ID:**

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Diptera							
Ceratopogonidae							
Ceratopogoninae	26	7.60%	Yes	Larva		6	PR
Tipulidae							
Antocha monticola	1	0.29%	Yes	Larva		3	CG
Hexatoma sp.	2	0.58%	Yes	Larva		2	PR
Chironomidae							
Chironominae							
Micropsectra sp.	1	0.29%	Yes	Larva		4	CG
Diamesinae							
Pagastia sp.	3	0.88%	Yes	Larva		1	CG
Orthocladiinae							
Brillia sp.	4	1.17%	Yes	Larva		4	SH
Orthocladiinae	6	1.75%	No	Larva	Early Instar	6	CG
Orthocladius sp.	6	1.75%	Yes	Larva		6	CG
Rheocricotopus sp.	15	4.39%	Yes	Larva		4	CG
Tanypodinae							
Thienemannimyia Gr.	2	0.58%	Yes	Larva	Early Instar	5	PR
Sample Count	**342**						

Metrics Report

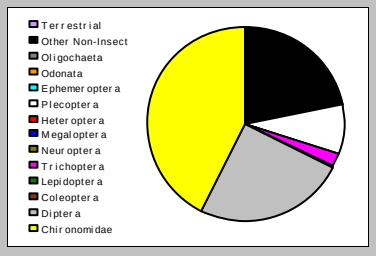
Project ID: CC15NWM
RAI No.: CC15NWM001
Sta. Name: Stillwater River
Client ID: SW-7
STORET ID
Coll. Date: 9/14/2015
Latitude: **Longitude:**

Abundance Measures

Sample Count: 240
Sample Abundance: 240.00 100.00% of sample used
Coll. Procedure: DEQWQPBWQM-009
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	4	53	22.08%
Oligochaeta			
Odonata			
Ephemeroptera			
Plecoptera	1	19	7.92%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	3	5	2.08%
Lepidoptera			
Coleoptera	1	1	0.42%
Diptera	2	59	24.58%
Chironomidae	9	103	42.92%

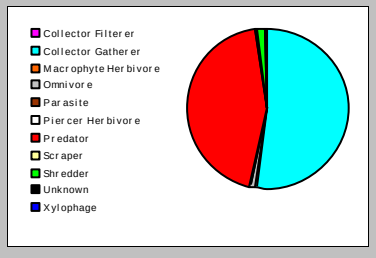


Dominant Taxa

Category	A	PRA
Orthocladius	83	34.58%
Ceratopogoninae	54	22.50%
Ostracoda	31	12.92%
Sweltsa	19	7.92%
Acari	18	7.50%
Psectrocladius	8	3.33%
Radotanypus	5	2.08%
Dicranota	5	2.08%
Polycelis	3	1.25%
Rhyacophila Vofixa Gr.	2	0.83%
Procladius	2	0.83%
Limnephilidae	2	0.83%
Dytiscidae	1	0.42%
Brillia	1	0.42%
Apatania	1	0.42%

Functional Composition

Category	R	A	PRA
Predator	8	106	44.17%
Parasite			
Collector Gatherer	6	125	52.08%
Collector Filterer			
Macrophyte Herbivore			
Piercer Herbivore			
Xylophage			
Scraper	1	1	0.42%
Shredder	3	4	1.67%
Omnivore	1	3	1.25%
Unknown	1	1	0.42%

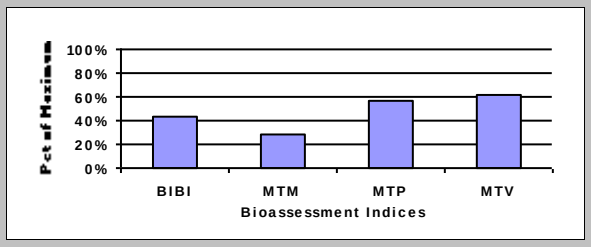


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	20
E Richness	0
P Richness	1
T Richness	3
EPT Richness	4
EPT Percent	10.00%
All Non-Insect Abundance	53
All Non-Insect Richness	4
All Non-Insect Percent	22.08%
Oligochaeta+Hirudinea Percent	0.00%
Baetidae/Ephemeroptera	0.000
Hydropsychidae/Trichoptera	0.000
Dominance	
Dominant Taxon Percent	34.58%
Dominant Taxa (2) Percent	57.08%
Dominant Taxa (3) Percent	70.00%
Dominant Taxa (10) Percent	95.00%
Diversity	
Shannon H (loge)	1.981
Shannon H (log2)	2.858
Margalef D	3.469
Simpson D	0.200
Evenness	0.093
Function	
Predator Richness	8
Predator Percent	44.17%
Filterer Richness	0
Filterer Percent	0.00%
Collector Percent	52.08%
Scraper+Shredder Percent	2.08%
Scraper/Filterer	0.000
Scraper/Scraper+Filterer	0.000
Habit	
Burrower Richness	1
Burrower Percent	0.42%
Swimmer Richness	1
Swimmer Percent	0.42%
Clinger Richness	4
Clinger Percent	9.58%
Characteristics	
Cold Stenotherm Richness	2
Cold Stenotherm Percent	1.25%
Hemoglobin Bearer Richness	3
Hemoglobin Bearer Percent	3.33%
Air Breather Richness	2
Air Breather Percent	2.50%
Voltinism	
Univoltine Richness	6
Semivoltine Richness	1
Multivoltine Percent	64.58%
Tolerance	
Sediment Tolerant Richness	1
Sediment Tolerant Percent	2.08%
Sediment Sensitive Richness	0
Sediment Sensitive Percent	0.00%
Metals Tolerance Index	4.547
Pollution Sensitive Richness	2
Pollution Tolerant Percent	5.00%
Hilsenhoff Biotic Index	5.583
Intolerant Percent	10.42%
Supertolerant Percent	17.50%
CTQa	88.400

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	22	44.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	17	56.67%	Slight
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	11	61.11%	Slight
MTM	Montana DEQ Mountains (Bukantis 1998)	6	28.57%	Moderate



Metrics Report

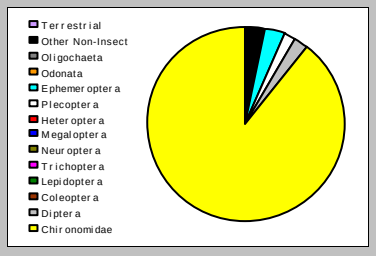
Project ID: CC15NWM
RAI No.: CC15NWM002
Sta. Name: Stillwater River
Client ID: SR-1
STORET ID
Coll. Date: 9/14/2015
Latitude: **Longitude:**

Abundance Measures

Sample Count: 545
Sample Abundance: 4,087.50 13.33% of sample used
Coll. Procedure: DEQWQPBWQM-009
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	2	20	3.67%
Oligochaeta			
Odonata			
Ephemeroptera	2	16	2.94%
Plecoptera	3	9	1.65%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera			
Lepidoptera			
Coleoptera			
Diptera	1	15	2.75%
Chironomidae	1	485	88.99%

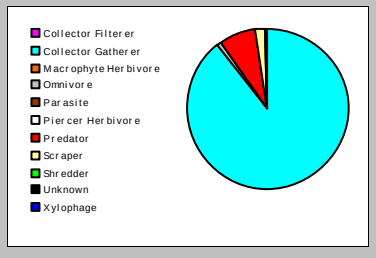


Dominant Taxa

Category	A	PRA
Orthocladius	485	88.99%
Acari	16	2.94%
Ceratopogoninae	15	2.75%
Ameletus	13	2.39%
Sweltsa	5	0.92%
Polycelis	4	0.73%
Baetis Rhodani Gr.	3	0.55%
Chloroperlidae	2	0.37%
Megarcys	1	0.18%
Capniidae	1	0.18%

Functional Composition

Category	R	A	PRA
Predator	4	39	7.16%
Parasite			
Collector Gatherer	2	488	89.54%
Collector Filterer			
Macrophyte Herbivore			
Piercer Herbivore			
Xylophage			
Scraper	1	13	2.39%
Shredder	1	1	0.18%
Omnivore	1	4	0.73%
Unknown			

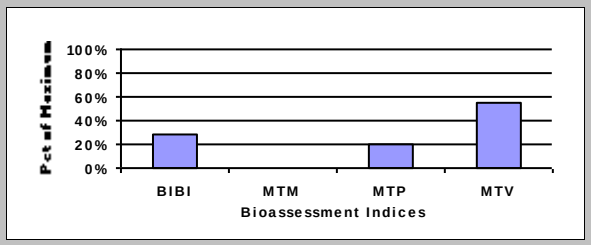


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	9
E Richness	2
P Richness	3
T Richness	0
EPT Richness	5
EPT Percent	4.59%
All Non-Insect Abundance	20
All Non-Insect Richness	2
All Non-Insect Percent	3.67%
Oligochaeta+Hirudinea Percent	0.00%
Baetidae/Ephemeroptera	0.188
Hydropsychidae/Trichoptera	0.000
Dominance	
Dominant Taxon Percent	88.99%
Dominant Taxa (2) Percent	91.93%
Dominant Taxa (3) Percent	94.68%
Dominant Taxa (10) Percent	100.00%
Diversity	
Shannon H (loge)	0.524
Shannon H (log2)	0.757
Margalef D	1.270
Simpson D	0.800
Evenness	0.045
Function	
Predator Richness	4
Predator Percent	7.16%
Filterer Richness	0
Filterer Percent	0.00%
Collector Percent	89.54%
Scraper+Shredder Percent	2.57%
Scraper/Filterer	0.000
Scraper/Scraper+Filterer	0.000
Habit	
Burrower Richness	0
Burrower Percent	0.00%
Swimmer Richness	2
Swimmer Percent	2.94%
Clinger Richness	3
Clinger Percent	1.65%
Characteristics	
Cold Stenotherm Richness	1
Cold Stenotherm Percent	0.18%
Hemoglobin Bearer Richness	
Hemoglobin Bearer Percent	
Air Breather Richness	0
Air Breather Percent	0.00%
Voltinism	
Univoltine Richness	5
Semivoltine Richness	0
Multivoltine Percent	92.66%
Tolerance	
Sediment Tolerant Richness	0
Sediment Tolerant Percent	0.00%
Sediment Sensitive Richness	0
Sediment Sensitive Percent	0.00%
Metals Tolerance Index	4.857
Pollution Sensitive Richness	1
Pollution Tolerant Percent	0.00%
Hilsenhoff Biotic Index	5.697
Intolerant Percent	4.77%
Supertolerant Percent	0.00%
CTQa	64.571

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	14	28.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	6	20.00%	Moderate
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	10	55.56%	Slight
MTM	Montana DEQ Mountains (Bukantis 1998)	0	0.00%	Severe



Metrics Report

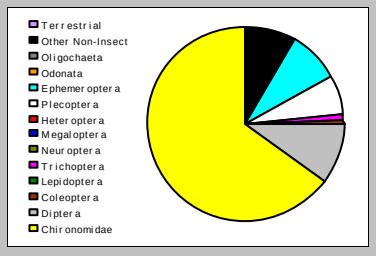
Project ID: CC15NWM
RAI No.: CC15NWM003
Sta. Name: Stillwater River duplicate
Client ID: SR-1 dup
STORET ID
Coll. Date: 9/14/2015
Latitude: **Longitude:**

Abundance Measures

Sample Count: 538
Sample Abundance: 768.57 70.00% of sample used
Coll. Procedure: DEQWQPBWQM-009
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	4	46	8.55%
Oligochaeta			
Odonata			
Ephemeroptera	3	46	8.55%
Plecoptera	2	35	6.51%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	4	6	1.12%
Lepidoptera			
Coleoptera	1	2	0.37%
Diptera	3	54	10.04%
Chironomidae	3	349	64.87%

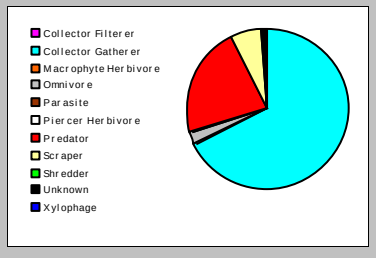


Dominant Taxa

Category	A	PRA
Orthocladius	341	63.38%
Ceratopogoninae	51	9.48%
Ameletus	31	5.76%
Acari	27	5.02%
Sweltsa	21	3.90%
Polycelis	13	2.42%
Chloroperlidae	12	2.23%
Baetis Rhodani Gr.	12	2.23%
Diamesa	7	1.30%
Nemata	5	0.93%
Rhithrogena	3	0.56%
Rhyacophila Vofixa Gr.	2	0.37%
Megarcys	2	0.37%
Limnophila	2	0.37%
Heterlimnius corpulentus	2	0.37%

Functional Composition

Category	R	A	PRA
Predator	9	121	22.49%
Parasite			
Collector Gatherer	5	363	67.47%
Collector Filterer			
Macrophyte Herbivore			
Piercer Herbivore			
Xylophage			
Scraper	3	35	6.51%
Shredder	1	1	0.19%
Omnivore	1	13	2.42%
Unknown	1	5	0.93%

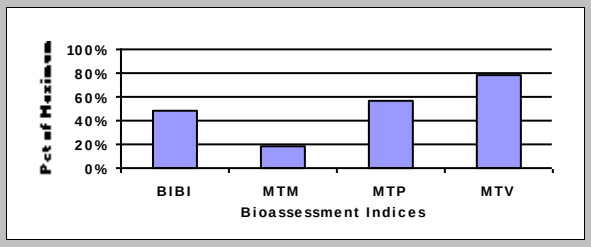


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	20
E Richness	3
P Richness	2
T Richness	4
EPT Richness	9
EPT Percent	16.17%
All Non-Insect Abundance	46
All Non-Insect Richness	4
All Non-Insect Percent	8.55%
Oligochaeta+Hirudinea Percent	0.00%
Baetidae/Ephemeroptera	0.261
Hydropsychidae/Trichoptera	0.167
Dominance	
Dominant Taxon Percent	63.38%
Dominant Taxa (2) Percent	72.86%
Dominant Taxa (3) Percent	78.62%
Dominant Taxa (10) Percent	96.65%
Diversity	
Shannon H (loge)	1.388
Shannon H (log2)	2.003
Margalef D	3.038
Simpson D	0.448
Evenness	0.078
Function	
Predator Richness	9
Predator Percent	22.49%
Filterer Richness	0
Filterer Percent	0.00%
Collector Percent	67.47%
Scraper+Shredder Percent	6.69%
Scraper/Filterer	0.000
Scraper/Scraper+Filterer	0.000
Habit	
Burrower Richness	1
Burrower Percent	0.37%
Swimmer Richness	2
Swimmer Percent	7.99%
Clinger Richness	7
Clinger Percent	8.36%
Characteristics	
Cold Stenotherm Richness	4
Cold Stenotherm Percent	1.12%
Hemoglobin Bearer Richness	
Hemoglobin Bearer Percent	
Air Breather Richness	2
Air Breather Percent	0.56%
Voltinism	
Univoltine Richness	10
Semivoltine Richness	2
Multivoltine Percent	72.49%
Tolerance	
Sediment Tolerant Richness	2
Sediment Tolerant Percent	0.56%
Sediment Sensitive Richness	1
Sediment Sensitive Percent	0.19%
Metals Tolerance Index	4.615
Pollution Sensitive Richness	4
Pollution Tolerant Percent	0.00%
Hilsenhoff Biotic Index	4.962
Intolerant Percent	15.99%
Supertolerant Percent	0.19%
CTQa	63.800

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	24	48.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	17	56.67%	Slight
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	14	77.78%	Slight
MTM	Montana DEQ Mountains (Bukantis 1998)	4	19.05%	Severe



Metrics Report

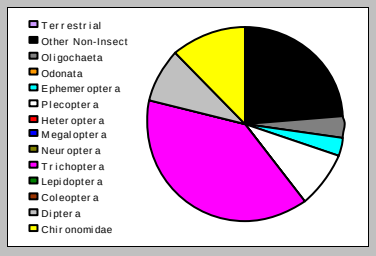
Project ID: CC15NWM
RAI No.: CC15NWM004
Sta. Name: Daisy Creek
Client ID: DC-5
STORET ID
Coll. Date: 9/15/2015
Latitude: **Longitude:**

Abundance Measures

Sample Count: 33
Sample Abundance: 33.00 100.00% of sample used
Coll. Procedure: DEQWQPBWQM-009
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	2	8	24.24%
Oligochaeta	1	1	3.03%
Odonata			
Ephemeroptera	1	1	3.03%
Plecoptera	2	3	9.09%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	4	13	39.39%
Lepidoptera			
Coleoptera			
Diptera	2	3	9.09%
Chironomidae	1	4	12.12%

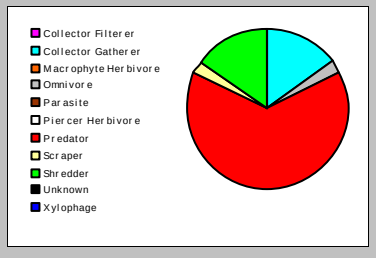


Dominant Taxa

Category	A	PRA
Acari	7	21.21%
Parapsyche	4	12.12%
Orthocladius	4	12.12%
Rhyacophila Hyalinata Gr.	3	9.09%
Limnephilidae	3	9.09%
Visoka cataractae	2	6.06%
Rhyacophila	2	6.06%
Ceratopogoninae	2	6.06%
Sweltsa	1	3.03%
Rhyacophila Vofixa Gr.	1	3.03%
Polycelis	1	3.03%
Oreogeton	1	3.03%
Epeorus grandis	1	3.03%
Enchytraeus	1	3.03%

Functional Composition

Category	R	A	PRA
Predator	7	21	63.64%
Parasite			
Collector Gatherer	2	5	15.15%
Collector Filterer			
Macrophyte Herbivore			
Piercer Herbivore			
Xylophage			
Scraper	1	1	3.03%
Shredder	2	5	15.15%
Omnivore	1	1	3.03%
Unknown			

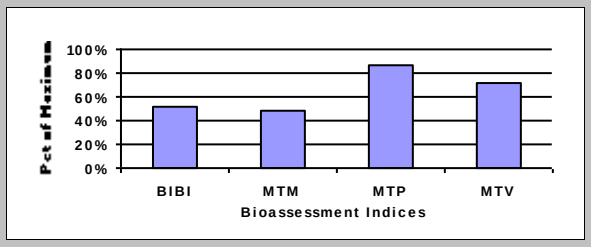


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	13
E Richness	1
P Richness	2
T Richness	4
EPT Richness	7
EPT Percent	51.52%
All Non-Insect Abundance	9
All Non-Insect Richness	3
All Non-Insect Percent	27.27%
Oligochaeta+Hirudinea Percent	3.03%
Baetidae/Ephemeroptera	0.000
Hydropsychidae/Trichoptera	0.308
Dominance	
Dominant Taxon Percent	21.21%
Dominant Taxa (2) Percent	33.33%
Dominant Taxa (3) Percent	45.45%
Dominant Taxa (10) Percent	87.88%
Diversity	
Shannon H (loge)	2.335
Shannon H (log2)	3.368
Margalef D	3.494
Simpson D	0.088
Evenness	0.090
Function	
Predator Richness	7
Predator Percent	63.64%
Filterer Richness	0
Filterer Percent	0.00%
Collector Percent	15.15%
Scraper+Shredder Percent	18.18%
Scraper/Filterer	0.000
Scraper/Scraper+Filterer	0.000
Habit	
Burrower Richness	1
Burrower Percent	3.03%
Swimmer Richness	0
Swimmer Percent	0.00%
Clinger Richness	6
Clinger Percent	42.42%
Characteristics	
Cold Stenotherm Richness	4
Cold Stenotherm Percent	15.15%
Hemoglobin Bearer Richness	
Hemoglobin Bearer Percent	
Air Breather Richness	0
Air Breather Percent	0.00%
Voltinism	
Univoltine Richness	9
Semivoltine Richness	1
Multivoltine Percent	36.36%
Tolerance	
Sediment Tolerant Richness	0
Sediment Tolerant Percent	0.00%
Sediment Sensitive Richness	0
Sediment Sensitive Percent	0.00%
Metals Tolerance Index	3.120
Pollution Sensitive Richness	4
Pollution Tolerant Percent	0.00%
Hilsenhoff Biotic Index	2.758
Intolerant Percent	45.45%
Supertolerant Percent	0.00%
CTQa	73.400

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	26	52.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	26	86.67%	None
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	13	72.22%	Slight
MTM	Montana DEQ Mountains (Bukantis 1998)	10	47.62%	Moderate



Monday, December 14, 2015

Metrics Report

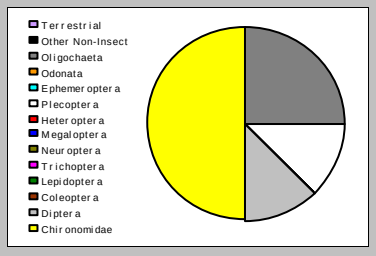
Project ID: CC15NWM
RAI No.: CC15NWM005
Sta. Name: Daisy Creek
Client ID: DC-2
STORET ID
Coll. Date: 9/15/2015
Latitude: **Longitude:**

Abundance Measures

Sample Count: 8
Sample Abundance: 8.00 100.00% of sample used
Coll. Procedure: DEQWQPBWQM-009
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect			
Oligochaeta	1	2	25.00%
Odonata			
Ephemeroptera			
Plecoptera	1	1	12.50%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera			
Lepidoptera			
Coleoptera			
Diptera	1	1	12.50%
Chironomidae	1	4	50.00%

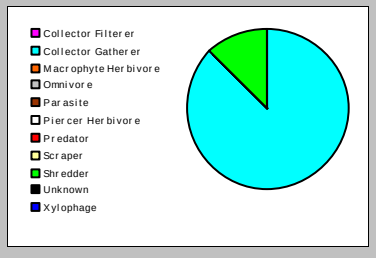


Dominant Taxa

Category	A	PRA
Orthocladius	4	50.00%
Enchytraeus	2	25.00%
Visoka cataractae	1	12.50%
Rhabdomastix Setigera Gr.	1	12.50%

Functional Composition

Category	R	A	PRA
Predator			
Parasite			
Collector Gatherer	3	7	87.50%
Collector Filterer			
Macrophyte Herbivore			
Piercer Herbivore			
Xylophage			
Scraper			
Shredder	1	1	12.50%
Omnivore			
Unknown			

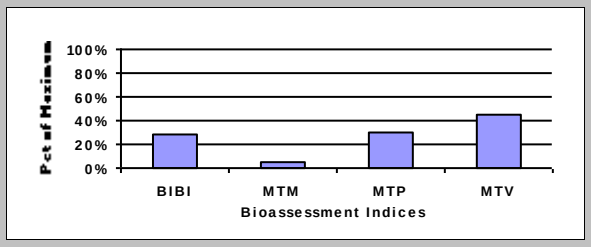


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	4
E Richness	0
P Richness	1
T Richness	0
EPT Richness	1
EPT Percent	12.50%
All Non-Insect Abundance	2
All Non-Insect Richness	1
All Non-Insect Percent	25.00%
Oligochaeta+Hirudinea Percent	25.00%
Baetidae/Ephemeroptera	0.000
Hydropsychidae/Trichoptera	0.000
Dominance	
Dominant Taxon Percent	50.00%
Dominant Taxa (2) Percent	75.00%
Dominant Taxa (3) Percent	87.50%
Dominant Taxa (10) Percent	100.00%
Diversity	
Shannon H (loge)	1.213
Shannon H (log2)	1.750
Margalef D	1.443
Simpson D	0.250
Evenness	0.234
Function	
Predator Richness	0
Predator Percent	0.00%
Filterer Richness	0
Filterer Percent	0.00%
Collector Percent	87.50%
Scraper+Shredder Percent	12.50%
Scraper/Filterer	0.000
Scraper/Scraper+Filterer	0.000
Habit	
Burrower Richness	1
Burrower Percent	12.50%
Swimmer Richness	0
Swimmer Percent	0.00%
Clinger Richness	1
Clinger Percent	12.50%
Characteristics	
Cold Stenotherm Richness	1
Cold Stenotherm Percent	12.50%
Hemoglobin Bearer Richness	
Hemoglobin Bearer Percent	
Air Breather Richness	0
Air Breather Percent	0.00%
Voltinism	
Univoltine Richness	2
Semivoltine Richness	0
Multivoltine Percent	50.00%
Tolerance	
Sediment Tolerant Richness	0
Sediment Tolerant Percent	0.00%
Sediment Sensitive Richness	0
Sediment Sensitive Percent	0.00%
Metals Tolerance Index	4.000
Pollution Sensitive Richness	1
Pollution Tolerant Percent	0.00%
Hilsenhoff Biotic Index	4.375
Intolerant Percent	12.50%
Supertolerant Percent	0.00%
CTQa	84.000

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	14	28.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	9	30.00%	Moderate
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	8	44.44%	Moderate
MTM	Montana DEQ Mountains (Bukantis 1998)	1	4.76%	Severe



Metrics Report

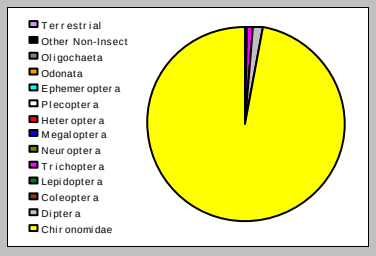
Project ID: CC15NWM
RAI No.: CC15NWM006
Sta. Name: Fisher Creek
Client ID: SW-3
STORET ID
Coll. Date: 9/15/2015
Latitude: **Longitude:**

Abundance Measures

Sample Count: 527
Sample Abundance: 585.56 90.00% of sample used
Coll. Procedure: DEQWQPBWQM-009
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	1	1	0.19%
Oligochaeta			
Odonata			
Ephemeroptera			
Plecoptera	2	2	0.38%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	1	6	1.14%
Lepidoptera			
Coleoptera			
Diptera	5	7	1.33%
Chironomidae	3	511	96.96%

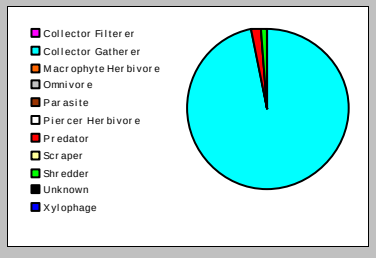


Dominant Taxa

Category	A	PRA
Chaetocladius	509	96.58%
Psychoglypha	6	1.14%
Dicranota	2	0.38%
Clinocera	2	0.38%
Sweltsa	1	0.19%
Rhabdomastix Setigera Gr.	1	0.19%
Orthocladius	1	0.19%
Oreogeton	1	0.19%
Leuctridae	1	0.19%
Diplocladius cultriger	1	0.19%
Ceratopogoninae	1	0.19%
Acari	1	0.19%

Functional Composition

Category	R	A	PRA
Predator	6	8	1.52%
Parasite			
Collector Gatherer	4	512	97.15%
Collector Filterer			
Macrophyte Herbivore			
Piercer Herbivore			
Xylophage			
Scraper			
Shredder	2	7	1.33%
Omnivore			
Unknown			

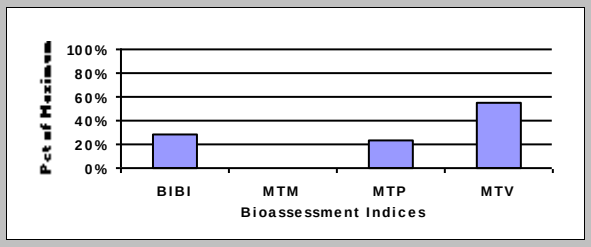


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	12
E Richness	0
P Richness	2
T Richness	1
EPT Richness	3
EPT Percent	1.52%
All Non-Insect Abundance	1
All Non-Insect Richness	1
All Non-Insect Percent	0.19%
Oligochaeta+Hirudinea Percent	0.00%
Baetidae/Ephemeroptera	0.000
Hydropsychidae/Trichoptera	0.000
Dominance	
Dominant Taxon Percent	96.58%
Dominant Taxa (2) Percent	97.72%
Dominant Taxa (3) Percent	98.10%
Dominant Taxa (10) Percent	99.62%
Diversity	
Shannon H (loge)	0.222
Shannon H (log2)	0.320
Margalef D	1.755
Simpson D	0.933
Evenness	0.013
Function	
Predator Richness	6
Predator Percent	1.52%
Filterer Richness	0
Filterer Percent	0.00%
Collector Percent	97.15%
Scraper+Shredder Percent	1.33%
Scraper/Filterer	0.000
Scraper/Scraper+Filterer	0.000
Habit	
Burrower Richness	2
Burrower Percent	0.38%
Swimmer Richness	0
Swimmer Percent	0.00%
Clinger Richness	3
Clinger Percent	0.76%
Characteristics	
Cold Stenotherm Richness	3
Cold Stenotherm Percent	1.52%
Hemoglobin Bearer Richness	
Hemoglobin Bearer Percent	
Air Breather Richness	1
Air Breather Percent	0.38%
Voltinism	
Univoltine Richness	7
Semivoltine Richness	0
Multivoltine Percent	97.15%
Tolerance	
Sediment Tolerant Richness	1
Sediment Tolerant Percent	0.38%
Sediment Sensitive Richness	0
Sediment Sensitive Percent	0.00%
Metals Tolerance Index	3.000
Pollution Sensitive Richness	2
Pollution Tolerant Percent	0.00%
Hilsenhoff Biotic Index	5.886
Intolerant Percent	1.52%
Supertolerant Percent	0.19%
CTQa	74.545

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	14	28.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	7	23.33%	Moderate
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	10	55.56%	Slight
MTM	Montana DEQ Mountains (Bukantis 1998)	0	0.00%	Severe



Metrics Report

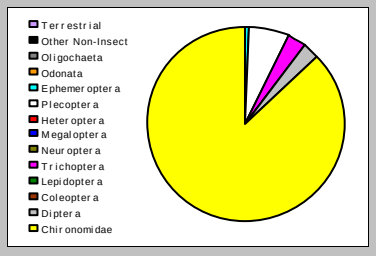
Project ID: CC15NWM
RAI No.: CC15NWM007
Sta. Name: Fisher Creek
Client ID: SW-4
STORET ID
Coll. Date: 9/15/2015
Latitude: **Longitude:**

Abundance Measures

Sample Count: 528
Sample Abundance: 792.00 66.67% of sample used
Coll. Procedure: DEQWQPBWQM-009
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect			
Oligochaeta			
Odonata			
Ephemeroptera	3	5	0.95%
Plecoptera	4	35	6.63%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	2	15	2.84%
Lepidoptera			
Coleoptera			
Diptera	4	16	3.03%
Chironomidae	5	457	86.55%

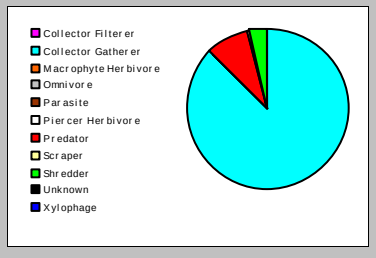


Dominant Taxa

Category	A	PRA
Rheocricotopus	447	84.66%
Sweltsa	26	4.92%
Limnephilidae	12	2.27%
Ceratopogoninae	9	1.70%
Dicranota	5	0.95%
Chaetocladius	5	0.95%
Megarcys	4	0.76%
Capniidae	4	0.76%
Hydropsychidae	3	0.57%
Ameletus	3	0.57%
Orthocladius	2	0.38%
Zapada columbiana	1	0.19%
Orthocladiinae	1	0.19%
Epeorus grandis	1	0.19%
Baetis Rhodani Gr.	1	0.19%

Functional Composition

Category	R	A	PRA
Predator	4	44	8.33%
Parasite			
Collector Gatherer	7	459	86.93%
Collector Filterer	1	3	0.57%
Macrophyte Herbivore			
Piercer Herbivore			
Xylophage			
Scraper	3	5	0.95%
Shredder	3	17	3.22%
Omnivore			
Unknown			

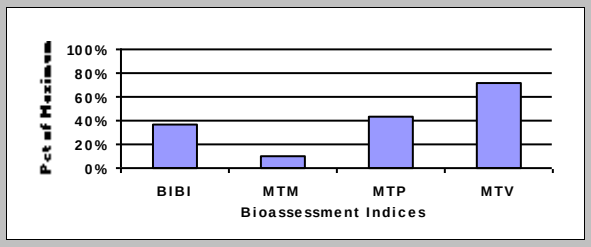


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	18
E Richness	3
P Richness	4
T Richness	2
EPT Richness	9
EPT Percent	10.42%
All Non-Insect Abundance	0
All Non-Insect Richness	0
All Non-Insect Percent	0.00%
Oligochaeta+Hirudinea Percent	0.00%
Baetidae/Ephemeroptera	0.200
Hydropsychidae/Trichoptera	0.200
Dominance	
Dominant Taxon Percent	84.66%
Dominant Taxa (2) Percent	89.58%
Dominant Taxa (3) Percent	91.86%
Dominant Taxa (10) Percent	98.11%
Diversity	
Shannon H (loge)	0.769
Shannon H (log2)	1.110
Margalef D	2.713
Simpson D	0.723
Evenness	0.045
Function	
Predator Richness	4
Predator Percent	8.33%
Filterer Richness	1
Filterer Percent	0.57%
Collector Percent	87.50%
Scraper+Shredder Percent	4.17%
Scraper/Filterer	1.667
Scraper/Scraper+Filterer	0.625
Habit	
Burrower Richness	1
Burrower Percent	0.19%
Swimmer Richness	2
Swimmer Percent	0.76%
Clinger Richness	7
Clinger Percent	7.58%
Characteristics	
Cold Stenotherm Richness	3
Cold Stenotherm Percent	1.14%
Hemoglobin Bearer Richness	
Hemoglobin Bearer Percent	
Air Breather Richness	1
Air Breather Percent	0.95%
Voltinism	
Univoltine Richness	11
Semivoltine Richness	0
Multivoltine Percent	86.55%
Tolerance	
Sediment Tolerant Richness	1
Sediment Tolerant Percent	0.95%
Sediment Sensitive Richness	0
Sediment Sensitive Percent	0.00%
Metals Tolerance Index	4.839
Pollution Sensitive Richness	3
Pollution Tolerant Percent	0.19%
Hilsenhoff Biotic Index	3.755
Intolerant Percent	7.58%
Supertolerant Percent	0.19%
CTQa	72.688

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	18	36.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	13	43.33%	Moderate
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	13	72.22%	Slight
MTM	Montana DEQ Mountains (Bukantis 1998)	2	9.52%	Severe



Metrics Report

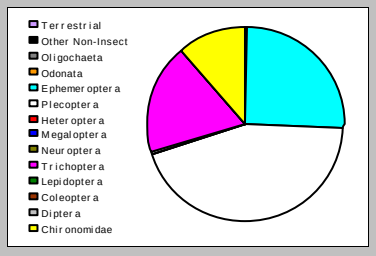
Project ID: CC15NWM
RAI No.: CC15NWM008
Sta. Name: Clark Fork (Fisher Creek)
Client ID: CFY-2
STORET ID
Coll. Date: 9/16/2015
Latitude: **Longitude:**

Abundance Measures

Sample Count: 184
Sample Abundance: 184.00 100.00% of sample used
Coll. Procedure: DEQWQPBWQM-009
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	1	1	0.54%
Oligochaeta			
Odonata			
Ephemeroptera	5	46	25.00%
Plecoptera	4	82	44.57%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	9	34	18.48%
Lepidoptera			
Coleoptera			
Diptera			
Chironomidae	4	21	11.41%

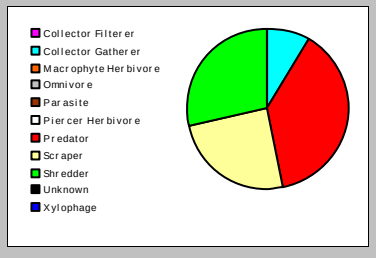


Dominant Taxa

Category	A	PRA
Zapada columbiana	44	23.91%
Sweltsa	19	10.33%
Doroneuria	18	9.78%
Epeorus grandis	17	9.24%
Rhithrogena	9	4.89%
Parapsyche elsis	9	4.89%
Cinygmula	9	4.89%
Arctopsychinae	9	4.89%
Ameletus	9	4.89%
Rheocricotopus	8	4.35%
Brillia	7	3.80%
Orthocladius	4	2.17%
Rhyacophila Vofixa Gr.	3	1.63%
Rhyacophila Brunnea/Vemna Gr.	3	1.63%
Rhyacophila Betteni Gr.	3	1.63%

Functional Composition

Category	R	A	PRA
Predator	10	70	38.04%
Parasite			
Collector Gatherer	4	16	8.70%
Collector Filterer			
Macrophyte Herbivore			
Piercer Herbivore			
Xylophage			
Scraper	5	45	24.46%
Shredder	4	53	28.80%
Omnivore			
Unknown			

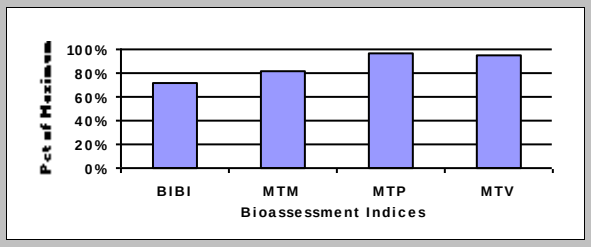


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	23
E Richness	5
P Richness	4
T Richness	9
EPT Richness	18
EPT Percent	88.04%
All Non-Insect Abundance	1
All Non-Insect Richness	1
All Non-Insect Percent	0.54%
Oligochaeta+Hirudinea Percent	0.00%
Baetidae/Ephemeroptera	0.043
Hydropsychidae/Trichoptera	0.529
Dominance	
Dominant Taxon Percent	23.91%
Dominant Taxa (2) Percent	34.24%
Dominant Taxa (3) Percent	44.02%
Dominant Taxa (10) Percent	82.07%
Diversity	
Shannon H (loge)	2.556
Shannon H (log2)	3.687
Margalef D	4.269
Simpson D	0.108
Evenness	0.068
Function	
Predator Richness	10
Predator Percent	38.04%
Filterer Richness	0
Filterer Percent	0.00%
Collector Percent	8.70%
Scraper+Shredder Percent	53.26%
Scraper/Filterer	0.000
Scraper/Scraper+Filterer	0.000
Habit	
Burrower Richness	1
Burrower Percent	3.80%
Swimmer Richness	2
Swimmer Percent	5.98%
Clinger Richness	14
Clinger Percent	71.74%
Characteristics	
Cold Stenotherm Richness	7
Cold Stenotherm Percent	50.54%
Hemoglobin Bearer Richness	
Hemoglobin Bearer Percent	
Air Breather Richness	0
Air Breather Percent	0.00%
Voltinism	
Univoltine Richness	13
Semivoltine Richness	2
Multivoltine Percent	13.04%
Tolerance	
Sediment Tolerant Richness	0
Sediment Tolerant Percent	0.00%
Sediment Sensitive Richness	1
Sediment Sensitive Percent	4.89%
Metals Tolerance Index	1.626
Pollution Sensitive Richness	8
Pollution Tolerant Percent	0.00%
Hilsenhoff Biotic Index	1.272
Intolerant Percent	86.96%
Supertolerant Percent	1.09%
CTQa	46.056

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	36	72.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	29	96.67%	None
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	17	94.44%	None
MTM	Montana DEQ Mountains (Bukantis 1998)	17	80.95%	Slight



Metrics Report

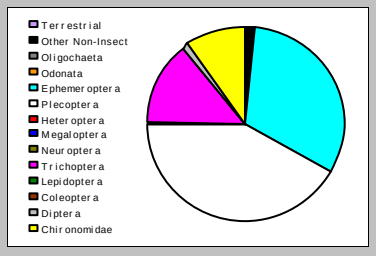
Project ID: CC15NWM
RAI No.: CC15NWM009
Sta. Name: Clark Fork (Fisher Creek) duplicate
Client ID: CFY-2 dup
STORET ID
Coll. Date: 9/16/2015
Latitude: **Longitude:**

Abundance Measures

Sample Count: 205
Sample Abundance: 205.00 100.00% of sample used
Coll. Procedure: DEQWQPBWQM-009
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	2	4	1.95%
Oligochaeta			
Odonata			
Ephemeroptera	5	64	31.22%
Plecoptera	5	86	41.95%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	7	29	14.15%
Lepidoptera			
Coleoptera			
Diptera	2	2	0.98%
Chironomidae	6	20	9.76%

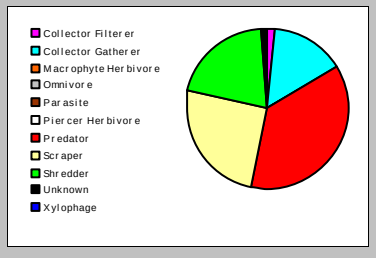


Dominant Taxa

Category	A	PRA
Sweltsa	35	17.07%
Zapada columbiana	34	16.59%
Cinygmula	19	9.27%
Ameletus	15	7.32%
Rheocricotopus	14	6.83%
Doroneuria	12	5.85%
Baetis Rhodani Gr.	12	5.85%
Rhithrogena	11	5.37%
Parapsyche elsis	7	3.41%
Epeorus grandis	7	3.41%
Rhyacophila Betteni Gr.	6	2.93%
Rhyacophila narvae	5	2.44%
Hydropsychidae	4	1.95%
Visoka cataractae	3	1.46%
Rhyacophila Vofixa Gr.	3	1.46%

Functional Composition

Category	R	A	PRA
Predator	11	74	36.10%
Parasite			
Collector Gatherer	6	30	14.63%
Collector Filterer	0	4	1.95%
Macrophyte Herbivore			
Piercer Herbivore			
Xylophage			
Scraper	4	52	25.37%
Shredder	5	43	20.98%
Omnivore			
Unknown	1	2	0.98%

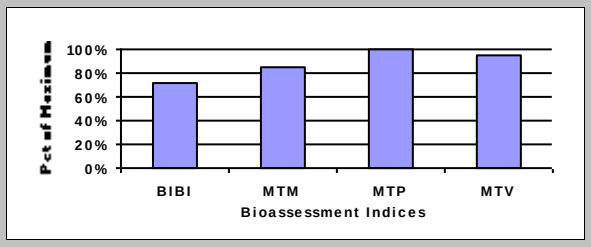


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	27
E Richness	5
P Richness	5
T Richness	7
EPT Richness	17
EPT Percent	87.32%
All Non-Insect Abundance	4
All Non-Insect Richness	2
All Non-Insect Percent	1.95%
Oligochaeta+Hirudinea Percent	0.00%
Baetidae/Ephemeroptera	0.188
Hydropsychidae/Trichoptera	0.379
Dominance	
Dominant Taxon Percent	17.07%
Dominant Taxa (2) Percent	33.66%
Dominant Taxa (3) Percent	42.93%
Dominant Taxa (10) Percent	80.98%
Diversity	
Shannon H (loge)	2.699
Shannon H (log2)	3.894
Margalef D	4.903
Simpson D	0.089
Evenness	0.061
Function	
Predator Richness	11
Predator Percent	36.10%
Filterer Richness	0
Filterer Percent	1.95%
Collector Percent	16.59%
Scraper+Shredder Percent	46.34%
Scraper/Filterer	13.000
Scraper/Scraper+Filterer	0.929
Habit	
Burrower Richness	1
Burrower Percent	0.98%
Swimmer Richness	2
Swimmer Percent	13.17%
Clinger Richness	13
Clinger Percent	67.32%
Characteristics	
Cold Stenotherm Richness	6
Cold Stenotherm Percent	32.20%
Hemoglobin Bearer Richness	
Hemoglobin Bearer Percent	
Air Breather Richness	0
Air Breather Percent	0.00%
Voltinism	
Univoltine Richness	13
Semivoltine Richness	2
Multivoltine Percent	10.73%
Tolerance	
Sediment Tolerant Richness	0
Sediment Tolerant Percent	0.00%
Sediment Sensitive Richness	1
Sediment Sensitive Percent	3.41%
Metals Tolerance Index	1.575
Pollution Sensitive Richness	6
Pollution Tolerant Percent	0.00%
Hilsenhoff Biotic Index	1.130
Intolerant Percent	79.02%
Supertolerant Percent	0.49%
CTQa	59.571

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	36	72.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	30	100.00%	None
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	17	94.44%	None
MTM	Montana DEQ Mountains (Bukantis 1998)	18	85.71%	None



Metrics Report

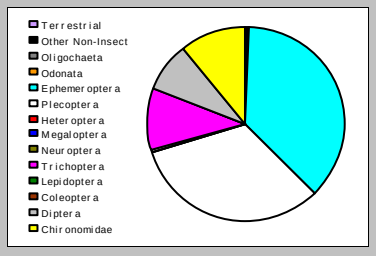
Project ID: CC15NWM
RAI No.: CC15NWM010
Sta. Name: Clark Fork River
Client ID: SW-6
STORET ID
Coll. Date: 9/16/2015
Latitude: **Longitude:**

Abundance Measures

Sample Count: 342
Sample Abundance: 342.00 100.00% of sample used
Coll. Procedure: DEQWQPBWQM-009
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	2	4	1.17%
Oligochaeta			
Odonata			
Ephemeroptera	8	124	36.26%
Plecoptera	8	112	32.75%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	7	36	10.53%
Lepidoptera			
Coleoptera			
Diptera	3	29	8.48%
Chironomidae	6	37	10.82%

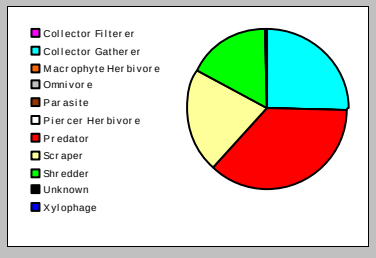


Dominant Taxa

Category	A	PRA
Rhithrogena	49	14.33%
Zapada columbiana	46	13.45%
Baetis bicaudatus complex	45	13.16%
Sweltsa	42	12.28%
Ceratopogoninae	26	7.60%
Parapsyche elsis	20	5.85%
Rheocricotopus	15	4.39%
Doroneuria	12	3.51%
Ameletus	12	3.51%
Baetis Rhodani Gr.	8	2.34%
Orthocladius	6	1.75%
Orthocladiinae	6	1.75%
Kogotus	6	1.75%
Rhyacophila atrata complex	4	1.17%
Micrasema	4	1.17%

Functional Composition

Category	R	A	PRA
Predator	14	124	36.26%
Parasite			
Collector Gatherer	7	86	25.15%
Collector Filterer			
Macrophyte Herbivore			
Piercer Herbivore			
Xylophage			
Scraper	7	73	21.35%
Shredder	5	58	16.96%
Omnivore			
Unknown	1	1	0.29%

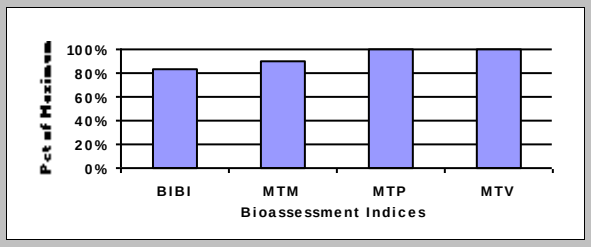


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	34
E Richness	8
P Richness	8
T Richness	7
EPT Richness	23
EPT Percent	79.53%
All Non-Insect Abundance	4
All Non-Insect Richness	2
All Non-Insect Percent	1.17%
Oligochaeta+Hirudinea Percent	0.00%
Baetidae/Ephemeroptera	0.435
Hydropsychidae/Trichoptera	0.611
Dominance	
Dominant Taxon Percent	14.33%
Dominant Taxa (2) Percent	27.78%
Dominant Taxa (3) Percent	40.94%
Dominant Taxa (10) Percent	80.41%
Diversity	
Shannon H (loge)	2.728
Shannon H (log2)	3.936
Margalef D	5.697
Simpson D	0.091
Evenness	0.057
Function	
Predator Richness	14
Predator Percent	36.26%
Filterer Richness	0
Filterer Percent	0.00%
Collector Percent	25.15%
Scraper+Shredder Percent	38.30%
Scraper/Filterer	0.000
Scraper/Scraper+Filterer	0.000
Habit	
Burrower Richness	2
Burrower Percent	1.75%
Swimmer Richness	3
Swimmer Percent	19.30%
Clinger Richness	20
Clinger Percent	57.02%
Characteristics	
Cold Stenotherm Richness	8
Cold Stenotherm Percent	25.73%
Hemoglobin Bearer Richness	
Hemoglobin Bearer Percent	
Air Breather Richness	2
Air Breather Percent	0.88%
Voltinism	
Univoltine Richness	19
Semivoltine Richness	3
Multivoltine Percent	24.85%
Tolerance	
Sediment Tolerant Richness	2
Sediment Tolerant Percent	0.88%
Sediment Sensitive Richness	2
Sediment Sensitive Percent	6.43%
Metals Tolerance Index	2.680
Pollution Sensitive Richness	9
Pollution Tolerant Percent	0.00%
Hilsenhoff Biotic Index	1.638
Intolerant Percent	76.90%
Supertolerant Percent	0.00%
CTQa	49.393

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	42	84.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	30	100.00%	None
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	18	100.00%	None
MTM	Montana DEQ Mountains (Bukantis 1998)	19	90.48%	None



Taxa Listing

Project ID: CC15NWMP
RAI No.: CC15NWMP001

RAI No.: CC15NWMP001 **Sta. Name:** Stillwater River
Client ID: SW-7
Date Coll.: 9/14/2015 **No Jars:** 1 **STORET ID:**
Sample Notes:

Taxonomic Name	Count	PRA	Abnorm.	Comment
Algae				
Bacillariophyta				
Diatoms	0			
Chlorophyta				
Mougeotia sp.	0			
Spirogyra sp.	0			
Cyanophyta				
Leptolyngbya sp.	0			
Nostoc sp.	0			
Phormidium sp.	0			
Pseudanabaena sp.	0			
Diatoms				
Bacillariophyta				
Achnanthidium minutissimum	114	14.11%	0	
Achnanthidium rivulare	2	0.25%	0	
Adlafia minuscula	1	0.12%	0	
Amphipleura pellucida	2	0.25%	0	
Caloneis tenuis	2	0.25%	0	
Cymbella neocistula	4	0.50%	0	
Encyonema reichardtii	2	0.25%	0	
Encyonema silesiacum	14	1.73%	0	
Encyonema ventricosum	36	4.46%	0	
Eolimna minima	7	0.87%	0	
Fragilaria capucina v. gracilis	2	0.25%	0	
Fragilaria vaucheriae	2	0.25%	0	
Gomphoneis geitleri	3	0.37%	0	
Gomphonema sp.	2	0.25%	0	girdle view only
Gomphonema micropus	22	2.72%	0	
Hannaea arcus	3	0.37%	0	
Mayamaea atomus	1	0.12%	0	
Meridion circulare	13	1.61%	0	
Navicula antonii	1	0.12%	0	
Navicula cryptocephala	4	0.50%	0	
Navicula cryptotenella	5	0.62%	0	
Nitzschia archibaldii	8	0.99%	0	
Nitzschia dissipata	3	0.37%	0	
Nitzschia flexoides	28	3.47%	0	
Nitzschia fonticola	5	0.62%	0	
Nitzschia gracilis	4	0.50%	0	
Nitzschia linearis	3	0.37%	0	
Nitzschia palea	61	7.55%	0	
Pinnularia borealis	1	0.12%	0	
Planothidium sp.	1	0.12%	0	
Planothidium frequentissimum	5	0.62%	0	

Taxa Listing

Project ID: CC15NWMP
RAI No.: CC15NWMP001

RAI No.: CC15NWMP001 **Sta. Name:** Stillwater River
Client ID: SW-7
Date Coll.: 9/14/2015 **No Jars:** 1 **STORET ID:**
Sample Notes:

Taxonomic Name	Count	PRA	Abnorm.	Comment
Reimeria sinuata	2	0.25%	0	
Rhopalodia gibba	3	0.37%	0	
Sellaphora seminulum	1	0.12%	0	
Staurosira construens v. venter	401	49.63%	0	
Staurosirella leptostauron	8	0.99%	0	
Staurosirella pinnata	17	2.10%	0	
Surirella angusta	7	0.87%	0	
Surirella linearis	4	0.50%	0	
Ulnaria ulna	4	0.50%	0	
Sample Count	**808**			

Taxa Listing

Project ID: CC15NWMP
RAI No.: CC15NWMP002

RAI No.: CC15NWMP002 **Sta. Name:** Stillwater River
Client ID: SR-1
Date Coll.: 9/14/2015 **No Jars:** 1 **STORET ID:**
Sample Notes:

Taxonomic Name	Count	PRA	Abnorm.	Comment
Algae				
Bacillariophyta				
Diatoms	0			
Chlorophyta				
Cladophora sp.	0			
Monoraphidium sp.	0			
Chrysophyta				
Tribonema sp.	0			
Cyanophyta				
Anabaena sp.	0			
Leptolyngbya sp.	0			
Phormidium sp.	0			
Pseudanabaena sp.	0			
Diatoms				
Bacillariophyta				
Achnanthidium minutissimum	178	21.98%	0	
Diatoma mesodon	5	0.62%	0	
Encyonema reichardtii	1	0.12%	0	
Encyonema silesiacum	59	7.28%	0	
Encyonema ventricosum	381	47.04%	0	
Eolimna sp.	1	0.12%	0	
Eolimna minima	2	0.25%	0	
Eunotia exigua	6	0.74%	0	
Gomphonema sp.	2	0.25%	0	girdle only view
Gomphonema micropus	49	6.05%	0	
Hannaea arcus	5	0.62%	0	
Mayamaea atomus	3	0.37%	0	
Meridion circulare	23	2.84%	0	
Navicula antonii	2	0.25%	0	
Navicula cryptocephala	6	0.74%	0	
Nitzschia archibaldii	2	0.25%	0	
Nitzschia palea	28	3.46%	0	
Nitzschia perminuta	5	0.62%	0	
Pinnularia sp.	8	0.99%	0	girdle only view
Pinnularia borealis	4	0.49%	0	
Planothidium frequentissimum	2	0.25%	0	
Staurosirella leptostauron	1	0.12%	0	
Surirella angusta	37	4.57%	0	

Sample Count **810**

Taxa Listing

Project ID: CC15NWMP
RAI No.: CC15NWMP003

RAI No.: CC15NWMP003 **Sta. Name:** Stillwater River Duplicate
Client ID: SR-1 dup
Date Coll.: 9/14/2015 **No Jars:** 1 **STORET ID:**
Sample Notes:

Taxonomic Name	Count	PRA	Abnorm.	Comment
Algae				
Bacillariophyta				
Diatoms	0			
Chlorophyta				
Cosmarium sp.	0			
Spirogyra sp.	0			
Cyanophyta				
Leptolyngbya sp.	0			
Phormidium sp.	0			
Pseudanabaena sp.	0			
Diatoms				
Bacillariophyta				
Achnanthidium minutissimum	307	38.33%	0	
Adlafia minuscula	3	0.37%	0	
Cymbella neocistula	2	0.25%	0	
Diatoma mesodon	6	0.75%	0	
Encyonema minutum	3	0.37%	0	
Encyonema silesiacum	86	10.74%	0	
Encyonema ventricosum	241	30.09%	0	
Eunotia exigua	1	0.12%	0	
Frustulia vulgaris	1	0.12%	0	
Gomphonema micropus	35	4.37%	0	
Hannaea arcus	1	0.12%	0	
Luticola mutica	1	0.12%	0	
Mayamaea atomus	2	0.25%	0	
Meridion circulare	43	5.37%	0	
Navicula sp.	1	0.12%	0	
Navicula antonii	6	0.75%	0	
Navicula cryptotenella	1	0.12%	0	
Nitzschia sp.	2	0.25%	0	
Nitzschia dissipata	2	0.25%	0	
Nitzschia fonticola	1	0.12%	0	
Nitzschia palea	21	2.62%	0	
Nitzschia paleacea	1	0.12%	0	
Pinnularia borealis	2	0.25%	0	
Pinnularia microstauron	2	0.25%	0	
Planothidium frequentissimum	8	1.00%	0	
Reimeria sinuata	2	0.25%	0	
Staurosira construens v. venter	3	0.37%	0	
Staurosirella leptostauron	1	0.12%	0	
Staurosirella pinnata	1	0.12%	0	
Surirella angusta	15	1.87%	0	
Sample Count	**801**			

Taxa Listing

Project ID: CC15NWMP
RAI No.: CC15NWMP004

RAI No.: CC15NWMP004 **Sta. Name:** Daisy Creek
Client ID: DC-5
Date Coll.: 9/15/2015 **No Jars:** 1 **STORET ID:**
Sample Notes:

Taxonomic Name	Count	PRA	Abnorm.	Comment
Algae				
Bacillariophyta				
Diatoms	0			
Cyanophyta				
Chamaesiphon sp.	0			
Heteroleibleinia sp.	0			
Leptolyngbya sp.	0			
Phormidium sp.	0			
Pseudanabaena sp.	0			
Diatoms				
Bacillariophyta				
Achnanthidium affine	1	0.12%	0	
Achnanthidium minutissimum	834	98.93%	0	
Encyonema ventricosum	5	0.59%	0	
Eunotia sp.	1	0.12%	0	
Nitzschia fonticola	1	0.12%	0	
Nitzschia paleacea	1	0.12%	0	

Sample Count **843**

Taxa Listing

Project ID: CC15NWMP
RAI No.: CC15NWMP005

RAI No.: CC15NWMP005 **Sta. Name:** Daisy Creek
Client ID: DC-2
Date Coll.: 9/15/2015 **No Jars:** 1 **STORET ID:**
Sample Notes:

Taxonomic Name	Count	PRA	Abnorm.	Comment
Algae				
Bacillariophyta				
Diatoms	0			
Cyanophyta				
Chamaesiphon sp.	0			
Heteroleibleinia sp.	0			
Leptolyngbya sp.	0			
Phormidium sp.	0			
Diatoms				
Bacillariophyta				
Achnanthidium deflexum	6	2.97%	0	
Achnanthidium minutissimum	84	41.58%	0	
Amphora pediculus	1	0.50%	0	
Aulacoseira distans	1	0.50%	0	
Chamaepinnularia soehrensis v. hassiaca	2	0.99%	0	
Delicata delicatula	2	0.99%	0	
Encyonema silesiacum	4	1.98%	0	
Encyonema ventricosum	4	1.98%	0	
Encyonopsis subminuta	2	0.99%	0	
Eolimna minima	1	0.50%	0	
Eucocconeis flexella	1	0.50%	0	
Eunotia exigua	51	25.25%	10	
Fragilaria capucina v. gracilis	1	0.50%	0	
Luticola mutica	2	0.99%	0	
Luticola muticopsis	2	0.99%	0	
Melosira varians	1	0.50%	0	
Meridion circulare	1	0.50%	0	
Navicula cryptocephala	3	1.49%	0	
Navicula symmetrica	3	1.49%	0	
Neidium binodeformis	1	0.50%	0	
Nitzschia archibaldii	2	0.99%	0	
Nitzschia frustulum	7	3.47%	0	
Nitzschia paleacea	4	1.98%	0	
Pinnularia microstauron	10	4.95%	0	
Psammothidium marginulatum	1	0.50%	0	
Psammothidium subatomoides	2	0.99%	0	
Rhoicosphenia abbreviata	1	0.50%	0	
Staurosirella martyi	1	0.50%	0	
Surirella angusta	1	0.50%	0	
Sample Count	**202**			

Taxa Listing

Project ID: CC15NWMP
RAI No.: CC15NWMP006

RAI No.: CC15NWMP006 **Sta. Name:** Fisher Creek
Client ID: SW-3
Date Coll.: 9/15/2015 **No Jars:** 1 **STORET ID:**
Sample Notes:

Taxonomic Name	Count	PRA	Abnorm.	Comment
Algae				
Bacillariophyta				
Diatoms	0			
Chlorophyta				
Stigeoclonium sp.	0			
Cyanophyta				
Pseudanabaena sp.	0			
Diatoms				
Bacillariophyta				
Achnanthidium minutissimum	20	2.49%	0	
Aulacoseira distans	2	0.25%	0	
Caloneis bacillum	2	0.25%	0	
Chamaepinnularia sp.	2	0.25%	0	
Eunotia exigua	767	95.64%	12	
Gomphonema parvulius	2	0.25%	0	
Pinnularia microstauron	6	0.75%	0	
Psammothidium marginulatum	1	0.12%	0	
Sample Count	**802**			

Taxa Listing

Project ID: CC15NWMP
RAI No.: CC15NWMP007

RAI No.: CC15NWMP007 **Sta. Name:** Fisher Creek
Client ID: SW-4
Date Coll.: 9/15/2015 **No Jars:** 1 **STORET ID:**
Sample Notes:

Taxonomic Name	Count	PRA	Abnorm.	Comment
Algae				
Bacillariophyta				
Diatoms	0			
Chlorophyta				
Pediastrum sp.	0			
Stigeoclonium sp.	0			
Cyanophyta				
Chamaesiphon sp.	0			
Heteroleibleinia sp.	0			
Leptolyngbya sp.	0			
Phormidium sp.	0			
Pseudanabaena sp.	0			
Diatoms				
Bacillariophyta				
Achnanthidium minutissimum	826	98.22%	0	
Chamaepinnularia soehrensis	3	0.36%	0	
Eolimna minima	1	0.12%	0	
Eunotia exigua	6	0.71%	0	
Fragilaria capucina v. gracilis	1	0.12%	0	
Nitzschia frustulum	2	0.24%	0	
Nitzschia palea	1	0.12%	0	
Pinnularia microstauron	1	0.12%	0	
Sample Count	**841**			

Taxa Listing

Project ID: CC15NWMP
RAI No.: CC15NWMP008

RAI No.: CC15NWMP008 **Sta. Name:** Clark Fork (Fisher Creek)
Client ID: CFY-2
Date Coll.: 9/16/2015 **No Jars:** 1 **STORET ID:**
Sample Notes:

Taxonomic Name	Count	PRA	Abnorm.	Comment
Algae				
Bacillariophyta				
Diatoms	0			
Chlorophyta				
Microspora sp.	0			
Stigeoclonium sp.	0			
Cyanophyta				
Calothrix sp.	0			
Chamaesiphon sp.	0			
Heteroleibleinia sp.	0			
Phormidium sp.	0			
Pseudanabaena sp.	0			
Diatoms				
Bacillariophyta				
Achnanthidium minutissimum	714	88.37%	0	
Chamaepinnularia soehrensis	1	0.12%	0	
Cocconeis placentula v. lineata	1	0.12%	0	
Delicata delicatula	1	0.12%	0	
Diatoma mesodon	4	0.50%	0	
Encyonema minutum	6	0.74%	0	
Encyonema silesiacum	8	0.99%	0	
Encyonema ventricosum	31	3.84%	0	
Eunotia exigua	2	0.25%	0	
Fragilaria capucina v. gracilis	30	3.71%	1	
Gomphonema micropus	3	0.37%	0	
Gomphonema parvulius	1	0.12%	0	
Hantzschia amphioxys	1	0.12%	0	
Navicula cryptocephala	1	0.12%	0	
Nitzschia inconspicua	2	0.25%	0	
Staurosira construens v. venter	1	0.12%	0	
Staurosirella pinnata	1	0.12%	0	
Sample Count	**808**			

Taxa Listing

Project ID: CC15NWMP
RAI No.: CC15NWMP009

RAI No.: CC15NWMP009 **Sta. Name:** Clark Fork (Fisher Creek) Duplicate
Client ID: CFY-2 dup
Date Coll.: 9/16/2015 **No Jars:** 1 **STORET ID:**
Sample Notes:

Taxonomic Name	Count	PRA	Abnorm.	Comment
Algae				
Bacillariophyta				
Diatoms	0			
Chlorophyta				
Microspora sp.	0			
Mougeotia sp.	0			
Stigeoclonium sp.	0			
Cyanophyta				
Calothrix sp.	0			
Chamaesiphon sp.	0			
Heteroleibleinia sp.	0			
Lyngbya sp.	0			
Phormidium sp.	0			
Pseudanabaena sp.	0			
Diatoms				
Bacillariophyta				
Achnanthidium minutissimum	707	84.98%	0	
Cocconeis placentula v. lineata	1	0.12%	0	
Diatoma anceps	1	0.12%	0	
Diatoma mesodon	2	0.24%	0	
Encyonema silesiacum	18	2.16%	0	
Encyonema ventricosum	39	4.69%	0	
Eunotia exigua	8	0.96%	0	
Fragilaria capucina v. gracilis	45	5.41%	4	
Fragilaria capucina v. perminuta	4	0.48%	0	
Meridion circulare	2	0.24%	0	
Nitzschia paleacea	1	0.12%	0	
Planothidium lanceolatum	1	0.12%	0	
Psammothidium sp.	1	0.12%	0	
Rossithidium nodosum	1	0.12%	0	
Staurosira construens v. venter	1	0.12%	0	
Sample Count	**832**			

Taxa Listing

Project ID: CC15NWMP
RAI No.: CC15NWMP010

RAI No.: CC15NWMP010 **Sta. Name:** Clark Fork River
Client ID: SW-6
Date Coll.: 9/16/2015 **No Jars:** 1 **STORET ID:**
Sample Notes:

Taxonomic Name	Count	PRA	Abnorm.	Comment
Algae				
Bacillariophyta				
Diatoms	0			
Chlorophyta				
Cosmarium sp.	0			
Microspora sp.	0			
Mougeotia sp.	0			
Spirogyra sp.	0			
Stigeoclonium sp.	0			
Chrysophyta				
Tribonema sp.	0			
Cyanophyta				
Calothrix sp.	0			
Chamaesiphon sp.	0			
Heteroleibleinia sp.	0			
Lyngbya sp.	0			
Phormidium sp.	0			
Pseudanabaena sp.	0			
Diatoms				
Bacillariophyta				
Achnanthes taeniata	12	1.42%	0	
Achnanthidium minutissimum	532	62.81%	0	
Aulacoseira distans	1	0.12%	0	
Caloneis bacillum	2	0.24%	0	
Cyclotella bodanica	1	0.12%	0	
Cymbella neocistula	118	13.93%	0	
Delicata delicatula	1	0.12%	0	
Diatoma mesodon	1	0.12%	0	
Diploneis elliptica	1	0.12%	0	
Encyonema silesiacum	9	1.06%	0	
Encyonema ventricosum	23	2.72%	0	
Eucocconeis laevis	2	0.24%	0	
Eunotia richbuttensis	1	0.12%	0	
Fragilaria capucina v. gracilis	39	4.60%	0	
Fragilaria capucina v. perminuta	30	3.54%	1	
Gomphonema micropus	28	3.31%	0	
Gomphonema olivaceum	5	0.59%	0	
Meridion circulare	1	0.12%	0	
Navicula cryptotenella	6	0.71%	0	
Nitzschia palea	16	1.89%	0	
Psammothidium marginulatum	3	0.35%	0	
Psammothidium subatomoides	1	0.12%	0	
Reimeria sinuata	2	0.24%	0	
Rossithidium nodosum	2	0.24%	0	

Taxa Listing

Project ID: CC15NWMP
RAI No.: CC15NWMP010

RAI No.: CC15NWMP010 **Sta. Name:** Clark Fork River
Client ID: SW-6
Date Coll.: 9/16/2015 **No Jars:** 1 **STORET ID:**
Sample Notes:

Taxonomic Name	Count	PRA	Abnorm.	Comment
Staurosira construens v. venter	8	0.94%	0	
Staurosirella pinnata	1	0.12%	0	
Ulnaria ulna	1	0.12%	0	
Sample Count	**847**			

Metrics Report

Project ID: CC15NWMP
Sample ID: CC15NWMP001
Station Name: Stillwater River
Client ID: SW-7
STORET ID:
Date Collected: 9/14/2015
Count Of Taxon: 40
Sum Of Count: 808

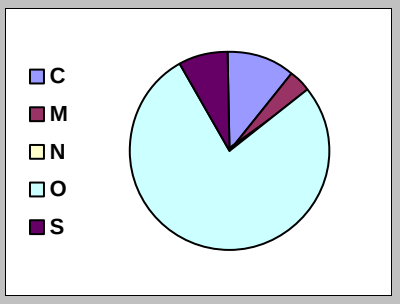
Metrics (Bahls 1993)

Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	2.975	Good	Fair
Species Richness	40	Excellent	Excellent
Native Taxa Percent	0.25%		
Cosmopolitan Taxa Percent	83.54%		
Mountains Rare Taxa Percent	0.25%		
Plains Rare Taxa Percent	0.00%		
Dominant Taxon Percent	49.63%	Good	Good
Sediment			
Siltation Taxa Percent	17.70%	Excellent	Excellent
Motile Taxa Percent	18.94%		
Mountains Brackish Taxa Percent	87.25%		
Plains Brackish Taxa Percent	0.62%		
Organic Nutrients			
Pollution Index	2.634	Excellent	Excellent
Nitrogen Heterotroph Taxa Percent	8.66%		
Polysaprobous Taxa Percent	16.96%		
Low DO Taxa Percent	8.54%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	84.28%		
Eutraphentic Taxa Percent	13.99%		
Rhopalodiales Percent	0.37%		
Metals			
Disturbance Taxa Percent	14.11%	Excellent	Excellent
Acidophilous Taxa Percent	0.00%		
Metals Tolerant Taxa Percent	11.88%		
Abnormal Cells Percent	0.00%	Excellent	

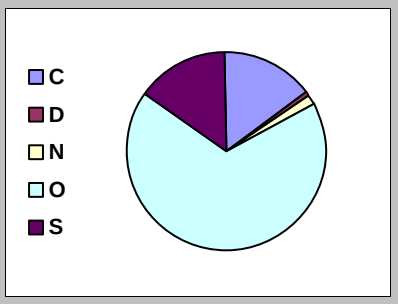
BioIndex	Description	Rating
MTM	Montana DEQ Mountains (Bahls 1992)	Good
MTP	Montana DEQ Plains (Bahls 1992)	Fair

Increaser/Decreaser Taxa (Teply and Bahls 2005)

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	13.00%	27.43%
Mountains Metals Increasers Taxa Percent	3.96%	5.26%
Mountains Sediment Increasers Taxa Percent	9.03%	20.90%



Metric	Value	Prob.
Plains General Decreasers Taxa Percent	0.99%	88.10%
Plains General Increasers Taxa Percent	18.32%	14.01%



Dominant Taxa

Category	A	PRA
Staurosira construens v. venter	401	49.63%
Achnanthidium minutissimum	114	14.11%
Nitzschia palea	61	7.55%
Encyonema ventricosum	36	4.46%
Nitzschia flexoides	28	3.47%
Gomphonema micropus	22	2.72%
Staurosirella pinnata	17	2.10%
Encyonema silesiacum	14	1.73%
Meridion circulare	13	1.61%
Staurosirella leptostauron	8	0.99%

Metrics Report

Project ID: CC15NWMP
Sample ID: CC15NWMP002
Station Name: Stillwater River
Client ID: SR-1
STORET ID:
Date Collected: 9/14/2015
Count Of Taxon: 23
Sum Of Count: 810

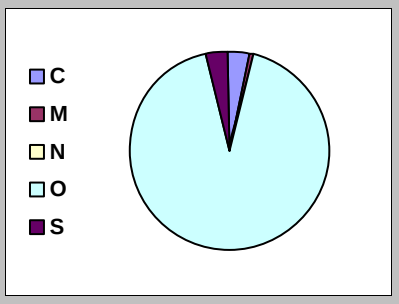
Metrics (Bahls 1993)

Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	2.546	Good	Fair
Species Richness	23	Good	Fair
Native Taxa Percent	0.00%		
Cosmopolitan Taxa Percent	39.38%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	0.00%		
Dominant Taxon Percent	47.04%	Good	Good
Sediment			
Siltation Taxa Percent	10.62%	Excellent	Excellent
Motile Taxa Percent	11.98%		
Mountains Brackish Taxa Percent	95.06%		
Plains Brackish Taxa Percent	0.62%		
Organic Nutrients			
Pollution Index	2.210	Good	Good
Nitrogen Heterotroph Taxa Percent	4.07%		
Polysaprobous Taxa Percent	60.12%		
Low DO Taxa Percent	3.70%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	94.20%		
Eutraphentic Taxa Percent	15.19%		
Rhopalodiales Percent	0.00%		
Metals			
Disturbance Taxa Percent	21.98%	Excellent	Excellent
Acidophilous Taxa Percent	0.74%		
Metals Tolerant Taxa Percent	15.93%		
Abnormal Cells Percent	0.00%	Excellent	

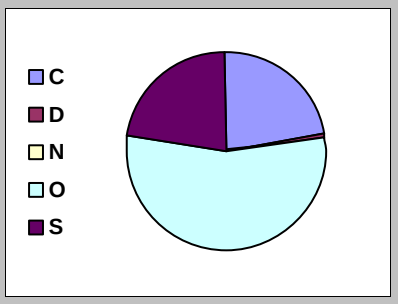
BioIndex	Description	Rating
MTM	Montana DEQ Mountains (Bahls 1992)	Good
MTP	Montana DEQ Plains (Bahls 1992)	Fair

Increaser/Decreaser Taxa (Teply and Bahls 2005)

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	3.95%	14.23%
Mountains Metals Increasers Taxa Percent	0.25%	3.14%
Mountains Sediment Increasers Taxa Percent	3.70%	12.10%



Metric	Value	Prob.
Plains General Decreasers Taxa Percent	0.62%	88.49%
Plains General Increasers Taxa Percent	29.51%	38.97%



Dominant Taxa

Category	A	PRA
Encyonema ventricosum	381	47.04%
Achnanthidium minutissimum	178	21.98%
Encyonema silesiacum	59	7.28%
Gomphonema micropus	49	6.05%
Surirella angusta	37	4.57%
Nitzschia palea	28	3.46%
Meridion circulare	23	2.84%
Pinnularia	8	0.99%
Eunotia exigua	6	0.74%
Navicula cryptocephala	6	0.74%

Metrics Report

Project ID: CC15NWMP
Sample ID: CC15NWMP003
Station Name: Stillwater River Duplicate
Client ID: SR-1 dup
STORET ID:
Date Collected: 9/14/2015
Count Of Taxon: 30
Sum Of Count: 801

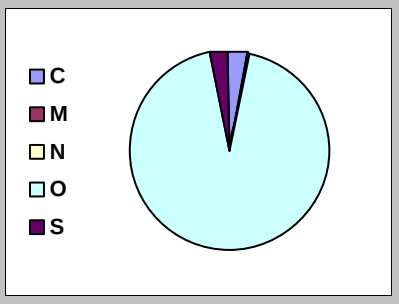
Metrics (Bahls 1993)

Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	2.601	Good	Fair
Species Richness	30	Excellent	Good
Native Taxa Percent	0.00%		
Cosmopolitan Taxa Percent	61.67%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	0.00%		
Dominant Taxon Percent	38.33%	Good	Good
Sediment			
Siltation Taxa Percent	6.99%	Excellent	Excellent
Motile Taxa Percent	7.87%		
Mountains Brackish Taxa Percent	96.50%		
Plains Brackish Taxa Percent	1.12%		
Organic Nutrients			
Pollution Index	2.414	Good	Excellent
Nitrogen Heterotroph Taxa Percent	3.00%		
Polysaprobous Taxa Percent	45.44%		
Low DO Taxa Percent	2.62%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	95.13%		
Eutraphentic Taxa Percent	10.11%		
Rhopalodiales Percent	0.00%		
Metals			
Disturbance Taxa Percent	38.33%	Good	Good
Acidophilous Taxa Percent	0.12%		
Metals Tolerant Taxa Percent	16.35%		
Abnormal Cells Percent	0.00%	Excellent	

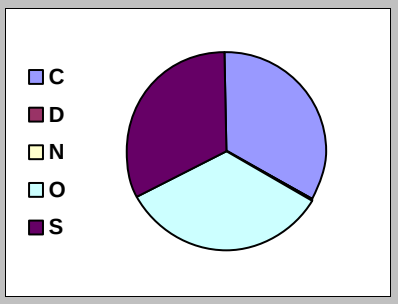
BioIndex	Description	Rating
MTM	Montana DEQ Mountains (Bahls 1992)	Good
MTP	Montana DEQ Plains (Bahls 1992)	Fair

Increaser/Decreaser Taxa (Teply and Bahls 2005)

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	3.37%	13.57%
Mountains Metals Increasers Taxa Percent	0.62%	3.29%
Mountains Nutrient Increasers Taxa Percent	0.12%	4.36%
Mountains Sediment Increasers Taxa Percent	2.62%	10.57%



Metric	Value	Prob.
Plains General Increasers Taxa Percent	49.81%	88.10%



Dominant Taxa

Category	A	PRA
Achnanthidium minutissimum	307	38.33%
Encyonema ventricosum	241	30.09%
Encyonema silesiacum	86	10.74%
Meridion circulare	43	5.37%
Gomphonema micropus	35	4.37%
Nitzschia palea	21	2.62%
Surirella angusta	15	1.87%
Planothidium frequentissimum	8	1.00%
Diatoma mesodon	6	0.75%
Navicula antonii	6	0.75%

Metrics Report

Project ID: CC15NWMP
Sample ID: CC15NWMP004
Station Name: Daisy Creek
Client ID: DC-5
STORET ID:
Date Collected: 9/15/2015
Count Of Taxon: 6
Sum Of Count: 843

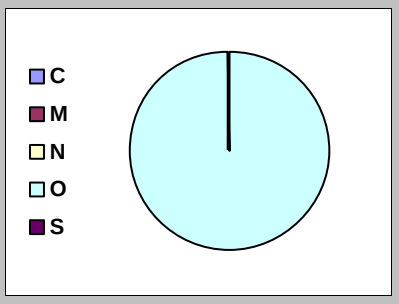
Metrics (Bahls 1993)

Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	0.105	Poor	Poor
Species Richness	6	Poor	Poor
Native Taxa Percent	0.00%		
Cosmopolitan Taxa Percent	99.17%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	0.00%		
Dominant Taxon Percent	98.93%	Poor	Poor
Sediment			
Siltation Taxa Percent	0.24%	Excellent	Excellent
Motile Taxa Percent	0.24%		
Mountains Brackish Taxa Percent	99.76%		
Plains Brackish Taxa Percent	0.00%		
Organic Nutrients			
Pollution Index	2.993	Excellent	Excellent
Nitrogen Heterotroph Taxa Percent	0.12%		
Polysaprobous Taxa Percent	0.71%		
Low DO Taxa Percent	0.00%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	99.64%		
Eutraphentic Taxa Percent	0.12%		
Rhopalodiales Percent	0.00%		
Metals			
Disturbance Taxa Percent	98.93%	Poor	Poor
Acidophilous Taxa Percent	0.12%		
Metals Tolerant Taxa Percent	0.12%		
Abnormal Cells Percent	0.00%	Excellent	

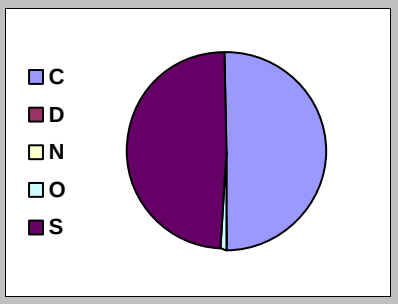
BioIndex	Description	Rating
MTM	Montana DEQ Mountains (Bahls 1992)	Poor
MTP	Montana DEQ Plains (Bahls 1992)	Poor

Increaser/Decreaser Taxa (Teply and Bahls 2005)

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	0.24%	10.38%
Mountains Metals Increasers Taxa Percent	0.12%	3.07%
Mountains Nutrient Increasers Taxa Percent	0.12%	4.36%



Metric	Value	Prob.
Plains General Increasers Taxa Percent	98.93%	99.38%



Dominant Taxa

Category	A	PRA
Achnanthidium minutissimum	834	98.93%
Encyonema ventricosum	5	0.59%
Nitzschia paleacea	1	0.12%
Nitzschia fonticola	1	0.12%
Eunotia	1	0.12%
Achnanthidium affine	1	0.12%

Metrics Report

Project ID: CC15NWMP
Sample ID: CC15NWMP005
Station Name: Daisy Creek
Client ID: DC-2
STORET ID:
Date Collected: 9/15/2015
Count Of Taxon: 29
Sum Of Count: 202

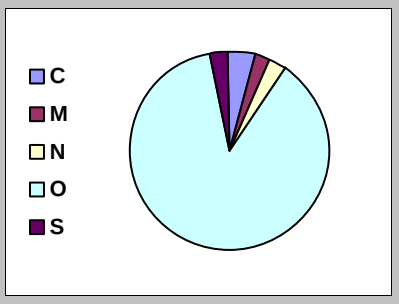
Metrics (Bahls 1993)

Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	2.994	Good	Fair
Species Richness	29	Good	Fair
Native Taxa Percent	0.00%		
Cosmopolitan Taxa Percent	83.66%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	2.97%		
Dominant Taxon Percent	41.58%	Good	Good
Sediment			
Siltation Taxa Percent	13.37%	Excellent	Excellent
Motile Taxa Percent	19.31%		
Mountains Brackish Taxa Percent	88.12%		
Plains Brackish Taxa Percent	3.47%		
Organic Nutrients			
Pollution Index	2.761	Excellent	Excellent
Nitrogen Heterotroph Taxa Percent	6.44%		
Polysaprobous Taxa Percent	35.64%		
Low DO Taxa Percent	0.50%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	86.14%		
Eutraphentic Taxa Percent	12.38%		
Rhopalodiales Percent	0.00%		
Metals			
Disturbance Taxa Percent	41.58%	Good	Good
Acidophilous Taxa Percent	28.22%		
Metals Tolerant Taxa Percent	5.45%		
Abnormal Cells Percent	4.95%	Fair	

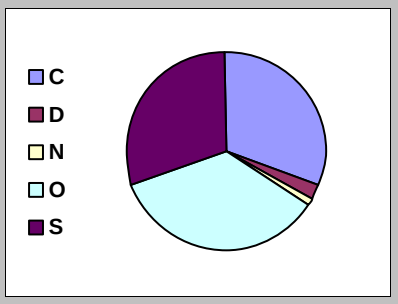
BioIndex	Description	Rating
MTM	Montana DEQ Mountains (Bahls 1992)	Fair
MTP	Montana DEQ Plains (Bahls 1992)	Fair

Increaser/Decreaser Taxa (Teply and Bahls 2005)

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	5.45%	16.11%
Mountains Metals Increasers Taxa Percent	1.98%	4.01%
Mountains Nutrient Increasers Taxa Percent	3.47%	6.68%
Mountains Sediment Increasers Taxa Percent	2.97%	11.12%



Metric	Value	Prob.
Plains General Decreasers Taxa Percent	3.47%	84.61%
Plains General Increasers Taxa Percent	45.05%	79.96%



Dominant Taxa

Category	A	PRA
Achnanthidium minutissimum	84	41.58%
Eunotia exigua	51	25.25%
Pinnularia microstauron	10	4.95%
Nitzschia frustulum	7	3.47%
Achnanthidium deflexum	6	2.97%
Nitzschia paleacea	4	1.98%
Encyonema silesiacum	4	1.98%
Encyonema ventricosum	4	1.98%
Navicula symmetrica	3	1.49%
Navicula cryptocephala	3	1.49%

Metrics Report

Project ID: CC15NWMP
Sample ID: CC15NWMP006
Station Name: Fisher Creek
Client ID: SW-3
STORET ID:
Date Collected: 9/15/2015
Count Of Taxon: 8
Sum Of Count: 802

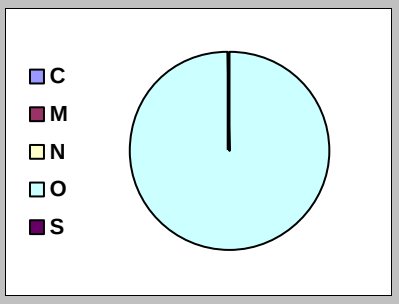
Metrics (Bahls 1993)

Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	0.345	Poor	Poor
Species Richness	8	Poor	Poor
Native Taxa Percent	0.00%		
Cosmopolitan Taxa Percent	98.13%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	0.00%		
Dominant Taxon Percent	95.64%	Poor	Poor
Sediment			
Siltation Taxa Percent	0.25%	Excellent	Excellent
Motile Taxa Percent	1.25%		
Mountains Brackish Taxa Percent	99.50%		
Plains Brackish Taxa Percent	0.37%		
Organic Nutrients			
Pollution Index	2.985	Excellent	Excellent
Nitrogen Heterotroph Taxa Percent	0.00%		
Polysaprobous Taxa Percent	95.64%		
Low DO Taxa Percent	0.00%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	99.50%		
Eutraphentic Taxa Percent	0.00%		
Rhopalodiales Percent	0.00%		
Metals			
Disturbance Taxa Percent	2.49%	Excellent	Excellent
Acidophilous Taxa Percent	96.01%		
Metals Tolerant Taxa Percent	0.00%		
Abnormal Cells Percent	1.50%	Good	

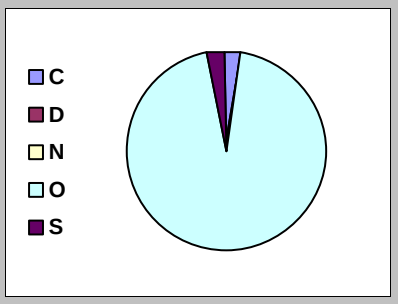
BioIndex	Description	Rating
MTM	Montana DEQ Mountains (Bahls 1992)	Poor
MTP	Montana DEQ Plains (Bahls 1992)	Poor

Increaser/Decreaser Taxa (Teply and Bahls 2005)

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	0.25%	10.38%
Mountains Metals Increasers Taxa Percent	0.25%	3.14%



Metric	Value	Prob.
Plains General Increasers Taxa Percent	2.49%	1.36%



Dominant Taxa

Category	A	PRA
Eunotia exigua	767	95.64%
Achnanthidium minutissimum	20	2.49%
Pinnularia microstauron	6	0.75%
Gomphonema parvulius	2	0.25%
Chamaepinnularia	2	0.25%
Caloneis bacillum	2	0.25%
Aulacoseira distans	2	0.25%
Achnanthes marginulata	1	0.12%

Metrics Report

Project ID: CC15NWMP
Sample ID: CC15NWMP007
Station Name: Fisher Creek
Client ID: SW-4
STORET ID:
Date Collected: 9/15/2015
Count Of Taxon: 8
Sum Of Count: 841

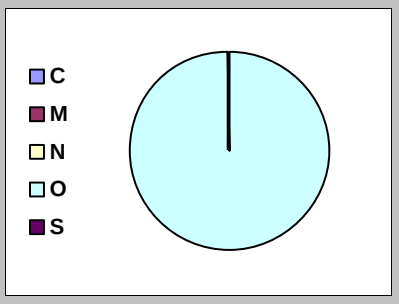
Metrics (Bahls 1993)

Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	0.172	Poor	Poor
Species Richness	8	Poor	Poor
Native Taxa Percent	0.00%		
Cosmopolitan Taxa Percent	99.41%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	0.00%		
Dominant Taxon Percent	98.22%	Poor	Poor
Sediment			
Siltation Taxa Percent	0.83%	Excellent	Excellent
Motile Taxa Percent	0.95%		
Mountains Brackish Taxa Percent	99.64%		
Plains Brackish Taxa Percent	0.36%		
Organic Nutrients			
Pollution Index	2.987	Excellent	Excellent
Nitrogen Heterotroph Taxa Percent	0.48%		
Polysaprobous Taxa Percent	0.95%		
Low DO Taxa Percent	0.24%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	99.52%		
Eutraphentic Taxa Percent	0.48%		
Rhopalodiales Percent	0.00%		
Metals			
Disturbance Taxa Percent	98.22%	Poor	Poor
Acidophilous Taxa Percent	1.07%		
Metals Tolerant Taxa Percent	0.36%		
Abnormal Cells Percent	0.00%	Excellent	

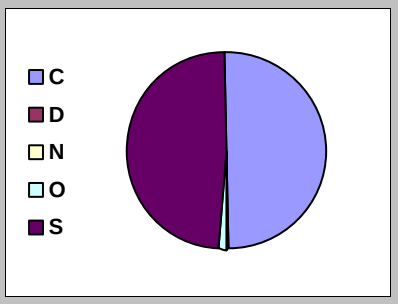
BioIndex	Description	Rating
MTM	Montana DEQ Mountains (Bahls 1992)	Poor
MTP	Montana DEQ Plains (Bahls 1992)	Poor

Increaser/Decreaser Taxa (Teply and Bahls 2005)

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	0.24%	10.38%
Mountains Metals Increasers Taxa Percent	0.12%	3.07%
Mountains Sediment Increasers Taxa Percent	0.12%	7.78%



Metric	Value	Prob.
Plains General Decreasers Taxa Percent	0.24%	88.88%
Plains General Increasers Taxa Percent	98.22%	99.38%



Dominant Taxa

Category	A	PRA
Achnanthidium minutissimum	826	98.22%
Eunotia exigua	6	0.71%
Chamaepinnularia soehrensis	3	0.36%
Nitzschia frustulum	2	0.24%
Pinnularia microstauron	1	0.12%
Nitzschia palea	1	0.12%
Fragilaria capucina v. gracilis	1	0.12%
Eolimna minima	1	0.12%

Metrics Report

Project ID: CC15NWMP
Sample ID: CC15NWMP008
Station Name: Clark Fork (Fisher Creek)
Client ID: CFY-2
STORET ID:
Date Collected: 9/16/2015
Count Of Taxon: 17
Sum Of Count: 808

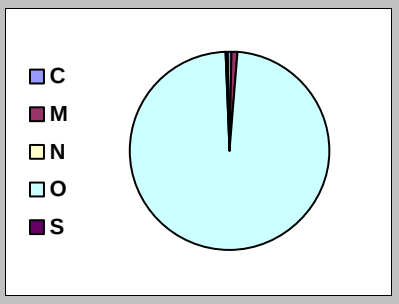
Metrics (Bahls 1993)

Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	0.839	Poor	Poor
Species Richness	17	Fair	Poor
Native Taxa Percent	0.00%		
Cosmopolitan Taxa Percent	91.21%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	0.00%		
Dominant Taxon Percent	88.37%	Poor	Poor
Sediment			
Siltation Taxa Percent	0.50%	Excellent	Excellent
Motile Taxa Percent	0.62%		
Mountains Brackish Taxa Percent	99.50%		
Plains Brackish Taxa Percent	0.62%		
Organic Nutrients			
Pollution Index	2.896	Excellent	Excellent
Nitrogen Heterotroph Taxa Percent	0.25%		
Polysaprobous Taxa Percent	6.31%		
Low DO Taxa Percent	0.00%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	99.50%		
Eutraphentic Taxa Percent	0.74%		
Rhopalodiales Percent	0.00%		
Metals			
Disturbance Taxa Percent	88.37%	Poor	Poor
Acidophilous Taxa Percent	0.37%		
Metals Tolerant Taxa Percent	5.45%		
Abnormal Cells Percent	0.12%	Good	

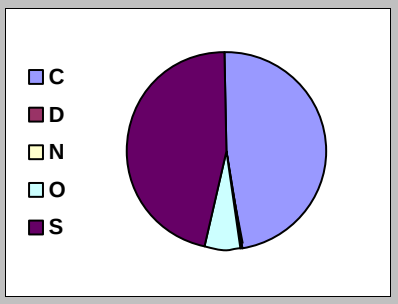
BioIndex	Description	Rating
MTM	Montana DEQ Mountains (Bahls 1992)	Poor
MTP	Montana DEQ Plains (Bahls 1992)	Poor

Increaser/Decreaser Taxa (Teply and Bahls 2005)

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	1.11%	11.31%
Mountains Metals Increasers Taxa Percent	0.87%	3.44%
Mountains Sediment Increasers Taxa Percent	0.25%	7.93%



Metric	Value	Prob.
Plains General Increasers Taxa Percent	90.10%	99.38%



Dominant Taxa

Category	A	PRA
Achnanthidium minutissimum	714	88.37%
Encyonema ventricosum	31	3.84%
Fragilaria capucina v. gracilis	30	3.71%
Encyonema silesiacum	8	0.99%
Encyonema minutum	6	0.74%
Diatoma mesodon	4	0.50%
Gomphonema micropus	3	0.37%
Nitzschia inconspicua	2	0.25%
Eunotia exigua	2	0.25%
Navicula cryptocephala	1	0.12%

Metrics Report

Project ID: CC15NWMP
Sample ID: CC15NWMP009
Station Name: Clark Fork (Fisher Creek) Duplicate
Client ID: CFY-2 dup
STORET ID:
Date Collected: 9/16/2015
Count Of Taxon: 15
Sum Of Count: 832

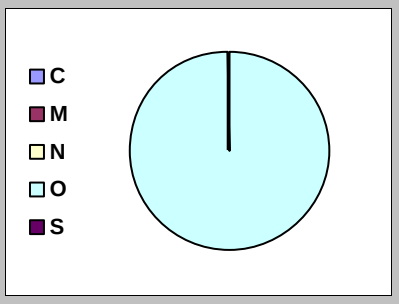
Metrics (Bahls 1993)

Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	0.979	Poor	Poor
Species Richness	15	Fair	Poor
Native Taxa Percent	0.00%		
Cosmopolitan Taxa Percent	88.82%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	0.00%		
Dominant Taxon Percent	84.98%	Poor	Poor
Sediment			
Siltation Taxa Percent	0.12%	Excellent	Excellent
Motile Taxa Percent	0.12%		
Mountains Brackish Taxa Percent	99.28%		
Plains Brackish Taxa Percent	0.36%		
Organic Nutrients			
Pollution Index	2.870	Excellent	Excellent
Nitrogen Heterotroph Taxa Percent	0.12%		
Polysaprobous Taxa Percent	8.05%		
Low DO Taxa Percent	0.00%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	99.28%		
Eutraphentic Taxa Percent	0.36%		
Rhopalodiales Percent	0.00%		
Metals			
Disturbance Taxa Percent	84.98%	Poor	Poor
Acidophilous Taxa Percent	0.96%		
Metals Tolerant Taxa Percent	8.29%		
Abnormal Cells Percent	0.48%	Good	

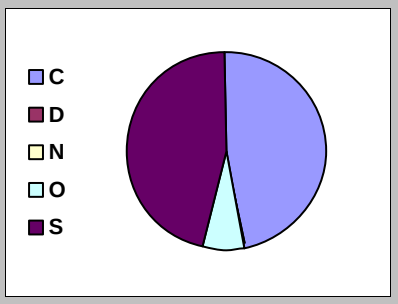
BioIndex	Description	Rating
MTM	Montana DEQ Mountains (Bahls 1992)	Poor
MTP	Montana DEQ Plains (Bahls 1992)	Poor

Increaser/Decreaser Taxa (Teply and Bahls 2005)

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	0.12%	10.38%
Mountains Nutrient Increasers Taxa Percent	0.12%	4.36%



Metric	Value	Prob.
Plains General Increasers Taxa Percent	87.14%	99.38%



Dominant Taxa

Category	A	PRA
Achnanthidium minutissimum	707	84.98%
Fragilaria capucina v. gracilis	45	5.41%
Encyonema ventricosum	39	4.69%
Encyonema silesiacum	18	2.16%
Eunotia exigua	8	0.96%
Fragilaria capucina v. perminuta	4	0.48%
Meridion circulare	2	0.24%
Diatoma mesodon	2	0.24%
Staurosira construens v. venter	1	0.12%
Psammothidium	1	0.12%

Metrics Report

Project ID: CC15NWMP
Sample ID: CC15NWMP010
Station Name: Clark Fork River
Client ID: SW-6
STORET ID:
Date Collected: 9/16/2015
Count Of Taxon: 27
Sum Of Count: 847

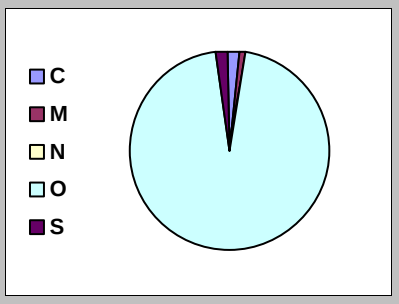
Metrics (Bahls 1993)

Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	2.145	Good	Fair
Species Richness	27	Good	Fair
Native Taxa Percent	0.00%		
Cosmopolitan Taxa Percent	70.01%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	0.00%		
Dominant Taxon Percent	62.81%	Fair	Fair
Sediment			
Siltation Taxa Percent	2.60%	Excellent	Excellent
Motile Taxa Percent	3.19%		
Mountains Brackish Taxa Percent	78.98%		
Plains Brackish Taxa Percent	1.06%		
Organic Nutrients			
Pollution Index	2.798	Excellent	Excellent
Nitrogen Heterotroph Taxa Percent	1.89%		
Polysaprobous Taxa Percent	5.79%		
Low DO Taxa Percent	1.89%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	78.28%		
Eutraphentic Taxa Percent	5.79%		
Rhopalodiales Percent	0.00%		
Metals			
Disturbance Taxa Percent	62.81%	Fair	Fair
Acidophilous Taxa Percent	0.59%		
Metals Tolerant Taxa Percent	11.10%		
Abnormal Cells Percent	0.12%	Good	

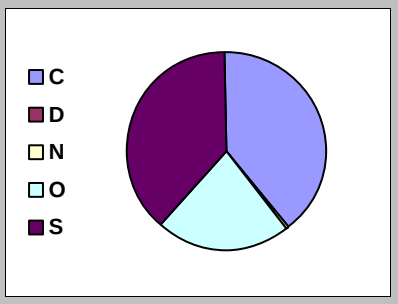
BioIndex	Description	Rating
MTM	Montana DEQ Mountains (Bahls 1992)	Fair
MTP	Montana DEQ Plains (Bahls 1992)	Fair

Increaser/Decreaser Taxa (Teply and Bahls 2005)

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	2.36%	12.51%
Mountains Metals Increasers Taxa Percent	0.35%	3.14%
Mountains Sediment Increasers Taxa Percent	2.01%	9.85%



Metric	Value	Prob.
Plains General Increasers Taxa Percent	64.70%	98.75%



Dominant Taxa

Category	A	PRA
Achnanthidium minutissimum	532	62.81%
Cymbella neocistula	118	13.93%
Fragilaria capucina v. gracilis	39	4.60%
Fragilaria capucina v. perminuta	30	3.54%
Gomphonema micropus	28	3.31%
Encyonema ventricosum	23	2.72%
Nitzschia palea	16	1.89%
Achnanthes taeniata	12	1.42%
Encyonema silesiacum	9	1.06%
Staurosira construens v. venter	8	0.94%

Non-Diatom Algae Study: New World Mine 2015 Non-Diatom Algae Data				Determinations by Rhithron Associates, Inc.		
RAI Sample ID	**Client ID**	**Sample Date**	**Taxon**	**Division**	**RA**	**RB**
CC15NWMP001	SW-7	9/14/2015	*Spirogyra*	Chlorophyta	VA	1
CC15NWMP001	SW-7	9/14/2015	Diatoms	Bacillariophyta	VA	2
CC15NWMP001	SW-7	9/14/2015	*Leptolyngbya*	Cyanophyta	VA	3
CC15NWMP001	SW-7	9/14/2015	*Nostoc*	Cyanophyta	VC	4
CC15NWMP001	SW-7	9/14/2015	*Mougeotia*	Chlorophyta	VC	5
CC15NWMP001	SW-7	9/14/2015	*Pseudanabaena*	Cyanophyta	C	6
CC15NWMP001	SW-7	9/14/2015	*Phormidium*	Cyanophyta	R	7
CC15NWMP002	SR-1	9/14/2015	Diatoms	Bacillariophyta	VC	1
CC15NWMP002	SR-1	9/14/2015	*Leptolyngbya*	Cyanophyta	C	2
CC15NWMP002	SR-1	9/14/2015	*Cladophora*	Chlorophyta	R	3
CC15NWMP002	SR-1	9/14/2015	*Phormidium*	Cyanophyta	R	4
CC15NWMP002	SR-1	9/14/2015	*Tribonema*	Chrysophyta	R	5
CC15NWMP002	SR-1	9/14/2015	*Anabaena*	Cyanophyta	R	6
CC15NWMP002	SR-1	9/14/2015	*Monoraphidium*	Chlorophyta	R	7
CC15NWMP002	SR-1	9/14/2015	*Pseudanabaena*	Cyanophyta	R	8
CC15NWMP003	SR-1 dup	9/14/2015	Diatoms	Bacillariophyta	VC	1
CC15NWMP003	SR-1 dup	9/14/2015	*Phormidium*	Cyanophyta	C	2
CC15NWMP003	SR-1 dup	9/14/2015	*Spirogyra*	Chlorophyta	R	3
CC15NWMP003	SR-1 dup	9/14/2015	*Cosmarium*	Chlorophyta	R	4
CC15NWMP003	SR-1 dup	9/14/2015	*Leptolyngbya*	Cyanophyta	R	5
CC15NWMP003	SR-1 dup	9/14/2015	*Pseudanabaena*	Cyanophyta	R	6
CC15NWMP004	DC-5	9/15/2015	*Phormidium*	Cyanophyta	C	1
CC15NWMP004	DC-5	9/15/2015	Diatoms	Bacillariophyta	VC	2
CC15NWMP004	DC-5	9/15/2015	*Heteroleibleinia*	Cyanophyta	C	3
CC15NWMP004	DC-5	9/15/2015	*Chamaesiphon*	Cyanophyta	R	4
CC15NWMP004	DC-5	9/15/2015	*Pseudanabaena*	Cyanophyta	R	5
CC15NWMP004	DC-5	9/15/2015	*Leptolyngbya*	Cyanophyta	R	6
CC15NWMP005	DC-2	9/15/2015	Diatoms	Bacillariophyta	R	1
CC15NWMP005	DC-2	9/15/2015	*Phormidium*	Cyanophyta	R	2
CC15NWMP005	DC-2	9/15/2015	*Chamaesiphon*	Cyanophyta	R	3
CC15NWMP005	DC-2	9/15/2015	*Leptolyngbya*	Cyanophyta	R	4
CC15NWMP005	DC-2	9/15/2015	*Heteroleibleinia*	Cyanophyta	R	5
CC15NWMP006	SW-3	9/15/2015	*Stigeoclonium*	Chlorophyta	VA	1
CC15NWMP006	SW-3	9/15/2015	Diatoms	Bacillariophyta	VC	2
CC15NWMP006	SW-3	9/15/2015	*Pseudanabaena*	Cyanophyta	R	3
CC15NWMP007	SW-4	9/15/2015	Diatoms	Bacillariophyta	A	1
CC15NWMP007	SW-4	9/15/2015	*Heteroleibleinia*	Cyanophyta	VA	2
CC15NWMP007	SW-4	9/15/2015	*Stigeoclonium*	Chlorophyta	C	3
CC15NWMP007	SW-4	9/15/2015	*Chamaesiphon*	Cyanophyta	C	4
CC15NWMP007	SW-4	9/15/2015	*Pseudanabaena*	Cyanophyta	VC	5
CC15NWMP007	SW-4	9/15/2015	*Phormidium*	Cyanophyta	R	6
CC15NWMP007	SW-4	9/15/2015	*Pediastrum*	Chlorophyta	R	7
CC15NWMP007	SW-4	9/15/2015	*Leptolyngbya*	Cyanophyta	R	8
CC15NWMP008	CFY-2	9/16/2015	Diatoms	Bacillariophyta	VC	1
CC15NWMP008	CFY-2	9/16/2015	*Calothrix*	Cyanophyta	VC	2
CC15NWMP008	CFY-2	9/16/2015	*Heteroleibleinia*	Cyanophyta	A	3
CC15NWMP008	CFY-2	9/16/2015	*Chamaesiphon*	Cyanophyta	VC	4
CC15NWMP008	CFY-2	9/16/2015	*Stigeoclonium*	Chlorophyta	R	5
CC15NWMP008	CFY-2	9/16/2015	*Microspora*	Chlorophyta	R	6
CC15NWMP008	CFY-2	9/16/2015	*Phormidium*	Cyanophyta	R	7
CC15NWMP008	CFY-2	9/16/2015	*Pseudanabaena*	Cyanophyta	R	8

Non-Diatom Algae Study: New World Mine 2015 Non-Diatom Algae Data				Determinations by Rhithron Associates, Inc.		
RAI Sample ID	**Client ID**	**Sample Date**	**Taxon**	**Division**	**RA**	**RB**
CC15NWMP009	CFY-2 dup	9/16/2015	*Microspora*	Chlorophyta	C	1
CC15NWMP009	CFY-2 dup	9/16/2015	Diatoms	Bacillariophyta	VC	2
CC15NWMP009	CFY-2 dup	9/16/2015	*Calothrix*	Cyanophyta	C	3
CC15NWMP009	CFY-2 dup	9/16/2015	*Chamaesiphon*	Cyanophyta	C	4
CC15NWMP009	CFY-2 dup	9/16/2015	*Heteroleibleinia*	Cyanophyta	VA	5
CC15NWMP009	CFY-2 dup	9/16/2015	*Mougeotia*	Chlorophyta	R	6
CC15NWMP009	CFY-2 dup	9/16/2015	*Stigeoclonium*	Chlorophyta	R	7
CC15NWMP009	CFY-2 dup	9/16/2015	*Lyngbya*	Cyanophyta	R	8
CC15NWMP009	CFY-2 dup	9/16/2015	*Phormidium*	Cyanophyta	R	9
CC15NWMP009	CFY-2 dup	9/16/2015	*Pseudanabaena*	Cyanophyta	R	10
CC15NWMP010	SW-6	9/16/2015	Diatoms	Bacillariophyta	VA	1
CC15NWMP010	SW-6	9/16/2015	*Mougeotia*	Chlorophyta	VC	2
CC15NWMP010	SW-6	9/16/2015	*Stigeoclonium*	Chlorophyta	VC	3
CC15NWMP010	SW-6	9/16/2015	*Calothrix*	Cyanophyta	VC	4
CC15NWMP010	SW-6	9/16/2015	*Heteroleibleinia*	Cyanophyta	VC	5
CC15NWMP010	SW-6	9/16/2015	*Microspora*	Chlorophyta	R	6
CC15NWMP010	SW-6	9/16/2015	*Spirogyra*	Chlorophyta	R	7
CC15NWMP010	SW-6	9/16/2015	*Phormidium*	Cyanophyta	R	8
CC15NWMP010	SW-6	9/16/2015	*Tribonema*	Chrysophyta	R	9
CC15NWMP010	SW-6	9/16/2015	*Lyngbya*	Cyanophyta	R	10
CC15NWMP010	SW-6	9/16/2015	*Cosmarium*	Chlorophyta	R	11
CC15NWMP010	SW-6	9/16/2015	*Chamaesiphon*	Cyanophyta	R	12
CC15NWMP010	SW-6	9/16/2015	*Pseudanabaena*	Cyanophyta	R	13