NEW WORLD MINE:
2014 MACROINVERTEBRATE AND PERIPHYTON SAMPLING

Data Summary Memo 03/26/2015

Prepared by:

CONFLUENCE CONSULTING INC
PO BOX 1133
BOZEMAN

TABLE OF CONTENTS

This document constitutes the QA/QC and Data Summary Report for the completion of the 2014 macroinvertebrate and periphyton sampling at the New World Mine Site. One additional monitoring event is scheduled, for 2015.

1. FIELD ACTIVITIES SUMMARY

Confluence Consulting Inc (Confluence) 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	9/16/2014
SR-1	Stillwater River	9/16/2014
DC-5	Daisy Creek	9/17/2014
DC-2	Daisy Creek	9/17/2014
SW-3	Fisher Creek	9/17/2014
SW-4	Fisher Creek	9/17/2014
CFY-2	Clarks Fork of the Yellowstone River *	9/18/2014
SW-6	Clarks Fork of the Yellowstone River	9/18/2014

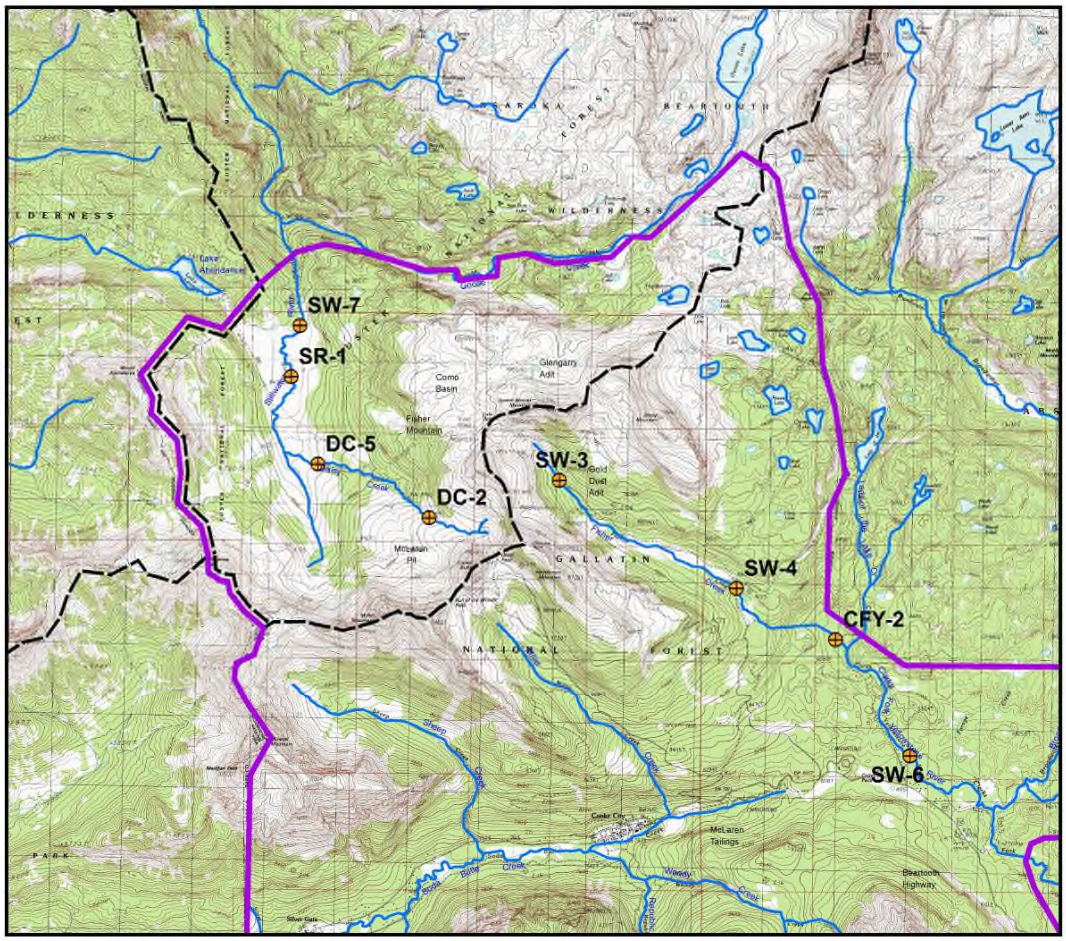
* See Section 2 for discussion of potential nomenclature discrepancy at this site.

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 (SW-4 and SW-7). Both periphyton and macroinvertebrate samples were collected at each site, and when analyzed show characteristic similarity. At SW-4, both the natural sample and the replicate display a dominant presence of the macroinvertebrate, *Sweltsa* (47.89% and 40.48%, respectively). The five most dominant macroinvertebrates at SW-7, however, were *Acari, Orthocladius, Sweltsa, Ceratopogoninae,* and *Limnephilidae,* the order of which only varying slightly between samples. In regards to the natural and replicate periphyton samples, there was a greater richness of species gathered in the natural samples compared to the replicates, as shown in Table 2. Aside from this, they were very similar.

As shown in Table 2 (below), both the natural samples and the replicate samples differ only slightly at SW-4. At SW-7, this can be attributed to variations within the stream, disturbances caused by field technicians, habitat distribution, etc.

Table 2: Natural vs Replicate sample comparison

Macroinvertebrate	SW-4	SW-4 Replicate	SW-7	SW-7 Replicate
Dominant Taxa Percent	47.89%	40.48%	31.28%	51.92%
Sediment Tolerant Richness	0.00%	0.00%	0.00%	0.00%
Metals Tolerance Index	1.000	2.622	4.489	4.661
Pollution Sensitive Richness	1	1	4	4
Periphyton				
Dominant Taxon Percent	97.25%	99.25%	20.50%	22.88%
Species Richness	10	4	42	35
Pollution Index	2.988	2.995	2.446	2.419
Siltation Taxa Percent	0.38%	0.00%	20.38%	19.63%
Disturbance Taxa Percent	97.25%	99.25%	4.88%	5.75%
Acidophilous Taxa Percent	0.38%	0.00%	0.38%	0.00%
Metals Tolerant Taxa Percent	0.88%	0.50%	27.38%	28.63%

Laboratory QAQC evaluated sorting efficiency for macroinvertebrate analysis, which averaged 96.11% for all samples, with all values above 92.73% 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 99.70%, and for the randomly selected invertebrate taxonomic QC sample the percent taxonomic disagreement (PTD) was 0%

and had a 0.30% percent difference in enumeration (PDE). All laboratory QA/QC statistics fell within acceptable industry criteria.

During field sampling, it was noted that the pH values recorded for some sites differed from informed expectation as to what those values should likely be as well as from the primary water quality measurements taken by the field crew performing water chemistry sampling. This was the case even after an apparently successful calibration check of the pH sensor. As the water quality field parameter data collected by Confluence were not required under the SAP, the suspect pH data are not reported here. Field pH and a full suite of laboratory metals and other water quality analyses are available for samples taken at the same site within 24 hours of the biological sampling reported here.

During the 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 Fisher 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	9.93	0.164	9.32
SR-1	9.64	0.162	8.72
DC-5	5.56	0.299	9.91
DC-2	11.59	0.441	8.05
SW-3	11.51	0.248	8.29
SW-4	10.61	0.124	8.32
CFY-2	5.5	0.114	-
SW-6	7.21	0.093	10.07

Field photos

Appendix A presents the field photographs taken during the 2014 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_2014_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_2014_Diatom_Metric_Data.xlsx**
   This file contains derivative metrics calculated from the diatom component of the raw periphyton data.
3. **New_World_Mine_2014_Diatom_Teply2010_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_2014_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_2014_MacroInvertebrate_Metric_Data**
   This file contains derivative metrics calculated from various assemblages present in the raw macroinvertebrate data.

6. **New_World_Mine_2014_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. SW-7 (Stillwater River) Substrate.

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

Photo 7. SR-1 (Stillwater River) Looking Downstream

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

Photo 9. SR-1 (Stillwater River) Substrate.

Photo 10. SR-1 (Stillwater River) Substrate.

Photo 11. DC-5 (Daisy Creek) Looking Upstream.

Photo 12. DC-5 (Daisy Creek) Looking Downstream.

Photo 13. DC-5 (Daisy Creek) Site.

Photo 13. DC-5 (Daisy Creek) Substrate.

Photo 14. DC-5 (Daisy Creek) Substrate.

Photo 15. DC-2 (Daisy Creek) Looking Upstream.

Photo 16. DC-2 (Daisy Creek) Looking Downstream.

Photo 17. DC-2 (Daisy Creek) Site.

Photo 17. DC-2 (Daisy Creek) Substrate.

Photo 18. DC-2 (Daisy Creek) Substrate.

Photo 19. SW-3 (Fisher Creek) Looking Upstream.

Photo 20. SW-3 (Fisher Creek) Looking Downstream.

Photo 21. SW-3 (Fisher Creek) Site.

Photo 22. SW-3 (Fisher Creek) Substrate.

Photo 23. SW-3 (Fisher Creek) Substrate.

Photo 24. SW-4 (Fisher Creek) Looking Upstream.

Photo 25. SW-4 (Fisher Creek) Looking Downstream.

Photo 26. SW-4 (Fisher Creek) Site.

Photo 27. SW-4 (Fisher Creek) Substrate.

Photo 28. SW-4 (Fisher Creek) Substrate.

Photo 29. SW-4 (Fisher Creek) Looking Downstream.

Photo 30. CFY-2 (Fisher Creek) Looking Upstream.

Photo 31. CFY-2 (Fisher Creek) Looking Downstream.

Photo 32. CFY-2 (Fisher Creek) Site.

Photo 33. CFY-2 (Fisher Creek) Substrate.

Photo 34. CFY-2 (Fisher Creek) Substrate.

Photo 34. SW-6 (Clarks Fork of the Yellowstone River) Looking Upstream.

Photo 35. SW-6 (Clarks Fork of the Yellowstone River) Looking Downstream.

Photo 36. SW-6 (Clarks Fork of the Yellowstone River) Site.

Photo 37. SW-6 (Clarks Fork of the Yellowstone River) Substrate.

Photo 37. SW-6 (Clarks Fork of the Yellowstone River) Substrate.

Appendix B
Technical Summary

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.

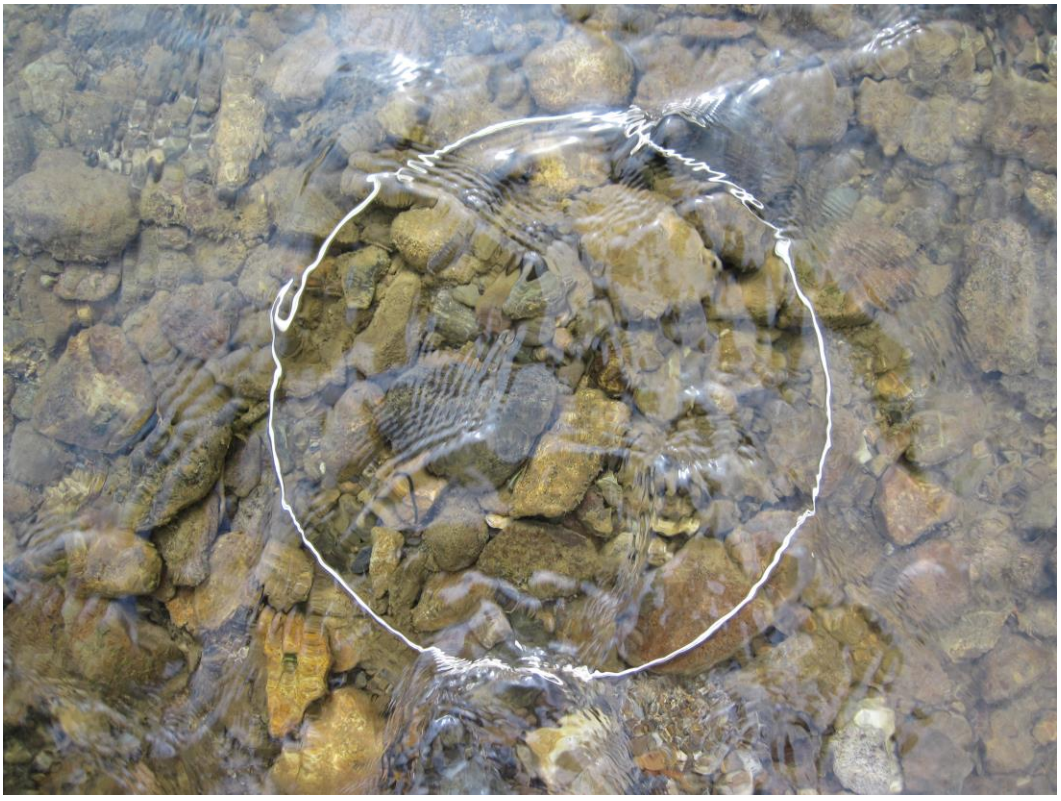


Photo 4. SW-7 (Stillwater River) Substrate.

Photo 5. SW-7 (Stillwater River) Substrate.

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

Photo 7. SR-1 (Stillwater River) Looking Downstream

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

Photo 9. SR-1 (Stillwater River) Substrate.

Photo 10. SR-1 (Stillwater River) Substrate.

Photo 11. DC-5 (Daisy Creek) Looking Upstream.

Photo 12. DC-5 (Daisy Creek) Looking Downstream.

Photo 13. DC-5 (Daisy Creek) Site.

Photo 13. DC-5 (Daisy Creek) Substrate.

Photo 14. DC-5 (Daisy Creek) Substrate.

Photo 15. DC-2 (Daisy Creek) Looking Upstream.

Photo 16. DC-2 (Daisy Creek) Looking Downstream.

Photo 17. DC-2 (Daisy Creek) Site.

Photo 17. DC-2 (Daisy Creek) Substrate.

Photo 18. DC-2 (Daisy Creek) Substrate.

Photo 19. SW-3 (Fisher Creek) Looking Upstream.

Photo 20. SW-3 (Fisher Creek) Looking Downstream.

Photo 21. SW-3 (Fisher Creek) Site.

Photo 22. SW-3 (Fisher Creek) Substrate.

Photo 23. SW-3 (Fisher Creek) Substrate.

Photo 24. SW-4 (Fisher Creek) Looking Upstream.

Photo 25. SW-4 (Fisher Creek) Looking Downstream.

Photo 26. SW-4 (Fisher Creek) Site.

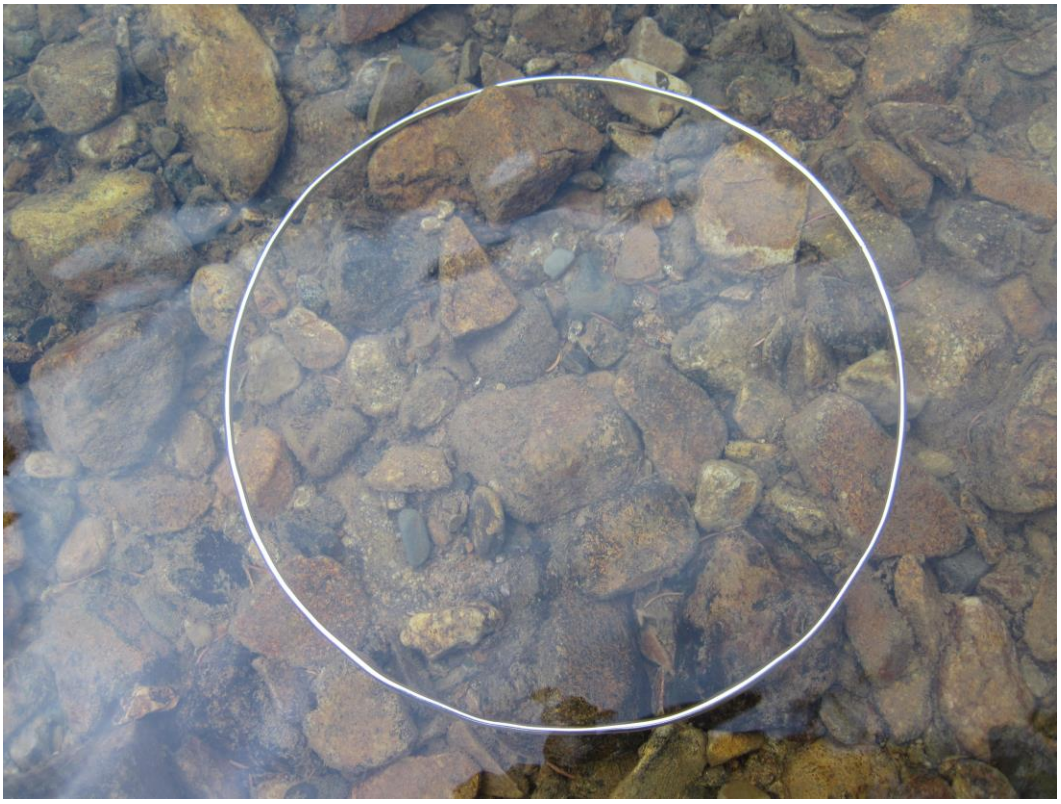


Photo 27. SW-4 (Fisher Creek) Substrate.

Photo 28. SW-4 (Fisher Creek) Substrate.

Photo 29. SW-4 (Fisher Creek) Looking Downstream.

Photo 30. CFY-2 (Fisher Creek) Looking Upstream.

Photo 31. CFY-2 (Fisher Creek) Looking Downstream.

Photo 32. CFY-2 (Fisher Creek) Site.

Photo 33. CFY-2 (Fisher Creek) Substrate.

Photo 34. CFY-2 (Fisher Creek) Substrate.

Photo 34. SW-6 (Clarks Fork of the Yellowstone River) Looking Upstream.

Photo 35. SW-6 (Clarks Fork of the Yellowstone River) Looking Downstream.

Photo 36. SW-6 (Clarks Fork of the Yellowstone River) Site.

Photo 37. SW-6 (Clarks Fork of the Yellowstone River) Substrate.

Photo 37. 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
November 20, 2014

by
W. Bollman, Chief Biologist
Rhithron Associates, Inc.
Missoula, Montana

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 22, 2014. 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.

Sample CC14NWMP005 (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 96.11%. Taxonomic precision for identification and enumeration was 99.70% measured by the Bray-Curtis index, 0% PTD and 0.30% 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.

REFERENCES

ANSP. 2002. Protocols for the analysis of algal samples collected as part of the U.S. Geological Survey National Water-Quality Assessment Program. The Academy of Natural Sciences Patrick Center for Environmental Research: Report No. 02-06. May 2002.

Bray, J. R. and J. T. Curtis. 1957. An ordination of upland forest communities of southern Wisconsin. Ecological Monographs 27: 325-349.

Caton, L. W. 1991. Improving subsampling methods for the EPA's "Rapid Bioassessment" benthic protocols. Bulletin of the North American Benthological Society. 8(3): 317-319.

MDEQ. 2006. Sample Collection, Sorting, and Taxonomic Identification of Benthic Macroinvertebrates. Montana Department of Environmental Quality. Water Quality Planning Bureau. Standard Operating Procedure. WQPBWQM-009. Helena, Montana.

MDEQ. 2012. Sample Collection, Sorting, Taxonomic Identification, and Analysis of Benthic Macroinvertebrate Communities Standard Operating Procedure. Montana Department of Environmental Quality. Water Quality Planning Bureau. Standard Operating Procedure. WQPBWQM-009 Rev. 3. Helena, Montana.

Stribling, J.B., S.R Moulton II and G.T. Lester. 2003. Determining the quality of taxonomic data. J.N. Am. Benthol. Soc. 22(4): 621-631.

Teply, M. 2010. Diatom Biocriteria for Montana Streams. Cramer Fish Sciences. Lacey, Washington. December 2010.

USEPA. 2004. Wadeable Stream Assessment: Benthic Laboratory Methods. EPA841-B-04-007. U.S. Environmental Protection Agency, Office of Water and Office of Research and Development, Washington, DC.

Table 1. *Results of internal quality control procedures for macroinvertebrate subsampling and taxonomy.* New World Mine Project, 2014.

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)
CC14NWM001	SW-7	Stillwater River	100.00%			
CC14NWM002	SW-7 rep	Stillwater River Field Rep	96.44%			
CC14NWM003	SR-1	Stillwater River	93.06%	99.70%	0.00%	0.30%
CC14NWM004	DC-5	Daisy Creek	100.00%			
CC14NWM005	DC-2	Daisy Creek	100.00%			
CC14NWM006	SW-3	Fisher Creek	92.73%			
CC14NWM007	SW-4	Fisher Creek	100.00%			
CC14NWM008	SW-4 rep	Fisher Creek Rep	81.82% Rectified: 100%			
CC14NWM009	CFY-2	Clark Fork River	100.00%			
CC14NWM010	SW-6	Clark Fork River	97.04%			

APPENDIX

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

New World Mine Project
2014

Taxa Listing

Project ID: CC14NWM
RAI No.: CC14NWM001

RAI No.: CC14NWM001 **Sta. Name:** Stillwater River
Client ID: SW-7
Date Coll.: 9/16/2014 **No. Jars:** 1 **STORET ID:**

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Other Non-Insect							
Ostracoda	4	2.23%	Yes	Unknown		8	CG
Acari	56	31.28%	Yes	Unknown		5	PR
Planariidae							
Polycelis sp.	7	3.91%	Yes	Unknown		1	OM
Ephemeroptera							
Ameletidae							
Ameletus sp.	2	1.12%	Yes	Larva		0	SC
Plecoptera							
Chloroperlidae							
Chloroperlidae	4	2.23%	No	Larva	Damaged	1	PR
Sweltsa sp.	19	10.61%	Yes	Larva		0	PR
Nemouridae							
Nemouridae	1	0.56%	No	Larva	Damaged	2	SH
Zapada columbiana	2	1.12%	Yes	Larva		2	SH
Perlodidae							
Megarcys sp.	4	2.23%	Yes	Larva		1	PR
Trichoptera							
Hydropsychidae							
Parapsyche elsis	1	0.56%	Yes	Larva		1	PR
Limnephilidae							
Limnephilidae	10	5.59%	Yes	Larva	Early Instar	3	SH
Rhyacophilidae							
Rhyacophila Betteni Gr.	1	0.56%	Yes	Larva		0	PR
Rhyacophila Vofixa Gr.	7	3.91%	Yes	Larva		0	PR
Coleoptera							
Dytiscidae							
Dytiscidae	7	3.91%	Yes	Larva		5	PR
Elmidae							
Heterlimnius corpulentus	1	0.56%	Yes	Larva		3	CG
Diptera							
Ceratopogonidae							
Ceratopogoninae	12	6.70%	Yes	Larva		6	PR
Chironomidae							
Chironomidae							
Micropsectra sp.	1	0.56%	Yes	Larva		4	CG
Orthocladius sp.	40	22.35%	Yes	Larva		6	CG
Sample Count	**179**						

Taxa Listing

Project ID: CC14NWM
RAI No.: CC14NWM002

RAI No.: CC14NWM002 **Sta. Name:** Stillwater River Field Rep
Client ID: SW-7 rep
Date Coll.: 9/16/2014 **No. Jars:** 1 **STORET ID:**

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Other Non-Insect							
Nemata	1	0.48%	Yes	Unknown		5	UN
Acari	37	17.79%	Yes	Unknown		5	PR
Ephemeroptera							
Ephemerellidae							
Drunella coloradensis	1	0.48%	Yes	Larva		0	SC
Plecoptera							
Chloroperlidae							
Chloroperlidae	2	0.96%	No	Larva	Damaged	1	PR
Sweltsa sp.	10	4.81%	Yes	Larva		0	PR
Nemouridae							
Zapada columbiana	3	1.44%	Yes	Larva		2	SH
Perlodidae							
Megarcys sp.	2	0.96%	Yes	Larva		1	PR
Trichoptera							
Hydropsychidae							
Parapsyche elsis	1	0.48%	Yes	Larva		1	PR
Limnephilidae							
Limnephilidae	10	4.81%	Yes	Larva	Early Instar	3	SH
Rhyacophilidae							
Rhyacophila Betteni Gr.	1	0.48%	Yes	Larva		0	PR
Rhyacophila Vofixa Gr.	3	1.44%	Yes	Larva		0	PR
Coleoptera							
Dytiscidae							
Dytiscidae	1	0.48%	No	Larva		5	PR
Oreodytes sp.	2	0.96%	Yes	Adult		5	PR
Elmidae							
Heterlimnius corpulentus	8	3.85%	Yes	Larva		3	CG
Diptera							
Ceratopogonidae							
Ceratopogoninae	14	6.73%	Yes	Larva		6	PR
Chironomidae							
Chironomidae							
Polypedilum sp.	1	0.48%	Yes	Larva		6	SH
Pagastia sp.	1	0.48%	Yes	Larva		1	CG
Limnophyes sp.	1	0.48%	Yes	Larva		8	CG
Orthocladius sp.	108	51.92%	Yes	Larva		6	CG
Zavrelimyia sp.	1	0.48%	Yes	Larva		8	PR
Sample Count	**208**						

Taxa Listing

Project ID: CC14NWM
RAI No.: CC14NWM003

RAI No.: CC14NWM003 **Sta. Name:** Stillwater River
Client ID: SR-1
Date Coll.: 9/16/2014 **No. Jars:** 1 **STORET ID:**

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Other Non-Insect							
Nemata	1	0.60%	Yes	Unknown		5	UN
Acari	69	41.57%	Yes	Unknown		5	PR
Planariidae							
Polycelis sp.	3	1.81%	Yes	Unknown		1	OM
Plecoptera							
Chloroperlidae							
Chloroperlidae	1	0.60%	No	Larva	Damaged	1	PR
Sweltsa sp.	4	2.41%	Yes	Larva		0	PR
Leuctridae							
Leuctridae	1	0.60%	Yes	Larva	Damaged	0	SH
Nemouridae							
Visoka cataractae	1	0.60%	Yes	Larva		0	SH
Perlidae							
Calineuria californica	1	0.60%	Yes	Larva		2	PR
Perlodidae							
Megarcys sp.	1	0.60%	Yes	Larva		1	PR
Trichoptera							
Hydropsychidae							
Parapsyche elsis	1	0.60%	Yes	Larva		1	PR
Rhyacophilidae							
Rhyacophila atrata complex	1	0.60%	Yes	Larva		0	PR
Rhyacophila Vofixa Gr.	7	4.22%	Yes	Larva		0	PR
Coleoptera							
Dytiscidae							
Dytiscidae	1	0.60%	Yes	Larva		5	PR
Diptera							
Ceratopogonidae							
Ceratopogoninae	54	32.53%	Yes	Larva		6	PR
Tipulidae							
Rhabdomastix Setigera Gr.	2	1.20%	Yes	Larva		3	CG
Chironomidae							
Chironomidae							
Orthocladius sp.	18	10.84%	Yes	Larva		6	CG
Sample Count	**166**						

Taxa Listing

Project ID: CC14NWM
RAI No.: CC14NWM004

RAI No.: CC14NWM004 **Sta. Name:** Daisy Creek
Client ID: DC-5
Date Coll.: 9/17/2014 **No. Jars:** 1 **STORET ID:**

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Plecoptera							
Chloroperlidae							
Sweltsa sp.	1	7.69%	Yes	Larva		0	PR
Trichoptera							
Hydropsychidae							
Parapsyche sp.	2	15.38%	Yes	Larva	Early Instar	0	PR
Diptera							
Ceratopogonidae							
Ceratopogoninae	5	38.46%	Yes	Larva		6	PR
Dolichopodidae							
Dolichopodidae	1	7.69%	Yes	Larva		4	PR
Empididae							
Oreogeton sp.	3	23.08%	Yes	Larva		4	PR
Tipulidae							
Rhabdomastix Setigera Gr.	1	7.69%	Yes	Larva		3	CG
Sample Count	**13**						

Taxa Listing

Project ID: CC14NWM
RAI No.: CC14NWM005

RAI No.: CC14NWM005 **Sta. Name:** Daisy Creek
Client ID: DC-2
Date Coll.: 9/17/2014 **No. Jars:** 1 **STORET ID:**

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Other Non-Insect							
Acari	1	33.33%	Yes	Unknown		5	PR
Coleoptera							
Dytiscidae							
Dytiscidae	2	66.67%	Yes	Larva		5	PR
Sample Count	**3**						

Taxa Listing

Project ID: CC14NWM
RAI No.: CC14NWM006

RAI No.: CC14NWM006 **Sta. Name:** Fisher Creek
Client ID: SW-3
Date Coll.: 9/17/2014 **No. Jars:** 1 **STORET ID:**

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Other Non-Insect							
Acari	2	1.96%	Yes	Unknown		5	PR
Plecoptera							
Chloroperlidae							
Chloroperlidae	1	0.98%	Yes	Larva	Early Instar	1	PR
Leuctridae							
Leuctridae	1	0.98%	Yes	Larva	Damaged	0	SH
Trichoptera							
Limnephilidae							
Hesperophylax sp.	1	0.98%	Yes	Larva		3	SH
Limnephilidae	2	1.96%	No	Larva	Early Instar	3	SH
Psychoglypha sp.	4	3.92%	Yes	Larva		0	SH
Rhyacophilidae							
Rhyacophila sp.	1	0.98%	Yes	Larva	Early Instar	1	PR
Diptera							
Empididae							
Oreogeton sp.	1	0.98%	Yes	Larva		4	PR
Tipulidae							
Dicranota sp.	1	0.98%	Yes	Larva		3	PR
Chironomidae							
Chironomidae							
Pagastia sp.	1	0.98%	Yes	Larva		1	CG
Brillia sp.	1	0.98%	Yes	Larva		4	SH
Chaetocladius sp.	83	81.37%	Yes	Larva		6	CG
Parametriocnemus sp.	1	0.98%	Yes	Larva		5	CG
Tvetenia Bavarica Gr.	2	1.96%	Yes	Larva		5	CG
Sample Count	**102**						

Taxa Listing

Project ID: CC14NWM
RAI No.: CC14NWM007

RAI No.: CC14NWM007 **Sta. Name:** Fisher Creek
Client ID: SW-4
Date Coll.: 9/17/2014 **No. Jars:** 1 **STORET ID:**

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Ephemeroptera							
Ameletidae							
Ameletus sp.	11	15.49%	Yes	Larva		0	SC
Plecoptera							
Chloroperlidae							
Chloroperlidae	12	16.90%	No	Larva	Early Instar	1	PR
Sweltsa sp.	34	47.89%	Yes	Larva		0	PR
Trichoptera							
Trichoptera	1	1.41%	No	Larva	Damaged	11	UN
Limnephilidae							
Limnephilidae	5	7.04%	Yes	Larva	Early Instar	3	SH
Rhyacophilidae							
Rhyacophila Vofixa Gr.	1	1.41%	Yes	Larva		0	PR
Diptera							
Tipulidae							
Rhabdomastix Setigera Gr.	3	4.23%	Yes	Larva		3	CG
Chironomidae							
Chironomidae							
Chaetocladius sp.	4	5.63%	Yes	Larva		6	CG
Sample Count	**71**						

Taxa Listing

Project ID: CC14NWM
RAI No.: CC14NWM008

RAI No.: CC14NWM008 **Sta. Name:** Fisher Creek Rep
Client ID: SW-4 rep
Date Coll.: 9/17/2014 **No. Jars:** 1 **STORET ID:**

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Ephemeroptera							
Ameletidae							
Ameletus sp.	21	25.00%	Yes	Larva		0	SC
Plecoptera							
Chloroperlidae							
Chloroperlidae	6	7.14%	No	Larva	Early Instar	1	PR
Sweltsa sp.	34	40.48%	Yes	Larva		0	PR
Trichoptera							
Trichoptera	1	1.19%	No	Pupa	Damaged	11	UN
Hydropsychidae							
Parapsyche elsis	1	1.19%	Yes	Larva		1	PR
Limnephilidae							
Limnephilidae	2	2.38%	Yes	Larva	Early Instar	3	SH
Coleoptera							
Dytiscidae							
Oreodytes sp.	1	1.19%	Yes	Adult		5	PR
Diptera							
Ceratopogonidae							
Ceratopogoninae	6	7.14%	Yes	Larva		6	PR
Tipulidae							
Rhabdomastix Setigera Gr.	2	2.38%	Yes	Larva		3	CG
Chironomidae							
Chironomidae							
Chaetocladius sp.	1	1.19%	Yes	Larva		6	CG
Orthocladius sp.	1	1.19%	Yes	Larva		6	CG
Rheocricotopus sp.	8	9.52%	Yes	Larva		4	CG
Sample Count	**84**						

Taxa Listing

Project ID: CC14NWM
RAI No.: CC14NWM009

RAI No.: CC14NWM009 **Sta. Name:** Clark Fork River
Client ID: CFY-2
Date Coll.: 9/18/2014 **No. Jars:** 1 **STORET ID:**

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Other Non-Insect							
Nemata	1	0.27%	Yes	Unknown		5	UN
Ephemeroptera							
Ameletidae							
Ameletus sp.	26	6.95%	Yes	Larva		0	SC
Heptageniidae							
Cinygmula sp.	5	1.34%	Yes	Larva		0	SC
Epeorus grandis	83	22.19%	Yes	Larva		0	SC
Rhithrogena sp.	61	16.31%	Yes	Larva		0	SC
Plecoptera							
Chloroperlidae							
Paraperla sp.	2	0.53%	Yes	Larva		1	CG
Sweltsa sp.	27	7.22%	Yes	Larva		0	PR
Nemouridae							
Visoka cataractae	1	0.27%	Yes	Larva		0	SH
Zapada columbiana	69	18.45%	Yes	Larva		2	SH
Perlidae							
Doroneuria sp.	18	4.81%	Yes	Larva		0	PR
Perlidae	2	0.53%	No	Larva	Early Instar	2	PR
Perlodidae							
Megarcys sp.	2	0.53%	Yes	Larva		1	PR
Trichoptera							
Glossosomatidae							
Glossosomatidae	1	0.27%	Yes	Pupa		0	SC
Hydropsychidae							
Arctopsychinae	13	3.48%	No	Larva	Early Instar	2	PR
Parapsyche elsis	21	5.61%	Yes	Larva		1	PR
Limnephilidae							
Limnephilidae	4	1.07%	Yes	Larva	Early Instar	3	SH
Rhyacophilidae							
Rhyacophila atrata complex	4	1.07%	Yes	Larva		0	PR
Rhyacophila Betteni Gr.	5	1.34%	Yes	Larva		0	PR
Rhyacophila Brunnea/Vemna Gr.	3	0.80%	Yes	Larva		2	PR
Rhyacophila Hyalinata Gr.	1	0.27%	Yes	Larva		0	PR
Rhyacophila narvae	3	0.80%	Yes	Larva		0	PR
Chironomidae							
Chironomidae							
Potthastia Gaedii Gr.	2	0.53%	Yes	Larva		2	CG
Brillia sp.	3	0.80%	Yes	Larva		4	SH
Orthocladiinae	1	0.27%	No	Pupa	Damaged	6	CG
Orthocladius sp.	14	3.74%	Yes	Larva		6	CG
Rheocricotopus sp.	2	0.53%	Yes	Larva		4	CG
Sample Count	**374**						

Taxa Listing

Project ID: CC14NWM
RAI No.: CC14NWM010

RAI No.: CC14NWM010 **Sta. Name:** Clark Fork River
Client ID: SW-6
Date Coll.: 9/18/2014 **No. Jars:** 1 **STORET ID:**

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Other Non-Insect							
Acari	4	0.77%	Yes	Unknown		5	PR
Ephemeroptera							
Ameletidae							
Ameletus sp.	28	5.39%	Yes	Larva		0	SC
Baetidae							
Baetis bicaudatus complex	22	4.24%	Yes	Larva		1	CG
Baetis Rhodani Gr.	7	1.35%	No	Larva	Damaged	11	CG
Baetis tricaudatus complex	2	0.39%	Yes	Larva		5	CG
Ephemerellidae							
Ephemerellidae	1	0.19%	Yes	Larva	Early Instar	1	CG
Heptageniidae							
Cinygmula sp.	17	3.28%	Yes	Larva		0	SC
Rhithrogena sp.	149	28.71%	Yes	Larva		0	SC
Plecoptera							
Chloroperlidae							
Chloroperlidae	1	0.19%	No	Larva	Early Instar	1	PR
Sweltsa sp.	123	23.70%	Yes	Larva		0	PR
Nemouridae							
Visoka cataractae	2	0.39%	Yes	Larva		0	SH
Zapada columbiana	68	13.10%	Yes	Larva		2	SH
Perlidae							
Doroneuria sp.	10	1.93%	Yes	Larva		0	PR
Perlidae	6	1.16%	No	Larva	Early Instar	2	PR
Perlodidae							
Kogotus sp.	1	0.19%	Yes	Larva		1	PR
Megarcys sp.	3	0.58%	Yes	Larva		1	PR
Skwala sp.	3	0.58%	Yes	Larva		3	PR
Trichoptera							
Apataniidae							
Apatania sp.	6	1.16%	Yes	Larva		3	SC
Glossosomatidae							
Glossosoma sp.	1	0.19%	Yes	Larva		0	SC
Hydropsychidae							
Arctopsyche sp.	1	0.19%	Yes	Larva		2	PR
Arctopsychinae	6	1.16%	No	Larva	Early Instar	2	PR
Parapsyche elsis	6	1.16%	Yes	Larva		1	PR
Lepidostomatidae							
Lepidostoma sp.	1	0.19%	Yes	Larva		1	SH
Limnephilidae							
Limnephilidae	5	0.96%	Yes	Larva	Early Instar	3	SH
Rhyacophilidae							
Rhyacophila atrata complex	3	0.58%	Yes	Larva		0	PR
Rhyacophila Betteni Gr.	2	0.39%	Yes	Larva		0	PR
Rhyacophila narvae	1	0.19%	Yes	Larva		0	PR

Taxa Listing

Project ID: CC14NWM
RAI No.: CC14NWM010

RAI No.: CC14NWM010 **Sta. Name:** Clark Fork River
Client ID: SW-6
Date Coll.: 9/18/2014 **No. Jars:** 1 **STORET ID:**

Taxonomic Name	Count	PRA	Unique	Stage	Qualifier	BI	Function
Diptera							
Ceratopogonidae							
Ceratopogoninae	4	0.77%	Yes	Larva		6	PR
Tipulidae							
Hexatoma sp.	11	2.12%	Yes	Larva		2	PR
Chironomidae							
Chironomidae							
Micropsectra sp.	3	0.58%	Yes	Larva		4	CG
Diamesa sp.	1	0.19%	Yes	Pupa		5	CG
Pagastia sp.	1	0.19%	Yes	Larva		1	CG
Pagastia sp.	1	0.19%	No	Pupa		1	CG
Brillia sp.	7	1.35%	Yes	Larva		4	SH
Orthocladius sp.	3	0.58%	Yes	Larva		6	CG
Parorthocladius sp.	1	0.19%	Yes	Larva		6	CG
Rheocricotopus sp.	7	1.35%	Yes	Larva		4	CG
Thienemannimyia Gr.	1	0.19%	Yes	Larva		5	PR
Sample Count	**519**						

Metrics Report

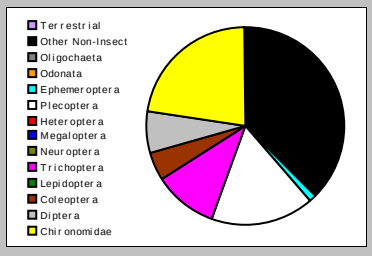
Project ID: CC14NWM
RAI No.: CC14NWM001
Sta. Name: Stillwater River
Client ID: SW-7
STORET ID
Coll. Date: 9/16/2014
Latitude: 45.0832748 **Longitude:** -109.9923081

Abundance Measures

Sample Count: 179
Sample Abundance: 179.00 100.00% of sample used
Coll. Procedure: DEQWQPBWQM-009
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	3	67	37.43%
Oligochaeta			
Odonata			
Ephemeroptera	1	2	1.12%
Plecoptera	3	30	16.76%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	4	19	10.61%
Lepidoptera			
Coleoptera	2	8	4.47%
Diptera	1	12	6.70%
Chironomidae	2	41	22.91%

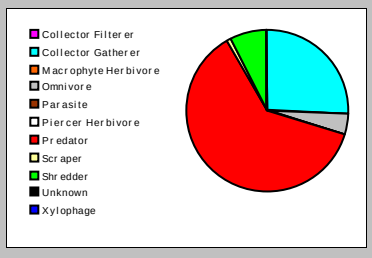


Dominant Taxa

Category	A	PRA
Acari	56	31.28%
Orthocladius	40	22.35%
Sweltsa	19	10.61%
Ceratopogoninae	12	6.70%
Limnephilidae	10	5.59%
Rhyacophila Vofixa Gr.	7	3.91%
Polycelis	7	3.91%
Dytiscidae	7	3.91%
Ostracoda	4	2.23%
Megarcys	4	2.23%
Chloroperlidae	4	2.23%
Zapada columbiana	2	1.12%
Ameletus	2	1.12%
Micropsectra	1	0.56%
Heterlimnius corpulentus	1	0.56%

Functional Composition

Category	R	A	PRA
Predator	8	111	62.01%
Parasite			
Collector Gatherer	4	46	25.70%
Collector Filterer			
Macrophyte Herbivore			
Piercer Herbivore			
Xylophage			
Scraper	1	2	1.12%
Shredder	2	13	7.26%
Omnivore	1	7	3.91%
Unknown			

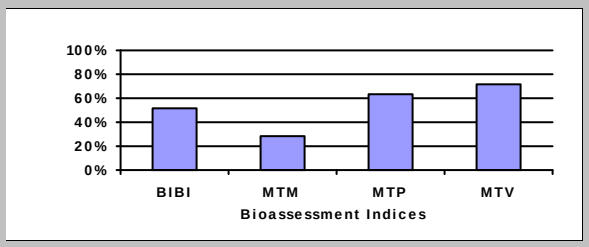


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	16
E Richness	1
P Richness	3
T Richness	4
EPT Richness	8
EPT Percent	28.49%
All Non-Insect Abundance	67
All Non-Insect Richness	3
All Non-Insect Percent	37.43%
Oligochaeta+Hirudinea Percent	0.00%
Baetidae/Ephemeroptera	0.000
Hydropsychidae/Trichoptera	0.053
Dominance	
Dominant Taxon Percent	31.28%
Dominant Taxa (2) Percent	53.63%
Dominant Taxa (3) Percent	64.25%
Dominant Taxa (10) Percent	92.74%
Diversity	
Shannon H (loge)	2.076
Shannon H (log2)	2.995
Margalef D	2.908
Simpson D	0.178
Evenness	0.096
Function	
Predator Richness	8
Predator Percent	62.01%
Filterer Richness	0
Filterer Percent	0.00%
Collector Percent	25.70%
Scraper+Shredder Percent	8.38%
Scraper/Filterer	0.000
Scraper/Scraper+Filterer	0.000
Habit	
Burrower Richness	0
Burrower Percent	0.00%
Swimmer Richness	2
Swimmer Percent	5.03%
Clinger Richness	7
Clinger Percent	22.35%
Characteristics	
Cold Stenotherm Richness	4
Cold Stenotherm Percent	7.82%
Hemoglobin Bearer Richness	
Hemoglobin Bearer Percent	
Air Breather Richness	1
Air Breather Percent	3.91%
Voltinism	
Univoltine Richness	8
Semivoltine Richness	3
Multivoltine Percent	60.34%
Tolerance	
Sediment Tolerant Richness	0
Sediment Tolerant Percent	0.00%
Sediment Sensitive Richness	1
Sediment Sensitive Percent	0.56%
Metals Tolerance Index	4.489
Pollution Sensitive Richness	4
Pollution Tolerant Percent	3.91%
Hilsenhoff Biotic Index	4.011
Intolerant Percent	26.82%
Supertolerant Percent	2.23%
CTQa	62.333

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	26	52.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	19	63.33%	Slight
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	13	72.22%	Slight
MTM	Montana DEQ Mountains (Bukantis 1998)	6	28.57%	Moderate



Metrics Report

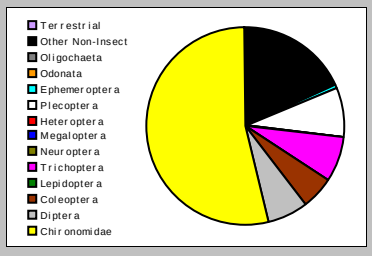
Project ID: CC14NWM
RAI No.: CC14NWM002
Sta. Name: Stillwater River Field Rep
Client ID: SW-7 rep
STORET ID
Coll. Date: 9/16/2014
Latitude: 45.0832748 **Longitude:** -109.9923081

Abundance Measures

Sample Count: 208
Sample Abundance: 208.00 100.00% of sample used
Coll. Procedure: DEQWQPBWQM-009
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	2	38	18.27%
Oligochaeta			
Odonata			
Ephemeroptera	1	1	0.48%
Plecoptera	3	17	8.17%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	4	15	7.21%
Lepidoptera			
Coleoptera	2	11	5.29%
Diptera	1	14	6.73%
Chironomidae	5	112	53.85%

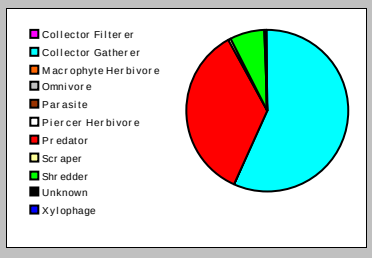


Dominant Taxa

Category	A	PRA
Orthocladius	108	51.92%
Acari	37	17.79%
Ceratopogoninae	14	6.73%
Sweltsa	10	4.81%
Limnephilidae	10	4.81%
Heterlimnius corpulentus	8	3.85%
Zapada columbiana	3	1.44%
Rhyacophila Vofixa Gr.	3	1.44%
Oreodytes	2	0.96%
Megarcys	2	0.96%
Chloroperlidae	2	0.96%
Zavrelimyia	1	0.48%
Rhyacophila Betteni Gr.	1	0.48%
Parapsyche elsis	1	0.48%
Pagastia	1	0.48%

Functional Composition

Category	R	A	PRA
Predator	9	74	35.58%
Parasite			
Collector Gatherer	4	118	56.73%
Collector Filterer			
Macrophyte Herbivore			
Piercer Herbivore			
Xylophage			
Scraper	1	1	0.48%
Shredder	3	14	6.73%
Omnivore			
Unknown	1	1	0.48%

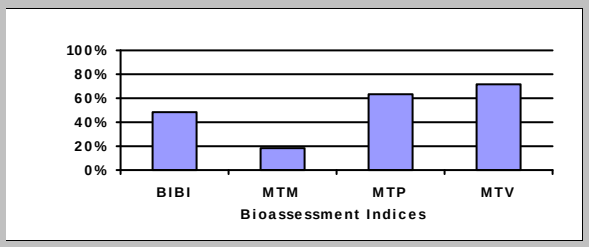


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	18
E Richness	1
P Richness	3
T Richness	4
EPT Richness	8
EPT Percent	15.87%
All Non-Insect Abundance	38
All Non-Insect Richness	2
All Non-Insect Percent	18.27%
Oligochaeta+Hirudinea Percent	0.00%
Baetidae/Ephemeroptera	0.000
Hydropsychidae/Trichoptera	0.067
Dominance	
Dominant Taxon Percent	51.92%
Dominant Taxa (2) Percent	69.71%
Dominant Taxa (3) Percent	76.44%
Dominant Taxa (10) Percent	94.71%
Diversity	
Shannon H (loge)	1.673
Shannon H (log2)	2.413
Margalef D	3.194
Simpson D	0.319
Evenness	0.093
Function	
Predator Richness	9
Predator Percent	35.58%
Filterer Richness	0
Filterer Percent	0.00%
Collector Percent	56.73%
Scraper+Shredder Percent	7.21%
Scraper/Filterer	0.000
Scraper/Scraper+Filterer	0.000
Habit	
Burrower Richness	0
Burrower Percent	0.00%
Swimmer Richness	1
Swimmer Percent	1.44%
Clinger Richness	8
Clinger Percent	14.90%
Characteristics	
Cold Stenotherm Richness	4
Cold Stenotherm Percent	4.33%
Hemoglobin Bearer Richness	1
Hemoglobin Bearer Percent	0.48%
Air Breather Richness	1
Air Breather Percent	1.44%
Voltinism	
Univoltine Richness	8
Semivoltine Richness	3
Multivoltine Percent	72.12%
Tolerance	
Sediment Tolerant Richness	0
Sediment Tolerant Percent	0.00%
Sediment Sensitive Richness	1
Sediment Sensitive Percent	0.48%
Metals Tolerance Index	4.661
Pollution Sensitive Richness	4
Pollution Tolerant Percent	1.44%
Hilsenhoff Biotic Index	4.928
Intolerant Percent	11.54%
Supertolerant Percent	0.96%
CTQa	75.714

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	24	48.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	19	63.33%	Slight
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	13	72.22%	Slight
MTM	Montana DEQ Mountains (Bukantis 1998)	4	19.05%	Severe



Metrics Report

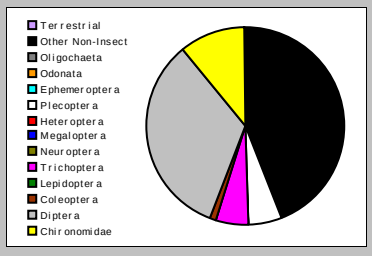
Project ID: CC14NWM
RAI No.: CC14NWM003
Sta. Name: Stillwater River
Client ID: SR-1
STORET ID
Coll. Date: 9/16/2014
Latitude: 45.0768595 **Longitude:** -109.9937992

Abundance Measures

Sample Count: 166
Sample Abundance: 166.00 100.00% of sample used
Coll. Procedure: DEQWQPBWQM-009
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	3	73	43.98%
Oligochaeta			
Odonata			
Ephemeroptera			
Plecoptera	5	9	5.42%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	3	9	5.42%
Lepidoptera			
Coleoptera	1	1	0.60%
Diptera	2	56	33.73%
Chironomidae	1	18	10.84%

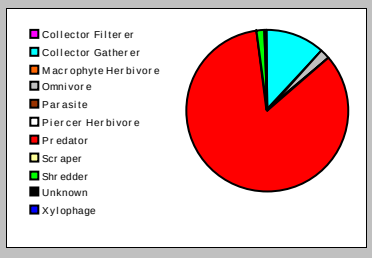


Dominant Taxa

Category	A	PRA
Acari	69	41.57%
Ceratopogoninae	54	32.53%
Orthocladius	18	10.84%
Rhyacophila Vofixa Gr.	7	4.22%
Sweltsa	4	2.41%
Polycelis	3	1.81%
Rhabdomastix Setigera Gr.	2	1.20%
Visoka cataractae	1	0.60%
Rhyacophila atrata complex	1	0.60%
Nemata	1	0.60%
Megarcys	1	0.60%
Leuctridae	1	0.60%
Dytiscidae	1	0.60%
Chloroperlidae	1	0.60%
Calineuria californica	1	0.60%

Functional Composition

Category	R	A	PRA
Predator	9	140	84.34%
Parasite			
Collector Gatherer	2	20	12.05%
Collector Filterer			
Macrophyte Herbivore			
Piercer Herbivore			
Xylophage			
Scraper			
Shredder	2	2	1.20%
Omnivore	1	3	1.81%
Unknown	1	1	0.60%

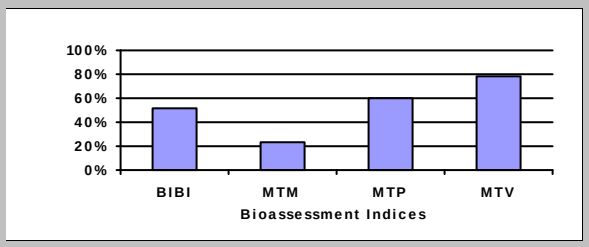


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	15
E Richness	0
P Richness	5
T Richness	3
EPT Richness	8
EPT Percent	10.84%
All Non-Insect Abundance	73
All Non-Insect Richness	3
All Non-Insect Percent	43.98%
Oligochaeta+Hirudinea Percent	0.00%
Baetidae/Ephemeroptera	0.000
Hydropsychidae/Trichoptera	0.111
Dominance	
Dominant Taxon Percent	41.57%
Dominant Taxa (2) Percent	74.10%
Dominant Taxa (3) Percent	84.94%
Dominant Taxa (10) Percent	96.39%
Diversity	
Shannon H (loge)	1.570
Shannon H (log2)	2.265
Margalef D	2.742
Simpson D	0.293
Evenness	0.114
Function	
Predator Richness	9
Predator Percent	84.34%
Filterer Richness	0
Filterer Percent	0.00%
Collector Percent	12.05%
Scraper+Shredder Percent	1.20%
Scraper/Filterer	0.000
Scraper/Scraper+Filterer	0.000
Habit	
Burrower Richness	1
Burrower Percent	1.20%
Swimmer Richness	1
Swimmer Percent	0.60%
Clinger Richness	8
Clinger Percent	10.84%
Characteristics	
Cold Stenotherm Richness	5
Cold Stenotherm Percent	6.63%
Hemoglobin Bearer Richness	
Hemoglobin Bearer Percent	
Air Breather Richness	1
Air Breather Percent	0.60%
Voltinism	
Univoltine Richness	6
Semivoltine Richness	3
Multivoltine Percent	54.82%
Tolerance	
Sediment Tolerant Richness	0
Sediment Tolerant Percent	0.00%
Sediment Sensitive Richness	1
Sediment Sensitive Percent	0.60%
Metals Tolerance Index	4.377
Pollution Sensitive Richness	5
Pollution Tolerant Percent	0.60%
Hilsenhoff Biotic Index	4.825
Intolerant Percent	12.65%
Supertolerant Percent	0.00%
CTQa	57.818

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	26	52.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	18	60.00%	Slight
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	14	77.78%	Slight
MTM	Montana DEQ Mountains (Bukantis 1998)	5	23.81%	Moderate



Metrics Report

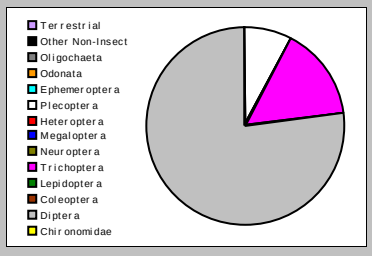
Project ID: CC14NWM
RAI No.: CC14NWM004
Sta. Name: Daisy Creek
Client ID: DC-5
STORET ID
Coll. Date: 9/17/2014
Latitude: 45.0658732 **Longitude:** -109.9889486

Abundance Measures

Sample Count: 13
Sample Abundance: 13.00 100.00% of sample used
Coll. Procedure: DEQWQPBWQM-009
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect			
Oligochaeta			
Odonata			
Ephemeroptera			
Plecoptera	1	1	7.69%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	1	2	15.38%
Lepidoptera			
Coleoptera			
Diptera	4	10	76.92%
Chironomidae			

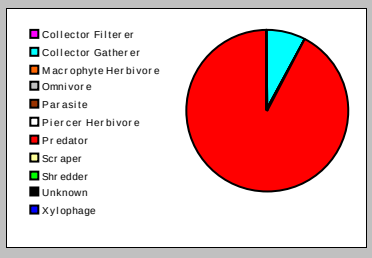


Dominant Taxa

Category	A	PRA
Ceratopogoninae	5	38.46%
Oreogeton	3	23.08%
Parapsyche	2	15.38%
Sweltsa	1	7.69%
Rhabdomastix Setigera Gr.	1	7.69%
Dolichopodidae	1	7.69%

Functional Composition

Category	R	A	PRA
Predator	5	12	92.31%
Parasite			
Collector Gatherer	1	1	7.69%
Collector Filterer			
Macrophyte Herbivore			
Piercer Herbivore			
Xylophage			
Scraper			
Shredder			
Omnivore			
Unknown			

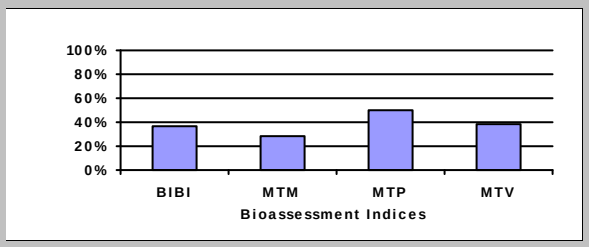


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	6
E Richness	0
P Richness	1
T Richness	1
EPT Richness	2
EPT Percent	23.08%
All Non-Insect Abundance	0
All Non-Insect Richness	0
All Non-Insect Percent	0.00%
Oligochaeta+Hirudinea Percent	0.00%
Baetidae/Ephemeroptera	0.000
Hydropsychidae/Trichoptera	1.000
Dominance	
Dominant Taxon Percent	38.46%
Dominant Taxa (2) Percent	61.54%
Dominant Taxa (3) Percent	76.92%
Dominant Taxa (10) Percent	100.00%
Diversity	
Shannon H (loge)	1.586
Shannon H (log2)	2.288
Margalef D	1.949
Simpson D	0.179
Evenness	0.173
Function	
Predator Richness	5
Predator Percent	92.31%
Filterer Richness	0
Filterer Percent	0.00%
Collector Percent	7.69%
Scraper+Shredder Percent	0.00%
Scraper/Filterer	0.000
Scraper/Scraper+Filterer	0.000
Habit	
Burrower Richness	2
Burrower Percent	30.77%
Swimmer Richness	0
Swimmer Percent	0.00%
Clinger Richness	2
Clinger Percent	23.08%
Characteristics	
Cold Stenotherm Richness	1
Cold Stenotherm Percent	23.08%
Hemoglobin Bearer Richness	
Hemoglobin Bearer Percent	
Air Breather Richness	1
Air Breather Percent	7.69%
Voltinism	
Univoltine Richness	4
Semivoltine Richness	1
Multivoltine Percent	0.00%
Tolerance	
Sediment Tolerant Richness	0
Sediment Tolerant Percent	0.00%
Sediment Sensitive Richness	0
Sediment Sensitive Percent	0.00%
Metals Tolerance Index	4.273
Pollution Sensitive Richness	1
Pollution Tolerant Percent	7.69%
Hilsenhoff Biotic Index	3.769
Intolerant Percent	23.08%
Supertolerant Percent	0.00%
CTQa	83.750

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	18	36.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	15	50.00%	Moderate
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	7	38.89%	Moderate
MTM	Montana DEQ Mountains (Bukantis 1998)	6	28.57%	Moderate



Metrics Report

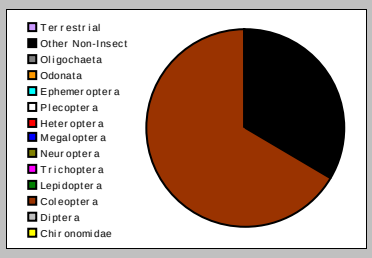
Project ID: CC14NWM
RAI No.: CC14NWM005
Sta. Name: Daisy Creek
Client ID: DC-2
STORET ID
Coll. Date: 9/17/2014
Latitude: 45.0592318 **Longitude:** -109.9690669

Abundance Measures

Sample Count: 3
Sample Abundance: 3.00 100.00% of sample used
Coll. Procedure: DEQWQPBWQM-009
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	1	1	33.33%
Oligochaeta			
Odonata			
Ephemeroptera			
Plecoptera			
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera			
Lepidoptera			
Coleoptera	1	2	66.67%
Diptera			
Chironomidae			

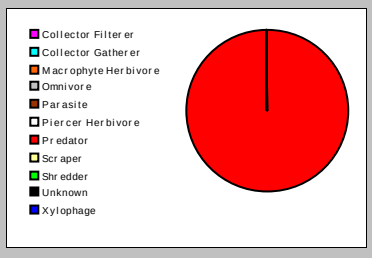


Dominant Taxa

Category	A	PRA
Dytiscidae	2	66.67%
Acari	1	33.33%

Functional Composition

Category	R	A	PRA
Predator	2	3	100.00%
Parasite			
Collector Gatherer			
Collector Filterer			
Macrophyte Herbivore			
Piercer Herbivore			
Xylophage			
Scraper			
Shredder			
Omnivore			
Unknown			

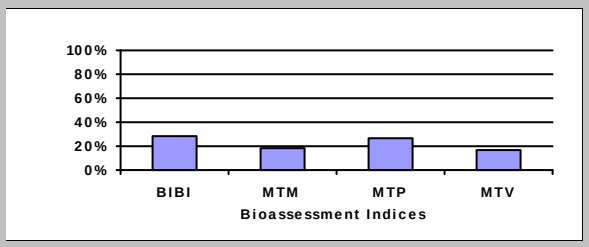


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	2
E Richness	0
P Richness	0
T Richness	0
EPT Richness	0
EPT Percent	0.00%
All Non-Insect Abundance	1
All Non-Insect Richness	1
All Non-Insect Percent	33.33%
Oligochaeta+Hirudinea Percent	0.00%
Baetidae/Ephemeroptera	0.000
Hydropsychidae/Trichoptera	0.000
Dominance	
Dominant Taxon Percent	66.67%
Dominant Taxa (2) Percent	100.00%
Dominant Taxa (3) Percent	100.00%
Dominant Taxa (10) Percent	100.00%
Diversity	
Shannon H (loge)	0.637
Shannon H (log2)	0.918
Margalef D	0.910
Simpson D	0.333
Evenness	0.436
Function	
Predator Richness	2
Predator Percent	100.00%
Filterer Richness	0
Filterer Percent	0.00%
Collector Percent	0.00%
Scraper+Shredder Percent	0.00%
Scraper/Filterer	0.000
Scraper/Scraper+Filterer	0.000
Habit	
Burrower Richness	0
Burrower Percent	0.00%
Swimmer Richness	1
Swimmer Percent	66.67%
Clinger Richness	0
Clinger Percent	0.00%
Characteristics	
Cold Stenotherm Richness	0
Cold Stenotherm Percent	0.00%
Hemoglobin Bearer Richness	
Hemoglobin Bearer Percent	
Air Breather Richness	1
Air Breather Percent	66.67%
Voltinism	
Univoltine Richness	0
Semivoltine Richness	1
Multivoltine Percent	33.33%
Tolerance	
Sediment Tolerant Richness	0
Sediment Tolerant Percent	0.00%
Sediment Sensitive Richness	0
Sediment Sensitive Percent	0.00%
Metals Tolerance Index	6.333
Pollution Sensitive Richness	0
Pollution Tolerant Percent	66.67%
Hilsenhoff Biotic Index	5.000
Intolerant Percent	0.00%
Supertolerant Percent	0.00%
CTQa	90.000

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	14	28.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	8	26.67%	Moderate
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	3	16.67%	Severe
MTM	Montana DEQ Mountains (Bukantis 1998)	4	19.05%	Severe



Metrics Report

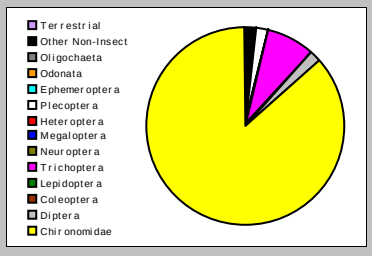
Project ID: CC14NWM
RAI No.: CC14NWM006
Sta. Name: Fisher Creek
Client ID: SW-3
STORET ID
Coll. Date: 9/17/2014
Latitude: 45.0640304 **Longitude:** -109.9459258

Abundance Measures

Sample Count: 102
Sample Abundance: 102.00 100.00% of sample used
Coll. Procedure: DEQWQPBWQM-009
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	1	2	1.96%
Oligochaeta			
Odonata			
Ephemeroptera			
Plecoptera	2	2	1.96%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	3	8	7.84%
Lepidoptera			
Coleoptera			
Diptera	2	2	1.96%
Chironomidae	5	88	86.27%

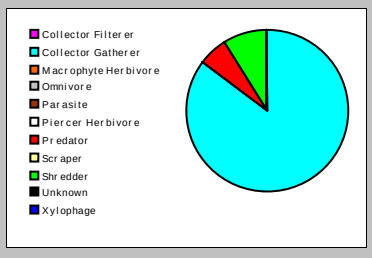


Dominant Taxa

Category	A	PRA
Chaetocladius	83	81.37%
Psychoglypha	4	3.92%
Tvetenia Bavarica Gr.	2	1.96%
Limnephilidae	2	1.96%
Acari	2	1.96%
Rhyacophila	1	0.98%
Parametriocnemus	1	0.98%
Pagastia	1	0.98%
Oreogeton	1	0.98%
Leuctridae	1	0.98%
Hesperophylax	1	0.98%
Dicranota	1	0.98%
Chloroperlidae	1	0.98%
Brillia	1	0.98%

Functional Composition

Category	R	A	PRA
Predator	5	6	5.88%
Parasite			
Collector Gatherer	4	87	85.29%
Collector Filterer			
Macrophyte Herbivore			
Piercer Herbivore			
Xylophage			
Scraper			
Shredder	4	9	8.82%
Omnivore			
Unknown			

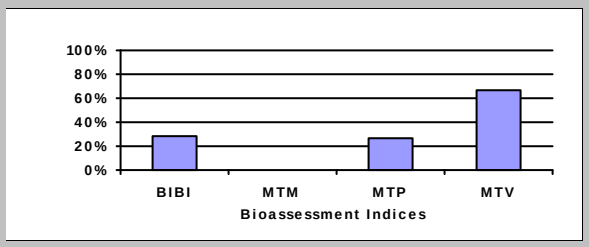


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	13
E Richness	0
P Richness	2
T Richness	3
EPT Richness	5
EPT Percent	9.80%
All Non-Insect Abundance	2
All Non-Insect Richness	1
All Non-Insect Percent	1.96%
Oligochaeta+Hirudinea Percent	0.00%
Baetidae/Ephemeroptera	0.000
Hydropsychidae/Trichoptera	0.000
Dominance	
Dominant Taxon Percent	81.37%
Dominant Taxa (2) Percent	85.29%
Dominant Taxa (3) Percent	87.25%
Dominant Taxa (10) Percent	96.08%
Diversity	
Shannon H (loge)	0.854
Shannon H (log2)	1.233
Margalef D	2.606
Simpson D	0.689
Evenness	0.055
Function	
Predator Richness	5
Predator Percent	5.88%
Filterer Richness	0
Filterer Percent	0.00%
Collector Percent	85.29%
Scraper+Shredder Percent	8.82%
Scraper/Filterer	0.000
Scraper/Scraper+Filterer	0.000
Habit	
Burrower Richness	2
Burrower Percent	1.96%
Swimmer Richness	0
Swimmer Percent	0.00%
Clinger Richness	3
Clinger Percent	2.94%
Characteristics	
Cold Stenotherm Richness	3
Cold Stenotherm Percent	5.88%
Hemoglobin Bearer Richness	
Hemoglobin Bearer Percent	
Air Breather Richness	1
Air Breather Percent	0.98%
Voltinism	
Univoltine Richness	7
Semivoltine Richness	0
Multivoltine Percent	88.24%
Tolerance	
Sediment Tolerant Richness	1
Sediment Tolerant Percent	0.98%
Sediment Sensitive Richness	0
Sediment Sensitive Percent	0.00%
Metals Tolerance Index	3.667
Pollution Sensitive Richness	2
Pollution Tolerant Percent	0.98%
Hilsenhoff Biotic Index	5.353
Intolerant Percent	7.84%
Supertolerant Percent	0.00%
CTQa	73.769

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	14	28.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	8	26.67%	Moderate
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	12	66.67%	Slight
MTM	Montana DEQ Mountains (Bukantis 1998)	0	0.00%	Severe



Metrics Report

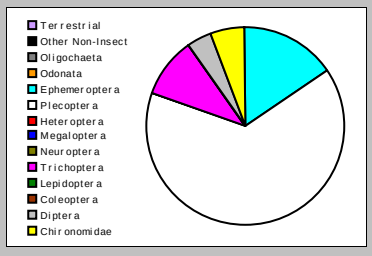
Project ID: CC14NWM
RAI No.: CC14NWM007
Sta. Name: Fisher Creek
Client ID: SW-4
STORET ID
Coll. Date: 9/17/2014
Latitude: 45.0505548 **Longitude:** -109.9142955

Abundance Measures

Sample Count: 71
Sample Abundance: 71.00 100.00% of sample used
Coll. Procedure: DEQWQPBWQM-009
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect			
Oligochaeta			
Odonata			
Ephemeroptera	1	11	15.49%
Plecoptera	1	46	64.79%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	2	7	9.86%
Lepidoptera			
Coleoptera			
Diptera	1	3	4.23%
Chironomidae	1	4	5.63%

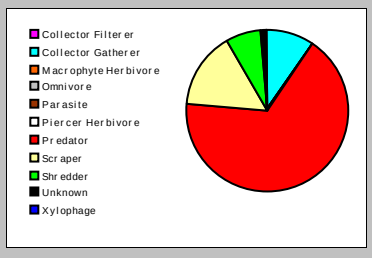


Dominant Taxa

Category	A	PRA
Sweltsa	34	47.89%
Chloroperlidae	12	16.90%
Ameletus	11	15.49%
Limnephilidae	5	7.04%
Chaetocladius	4	5.63%
Rhabdomastix Setigera Gr.	3	4.23%
Trichoptera	1	1.41%
Rhyacophila Vofixa Gr.	1	1.41%

Functional Composition

Category	R	A	PRA
Predator	2	47	66.20%
Parasite			
Collector Gatherer	2	7	9.86%
Collector Filterer			
Macrophyte Herbivore			
Piercer Herbivore			
Xylophage			
Scraper	1	11	15.49%
Shredder	1	5	7.04%
Omnivore			
Unknown	0	1	1.41%

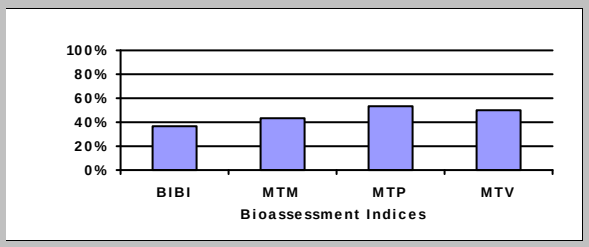


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	6
E Richness	1
P Richness	1
T Richness	2
EPT Richness	4
EPT Percent	90.14%
All Non-Insect Abundance	0
All Non-Insect Richness	0
All Non-Insect Percent	0.00%
Oligochaeta+Hirudinea Percent	0.00%
Baetidae/Ephemeroptera	0.000
Hydropsychidae/Trichoptera	0.000
Dominance	
Dominant Taxon Percent	47.89%
Dominant Taxa (2) Percent	64.79%
Dominant Taxa (3) Percent	80.28%
Dominant Taxa (10) Percent	100.00%
Diversity	
Shannon H (loge)	1.247
Shannon H (log2)	1.799
Margalef D	1.231
Simpson D	0.384
Evenness	0.158
Function	
Predator Richness	2
Predator Percent	66.20%
Filterer Richness	0
Filterer Percent	0.00%
Collector Percent	9.86%
Scraper+Shredder Percent	22.54%
Scraper/Filterer	0.000
Scraper/Scraper+Filterer	0.000
Habit	
Burrower Richness	1
Burrower Percent	4.23%
Swimmer Richness	1
Swimmer Percent	15.49%
Clinger Richness	2
Clinger Percent	66.20%
Characteristics	
Cold Stenotherm Richness	1
Cold Stenotherm Percent	1.41%
Hemoglobin Bearer Richness	
Hemoglobin Bearer Percent	
Air Breather Richness	0
Air Breather Percent	0.00%
Voltinism	
Univoltine Richness	4
Semivoltine Richness	0
Multivoltine Percent	5.63%
Tolerance	
Sediment Tolerant Richness	0
Sediment Tolerant Percent	0.00%
Sediment Sensitive Richness	0
Sediment Sensitive Percent	0.00%
Metals Tolerance Index	1.000
Pollution Sensitive Richness	1
Pollution Tolerant Percent	0.00%
Hilsenhoff Biotic Index	0.857
Intolerant Percent	81.69%
Supertolerant Percent	0.00%
CTQa	72.000

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	18	36.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	16	53.33%	Moderate
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	9	50.00%	Moderate
MTM	Montana DEQ Mountains (Bukantis 1998)	9	42.86%	Moderate



Metrics Report

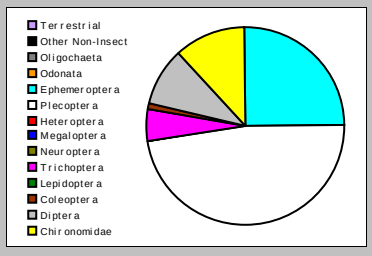
Project ID: CC14NWM
RAI No.: CC14NWM008
Sta. Name: Fisher Creek Rep
Client ID: SW-4 rep
STORET ID
Coll. Date: 9/17/2014
Latitude: 45.0505548 **Longitude:** -109.9142955

Abundance Measures

Sample Count: 84
Sample Abundance: 84.00 100.00% of sample used
Coll. Procedure: DEQWQPBWQM-009
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect			
Oligochaeta			
Odonata			
Ephemeroptera	1	21	25.00%
Plecoptera	1	40	47.62%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	2	4	4.76%
Lepidoptera			
Coleoptera	1	1	1.19%
Diptera	2	8	9.52%
Chironomidae	3	10	11.90%

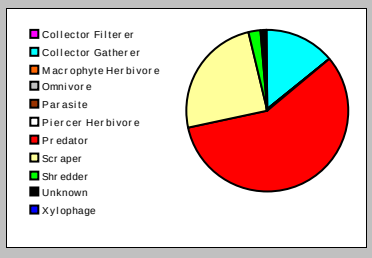


Dominant Taxa

Category	A	PRA
Sweltsa	34	40.48%
Ameletus	21	25.00%
Rheocricotopus	8	9.52%
Chloroperlidae	6	7.14%
Ceratopogoninae	6	7.14%
Rhabdomastix Setigera Gr.	2	2.38%
Limnephilidae	2	2.38%
Trichoptera	1	1.19%
Parapsyche elsis	1	1.19%
Orthocladius	1	1.19%
Oreodytes	1	1.19%
Chaetocladius	1	1.19%

Functional Composition

Category	R	A	PRA
Predator	4	48	57.14%
Parasite			
Collector Gatherer	4	12	14.29%
Collector Filterer			
Macrophyte Herbivore			
Piercer Herbivore			
Xylophage			
Scraper	1	21	25.00%
Shredder	1	2	2.38%
Omnivore			
Unknown	0	1	1.19%

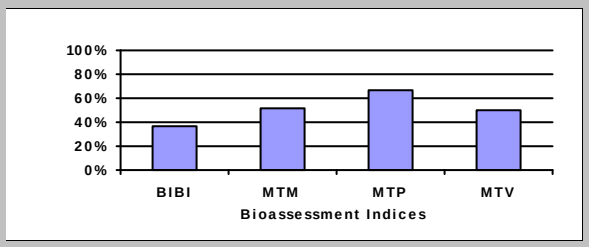


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	10
E Richness	1
P Richness	1
T Richness	2
EPT Richness	4
EPT Percent	77.38%
All Non-Insect Abundance	0
All Non-Insect Richness	0
All Non-Insect Percent	0.00%
Oligochaeta+Hirudinea Percent	0.00%
Baetidae/Ephemeroptera	0.000
Hydropsychidae/Trichoptera	0.250
Dominance	
Dominant Taxon Percent	40.48%
Dominant Taxa (2) Percent	65.48%
Dominant Taxa (3) Percent	75.00%
Dominant Taxa (10) Percent	97.62%
Diversity	
Shannon H (loge)	1.565
Shannon H (log2)	2.257
Margalef D	2.072
Simpson D	0.279
Evenness	0.132
Function	
Predator Richness	4
Predator Percent	57.14%
Filterer Richness	0
Filterer Percent	0.00%
Collector Percent	14.29%
Scraper+Shredder Percent	27.38%
Scraper/Filterer	0.000
Scraper/Scraper+Filterer	0.000
Habit	
Burrower Richness	1
Burrower Percent	2.38%
Swimmer Richness	2
Swimmer Percent	26.19%
Clinger Richness	2
Clinger Percent	48.81%
Characteristics	
Cold Stenotherm Richness	1
Cold Stenotherm Percent	1.19%
Hemoglobin Bearer Richness	
Hemoglobin Bearer Percent	
Air Breather Richness	1
Air Breather Percent	1.19%
Voltinism	
Univoltine Richness	4
Semivoltine Richness	2
Multivoltine Percent	11.90%
Tolerance	
Sediment Tolerant Richness	0
Sediment Tolerant Percent	0.00%
Sediment Sensitive Richness	1
Sediment Sensitive Percent	1.19%
Metals Tolerance Index	2.622
Pollution Sensitive Richness	1
Pollution Tolerant Percent	0.00%
Hilsenhoff Biotic Index	1.253
Intolerant Percent	73.81%
Supertolerant Percent	0.00%
CTQa	77.250

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	18	36.00%	
MTP	Montana DEQ Plains (Bukantis 1998)	20	66.67%	Slight
MTV	Montana Revised Valleys/Foothills (Bollman 1998)	9	50.00%	Moderate
MTM	Montana DEQ Mountains (Bukantis 1998)	11	52.38%	Moderate



Metrics Report

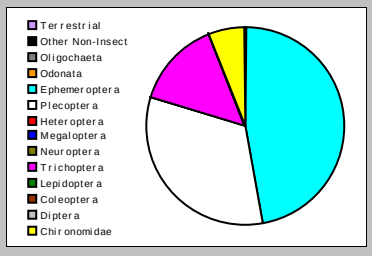
Project ID: CC14NWM
RAI No.: CC14NWM009
Sta. Name: Clark Fork River
Client ID: CFY-2
STORET ID
Coll. Date: 9/18/2014
Latitude: 45.0441406 **Longitude:** -109.8966306

Abundance Measures

Sample Count: 374
Sample Abundance: 374.00 100.00% of sample used
Coll. Procedure: DEQWQPBWQM-009
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	1	1	0.27%
Oligochaeta			
Odonata			
Ephemeroptera	4	175	46.79%
Plecoptera	6	121	32.35%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	8	55	14.71%
Lepidoptera			
Coleoptera			
Diptera			
Chironomidae	4	22	5.88%

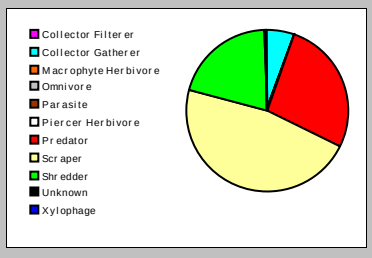


Dominant Taxa

Category	A	PRA
Epeorus grandis	83	22.19%
Zapada columbiana	69	18.45%
Rhithrogena	61	16.31%
Sweltsa	27	7.22%
Ameletus	26	6.95%
Parapsyche elsis	21	5.61%
Doroneuria	18	4.81%
Orthocladius	14	3.74%
Arctopsychinae	13	3.48%
Rhyacophila Betteni Gr.	5	1.34%
Cinygmula	5	1.34%
Rhyacophila atrata complex	4	1.07%
Limnephilidae	4	1.07%
Rhyacophila narvae	3	0.80%
Rhyacophila Brunnea/Vemna Gr.	3	0.80%

Functional Composition

Category	R	A	PRA
Predator	9	99	26.47%
Parasite			
Collector Gatherer	4	21	5.61%
Collector Filterer			
Macrophyte Herbivore			
Piercer Herbivore			
Xylophage			
Scraper	5	176	47.06%
Shredder	4	77	20.59%
Omnivore			
Unknown	1	1	0.27%

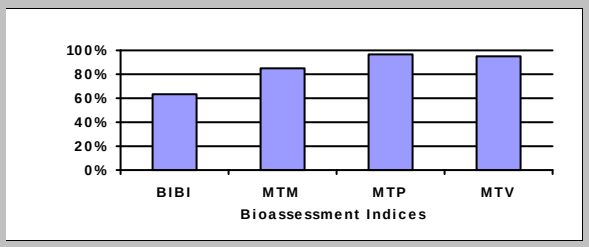


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	23
E Richness	4
P Richness	6
T Richness	8
EPT Richness	18
EPT Percent	93.85%
All Non-Insect Abundance	1
All Non-Insect Richness	1
All Non-Insect Percent	0.27%
Oligochaeta+Hirudinea Percent	0.00%
Baetidae/Ephemeroptera	0.000
Hydropsychidae/Trichoptera	0.618
Dominance	
Dominant Taxon Percent	22.19%
Dominant Taxa (2) Percent	40.64%
Dominant Taxa (3) Percent	56.95%
Dominant Taxa (10) Percent	90.11%
Diversity	
Shannon H (loge)	2.308
Shannon H (log2)	3.330
Margalef D	3.741
Simpson D	0.137
Evenness	0.079
Function	
Predator Richness	9
Predator Percent	26.47%
Filterer Richness	0
Filterer Percent	0.00%
Collector Percent	5.62%
Scraper+Shredder Percent	67.65%
Scraper/Filterer	0.000
Scraper/Scraper+Filterer	0.000
Habit	
Burrower Richness	1
Burrower Percent	0.80%
Swimmer Richness	1
Swimmer Percent	6.95%
Clinger Richness	15
Clinger Percent	81.02%
Characteristics	
Cold Stenotherm Richness	6
Cold Stenotherm Percent	51.87%
Hemoglobin Bearer Richness	
Hemoglobin Bearer Percent	
Air Breather Richness	0
Air Breather Percent	0.00%
Voltinism	
Univoltine Richness	14
Semivoltine Richness	2
Multivoltine Percent	6.15%
Tolerance	
Sediment Tolerant Richness	0
Sediment Tolerant Percent	0.00%
Sediment Sensitive Richness	1
Sediment Sensitive Percent	5.61%
Metals Tolerance Index	1.259
Pollution Sensitive Richness	8
Pollution Tolerant Percent	0.00%
Hilsenhoff Biotic Index	0.882
Intolerant Percent	93.32%
Supertolerant Percent	0.00%
CTQa	48.050

Bioassessment Indices

BioIndex	Description	Score	Pct	Rating
BIBI	B-IBI (Karr et al.)	32	64.00%	
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)	18	85.71%	None



Metrics Report

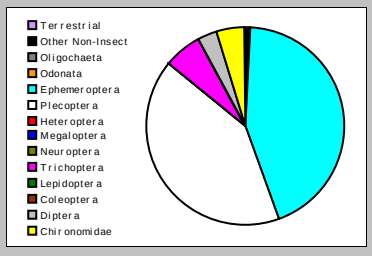
Project ID: CC14NWM
RAI No.: CC14NWM010
Sta. Name: Clark Fork River
Client ID: SW-6
STORET ID
Coll. Date: 9/18/2014
Latitude: 45.029473 **Longitude:** -109.8833073

Abundance Measures

Sample Count: 519
Sample Abundance: 819.47 63.33% of sample used
Coll. Procedure: DEQWQPBWQM-009
Sample Notes:

Taxonomic Composition

Category	R	A	PRA
Terrestrial			
Other Non-Insect	1	4	0.77%
Oligochaeta			
Odonata			
Ephemeroptera	6	226	43.55%
Plecoptera	7	217	41.81%
Heteroptera			
Megaloptera			
Neuroptera			
Trichoptera	9	32	6.17%
Lepidoptera			
Coleoptera			
Diptera	2	15	2.89%
Chironomidae	8	25	4.82%

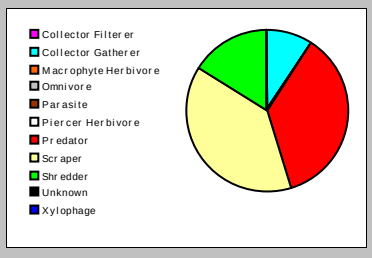


Dominant Taxa

Category	A	PRA
Rhithrogena	149	28.71%
Sweltsa	123	23.70%
Zapada columbiana	68	13.10%
Ameletus	28	5.39%
Baetis bicaudatus complex	22	4.24%
Cinygmula	17	3.28%
Hexatoma	11	2.12%
Doroneuria	10	1.93%
Rheocricotopus	7	1.35%
Brillia	7	1.35%
Baetis Rhodani Gr.	7	1.35%
Perlidae	6	1.16%
Parapsyche elsis	6	1.16%
Arctopsychinae	6	1.16%
Apatania	6	1.16%

Functional Composition

Category	R	A	PRA
Predator	14	186	35.84%
Parasite			
Collector Gatherer	9	49	9.44%
Collector Filterer			
Macrophyte Herbivore			
Piercer Herbivore			
Xylophage			
Scraper	5	201	38.73%
Shredder	5	83	15.99%
Omnivore			
Unknown			

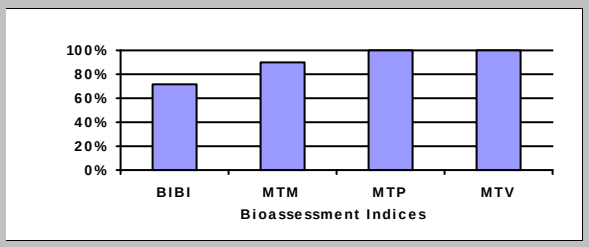


Metric Values and Scores

Metric	Value
Composition	
Taxa Richness	33
E Richness	6
P Richness	7
T Richness	9
EPT Richness	22
EPT Percent	91.52%
All Non-Insect Abundance	4
All Non-Insect Richness	1
All Non-Insect Percent	0.77%
Oligochaeta+Hirudinea Percent	0.00%
Baetidae/Ephemeroptera	0.137
Hydropsychidae/Trichoptera	0.406
Dominance	
Dominant Taxon Percent	28.71%
Dominant Taxa (2) Percent	52.41%
Dominant Taxa (3) Percent	65.51%
Dominant Taxa (10) Percent	85.16%
Diversity	
Shannon H (loge)	2.251
Shannon H (log2)	3.248
Margalef D	5.152
Simpson D	0.176
Evenness	0.074
Function	
Predator Richness	14
Predator Percent	35.84%
Filterer Richness	0
Filterer Percent	0.00%
Collector Percent	9.44%
Scraper+Shredder Percent	54.72%
Scraper/Filterer	0.000
Scraper/Scraper+Filterer	0.000
Habit	
Burrower Richness	2
Burrower Percent	3.47%
Swimmer Richness	1
Swimmer Percent	5.39%
Clinger Richness	16
Clinger Percent	77.07%
Characteristics	
Cold Stenotherm Richness	6
Cold Stenotherm Percent	18.30%
Hemoglobin Bearer Richness	
Hemoglobin Bearer Percent	
Air Breather Richness	1
Air Breather Percent	2.12%
Voltinism	
Univoltine Richness	18
Semivoltine Richness	3
Multivoltine Percent	9.83%
Tolerance	
Sediment Tolerant Richness	1
Sediment Tolerant Percent	2.12%
Sediment Sensitive Richness	3
Sediment Sensitive Percent	1.54%
Metals Tolerance Index	1.989
Pollution Sensitive Richness	7
Pollution Tolerant Percent	0.00%
Hilsenhoff Biotic Index	0.818
Intolerant Percent	89.60%
Supertolerant Percent	0.00%
CTQa	56.071

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)	18	100.00%	None
MTM	Montana DEQ Mountains (Bukantis 1998)	19	90.48%	None



Taxa Listing

Project ID: CC14NWMP
RAI No.: CC14NWMP001

RAI No.: CC14NWMP001 **Sta. Name:** Stillwater River
Client ID: SW-7
Date Coll.: 9/16/2014 **No Jars:** 1 **STORET ID:**
Sample Notes:

Taxonomic Name	Count	PRA	Abnorm.	Comment
Algae				
Bacillariophyta				
Diatoms	0			
Chlorophyta				
Mougeotia sp.	0			
Cyanophyta				
Anabaena sp.	0			
Homeothrix sp.	0			
Phormidium sp.	0			
Pseudanabaena sp.	0			
Diatoms				
Bacillariophyta				
Achnanthidium minutissimum	39	4.88%	0	
Achnanthidium rivulare	2	0.25%	0	
Achnanthidium thienemannii	2	0.25%	0	
Aulacoseira sp.	2	0.25%	0	
Cymbella neocistula	8	1.00%	0	
Cymbella subturgidula	8	1.00%	0	
Encyonema minutum	57	7.13%	0	
Encyonema silesiacum	58	7.25%	0	
Encyonema ventricosum	62	7.75%	0	
Encyonopsis subminuta	2	0.25%	0	
Eolimna minima	8	1.00%	0	
Eunotia praerupta	2	0.25%	0	
Fragilaria vaucheriae	2	0.25%	0	
Gomphonema sp.	26	3.25%	0	
Gomphonema acuminatum	2	0.25%	0	
Gomphonema americobtusatum	8	1.00%	0	
Gomphonema angustatum	1	0.13%	0	
Gomphonema minutum	6	0.75%	0	
Gomphonema parvulum	14	1.75%	0	
Luticola mutica	2	0.25%	0	
Meridion circulare	79	9.88%	0	
Navicula sp.	2	0.25%	0	
Navicula antonii	2	0.25%	0	
Navicula cryptocephala	2	0.25%	0	
Navicula difficillima	1	0.13%	0	
Navicula viridula	1	0.13%	0	
Nitzschia sp.	2	0.25%	0	
Nitzschia acicularis	1	0.13%	0	
Nitzschia archibaldii	23	2.88%	0	
Nitzschia dissipata	4	0.50%	0	
Nitzschia flexoides	36	4.50%	0	
Nitzschia palea	67	8.38%	0	

Taxa Listing

Project ID: CC14NWMP
RAI No.: CC14NWMP001

RAI No.: CC14NWMP001 **Sta. Name:** Stillwater River
Client ID: SW-7
Date Coll.: 9/16/2014 **No Jars:** 1 **STORET ID:**
Sample Notes:

Taxonomic Name	Count	PRA	Abnorm.	Comment
Nitzschia paleacea	1	0.13%	0	
Pinnularia borealis	1	0.13%	0	
Planothidium lanceolatum	2	0.25%	0	
Pseudostaurosira brevistriata	7	0.88%	0	
Staurosira construens	57	7.13%	0	
Staurosira construens v. venter	164	20.50%	0	
Staurosirella leptostauron	2	0.25%	0	
Staurosirella pinnata	24	3.00%	0	
Surirella linearis	1	0.13%	0	
Surirella minuta	10	1.25%	0	
Sample Count	**800**			

Taxa Listing

Project ID: CC14NWMP
RAI No.: CC14NWMP002

RAI No.: CC14NWMP002 **Sta. Name:** Stillwater River Replicate
Client ID: SW-7 rep
Date Coll.: 9/16/2014 **No Jars:** 1 **STORET ID:**
Sample Notes:

Taxonomic Name	Count	PRA	Abnorm.	Comment
Algae				
Bacillariophyta				
Diatoms	0			
Chlorophyta				
Mougeotia sp.	0			
Scenedesmus sp.	0			
Cyanophyta				
Anabaena sp.	0			
Homeothrix sp.	0			
Phormidium sp.	0			
Pseudanabaena sp.	0			
Diatoms				
Bacillariophyta				
Achnanthes sp.	1	0.13%	0	
Achnanthidium minutissimum	46	5.75%	0	
Adlafia minuscula	1	0.13%	0	
Caloneis bacillum	2	0.25%	0	
Cymbella sp.	2	0.25%	0	
Cymbella neocistula	20	2.50%	0	
Encyonema sp.	2	0.25%	0	
Encyonema minutum	70	8.75%	0	
Encyonema silesiacum	43	5.38%	0	
Encyonema ventricosum	50	6.25%	0	
Encyonopsis subminuta	1	0.13%	0	
Eolimna minima	8	1.00%	0	
Fragilaria capucina	2	0.25%	0	
Gomphoneis geitleri	2	0.25%	0	
Gomphonema sp.	7	0.88%	0	
Gomphonema americobtusatum	6	0.75%	0	
Gomphonema micropus	39	4.88%	0	
Gomphonema minutum	2	0.25%	0	
Mayamaea agrestis	1	0.13%	0	
Mayamaea atomus	3	0.38%	0	
Meridion circulare	93	11.63%	0	
Nitzschia acicularis	6	0.75%	0	
Nitzschia archibaldii	13	1.63%	0	
Nitzschia flexoides	24	3.00%	0	
Nitzschia linearis v. subtilis	1	0.13%	0	
Nitzschia microcephala	2	0.25%	0	
Nitzschia palea	82	10.25%	0	
Nitzschia paleacea	4	0.50%	0	
Planothidium lanceolatum	4	0.50%	0	
Rossithidium nodosum sp.	2	0.25%	0	
Staurosira construens	45	5.63%	0	

Taxa Listing

Project ID: CC14NWMP
RAI No.: CC14NWMP002

RAI No.: CC14NWMP002 **Sta. Name:** Stillwater River Replicate
Client ID: SW-7 rep
Date Coll.: 9/16/2014 **No Jars:** 1 **STORET ID:**
Sample Notes:

Taxonomic Name	Count	PRA	Abnorm.	Comment
Staurosira construens v. venter	183	22.88%	0	
Staurosirella leptostauron	1	0.13%	0	
Staurosirella pinnata	20	2.50%	0	
Surirella minuta	12	1.50%	0	

Sample Count **800**

Taxa Listing

Project ID: CC14NWMP
RAI No.: CC14NWMP003

RAI No.: CC14NWMP003 **Sta. Name:** Stillwater River
Client ID: SR-1
Date Coll.: 9/16/2014 **No Jars:** 1 **STORET ID:**
Sample Notes:

Taxonomic Name	Count	PRA	Abnorm.	Comment
Algae				
Bacillariophyta				
Diatoms	0			
Cyanophyta				
Chamaesiphon sp.	0			
Homeothrix sp.	0			
Phormidium sp.	0			
Pseudanabaena sp.	0			
Diatoms				
Bacillariophyta				
Achnanthidium minutissimum	112	14.00%	0	
Adlafia minuscula	2	0.25%	0	
Amphora copulata	2	0.25%	0	
Amphora pediculus	2	0.25%	0	
Cocconeis placentula	1	0.13%	0	
Diatoma mesodon	5	0.63%	0	
Encyonema minutum	194	24.25%	0	
Encyonema silesiacum	34	4.25%	0	
Encyonema ventricosum	286	35.75%	0	
Eolimna minima	7	0.88%	0	
Eunotia sp.	8	1.00%	0	
Eunotia exigua	4	0.50%	2	
Geissleria acceptata	2	0.25%	0	
Gomphoneis geitleri	4	0.50%	0	
Gomphonema sp.	6	0.75%	0	
Gomphonema americobtusatum	4	0.50%	0	
Gomphonema angustatum	2	0.25%	0	
Gomphonema micropus	32	4.00%	0	
Hannaea arcus	1	0.13%	0	
Mayamaea atomus	6	0.75%	0	
Meridion circulare	47	5.88%	0	
Meridion circulare v. constrictum	2	0.25%	0	
Navicula sp.	1	0.13%	0	
Navicula hustedtii	6	0.75%	2	
Navicula salinarum	6	0.75%	0	
Nitzschia palea	8	1.00%	0	
Pinnularia sp.	8	1.00%	0	
Planothidium lanceolatum	2	0.25%	0	
Reimeria sinuata	2	0.25%	0	
Surirella angusta	2	0.25%	0	
Surirella minuta	2	0.25%	0	
Sample Count	**800**			

Taxa Listing

Project ID: CC14NWMP
RAI No.: CC14NWMP004

RAI No.: CC14NWMP004 **Sta. Name:** Daisy Creek
Client ID: DC-5
Date Coll.: 9/17/2014 **No Jars:** 1 **STORET ID:**
Sample Notes:

Taxonomic Name	Count	PRA	Abnorm.	Comment
Algae				
Bacillariophyta				
Diatoms	0			
Cyanophyta				
Homeothrix sp.	0			
Phormidium sp.	0			
Pseudanabaena sp.	0			
Diatoms				
Bacillariophyta				
Achnanthidium minutissimum	585	73.13%	0	
Adlafia minuscula	1	0.13%	0	
Diadesmis confervacea	1	0.13%	0	
Encyonema minutum	141	17.63%	0	
Encyonema silesiacum	4	0.50%	0	
Encyonema ventricosum	33	4.13%	0	
Encyonopsis subminuta	2	0.25%	0	
Eunotia sp.	7	0.88%	0	
Eunotia exigua	4	0.50%	2	
Fragilaria sp.	2	0.25%	0	
Gomphoneis geitleri	4	0.50%	0	
Gomphonema micropus	4	0.50%	0	
Hannaea arcus	2	0.25%	0	
Navicula veneta	2	0.25%	0	
Nitzschia paleacea	2	0.25%	0	
Stauroneis sp.	2	0.25%	0	
Staurosirella pinnata	4	0.50%	0	
Sample Count	**800**			

Taxa Listing

Project ID: CC14NWMP
RAI No.: CC14NWMP005

RAI No.: CC14NWMP005 **Sta. Name:** Daisy Creek
Client ID: DC-2
Date Coll.: 9/17/2014 **No Jars:** 1 **STORET ID:**
Sample Notes:

Taxonomic Name	Count	PRA	Abnorm.	Comment
Algae				
Bacillariophyta				
Diatoms	0			
Diatoms				
Bacillariophyta				
Achnanthidium minutissimum	7	46.67%	0	barren sample
Encyonema ventricosum	2	13.33%	0	barren sample
Eunotia sp.	4	26.67%	0	barren sample
Eunotia exigua	2	13.33%	0	barren sample
Sample Count	**15**			

Taxa Listing

Project ID: CC14NWMP
RAI No.: CC14NWMP006

RAI No.: CC14NWMP006 **Sta. Name:** Fisher Creek
Client ID: SW-3
Date Coll.: 9/17/2014 **No Jars:** 1 **STORET ID:**
Sample Notes:

Taxonomic Name	Count	PRA	Abnorm.	Comment
Algae				
Bacillariophyta				
Diatoms	0			
Chlorophyta				
Stigeoclonium sp.	0			
Diatoms				
Bacillariophyta				
Achnanthidium minutissimum	60	7.50%	0	
Chamaepinnularia soehrensis v. muscicola	4	0.50%	0	
Eolimna minima	4	0.50%	0	
Eunotia sp.	58	7.25%	0	
Eunotia exigua	660	82.50%	14	
Eunotia nymanniana	8	1.00%	0	
Mayamaea atomus	2	0.25%	0	
Pinnularia subcapitata	4	0.50%	0	
Sample Count	**800**			

Taxa Listing

Project ID: CC14NWMP
RAI No.: CC14NWMP007

RAI No.: CC14NWMP007 **Sta. Name:** Fisher Creek
Client ID: SW-4
Date Coll.: 9/17/2014 **No Jars:** 1 **STORET ID:**
Sample Notes:

Taxonomic Name	Count	PRA	Abnorm.	Comment
Algae				
Bacillariophyta				
Diatoms	0			
Cyanophyta				
Clastidium sp.	0			
Homeothrix sp.	0			
Pseudanabaena sp.	0			
Diatoms				
Bacillariophyta				
Achnanthidium minutissimum	778	97.25%	0	
Aulacoseira distans	3	0.38%	0	
Caloneis sp.	2	0.25%	0	
Diatoma mesodon	2	0.25%	0	
Encyonema minutum	4	0.50%	0	
Encyonema silesiacum	2	0.25%	0	
Eolimna minima	1	0.13%	0	
Gomphonema sp.	4	0.50%	0	
Meridion circulare	2	0.25%	0	
Navicula cryptotenella	2	0.25%	0	

Sample Count 800

Taxa Listing

Project ID: CC14NWMP
RAI No.: CC14NWMP008

RAI No.: CC14NWMP008 **Sta. Name:** Fisher Creek Replicate
Client ID: SW-4 rep
Date Coll.: 9/17/2014 **No Jars:** 1 **STORET ID:**
Sample Notes:

Taxonomic Name	Count	PRA	Abnorm.	Comment
Algae				
Bacillariophyta				
Diatoms	0			
Cyanophyta				
Clastidium sp.	0			
Heteroleibleinia sp.	0			
Homeothrix sp.	0			
Pseudanabaena sp.	0			
Diatoms				
Bacillariophyta				
Achnanthidium minutissimum	794	99.25%	4	
Cocconeis placentula	1	0.13%	0	
Encyonema silesiacum	4	0.50%	0	
Meridion circulare	1	0.13%	0	
Sample Count	**800**			

Taxa Listing

Project ID: CC14NWMP
RAI No.: CC14NWMP009

RAI No.: CC14NWMP009 **Sta. Name:** Clark Fork
Client ID: CFY-2
Date Coll.: 9/18/2014 **No Jars:** 1 **STORET ID:**
Sample Notes:

Taxonomic Name	Count	PRA	Abnorm.	Comment
Algae				
Bacillariophyta				
Diatoms	0			
Chlorophyta				
Microspora sp.	0			
Cyanophyta				
Clastidium sp.	0			
Homeothrix sp.	0			
Lyngbya sp.	0			
Phormidium sp.	0			
Pseudanabaena sp.	0			
Diatoms				
Bacillariophyta				
Achnanthidium minutissimum	649	81.13%	4	
Diadesmis confervacea	1	0.13%	0	
Diatoma mesodon	2	0.25%	0	
Encyonema minutum	43	5.38%	0	
Encyonema silesiacum	25	3.13%	0	
Encyonema ventricosum	33	4.13%	0	
Encyonopsis cesatii	2	0.25%	0	
Eunotia minor	6	0.75%	0	
Fragilaria capucina	6	0.75%	0	
Fragilaria capucina v. gracilis	1	0.13%	0	
Gomphonema sp.	4	0.50%	0	
Gomphonema minutum	2	0.25%	0	
Hannaea arcus	10	1.25%	0	
Meridion circulare	4	0.50%	0	
Nitzschia perminuta	2	0.25%	0	
Psammothidium subatomoides	1	0.13%	0	
Reimeria sinuata	4	0.50%	0	
Staurosira construens	2	0.25%	0	
Staurosirella pinnata	2	0.25%	0	
Synedra rumpens	1	0.13%	0	
Sample Count	**800**			

Taxa Listing

Project ID: CC14NWMP
RAI No.: CC14NWMP010

RAI No.: CC14NWMP010 **Sta. Name:** Clark Fork
Client ID: SW-6
Date Coll.: 9/18/2014 **No Jars:** 1 **STORET ID:**
Sample Notes:

Taxonomic Name	Count	PRA	Abnorm.	Comment
Algae				
Bacillariophyta				
Diatoms	0			
Chlorophyta				
Cosmarium sp.	0			
Microspora sp.	0			
Scenedesmus sp.	0			
Zygnema sp.	0			
Cyanophyta				
Homeothrix sp.	0			
Diatoms				
Bacillariophyta				
Achnanthes taeniata	8	1.00%	0	
Achnanthidium minutissimum	462	57.75%	0	
Achnanthidium rivulare	5	0.63%	0	
Aulacoseira lirata	2	0.25%	0	
Brachysira microcephala	1	0.13%	0	
Cocconeis placentula	1	0.13%	0	
Cocconeis placentula v. lineata	1	0.13%	0	
Cyclotella antiqua	1	0.13%	0	
Cymbella cistula	12	1.50%	0	
Cymbella neocistula	36	4.50%	0	
Cymbella subturgidula	23	2.88%	0	
Diatoma mesodon	1	0.13%	0	
Diatoma vulgaris	2	0.25%	0	
Encyonema minutum	43	5.38%	0	
Encyonema silesiacum	25	3.13%	0	
Encyonema ventricosum	8	1.00%	0	
Fragilaria capucina	20	2.50%	1	
Fragilaria capucina v. gracilis	22	2.75%	0	
Fragilaria vaucheriae	37	4.63%	0	
Gomphonema sp.	16	2.00%	0	
Gomphonema angustatum	2	0.25%	0	
Gomphonema drutelingense	3	0.38%	0	
Gomphonema micropus	25	3.13%	0	
Gomphonema minusculum	1	0.13%	0	
Gomphonema olivaceum	5	0.63%	0	
Gomphonema parvulum	3	0.38%	0	
Hannaea arcus	7	0.88%	0	
Meridion circulare	5	0.63%	0	
Navicula cryptotenella	1	0.13%	0	
Staurosira construens v. venter	2	0.25%	0	
Synedra acus	1	0.13%	0	
Synedra rumpens	19	2.38%	0	

Taxa Listing

Project ID: CC14NWMP
RAI No.: CC14NWMP010

RAI No.: CC14NWMP010 Sta. Name: Clark Fork
Client ID: SW-6
Date Coll.: 9/18/2014 No Jars: 1 STORET ID:
Sample Notes:

Taxonomic Name	Count	PRA	Abnorm.	Comment

Sample Count 800

Metrics Report

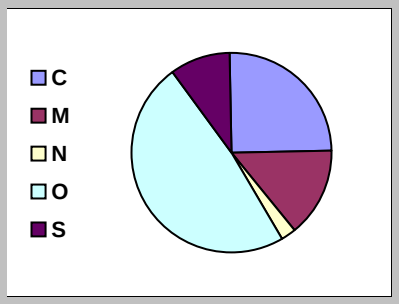
Project ID: CC14NWMP
Sample ID: CC14NWMP001
Station Name: Stillwater River
Client ID: SW-7
STORET ID:
Date Collected: 9/16/2014
Count Of Taxon: 42
Sum Of Count: 800

Table 1 Metrics

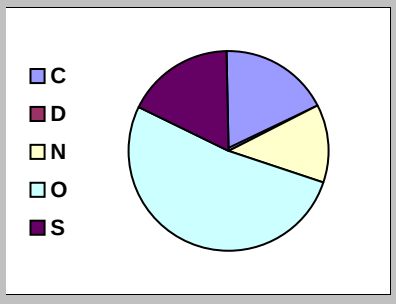
Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	4.060	Excellent	Excellent
Species Richness	42	Excellent	Excellent
Native Taxa Percent	1.25%		
Cosmopolitan Taxa Percent	76.38%		
Mountains Rare Taxa Percent	1.25%		
Plains Rare Taxa Percent	0.00%		
Dominant Taxon Percent	20.50%	Excellent	Excellent
Sediment			
Siltation Taxa Percent	20.38%	Good	Excellent
Motile Taxa Percent	20.50%		
Mountains Brackish Taxa Percent	78.88%		
Plains Brackish Taxa Percent	0.38%		
Organic Nutrients			
Pollution Index	2.446	Good	Excellent
Nitrogen Heterotroph Taxa Percent	11.38%		
Polysaprobous Taxa Percent	35.88%		
Low DO Taxa Percent	11.25%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	73.88%		
Eutraphentic Taxa Percent	17.75%		
Rhopalodiales Percent	0.00%		
Metals			
Disturbance Taxa Percent	4.88%	Excellent	Excellent
Acidophilous Taxa Percent	0.38%		
Metals Tolerant Taxa Percent	27.38%		
Abnormal Cells Percent	0.00%	Excellent	

Increaser/Decreaser Taxa

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	33.88%	68.08%
Mountains Metals Increasers Taxa Percent	19.38%	27.76%
Mountains Nutrient Increasers Taxa Percent	3.13%	6.43%
Mountains Sediment Increasers Taxa Percent	13.63%	31.21%



Metric	Value	Prob.
Plains General Increasers Taxa Percent	25.88%	29.46%



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

Metrics Report

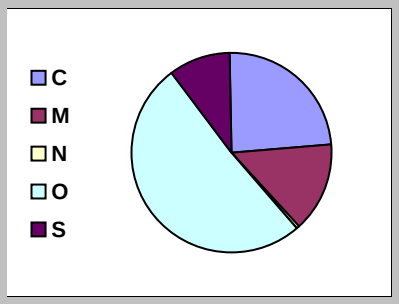
Project ID: CC14NWMP
Sample ID: CC14NWMP002
Station Name: Stillwater River Replicat
Client ID: SW-7 rep
STORET ID:
Date Collected: 9/16/2014
Count Of Taxon: 35
Sum Of Count: 800

Table 1 Metrics

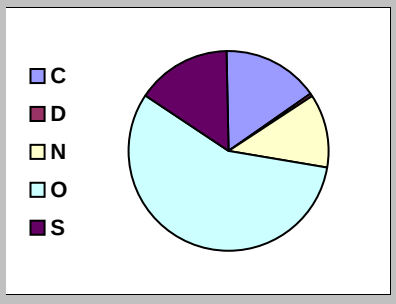
Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	3.841	Excellent	Good
Species Richness	35	Excellent	Good
Native Taxa Percent	0.00%		
Cosmopolitan Taxa Percent	77.63%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	0.00%		
Dominant Taxon Percent	22.88%	Excellent	Excellent
Sediment			
Siltation Taxa Percent	19.63%	Excellent	Excellent
Motile Taxa Percent	19.88%		
Mountains Brackish Taxa Percent	80.13%		
Plains Brackish Taxa Percent	0.13%		
Organic Nutrients			
Pollution Index	2.419	Good	Excellent
Nitrogen Heterotroph Taxa Percent	13.13%		
Polysaprobous Taxa Percent	35.50%		
Low DO Taxa Percent	12.00%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	76.50%		
Eutraphentic Taxa Percent	21.88%		
Rhopalodiales Percent	0.00%		
Metals			
Disturbance Taxa Percent	5.75%	Excellent	Excellent
Acidophilous Taxa Percent	0.00%		
Metals Tolerant Taxa Percent	28.63%		
Abnormal Cells Percent	0.00%	Excellent	

Increaser/Decreaser Taxa

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	32.13%	64.80%
Mountains Metals Increasers Taxa Percent	18.25%	25.46%
Mountains Nutrient Increasers Taxa Percent	0.63%	4.65%
Mountains Sediment Increasers Taxa Percent	13.50%	30.85%



Metric	Value	Prob.
Plains General Decreasers Taxa Percent	0.25%	88.88%
Plains General Increasers Taxa Percent	22.13%	20.90%



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

Metrics Report

Project ID: CC14NWMP
Sample ID: CC14NWMP003
Station Name: Stillwater River
Client ID: SR-1
STORET ID:
Date Collected: 9/16/2014
Count Of Taxon: 31
Sum Of Count: 800

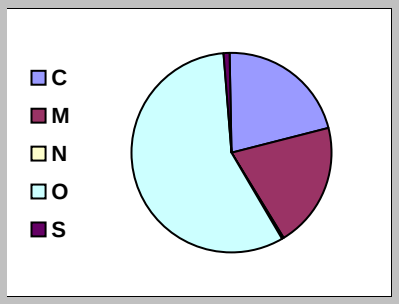
Table 1 Metrics

Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	2.927	Good	Fair
Species Richness	31	Excellent	Good
Native Taxa Percent	0.00%		
Cosmopolitan Taxa Percent	54.00%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	0.00%		
Dominant Taxon Percent	35.75%	Good	Good
Sediment			
Siltation Taxa Percent	5.25%	Excellent	Excellent
Motile Taxa Percent	7.00%		
Mountains Brackish Taxa Percent	94.38%		
Plains Brackish Taxa Percent	1.88%		
Organic Nutrients			
Pollution Index	2.221	Good	Good
Nitrogen Heterotroph Taxa Percent	2.63%		
Polysaprobous Taxa Percent	67.88%		
Low DO Taxa Percent	1.88%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	92.00%		
Eutraphentic Taxa Percent	9.00%		
Rhopalodiales Percent	0.00%		
Metals			
Disturbance Taxa Percent	14.00%	Excellent	Excellent
Acidophilous Taxa Percent	1.25%		
Metals Tolerant Taxa Percent	32.13%		
Abnormal Cells Percent	0.50%	Good	

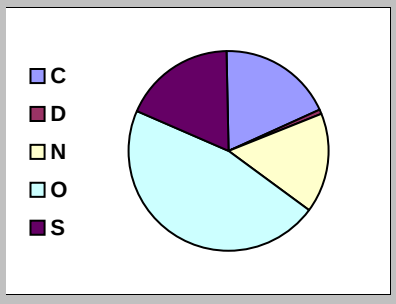
BioIndex	Description	Rating
MTM	Montana DEQ Mountains (Bahls 1992)	Good
MTP	Montana DEQ Plains (Bahls 1992)	Fair

Increaser/Decreaser Taxa

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	27.00%	54.38%
Mountains Metals Increasers Taxa Percent	25.13%	42.07%
Mountains Nutrient Increasers Taxa Percent	0.38%	4.55%
Mountains Sediment Increasers Taxa Percent	1.50%	9.34%



Metric	Value	Prob.
Plains General Decreasers Taxa Percent	1.13%	87.90%
Plains General Increasers Taxa Percent	28.50%	36.32%



Metrics Report

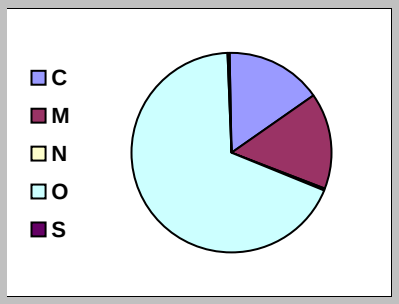
Project ID: CC14NWMP
Sample ID: CC14NWMP004
Station Name: Daisy Creek
Client ID: DC-5
STORET ID:
Date Collected: 9/17/2014
Count Of Taxon: 17
Sum Of Count: 800

Table 1 Metrics

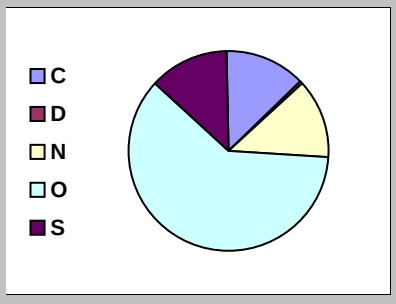
Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	1.366	Fair	Poor
Species Richness	17	Fair	Poor
Native Taxa Percent	0.00%		
Cosmopolitan Taxa Percent	93.00%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	0.00%		
Dominant Taxon Percent	73.13%	Fair	Fair
Sediment			
Siltation Taxa Percent	0.75%	Excellent	Excellent
Motile Taxa Percent	1.00%		
Mountains Brackish Taxa Percent	97.25%		
Plains Brackish Taxa Percent	0.13%		
Organic Nutrients			
Pollution Index	2.763	Excellent	Excellent
Nitrogen Heterotroph Taxa Percent	0.38%		
Polysaprobous Taxa Percent	23.38%		
Low DO Taxa Percent	0.25%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	97.38%		
Eutraphentic Taxa Percent	1.13%		
Rhopalodiales Percent	0.00%		
Metals			
Disturbance Taxa Percent	73.13%	Fair	Fair
Acidophilous Taxa Percent	0.50%		
Metals Tolerant Taxa Percent	18.50%		
Abnormal Cells Percent	0.25%	Good	

Increaser/Decreaser Taxa

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	18.63%	37.45%
Mountains Metals Increasers Taxa Percent	18.38%	25.78%
Mountains Nutrient Increasers Taxa Percent	0.50%	4.55%
Mountains Sediment Increasers Taxa Percent	0.25%	7.93%



Metric	Value	Prob.
Plains General Decreasers Taxa Percent	0.25%	88.88%
Plains General Increasers Taxa Percent	18.13%	13.79%



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

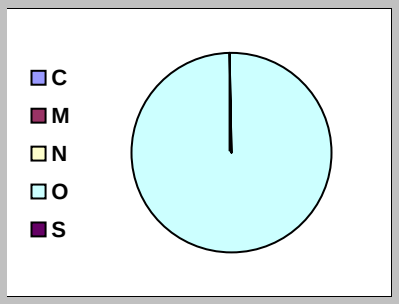
Metrics Report

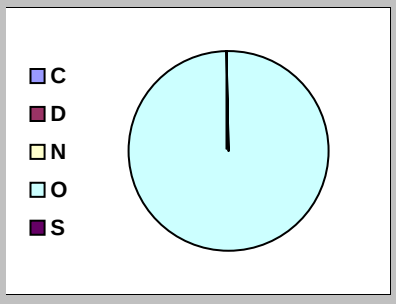
Project ID: CC14NWMP
Sample ID: CC14NWMP005
Station Name: Daisy Creek
Client ID: DC-2
STORET ID:
Date Collected: 9/17/2014
Count Of Taxon: 4
Sum Of Count: 15

Table 1 Metrics

Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	1.797	Fair	Poor
Species Richness	4	Poor	Poor
Native Taxa Percent	0.00%		
Cosmopolitan Taxa Percent	60.00%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	0.00%		
Dominant Taxon Percent	46.67%	Good	Good
Sediment			
Siltation Taxa Percent	0.00%	Excellent	Excellent
Motile Taxa Percent	0.00%		
Mountains Brackish Taxa Percent	73.33%		
Plains Brackish Taxa Percent	0.00%		
Organic Nutrients			
Pollution Index	2.867	Excellent	Excellent
Nitrogen Heterotroph Taxa Percent	0.00%		
Polysaprobous Taxa Percent	26.67%		
Low DO Taxa Percent	0.00%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	73.33%		
Eutraphentic Taxa Percent	0.00%		
Rhopalodiales Percent	0.00%		
Metals			
Disturbance Taxa Percent	46.67%	Good	Good
Acidophilous Taxa Percent	13.33%		
Metals Tolerant Taxa Percent	0.00%		
Abnormal Cells Percent	0.00%	Excellent	

Increaser/Decreaser Taxa





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

Metrics Report

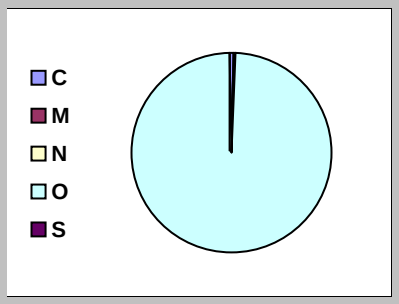
Project ID: CC14NWMP
Sample ID: CC14NWMP006
Station Name: Fisher Creek
Client ID: SW-3
STORET ID:
Date Collected: 9/17/2014
Count Of Taxon: 8
Sum Of Count: 800

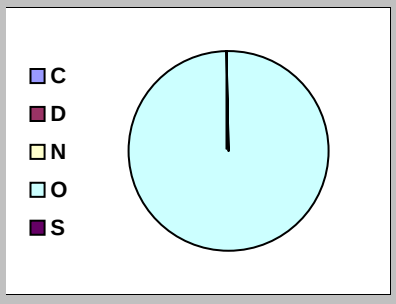
Table 1 Metrics

Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	0.986	Poor	Poor
Species Richness	8	Poor	Poor
Native Taxa Percent	0.00%		
Cosmopolitan Taxa Percent	90.75%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	0.00%		
Dominant Taxon Percent	82.50%	Poor	Poor
Sediment			
Siltation Taxa Percent	1.25%	Excellent	Excellent
Motile Taxa Percent	1.75%		
Mountains Brackish Taxa Percent	92.75%		
Plains Brackish Taxa Percent	1.50%		
Organic Nutrients			
Pollution Index	2.980	Excellent	Excellent
Nitrogen Heterotroph Taxa Percent	0.75%		
Polysaprobous Taxa Percent	83.25%		
Low DO Taxa Percent	0.50%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	92.00%		
Eutraphentic Taxa Percent	0.75%		
Rhopalodiales Percent	0.00%		
Metals			
Disturbance Taxa Percent	7.50%	Excellent	Excellent
Acidophilous Taxa Percent	84.50%		
Metals Tolerant Taxa Percent	0.75%		
Abnormal Cells Percent	1.75%	Good	

Increaser/Decreaser Taxa

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	0.50%	10.75%
Mountains Metals Increasers Taxa Percent	0.50%	3.22%





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

Metrics Report

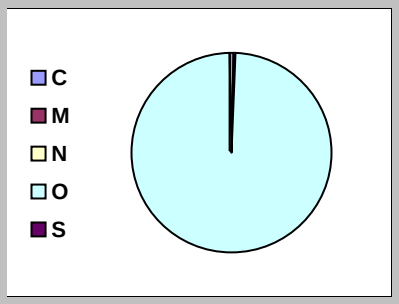
Project ID: CC14NWMP
Sample ID: CC14NWMP007
Station Name: Fisher Creek
Client ID: SW-4
STORET ID:
Date Collected: 9/17/2014
Count Of Taxon: 10
Sum Of Count: 800

Table 1 Metrics

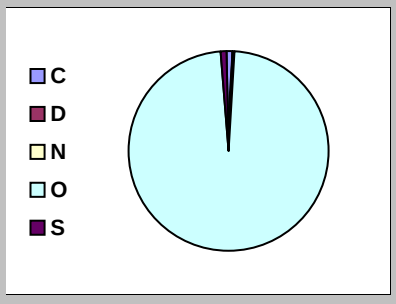
Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	0.266	Poor	Poor
Species Richness	10	Fair	Poor
Native Taxa Percent	0.00%		
Cosmopolitan Taxa Percent	98.63%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	0.00%		
Dominant Taxon Percent	97.25%	Poor	Poor
Sediment			
Siltation Taxa Percent	0.38%	Excellent	Excellent
Motile Taxa Percent	0.63%		
Mountains Brackish Taxa Percent	99.25%		
Plains Brackish Taxa Percent	0.63%		
Organic Nutrients			
Pollution Index	2.988	Excellent	Excellent
Nitrogen Heterotroph Taxa Percent	0.13%		
Polysaprobous Taxa Percent	0.88%		
Low DO Taxa Percent	0.13%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	98.88%		
Eutraphentic Taxa Percent	0.13%		
Rhopalodiales Percent	0.00%		
Metals			
Disturbance Taxa Percent	97.25%	Poor	Poor
Acidophilous Taxa Percent	0.38%		
Metals Tolerant Taxa Percent	0.88%		
Abnormal Cells Percent	0.00%	Excellent	

Increaser/Decreaser Taxa

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	0.63%	10.75%
Mountains Metals Increasers Taxa Percent	0.63%	3.29%



Metric	Value	Prob.
Plains General Increasers Taxa Percent	1.00%	1.02%



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

Metrics Report

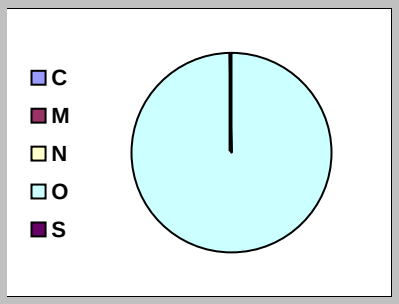
Project ID: CC14NWMP
Sample ID: CC14NWMP008
Station Name: Fisher Creek Replicate
Client ID: SW-4 rep
STORET ID:
Date Collected: 9/17/2014
Count Of Taxon: 4
Sum Of Count: 800

Table 1 Metrics

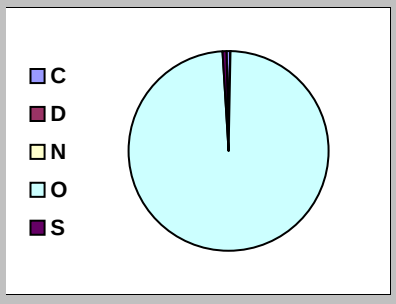
Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	0.073	Poor	Poor
Species Richness	4	Poor	Poor
Native Taxa Percent	0.00%		
Cosmopolitan Taxa Percent	100.00%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	0.00%		
Dominant Taxon Percent	99.25%	Poor	Poor
Sediment			
Siltation Taxa Percent	0.00%	Excellent	Excellent
Motile Taxa Percent	0.00%		
Mountains Brackish Taxa Percent	100.00%		
Plains Brackish Taxa Percent	0.00%		
Organic Nutrients			
Pollution Index	2.995	Excellent	Excellent
Nitrogen Heterotroph Taxa Percent	0.00%		
Polysaprobous Taxa Percent	0.50%		
Low DO Taxa Percent	0.00%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	100.00%		
Eutraphentic Taxa Percent	0.13%		
Rhopalodiales Percent	0.00%		
Metals			
Disturbance Taxa Percent	99.25%	Poor	Poor
Acidophilous Taxa Percent	0.00%		
Metals Tolerant Taxa Percent	0.50%		
Abnormal Cells Percent	0.50%	Good	

Increaser/Decreaser Taxa

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	0.13%	10.38%
Mountains Nutrient Increasers Taxa Percent	0.13%	4.36%



Metric	Value	Prob.
Plains General Decreasers Taxa Percent	0.13%	89.07%
Plains General Increasers Taxa Percent	0.50%	0.91%



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

Metrics Report

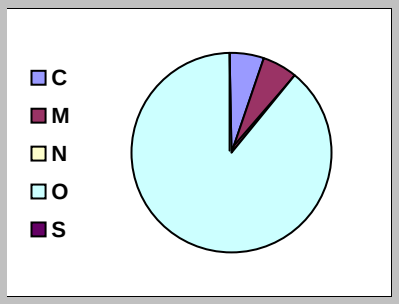
Project ID: CC14NWMP
Sample ID: CC14NWMP009
Station Name: Clark Fork
Client ID: CFY-2
STORET ID:
Date Collected: 9/18/2014
Count Of Taxon: 20
Sum Of Count: 800

Table 1 Metrics

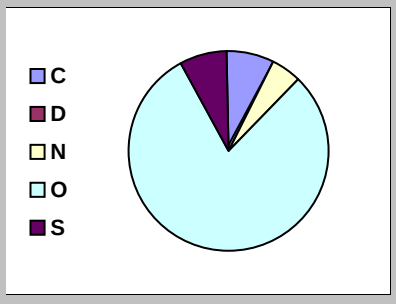
Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	1.295	Fair	Poor
Species Richness	20	Good	Fair
Native Taxa Percent	0.00%		
Cosmopolitan Taxa Percent	94.13%		
Mountains Rare Taxa Percent	0.00%		
Plains Rare Taxa Percent	0.00%		
Dominant Taxon Percent	81.13%	Poor	Poor
Sediment			
Siltation Taxa Percent	0.38%	Excellent	Excellent
Motile Taxa Percent	0.88%		
Mountains Brackish Taxa Percent	99.38%		
Plains Brackish Taxa Percent	1.38%		
Organic Nutrients			
Pollution Index	2.855	Excellent	Excellent
Nitrogen Heterotroph Taxa Percent	0.13%		
Polysaprobous Taxa Percent	12.75%		
Low DO Taxa Percent	0.00%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	97.50%		
Eutraphentic Taxa Percent	0.38%		
Rhopalodiales Percent	0.00%		
Metals			
Disturbance Taxa Percent	81.13%	Poor	Poor
Acidophilous Taxa Percent	0.88%		
Metals Tolerant Taxa Percent	9.50%		
Abnormal Cells Percent	0.50%	Good	

Increaser/Decreaser Taxa

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	6.00%	16.85%
Mountains Metals Increasers Taxa Percent	6.00%	6.94%



Metric	Value	Prob.
Plains General Decreasers Taxa Percent	0.25%	88.88%
Plains General Increasers Taxa Percent	8.75%	3.84%



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

Metrics Report

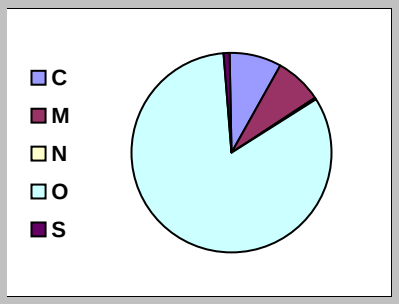
Project ID: CC14NWMP
Sample ID: CC14NWMP010
Station Name: Clark Fork
Client ID: SW-6
STORET ID:
Date Collected: 9/18/2014
Count Of Taxon: 32
Sum Of Count: 800

Table 1 Metrics

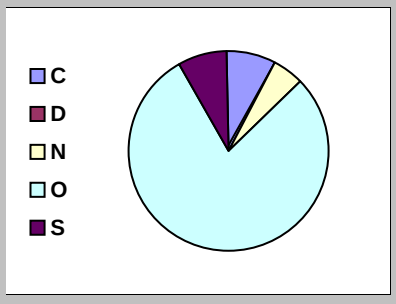
Metric	Value	MTM	MTP
Community Structure			
Shannon H (log2)	2.731	Good	Fair
Species Richness	32	Excellent	Good
Native Taxa Percent	3.50%		
Cosmopolitan Taxa Percent	77.75%		
Mountains Rare Taxa Percent	3.50%		
Plains Rare Taxa Percent	0.00%		
Dominant Taxon Percent	57.75%	Fair	Fair
Sediment			
Siltation Taxa Percent	0.13%	Excellent	Excellent
Motile Taxa Percent	0.25%		
Mountains Brackish Taxa Percent	88.50%		
Plains Brackish Taxa Percent	0.50%		
Organic Nutrients			
Pollution Index	2.739	Excellent	Excellent
Nitrogen Heterotroph Taxa Percent	0.38%		
Polysaprobous Taxa Percent	14.63%		
Low DO Taxa Percent	0.38%		
Inorganic Nutrients			
Nitrogen Autotroph Taxa Percent	82.88%		
Eutraphentic Taxa Percent	10.88%		
Rhopalodiales Percent	0.00%		
Metals			
Disturbance Taxa Percent	57.75%	Fair	Fair
Acidophilous Taxa Percent	0.13%		
Metals Tolerant Taxa Percent	21.13%		
Abnormal Cells Percent	0.13%	Good	

Increaser/Decreaser Taxa

Metric	Value	Prob.
Mountains General Increasers Taxa Percent	9.50%	21.77%
Mountains Metals Increasers Taxa Percent	8.13%	9.01%
Mountains Nutrient Increasers Taxa Percent	0.75%	4.75%
Mountains Sediment Increasers Taxa Percent	0.88%	8.53%



Metric	Value	Prob.
Plains General Decreasers Taxa Percent	0.13%	89.07%
Plains General Increasers Taxa Percent	9.25%	4.18%



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

Non-Diatom Algae Study: New World Mine 2014 Non-Diatom Algae Data				Determinations by Rhithron Associates, Inc.		
RAI Sample ID	**Client ID**	**Sample Date**	**Taxon**	**Division**	**RA**	**RB**
CC14NWMP001	SW-7	9/16/2014	Diatoms	Bacillariophyta	A	1
CC14NWMP001	SW-7	9/16/2014	*Homeothrix*	Cyanophyta	VC	2
CC14NWMP001	SW-7	9/16/2014	*Phormidium*	Cyanophyta	C	3
CC14NWMP001	SW-7	9/16/2014	*Mougeotia*	Chlorophyta	R	4
CC14NWMP001	SW-7	9/16/2014	*Anabaena*	Cyanophyta	R	5
CC14NWMP001	SW-7	9/16/2014	*Pseudanabaena*	Cyanophyta	R	6
CC14NWMP002	SW-7 rep	9/16/2014	Diatoms	Bacillariophyta	A	1
CC14NWMP002	SW-7 rep	9/16/2014	*Homeothrix*	Cyanophyta	VC	2
CC14NWMP002	SW-7 rep	9/16/2014	*Phormidium*	Cyanophyta	C	3
CC14NWMP002	SW-7 rep	9/16/2014	*Mougeotia*	Chlorophyta	C	4
CC14NWMP002	SW-7 rep	9/16/2014	*Pseudanabaena*	Cyanophyta	C	5
CC14NWMP002	SW-7 rep	9/16/2014	*Scenedesmus*	Chlorophyta	R	6
CC14NWMP002	SW-7 rep	9/16/2014	*Anabaena*	Cyanophyta	R	7
CC14NWMP003	SR-1	9/16/2014	Diatoms	Bacillariophyta	VC	1
CC14NWMP003	SR-1	9/16/2014	*Homeothrix*	Cyanophyta	VC	2
CC14NWMP003	SR-1	9/16/2014	*Pseudanabaena*	Cyanophyta	C	3
CC14NWMP003	SR-1	9/16/2014	*Phormidium*	Cyanophyta	R	4
CC14NWMP003	SR-1	9/16/2014	*Chamaesiphon*	Cyanophyta	R	5
CC14NWMP004	DC-5	9/17/2014	Diatoms	Bacillariophyta	VC	1
CC14NWMP004	DC-5	9/17/2014	*Phormidium*	Cyanophyta	C	2
CC14NWMP004	DC-5	9/17/2014	*Pseudanabaena*	Cyanophyta	C	3
CC14NWMP004	DC-5	9/17/2014	*Homeothrix*	Cyanophyta	C	4
CC14NWMP005	DC-2	9/17/2014	Diatoms	Bacillariophyta	R	1
CC14NWMP006	SW-3	9/17/2014	*Stigeoclonium*	Chlorophyta	VC	1
CC14NWMP006	SW-3	9/17/2014	Diatoms	Bacillariophyta	C	2
CC14NWMP007	SW-4	9/17/2014	Diatoms	Bacillariophyta	VC	1
CC14NWMP007	SW-4	9/17/2014	*Homeothrix*	Cyanophyta	C	2
CC14NWMP007	SW-4	9/17/2014	*Pseudanabaena*	Cyanophyta	C	3
CC14NWMP007	SW-4	9/17/2014	*Clastidium*	Cyanophyta	R	4
CC14NWMP008	SW-4 rep	9/17/2014	Diatoms	Bacillariophyta	VC	1
CC14NWMP008	SW-4 rep	9/17/2014	*Pseudanabaena*	Cyanophyta	C	2
CC14NWMP008	SW-4 rep	9/17/2014	*Heteroleibleinia*	Cyanophyta	C	3
CC14NWMP008	SW-4 rep	9/17/2014	*Homeothrix*	Cyanophyta	R	4
CC14NWMP008	SW-4 rep	9/17/2014	*Clastidium*	Cyanophyta	R	5
CC14NWMP009	CFY-2	9/18/2014	*Microspora*	Chlorophyta	VA	1
CC14NWMP009	CFY-2	9/18/2014	Diatoms	Bacillariophyta	A	2
CC14NWMP009	CFY-2	9/18/2014	*Phormidium*	Cyanophyta	VC	3
CC14NWMP009	CFY-2	9/18/2014	*Pseudanabaena*	Cyanophyta	C	4
CC14NWMP009	CFY-2	9/18/2014	*Clastidium*	Cyanophyta	C	5
CC14NWMP009	CFY-2	9/18/2014	*Lyngbya*	Cyanophyta	R	6
CC14NWMP009	CFY-2	9/18/2014	*Homeothrix*	Cyanophyta	R	7
CC14NWMP010	SW-6	9/18/2014	Diatoms	Bacillariophyta	A	1
CC14NWMP010	SW-6	9/18/2014	*Zygnema*	Chlorophyta	C	2
CC14NWMP010	SW-6	9/18/2014	*Homeothrix*	Cyanophyta	C	3
CC14NWMP010	SW-6	9/18/2014	*Microspora*	Chlorophyta	R	4
CC14NWMP010	SW-6	9/18/2014	*Cosmarium*	Chlorophyta	R	5
CC14NWMP010	SW-6	9/18/2014	*Scenedesmus*	Chlorophyta	R	6