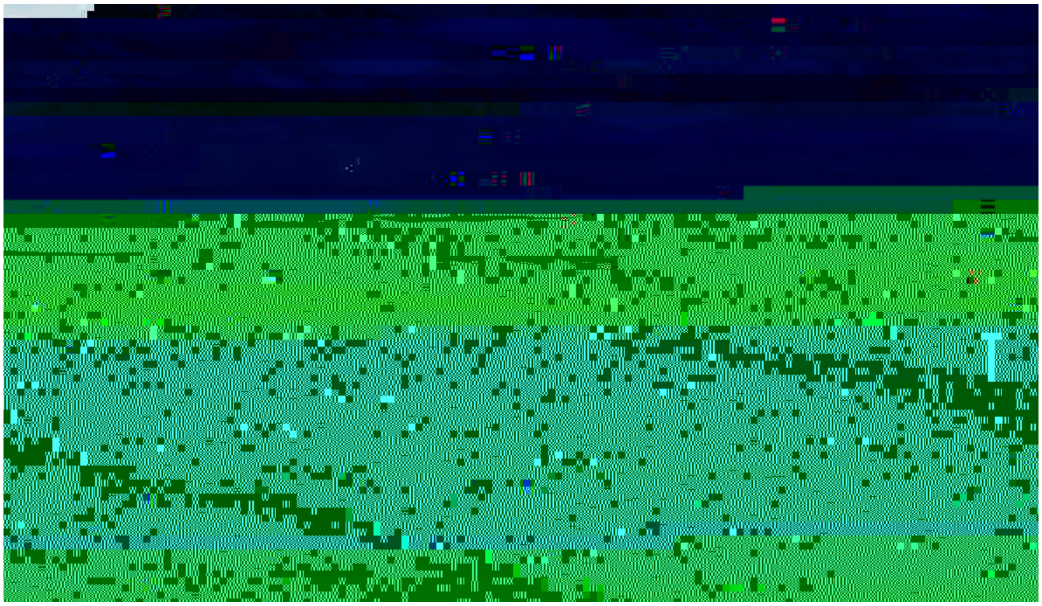
Progress Report - Lake and Stream Surveys in Northwestern Ontario, 2012 and 2013



Fort Hope, on Eabamet Lake

Cooperative Freshwater Ecology Unit

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2014

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characteristics in lakes of the region. The results of chemistry and zooplankton analyses are provided in the Appendix. These data are currently being worked up and will form the basis of a Master's thesis by Josef MacLeod at Laurentian University, as well as being published in future scientific papers. The phytoplankton samples have been sent out for processing but we do not yet have results.

On 14 of the study lakes, cores of the lake bottom sediment were collected and sliced at very fine intervals. The bottom sediments of a lake contain a record of a lake's past conditions, including the plants and animals that lived there. By dating the individual slices of a core and looking at the plant and animal remains in the slices we can see how lakes have changed through time. These samples are currently being analysed at Queen's University. The results will be published in scientific papers, and provided in future progress reports.

Adam and Kathryn coring lake sediment

Figure1. Map of the Fort Hope study region showing the location of the study lakes and streams.

Table1. Sample

StreamWater Chemistry

The streams sampled in July 2012 and August 2013 all drained into Eabamet Lake as shown in Appendix 4. The values for the water chemistry parameters are shown in Table 3 and Appendix 5. Old Bay and Old Mine Creeks had higher alkalinity and conductivity than the other streams sampled. Tidy Creek had lower pH. Opikeigen and Rond Rivers had lower nutrients and less color likely owing to the fact that they are immediately downstream of Opikeigen and Rond Lakes and the water has not yet interacted with wetlands in the watershed.

Table3. Range in water chemistry values for the study streams, 2012-13. Metals for which values were very low or not detected are not reported here but can be found Ð•ò$0

StreamBottom

Summary

As part of a collaboration between the Eabametoong First Nation and Laurentian and Queen's Universities, studies are being conducted on selected lakes and streams in northwestern Ontario. These studies will help increase our knowledge of the characteristics of lakes and streams in the Farthe 2

Appendices

Appendix 1 – Locations of 29 lakes sampled in 2012-13.

Appendix 2 - Results of chemistry analyses for 29 lakes sampled in 2012 and 2013.

Appendix 3 - Zooplankton species (% of the sample) found in the lakes sampled in 2012.

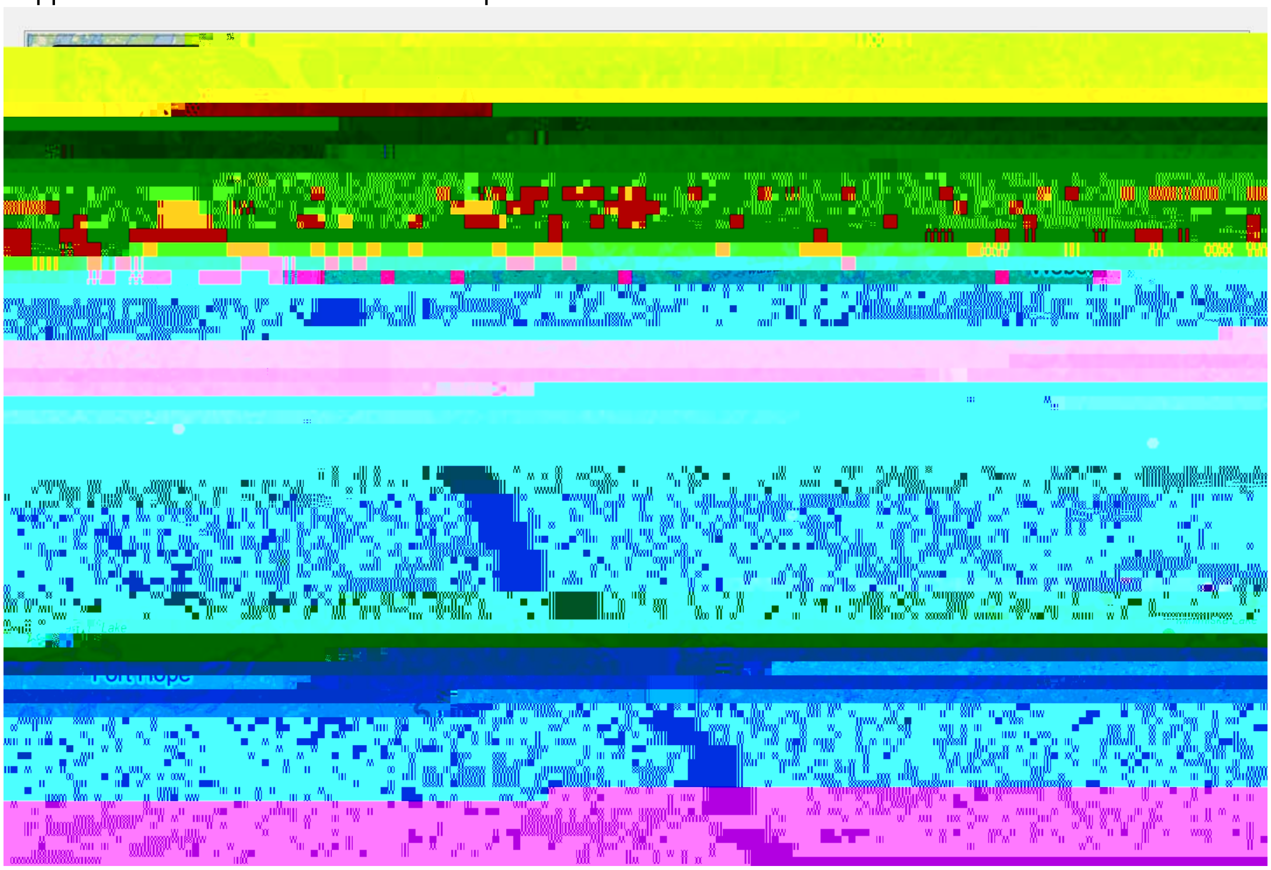
Appendix 4 - Locations of 11 streams sampled in 2012-13

Appendix 5 - Results of chemistry analyses for streams sampled in 2012 and 2013.

Appendix 6 – Summary of habitat characteristics at stream sampling sites, 2012 and 2013

Appendix 7 - Bottom dwelling Tf888T71Tf3.8415o(sjrt3>T603>abitat)Tj/TT71Aaaitatx

Appendix 1 – Locations of 29 lakes sampled in 2012-13.



Appendix 2 - Results of chemistry analyses for 29 lakes sampled in 2012 and 2013.

Lake	2013 Eabamet	Eabamet	Minimiska	Lang	Rond	Opikeigan	Troutfly	Keezhik	Ozhiski	Menako
Depth at Site (m)	8.9	9.0	3.3	5.6	1.9	6.6	14.5	17.0	12.8	6.5
Secchi Depth (m)	2.7	2.8	1.8	2.5	1.9	2.5	5.0	4.0	1.1	1.7
Latitude	51.520	51.520	51.561	51.583	51.632	51.679	51.702	51.756	51.944	52.086
Longitude	87.863	87.852	88.707	91.515	88.029	88.038	88.885	88.511	88.603	90.203
Calcium (mg/L Ca)	15.3	14.0	12.7	8.4	13.8	13.3	34.9	22.2	12.6	10.8
Carbon; dissolved inorganic										

Appendix

Appendix 2 cont.

Lake	ROF-064	Symons	ROF-063	ROF-061	ROF-037	ROF-056	ROF-041	ROF-050	McFaulds	Deugo
Depth at Site (m)	1.6	1.7	2.0	2.0	1.9	1.3	1.2	1.7	2.0	2.1
Secchi Depth (m)	0.8	1.4	1.0	1.5	1.6	1.2	1.0	1.4	1.4	1.3
Latitude	52.546	52.549	52.574	52.618	52.687	52.706	52.707	52.730	52.788	52.836
Longitude										

Appendix 3 - Zooplankton species (% of the sample) found in the lakes sampled in 2012.

Appendix 3 cont.

Species	Symons	ROF064	ROF063	ROF061	ROF037	ROF056	ROF041	ROF050	McFauld's	Duego
Alona sp.				0.23						
Ceriodaphnia sp.						0.12	0.63			
Chydorus sphaericus										

Appendix

Appendix 5 - Results of chemistry analyses for streams sampled in 2012 and 2013.

Water Chemistry Parameter	Squirrel Creek	Fruit Creek	Lornjack Creek	Opikeigen River	Rond River	Old Bay Creek	Reserve Creek	Eabamet Tributary	Old Mine Creek	Pioneer Creek	Tidy Creek
Calcium-mg/											

Appendix 7 - Bottom dwelling invertebrates found (3-min kick) in streams sampled in 2012 & 2013.

Common name	Family	Squirrel Creek	Fruit Creek	Lornjack Creek	Opikeigen River	Rond River	Old Bay Creek	Reserve Creek	Eabamet Tributary	Old Mine Creek	Pioneer Creek	Tidy Creek
Stonefly	Capniidae		10									
	Leuctridae	50	20									10
	Nemouridae								38			10
	Perlidae	10	10	44	13							10
	Pteronarcyidae		20									
Caddisfly	Apataniidae					8						
	Glossosomatidae	40	40		13							
	Hydropsychidae	14	200	122	175	558		40		9	367	120
	Hydroptilidae	8	60				4	40	50	18	20	50
	Lepidostomatidae	28	10	11	25							30
	Leptoceridae	8	10	33	38	17					27	30
	Limnephilidae				25				75	9		10
	Molannidae				13							
	Philopotamidae	18	280									
	Phryganeidae			11		8	4		13			20