

GUIDELINE FOR THE SAMPLE PROCESSING PROTOCOLS

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A5.1 LABORATORY METHODS

In preparation for laboratory processing, samples should be checked immediately to ensure that they are adequately sealed, labeled and that the preservative has effectively penetrated the entire sample. The first step in processing invertebrate samples is rinsing the residual fine debris and preservative (provided a minimum exposure of 72 hours to formalin occurred) and from the sample. Samples can be sorted immediately, or transferred to 80% ethanol, prior to sorting and taxonomic work. After sorting and identification, freshwater macro-invertebrates should be stored in a solution of 70 to 80% ethanol, and 5% glycerin in vials or jars with air-tight lids. Since preservatives can have a variety of effects on the lengths and weights of invertebrates (Ellis, 1987; Leuven et al. 1985; Howmire 1972), it is essential that the exact preservation protocol for all steps be drafted *a priori* and that it be consistently applied between all phases, areas, replicate stations and habitats.

To expedite the sorting process, for samples which have large pieces of organic matter, the samples can be divided in the laboratory into appropriate size fractions. The most commonly used fractions are coarse ($> 1.00\text{ mm}$) and fine ($250\text{ }\mu\text{m} - 1.00\text{ mm}$), which correspond to the divisions used to define coarse and fine particulate organic matter (CPOM and FPOM) respectively. If there are very large pieces of organic material or large invertebrates it is sometimes beneficial to separate these from the rest of the sample with a 4.00-mm sieve. All fractions should then be sorted and if warranted by large numbers of organisms, the fractions can be sub-sampled independently. Careful note taking is recommended for these more complex sorting procedures so that densities are calculated accurately. After the initial washing and fractionation of samples, the invertebrates should be sorted from the debris by trained technicians on a gridded tray or petri dish under a dissecting microscope at 10X to 20X magnification.

Large samples or samples with large amounts of sediment debris may require laboratory sub-sampling prior to sorting. Sub-sampling of the invertebrate sample in the laboratory is acceptable, providing that the method used is quantitative. Various methods of laboratory sub-sampling are available, and are outlined in Klemm et al. (1990) as well as Canton (1991), Mason (1991b), Plafkin et al. (1989), Wrona et al. (1982), Marchant (1989) and Sebastien et al. (1988). The method used should be thoroughly documented. Generally, a minimum of one-quarter of the sample should be sorted, however, a more definitive guideline is that sub-sampling should continue until a minimum number of animals is counted to obtain a predefined variance level (see Wrona et al. 1982). For example, for the cone subsampler described by Wrona et al. (1982), as the

number of animals counted exceeds 50 and approaches 100, the improvement in the error term for a given unit of additional effort decreases. The extra information gained by taking more sub-samples is not worth the extra time invested. In this case (Wrona et al. 1982) and others (Hickley 1975, Elliott 1977) the recommendation for the minimum number of animals which should be counted was 100. It is recommended that this minimum number be determined for each sorting and laboratory sub-sampling protocol utilized during an MM EEM program using a similar approach.

A5.1.1 Further guidance for laboratory sorting and sub-sampling protocols include the following:

Sorting procedures should be reviewed after an initial examination of the type of samples. Sorting procedures may differ depending on whether large amounts of algal material, bryophyte or detrital material are present.

If a sample contains large numbers of single taxa (e.g. >1000 chironomids), or large numbers of organisms in a given fraction, sub-sampling can be performed for those organisms or fractions independently and the remainder of the sample sorted completely.

When undertaking a laboratory sub-sampling regime for a given project, error associated with sub-sampling technique should be estimated. This can be accomplished by continuing to sort sub-samples until the entire sample is sorted for a minimum of 10% of all samples. This is especially important if different, but sample appropriate, sub-sampling protocols are undertaken on samples from different areas or stations.

Careful note taking is recommended for these laboratory sub-sampling procedures so that the accuracy of the calculations of total density and other metrics is not compromised.

A schematic diagram of a sorting and sub-sampling protocol is provided in Figure 4. This is an illustrative example only which should be modified according to the type of material and the number of organisms in the sample. For example, some sub-sampling protocols are not applicable for samples with large amounts of algae or if organisms are not abundant. The example depicted in Figure 4 would be applicable for samples which have large pieces of detrital material (e.g., leaves or small branches) and hence the fractionation speeds the sorting procedures and large numbers of small organisms which would be concentrated into the fine fraction (250 μ m -1.00mm). Each laboratory should outline sample-specific sorting and sub-sampling procedures and provide full documentation of the methods used.

A5.2 QA/QC FOR BENTHIC INVERTEBRATE LABORATORY OPERATIONS

Ecological sample processing involves, as a first step, sorting of organisms from debris and, possibly, sub-sampling sorted organisms for detailed identification. Inevitably, processing errors are associated with these activities and must be estimated (e.g. Kreis 1986, 1989). Verification of sorting efficiency is easily performed on a spot-check basis if the left-over debris from a sample is retained. It is recommended that at least 10 % of all samples be resorted, and that the criteria for an acceptable sort be that ~ 10% of the total number of organisms were missed. If > 10% of the total number is found during the resort, then all the samples within that group of samples requires resorting. The factors which should be considered when determining similar groups of samples include: 1) sampling area, 2) habitat class, and 3) individual sorters. A further criterion which would require a resort is if an entire taxonomic group of benthic invertebrates was missed by the sorter, even if the missed organisms constituted < 10 % of the total. Unsorted and sorted fractions should be retained until taxonomy and sorting efficiency are confirmed.

A5.3 BENTHIC INVERTEBRATE SAMPLE PROCESSING METHODS

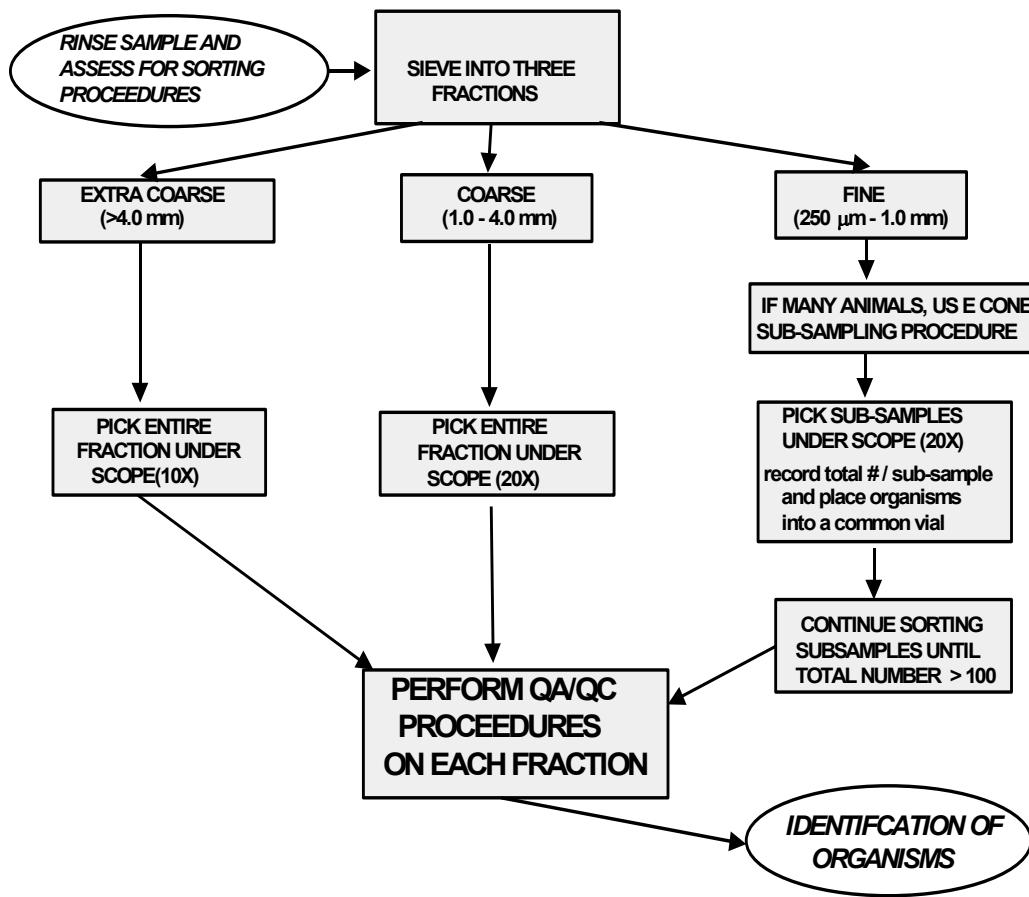
The field samples (usually three or five for each station) are processed separately. Each sample is divided into the coarse and the fine fractions. The coarse fractions are sorted completely and the fine fractions are sub-sampled independently using a modification of the sub-sampling method (Wrona et al. 1982).

Pour sample into sieves (2 mm, 1 mm, 0.180 mm) and wash through well with running water to remove preservative and silt); if there is only small amounts of larger organic material, the 2 mm sieve can be omitted.

Transfer the coarse fraction (contents of the 2-mm and 1 mm sieves) into individual container and add 70 % alcohol. Label container with station number and fraction size. Now this fraction is ready for sorting.

Transfer the fine fraction (contents of 0.180-mm sieve) into 2-L container for decanting. Add warm water to the 2 L container, swirl and decant water and organic material into the 0.180 mm sieve, repeating until all organic material is washed out of the sand; then scan container under magnifying glass for heavy-shelled or stone-cased animals and pick them out; then discard sand and gravel. Transfer this fine fraction into individual container and add 70 % alcohol. Label container with station number and fraction size. Now this fraction is ready for sorting.

Figure A5.1 Benthic invertebrate sorting and sub-sampling protocol, which would be applicable for samples with large detrital material and large numbers of small organisms. This is an illustrative example only, which should be modified as necessary for station-specific samples.



A5.3.1 Coarse Fraction

Sort out all organisms from the coarse fraction by the “grid method” and place them into properly labeled vials (if there are large numbers of Ephemeroptera, Plecoptera, Trichoptera or any other group place them in a separate vial). The grid method consists of a petri dish with a gridded bottom (1 x 1-cm). Add small amounts of organic material into the petri dish and pick out all benthic invertebrates with fine (#5) forceps under ~ 6 X magnification, proceeding row by row. Once done with a dish, re-mix material and quickly re-scan to catch any animals that were missed.

In some situations there is very little organic material in the fine fractions and usually very few organisms, in which case sub-sampling as described below, is not required for the fine fractions.

A5.3.2 Fine Fraction

When there is a lot of organic material in the fine fractions and/or large numbers of organisms, a sub-sampling of the fine fractions is to be done.

Pour contents of 0.180-mm fraction container into the Imhoff cone and ensure that all material is transferred from the container. Fill the cone to the 1-L mark with diluted alcohol and allow bubbling for about 5 minutes to ensure thorough mixing. Remove ten 25-ml sub-samples from the Imhoff cone with the 25-ml sub-sampler container and pour into gridded petri dishes (total volume of 250 ml removed). Examine each 25 ml sub-sample under the microscope (~12 X magnification) and go through each petri dish twice.

Generally, the recommended portion to sub-sample is a minimum of one-quarter (250-ml). However, if very large numbers of organisms are present the following guidelines are provided:

- if each 25 ml sub-sample contains 35-50 organisms, then do all ten 25 ml sub-samples (total volume of 250 ml),
- if each 25 ml sub-sample contains 50-75 organisms, then do eight 25 ml sub-samples (total volume of 200 ml),
- if each 25 ml sub-sample contains 75-100 organisms, then do five 25 ml sub-samples (total volume of 125 ml),
- if each 25 ml sub-sample contains 100-150 organisms, then do four 25 ml sub-samples (total volume of 100 ml),

- for samples with very large number of organisms – if each 25 ml sub-sample contains >150 organisms, contact the project manager for confirmation, prior to doing two 25 ml sub-samples (total volume of 50 ml),
- for samples with very few organisms – if each 25 ml sub-sample contains less than 35 organisms, then do twenty 25 ml sub-samples (total volume 500ml).

Place the sorted and the unsorted material from the sub-samples into a container for archiving and label them properly.

Return all sorted organisms, and archived sorted and unsorted samples to the Project Manager.

A5.4 HINTS ON SUB-SAMPLING

A5.4.1 Coarse fraction

If there is a lot of material (takes more than 3-4 h to pick through), add the entire coarse fraction to a petri dish, distribute it evenly, and use an L-shaped piece of plastic to delineate a quarter of the dish and remove a quarter of the coarse fraction for sorting. The sorted and unsorted detritus should be dried and weighed to determine the exact amount sorted.

Other methods, such as evenly distributing the coarse fraction (after removing the water with a sieve) on a gridded surface (e.g. 4x4 grid) and randomly picking a sufficient number of cells on the grid to add up to ¼ of the sample (4 for this example) are also acceptable. At least 1/4 of the coarse fraction should be sorted.

A5.4.2 Fine fraction

If the amount of material is low, sort the entire fine fraction. If there is a lot of material, sub-sample it using cone with bubbler (Wrona et al. 1982), method described above. Aim for sorting a minimum of a quarter of the fine fraction, or for removing at least 100 individuals of the dominant animals (at the level of genus or Chironomidae subfamily/tribe). Staining of the fine fraction (with haematoxalin or rose bengal) will improve sorting quality.

A5.4.3 Lake samples with large amount of debris:

Some modification to the protocol is made if the sample consists of a large amount of material. For example, I can use 3 large sieves (4-mm, 2-mm and 0.5-mm). Contents of the 4-mm and 2-mm sieves can be examined under a

magnifying glass for larger organisms. Content of 2-mm sieve is also examined under the microscope (6 X magnification). Fine fraction (content of 0.5-mm sieve) is transferred into a container with ~50% alcohol and then into a 10 L pail with warm water. Floating material is skimmed off and examined under the microscope (12 X magnification). This process is repeated ~3 times. Fine fraction then is further sub-sampled, but only 1/10th or 1/20th of the material is sorted due to the large amount of material.

A5.5 IDENTIFICATION

Once the field sub-samples have been sorted, they are ready for the identification. All organisms should be identified to the lowest practical taxonomic level (genus or species wherever feasible) using current literature and nomenclature.

Table A5.1 Level of taxonomic identification

Group	Level
Nematoda	Phylum
Oligochaeta	Family
Gastropoda	Genus/Species
Turbellaria	Family
Hirudinea	Species
Mollusca	Genus/Species
Hydracarina	Leave at this level
Cladocera	Leave at this level
Copepoda	Order
Ostracoda	Leave at this level
Amphipoda	Genus
Insecta	Genus/Species
Terrestrial	Leave at this level

The level of taxonomy should be consistent in each major group for all samples from a survey and from survey to survey. Organisms that cannot be identified to the desired level of taxonomic precision should be reported as a separate category (at the finest level of taxonomic resolution possible).

Organisms that require detailed microscopic examination for identification (e.g., Chironomidae and Oligochaeta) will be mounted onto microscope slides using an appropriate mounting medium (e.g. Canada balsam, Permount, Hohers's). The commonest species may be distinguishable on the basis of gross morphology and may require only a few mounts (5-10) as checks. All rare or less commonly occurring species are mounted for identification.

A reference collection (if required) is prepared of all taxa identified from the samples. These collections are retained for taxonomic verification, ensuring consistent taxonomy and for quality control checks.

A5.6 WEIGHING SAMPLES

The coarse and fine fractions of each sample are analyzed separately, and are further subdivided into taxonomic groups (e.g. Ephemeroptera, Plecoptera, Trichoptera, Chironomidae, other Diptera, and other Invertebrates). Excess preservative (95% alcohol) is removed with filter paper, and organisms are dried in a vacuum chamber at -50 kPa and 21°C for about 15 minutes. Biomass is then measured on an electronic analytical balance (Mettler ER-182A) with a resolution of 0.01 mg.

A5.7 DEFORMITIES IN CHIRONOMIDAE

Head capsules are removed with a sharpened probe from 125 randomly selected larvae. Heavily sclerotized individuals are cleared in warm 10% KOH, followed by rinsing in distilled water and then 70% ethanol. Head capsules are mounted individually in Hohers's mounting medium with the ventral side upwards on a slide. A small paintbrush is used to apply pressure without breaking the cover slip to fully flatten the head capsule. Mentum, mandible teeth and antennae of each individual are examined for abnormal appearance using compound microscope (magnification up to 400X).

Benthic Invertebrate Abundance (numbers/Ekman grab sample) in Samples Collected from the Athabasca River Delta,
Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Fletcher Channel					Goose Island Channel					Big Point Channel				
			FLC-1	FLC-2	FLC-3	FLC-4	FLC-5	GIC-1	GIC-2	GIC-3	GIC-4	GIC-5	BPC-1	BPC-2	BPC-3	BPC-4	BPC-5
Nematoda	-	-		40	4	8										2	
Oligochaeta	Naididae	-	124	11		8							2	1	2		8
	Tubificidae	-	72	43	43	21	74	38	6	14	3	29	128	284	178	201	218
	Lumbriculidae							1									
Hydracarina	-	-										1				1	1
Cladocera	Macrothricidae	-						8									
Ostracoda	-	-	4	10	4			24		4		4	2				
Pelecypoda	Sphaeridae	<i>Pisidium/Sphaerium</i>	51	20	37	12	10	1	2	8	2	1	16	21	52	20	31
Gastropoda	Hydrobiidae	<i>Probithinella?</i>	30	36	34	23	11	6		21	3	6	15		8	9	11
	Lymnaeidae	(i/d)													3	1	
	Valvatidae	<i>Valvata tricarinata</i>											1				
Ephemeroptera	Heptageniidae	<i>Heptagenia</i>	5	1													
	Ephemeridae	<i>Hexagenia limbata</i>		1									4	1			
Odonata - Anisoptera	Gomphidae	<i>Gomphus</i>		1			1	1					1	1			
Trichoptera	Brachycentridae	<i>Brachycentrus</i>											10				
	Hydropsychidae	<i>Hydropsyche</i>				1											
	Polycentropodidae	<i>Neureclipsis</i>	1	2									1				
Hemiptera	Corixidae	<i>Sigara</i>		1						1						1	
Diptera	Ceratopogonidae - Ceratopogoninae	(i/d)	13	40	25	17		24	24	3	4	4	6	4		8	
	Tabanidae	<i>Chrysops</i>		2			1										
	Tipulidae	(i/d)											1				
	Chironomidae	pupa									2		1		2		
	Tanypodinae	<i>Procladius</i>	19	25	3	22	8	16	8	8	1	20	6	11	12	9	12
		<i>Thienemannimyia</i> gr.		1					1								
	Chironomini	(i/d)	4														
		<i>Chironomus</i>			1		8	2	2	4	1	10	1	4		1	
		<i>Cryptochironomus</i>							1								
		<i>Demicryptochironomus</i>								1				1	6		2
		<i>Endochironomus</i>													2		
		<i>Pagastiella</i>													2		
		<i>Polypedilum</i>	4	5					8	1							
	Tanytarsini	<i>Tanytarsus</i>								2		4					
	Orthocladiinae	(i/d)			4		8								1		
		<i>Cricotopus/Orthocladius</i>							1								
	Diamesinae	<i>Pothastia longimana</i> gr.							1					12	1		
Total			329	239	157	112	129	121	53	67	15	82	177	333	283	262	285

(i/d) = immature or damaged specimen.

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample) for McClelland, Kearn and
Shipyard Lakes, Fall 2003

Major Taxon	Family (subfamily/tribe)		McClelland Lake										Kearl Lake										Shipyard Lake																	
			MCL-1	MCL-2	MCL-3	MCL-4	MCL-5	MCL-6	MCL-7	MCL-8	MCL-9	MCL-10	KRL-1	KRL-2	KRL-3	KRL-4	KRL-5	KRL-6	KRL-7	KRL-8	KRL-9	KRL-10	SHL-1	SHL-2	SHL-3	SHL-4	SHL-5	SHL-6	SHL-7	SHL-8	SHL-9	SHL-10								
Hydrozoa	Hydridae	<i>Hydra</i>										2																												
Nematoda	-	-									12																						10							
Oligochaeta	Enchytraeidae	-																																						
	Lumbriculidae	-				2																																		
	Naididae	(i/d)			10			10	59	22		1																												
	Tubificidae	<i>Stylaria</i>		10	1		1		10			64									14		10	34																
Hirudinea	Erpobdellidae	(i/d)									1																													
	<i>Helobdella stagnalis</i>																																							
Cladocera	Chydoridae	(i/d)												1							1																			
	Daphnidiae	<i>Daphnia</i>																			1																			
Copepoda - Calanoida	-	-																																						
Gastropoda	Valvatidae	<i>Valvata sincera</i>											1																			2	21							
	<i>Valvata tricarinata</i>																															1		1						
Pelecypoda	Sphaeriidae	<i>Pisidium / Sphaerium</i>	10	41					19			41	22			23	22	10			1								1		1	10								
Acari - Hydracarina	-	-							1												1																			
Ostracoda	-	-	10	11		1	8	5	1	3	1	1	2	2		20												10		10		6								
Amphipoda	Gammaridae	<i>Gammarus lacustris</i>										1		1				3	9			4										1								
	Talitridae	<i>Hyalella azteca</i>	11		6	2	16	8	1	11	11	27	21	4	7	84	40	115	2	14	56	8		14																
Ephemeroptera	Caenidae	<i>Caenis</i>		12	21			1				1																												
Odonata - Zygoptera	Coenagrionidae	(i/d)						2																																
Trichoptera	Leptoceridae	<i>Mystacides</i>																	3																					
	Polycentropodidae	<i>Polycentropus</i>															4	5			1																			
Diptera	Ceratopogonidae - Ceratopogoninae	(i/d)																	1															3						
	Chaoboridae	<i>Chaoborus</i>																																13	18	10	12	15		
	Chironomidae	(i/d)																	3	1																				
	Chironominae	(i/d)						1																																
	Chironomini	<i>Chironomus</i>										1					1																13	17	3	6	4	23	12	5
	<i>Cladopelma</i>			10				1																																
	<i>Cryptochironomus</i>				2	1		22								1																								
	<i>Dicrotendipes</i>			7	1													10																						
	<i>Endochironomus</i>		12	2			6				2					1	12	70	341		2	2	34																	
	<i>Glyptotendipes</i>					1										1																								
	<i>Microchironomus</i>			2																																				
	<i>Microtendipes</i>																1	20	4	7	19	2	4	3	3															
	<i>Pagastiella</i>																	1																						
	<i>Parachironomus</i>		1	1			1																																	
	<i>Polypedilum</i>		3	9			21	4																																
	<i>Tribelos</i>	</td																																						

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample) for McClelland, Kearn and
Shipyard Lakes, Fall 2003

Major Taxon	Family (subfamily/tribe)		McClelland Lake										Kearl Lake										Shipyard Lake									
			MCL-1	MCL-2	MCL-3	MCL-4	MCL-5	MCL-6	MCL-7	MCL-8	MCL-9	MCL-10	KRL-1	KRL-2	KRL-3	KRL-4	KRL-5	KRL-6	KRL-7	KRL-8	KRL-9	KRL-10	SHL-1	SHL-2	SHL-3	SHL-4	SHL-5	SHL-6	SHL-7	SHL-8	SHL-9	SHL-10
Tanypodinae	<i>Nanocladius</i>		1																													
	<i>Psectrocladius</i>																															
	<i>Tvetenia</i>								1																							
	(i/d)		9	1		10	2										1	2	1													
	<i>Procladius</i>		1	82	36		5	7		1		11	15				14	9	23		6	6	4						10	1		
	<i>Ablabesmyia</i>			2	11		6	2		10		5						2	6													
Total			32	227	151	16	58	77	335	48	13	162	62	8	28	164	188	585	4	37	119	50	46	61	5	41	41	39	56	13	19	34

(i/d) = immature or damaged specimen.

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample) for Fort Creek, Fall 2003

Major Taxon	Family (Subfamily/Tribe)	Genus/Species	FOC-D-1	FOC-D-2	FOC-D-3	FOC-D-4	FOC-D-5																					
Nematoda		-			41																							
Oligochaeta	Enchytraeidae	-					50																					
	Naididae	-					40																					
	Tubificidae	-	5		20		2																					
Hydracarina							10																					
Ostracoda							10																					
Copepoda – Cyclopoida		-			40	10	20																					
Cladocera	Macrothricidae	-		40																								
Pelecypoda	Sphaeriidae	<i>Pisidium / Sphaerium</i>	1				10																					
Gastropoda	Physidae	<i>Physa</i>					1																					
	Lymnaeidae	(i/d)					1																					
Trichoptera	Limnephilidae	<i>Nemataulius</i>		1																								
Heteroptera	Corixidae	<i>Sigara</i>					1																					
Diptera	Empididae	<i>Chelifera</i>					10																					
	Simuliidae	<i>Simulium</i>		1																								
	Tipulidae	<i>Hexatoma</i>					1																					
	Ceratopogonidae - Ceratopogoninae	(i/d)			40	20	40																					
	Chironomidae - Tanypodinae	(i/d)		40			40																					
		<i>Procladius</i>			124	21	1																					
		<i>Thienemannimyia gr.</i>			1	80	11																					
	Chironomini	(i/d)					40																					
		<i>Cryptochironomus</i>				42	30																					
		<i>Cryptotendipes</i>			1																							
		<i>Paratendipes</i>		1	560	760	110																					
		<i>Phaenopsectra</i>				10																						
		<i>Polypedilum</i>		7	200	181	10																					
	Tanytarsini	(i/d)					10																					
		<i>Micropsectra/Tanytarsus</i>			1841	1110	1090																					
		<i>Stempellinella</i>			440	320	260																					
		<i>Rheotanytarsus</i>			40		10																					
	Orthocladiinae	(i/d)				10	10																					
		<i>Heterotrissocladius</i>			80	40	10																					
		<i>Parakiefferiella</i>			120	10																						
		<i>Parametriocnemus</i>				10																						
		<i>Tvetenia</i>		1																								
Total			6	11	3608	2654	1818																					

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample) for the Clearwater River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Clearwater River Downstream of Christina River (depositional)													
			CLR-D-1	CLR-D-2	CLR-D-3	CLR-D-4	CLR-D-5	CLR-D-6	CLR-D-7	CLR-D-8	CLR-D-9	CLR-D-10	CLR-D-11	CLR-D-12	CLR-D-13	CLR-D-14
Hydrozoa	Hydridae	<i>Hydra</i>														
Nematoda	-	-								2	3					
Oligochaeta	Enchytraeidae	-														
	Lumbriculidae	-								1						
	Naididae	-					4			14			12			
	Tubificidae	-			2	21				106		1	48	69	4	
Hirudinea	Erpobdellidae	<i>Erpobdella punctata</i>														
	Glossiphoniidae	<i>Helobdella stagnalis</i>														
Hydracarina	-	-														
Ostracoda	-	-														
Cladocera	Chydoridae	(i/d)														
	Daphnidae	<i>Daphnia</i>														
	Macrothricidae	(i/d)														
Amphipoda	Talitridae	<i>Hyalella azteca</i>														
Gastropoda	Lymnaeidae	<i>Stagnicola (?)</i>														
	Physidae	<i>Physa</i>														
	Planorbidae	(i/d)														
	Valvatidae	<i>Valvata tricarinata</i>														
Pelecypoda	Sphaeriidae	<i>Pisidium / Sphaerium</i>		1	1					8			14			
Ephemeroptera	Ametropodidae	<i>Ametropus neavei</i>	1									3				
	Heptageniidae	<i>Heptagenia</i>														
	Caenidae	<i>Caenis</i>			1											
	Leptophlebiidae	<i>Leptophlebia</i>														
	Metretopodidae	<i>Siphloplecton</i>														
Plecoptera	Perlidae	<i>Isoperla</i>														
	Pteronarcidae	<i>Pteronarcys</i>														
Trichoptera	Leptoceridae	<i>Ceraclea</i>														
Odonata - Anisoptera	Gomphidae	<i>Gomphus</i>								2						
		<i>Ophiogomphus</i>														
Coleoptera	Dytiscidae	<i>Agabus</i>														
Hemiptera	Corixidae	<i>Sigara</i>														
Diptera	Simuliidae	<i>Simulium</i>			36											
	Psychodidae	<i>Pericoma</i>														
	Tipulidae	(i/d)														
		<i>Hexatoma</i>														
	Dolichopodidae	<i>Raphium</i>														
	Ephydriidae	(i/d)														
	Ceratopogonidae - Ceratopogoninae	(i/d)			3	1				2						
	Ceratopogonidae - Forcipomyiinae	<i>Forcipomyia</i>														
	Ceratopogonidae - Dasyheleinae	<i>Dasyhelea</i>														
	Chironomidae - Tanypodinae	(i/d)														
		<i>Procladius</i>				3					1		2			
	Chironomini	(i/d)														
		<i>Chironomus</i>				4			1		63					
		<i>Cryptochironomus</i>		3	6					1			4			
		<i>Glyptotendipes</i>														
		<i>Paracladopelma</i>	2				4	2		6						
		<i>Paralauterborniella</i>		20	35						2					
		<i>Paratendipes</i>			1											

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample) for the Clearwater River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Clearwater River Downstream of Christina River (depositional)														
			CLR-D-1	CLR-D-2	CLR-D-3	CLR-D-4	CLR-D-5	CLR-D-6	CLR-D-7	CLR-D-8	CLR-D-9	CLR-D-10	CLR-D-11	CLR-D-12	CLR-D-13	CLR-D-14	CLR-D-15
		<i>Polypedilum</i>			105	65	8			4		42					
		<i>Robackia</i>	104	2				16	41		1	9			1	75	
		<i>Saetheria</i>	1	1					3								
		<i>Tribelos</i>															
	Tanytarsini	<i>Micropsectra/Tanytarsus</i>	1								2						
		<i>Stempellinella</i>									7						
	Orthocladiinae	(i/d)															
		<i>Brillia</i>															
		<i>Metriocnemus</i>															
		<i>Parametriocnemus</i>															
		<i>Pseudosmittia</i>															
		<i>Thienemanniella</i>															
		<i>Rheosmittia</i>					328	380	46			20				2	
Total			107	8	190	119	336	400	93	135	88	30	95	101	4	3	75

(i/d) = immature or damaged specimen.

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample) for the Clearwater River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Clearwater River upstream of Christina River (depositional)														
			CLR-D-16	CLR-D-17	CLR-D-18	CLR-D-19	CLR-D-20	CLR-D-21	CLR-D-22	CLR-D-23	CLR-D-24	CLR-D-25	CLR-D-26	CLR-D-27	CLR-D-28	CLR-D-29	CLR-D-30
Hydrozoa	Hydridae	<i>Hydra</i>					1					1					
Nematoda	-	-					1			20		10			1		
Oligochaeta	Enchytraeidae	-	8										24				4
	Lumbriculidae	-			7												
	Naididae	-	5		30				40	150	21	158	65		8		
	Tubificidae	-			32		1	1	22	65	2	221	8		25		
Hirudinea	Erpobdellidae	<i>Erpobdella punctata</i>		1					1								
	Glossiphoniidae	<i>Helobdella stagnalis</i>			4												
Hydracarina	-	-								10							
Ostracoda	-	-			140	4			4	280		11	128		10	6	
Cladocera	Chydoridae	(i/d)														5	
	Daphniidae	<i>Daphnia</i>								10							
	Macrothricidae	(i/d)										10					
Amphipoda	Talitridae	<i>Hyalella azteca</i>			5							1					
Gastropoda	Lymnaeidae	<i>Stagnicola (?)</i>											3				
	Physidae	<i>Physa</i>										1	3				
	Planorbidae	(i/d)											1				
	Valvatidae	<i>Valvata tricarinata</i>			2								1				
Pelecypoda	Sphaeriidae	<i>Pisidium / Sphaerium</i>	2	265		1		633		450	10	283		4	5	1	
Ephemeroptera	Ametropodidae	<i>Ametropus neavei</i>					1				1		1				
	Heptageniidae	<i>Heptagenia</i>														1	
	Caenidae	<i>Caenis</i>															
	Leptophlebiidae	<i>Leptophlebia</i>									9						
	Metretopodidae	<i>Siphloplecton</i>			2						1	1		1			
Plecoptera	Periodidae	<i>Isoperla</i>									8						
	Pteronarcyidae	<i>Pteronarcys</i>									1						
Trichoptera	Leptoceridae	<i>Ceraclea</i>									1						
Odonata - Anisoptera	Gomphidae	<i>Gomphus</i>									4						

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample) for the Clearwater River,
Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Clearwater River upstream of Christina River (depositional)														
			CLR-D-16	CLR-D-17	CLR-D-18	CLR-D-19	CLR-D-20	CLR-D-21	CLR-D-22	CLR-D-23	CLR-D-24	CLR-D-25	CLR-D-26	CLR-D-27	CLR-D-28		
		<i>Ophiogomphus</i>										1					
Coleoptera	Dytiscidae	<i>Agabus</i>			1												
Hemiptera	Corixidae	<i>Sigara</i>			1												
Diptera	Simuliidae	<i>Simulium</i>															
	Psychodidae	<i>Pericomia</i>			12				1	84							
	Tipulidae	(i/d)												5	3		
		<i>Hexatoma</i>			1												
	Dolichopodidae	<i>Raphium</i>													2		
	Ephydriidae	(i/d)								60							
	Ceratopogonidae - Ceratopogoninae	(i/d)			1							20			2		
	Ceratopogonidae - Forcipomyiinae	<i>Forcipomyia</i>								10			8		14		
	Ceratopogonidae - Dasyheleinae	<i>Dasyhelea</i>			10					133					5		
	Chironomidae - Tanypodinae	(i/d)										30					
		<i>Procladius</i>			3				1			3	1				
	Chironomini	(i/d)		2							10				1		
		<i>Chironomus</i>	1		3												
		<i>Cryptochironomus</i>		10		1					10						
		<i>Glyptotendipes</i>			5												
		<i>Paracladopelma</i>				2					10						
		<i>Paralauterborniella</i>				3					10	8					
		<i>Paratendipes</i>															
		<i>Polypedilum</i>	2	239	11		1	222		170	21	41		1	1		
		<i>Robackia</i>	4		3	2											
		<i>Saethereria</i>															
		<i>Tribelos</i>		76					40	54		15		1			
	Tanytarsini	<i>Micropsectra/Tanytarsus</i>	1					4	10		20						
		<i>Stempellinella</i>									20						
	Orthocladiinae	(i/d)			1										5		
		<i>Brillia</i>										1					
		<i>Metroiocnemus</i>								10							
		<i>Parametrioicnemus</i>							100								
		<i>Pseudosmittia</i>	7	24	5									50	34		
		<i>Thienemanniella</i>										10			4		
		<i>Rheosmittia</i>		18		3	1										
Total			13	38	865	35	14	2	928	972	717	603	591	1	40	88	73

(i/d) = immature or damaged specimen.

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample) for the Christina River,
Fall 2003.

Major Taxon	Family (subfamily/tribe)	Genus/Species	Lower Reach of the Christina River														
			CHR-D-1	CHR-D-2	CHR-D-3	CHR-D-4	CHR-D-5	CHR-D-6	CHR-D-7	CHR-D-8	CHR-D-9	CHR-D-10	CHR-D-11	CHR-D-12	CHR-D-13	CHR-D-14	CHR-D-15
Nematoda	-	-	2	4											24		12
Hirudinea	Erpobdellidae	(i/d)													1		
Oligochaeta	Lumbriculidae												1				
	Naididae	-		4		3	2		12		1	15			24	21	90
	Tubificidae	-	58	109	180	10	6	541	194	3		38	413	176	476	62	66
Hydracarina																	
Ostracoda	-	-														4	
Copepoda - Harpacticoida	-	-		2													
Gastropoda	Ancylidae	<i>Ferrissia rivularis</i>											8				

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample) for the Christina River,
Fall 2003.

Major Taxon	Family (subfamily/tribe)	Genus/Species	Lower Reach of the Christina River														
			CHR-D-1	CHR-D-2	CHR-D-3	CHR-D-4	CHR-D-5	CHR-D-6	CHR-D-7	CHR-D-8	CHR-D-9	CHR-D-10	CHR-D-11	CHR-D-12	CHR-D-13	CHR-D-14	CHR-D-15
	Lymnaeidae	<i>Stagnicola</i> (?)									2						
Pelecypoda	Sphaeriidae	<i>Pisidium / Sphaerium</i>		21		2			7		4		1			10	
Ephemeroptera	Ametropodidae	<i>Ametropus neavei</i>															
	Ephemeridae	<i>Hexagenia limbata</i>											1			1	
	Heptageniidae	<i>Heptagenia</i>	4														
	Leptohyphidae	<i>Tricorythodes</i>			5						8					13	
	Leptophlebiidae	<i>Leptophlebia</i>										8					
Plecoptera	Perlidae	<i>Isoperla</i>			1						2	1					
	Pteronarcidae	<i>Pteronarcys</i>									1						
	Taeniopterygidae	<i>Taeniopteryx</i>			1						3						
Trichoptera	Brachycentridae	<i>Brachycentrus</i>															
	Hydroptilidae	(pupa)											1				
	Hydropsychidae	<i>Hydropsyche</i>		1												1	
Odonata - Anisoptera	Gomphidae	<i>Ophiogomphus</i>		5												6	
Hemiptera	Corixidae	<i>Sigara</i>														1	
Diptera	Tabanidae	<i>Chrysops</i>					2				1	1					
	Empididae	<i>Hemerodromia</i>	8														
	Ceratopogonidae - Ceratopogoninae	(i/d)	2			2			8	2	1	4		4	2	1	
	Ceratopogonidae - Forcipomyiinae	<i>Forcipomyia</i>				2	2										
	Chironomidae	pupa															
	Tanypodinae	(i/d)					2						8			14	
	Chironomini	Chironomini	(i/d)	18													
		<i>Chironomus</i>	67	8									1				
		<i>Cryptochironomus</i>	4	12							6		3	25	1	9	
		<i>Demicyclochironomus</i>		3				7	1		12			10	1	16	
		<i>Paracladopelma</i>											8				
		<i>Paralauterborniella</i>											8				
		<i>Polypedilum</i>	20			4		5	1	2	17	97		272	6	77	
		<i>Robackia</i>															
	Tanytarsini	<i>Saetheria</i>															
		<i>Cladotanytarsus</i>													4		
		<i>Rheotanytarsus</i>													8		
		<i>Micropsectra / Tanytarsus</i>		4	5										16		
	Orthocladiinae	(i/d)			5										4		
		<i>Brillia</i>									1						
		<i>Metriocnemus</i>											8			4	
		<i>Parakiefferiella</i>															
		<i>Pseudosmittia</i>				10		5						8			
		<i>Rheosmittia</i>															
Terrestrial	-	-			2												
Total			155	201	197	35	12	553	229	6	4	113	530	185	876	92	356

(i/d) = immature or damaged specimen.

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample) for the Christina River,
Fall 2003.

Major Taxon	Family (subfamily/tribe)	Genus/Species	Upper Reach of the Christina River														
			CHR-D-16	CHR-D-17	CHR-D-18	CHR-D-19	CHR-D-20	CHR-D-21	CHR-D-22	CHR-D-23	CHR-D-24	CHR-D-25	CHR-D-26	CHR-D-27	CHR-D-28	CHR-D-29	CHR-D-30
Nematoda	-	-			1		1				4						
Hirudinea	Erpobdellidae	(i/d)															
Oligochaeta	Lumbriculidae																
	Naididae	-					2										
	Tubificidae	-						2									
Hydracarina							1										
Ostracoda	-	-			1		1	2									
Copepoda - Harpacticoida	-	-															
Gastropoda	Ancylidae	<i>Ferrissia rivularis</i>															
	Lymnaeidae	<i>Stagnicola (?)</i>															
Pelecypoda	Sphaeriidae	<i>Pisidium / Sphaerium</i>										3		1			
Ephemeroptera	Ametropodidae	<i>Ametropus neavei</i>					1										
	Ephemeridae	<i>Hexagenia limbata</i>															
	Heptageniidae	<i>Heptagenia</i>															
	Leptohyphidae	<i>Tricorythodes</i>															
	Leptophlebiidae	<i>Leptophlebia</i>															
Plecoptera	Perlidae	<i>Isoperla</i>															
	Pteronarcyidae	<i>Pteronarcys</i>															
	Taeniopterygidae	<i>Taeniopteryx</i>															
Trichoptera	Brachycentridae	<i>Brachycentrus</i>										4		2	1	1	
	Hydroptilidae	(pupa)															
	Hydropsychidae	<i>Hydropsyche</i>															
Odonata - Anisoptera	Gomphidae	<i>Ophiogomphus</i>													1		
Hemiptera	Corixidae	<i>Sigara</i>															
Diptera	Tabanidae	<i>Chrysops</i>															
	Empididae	<i>Hemerodromia</i>															
	Ceratopogonidae - Ceratopogoninae	(i/d)															
	Ceratopogonidae - Forcipomyiinae	<i>Forcipomyia</i>															
	Chironomidae	pupa				2			4								
	Tanytropidinae	(i/d)															
		<i>Procladius</i>															
	Chironomini	(i/d)							32					1	1		
		<i>Chironomus</i>															
		<i>Cryptochironomus</i>															
		<i>Demicyclochironomus</i>															
		<i>Paracladopelma</i>					14			4	2				1		
		<i>Paralauterborniella</i>															
		<i>Polypedilum</i>				4			12	12	5	1		9	3	3	6
		<i>Robackia</i>	14	26	12	17	1	10	28	40	22	5	16	13	31	10	38
		<i>Saetheria</i>	1	1		36		16			1						
		<i>Cladotanytarsus</i>															
Terrestrial	Tanytarsini	<i>Rheotanytarsus</i>															
		<i>Micropsectra / Tanytarsus</i>															
		(i/d)															
		<i>Brillia</i>															
		<i>Metriocnemus</i>															
	Orthocladiinae	<i>Parakiefferiella</i>															
		<i>Pseudosmittia</i>															
		<i>Rheosmittia</i>	36	89	224	238	18	830	784	276	27		1488	3	1	14	
Total	-	-	51	118	236	303	37	856	860	336	57	13	1504	28	37	31	44

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample) for the Christina River,
Fall 2003.

Major Taxon	Family (subfamily/tribe)	Genus/Species	Upper Reach of the Christina River														
			CHR-D-16	CHR-D-17	CHR-D-18	CHR-D-19	CHR-D-20	CHR-D-21	CHR-D-22	CHR-D-23	CHR-D-24	CHR-D-25	CHR-D-26	CHR-D-27	CHR-D-28	CHR-D-29	CHR-D-30

(i/d) = immature or damaged specimen.

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample [depositional] or Neill cylinder sample [erosional]) for the Muskeg River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Lower Reach of the Muskeg River (erosional)														
			MUR-E-1	MUR-E-2	MUR-E-3	MUR-E-4	MUR-E-5	MUR-E-6	MUR-E-7	MUR-E-8	MUR-E-9	MUR-E-10	MUR-E-11	MUR-E-12	MUR-E-13	MUR-E-14	MUR-E-15
Nematoda	-	-	10		40	90	90	72	50	32	40	40	20	12	6	24	15
Hirudinea	Glossiphoniidae	(i/d)															
		<i>Glossiphonia complanata</i>															
		<i>Helobdella stagnalis</i>															
	Erpobdellidae	(i/d)															
		<i>Erpobdella punctata</i>															
		<i>Nephelopsis obscura</i>															
Oligochaeta	Enchytraeidae	-					10			24	4	5	1	4	10	8	4
	Lumbriculidae	-						10	20								
	Naididae	-	90	5	140			50	8	40	24	12	25	45	12	4	24
	Tubificidae	-		90		40			10					5	28		
Hydracarina	-	-					130	70	120	450	264	124	75	135	156	124	344
Ostracoda	-	-	10				10							10			
Copepoda - Cyclopoida	-	-														8	8
Copepoda - Harpacticoida	-	-					10								4		
Cladocera	Chydoridae	(i/d)															
	Daphnidae	<i>Daphnia</i>															
	Macrothricidae	(i/d)															
Amphipoda	Gammaridae	<i>Gammarus lacustris</i>															
	Talitridae	<i>Hyalella azteca</i>												1			
Gastropoda	Planorbidae	(i/d)												1			
		<i>Promenetus excavous</i>															
	Valvatidae	<i>Valvata sincera</i>															
Pelecypoda	Unionidae	<i>Anodonta grandis</i>															
	Sphaeriidae	<i>Pisidium / Sphaerium</i>	15		20	10	37	20	8	17	5	7	17	52		25	
Ephemeroptera	Baetidae	(i/d)												5			
		<i>Acentrella</i>	10											11		1	
		<i>Baetis</i>	21	10	40	30	20	4	40		4	15	10	4	4	40	60
	Ephemerellidae	<i>Ephemerella</i>													2		
								49	27	32	24	11	23	37	30	6	12
	Heptageniidae	(i/d)														40	17
		<i>Heptagenia</i>	46	2	67	48											16
	Leptohyphidae	<i>Stenonema</i>				1							5				
		<i>Tricorythodes</i>								1	1						
		<i>Caenis</i>															
Plecoptera	Leptophlebiidae	<i>Leptophlebia</i>															
	Chloroperlidae	(i/d)					30	30	48	60	56	36		15	15	10	32
													10				
		<i>Acroneuria</i>	1					1	1	33	1		1	8	2	3	3
Trichoptera	Perlidae	<i>Claassenia sabulosa</i>															
	Perlodidae	(i/d)															2
		<i>Isogenoides</i>					4	4	7	7	2		2	6	2	4	10
	Pteronarcyidae	<i>Isoperla</i>	1													1	
		<i>Pteronarcys</i>	1	1	3	1	2	4	2	2	5	4	4	6	5	5	2
	Brachycentridae	<i>Brachycentrus</i>	1			11	20		50		4		11		1	32	33

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample [depositional] or Neill cylinder sample [erosional]) for the Muskeg River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Lower Reach of the Muskeg River (erosional)														
			MUR-E-1	MUR-E-2	MUR-E-3	MUR-E-4	MUR-E-5	MUR-E-6	MUR-E-7	MUR-E-8	MUR-E-9	MUR-E-10	MUR-E-11	MUR-E-12	MUR-E-13	MUR-E-14	MUR-E-15
Diptera	Glossosomatidae	<i>Glossosoma</i>			20			4						1	2	9	22
		<i>Protoptila</i>				10	20	8		8	24	5		12	2		
	Hydroptilidae	<i>Hydroptila</i>								8							
	Hydropsychidae	(i/d)							70					4		24	
		<i>Cheumatopsyche</i>						1									
	Leptoceridae	<i>Hydropsyche</i>				10	17			1				8	6	2	11
		<i>Ceraclea</i>											5				
	Lepidostomatidae	<i>Mystacides</i>															
		<i>Lepidostoma</i>				6	2	30	1	9	7		7	13	6		1
	Limnephilidae	<i>Nemotaulius</i>															
		<i>Ptilostomis</i>															
Odonata - Anisoptera	Phryganeidae	<i>Polycentropodus</i>															
		<i>Psychomyia</i>			20									4	2		1
	Aeshnidae	<i>Aeshna</i>															
	Corduliidae	<i>Epitheca</i>															
		<i>Somatochlora</i>															
	Gomphidae	<i>Ophiogomphus</i>	44	1	3	3	11	9	41		13	9	16	14	16	9	22
	Hemiptera	<i>Sigara</i>															
	Coleoptera	<i>Chrysomelidae</i>	<i>Donacia</i>														
		<i>Elmidae</i>	<i>Optioservus</i>	10	5	20	20	32	52	10	24	24	20	25	39	5	56
	Diptera	Tipulidae	(i/d)											5			
		<i>Dicranota</i>		5													
		Tabanidae	<i>Chrysops</i>														
		Empididae	<i>Hemerodromia</i>	90	20	80	80	10		10	8	16	15	12	16	2	80
		Ceratopogonidae - Ceratopogoninae	(i/d)														
		Chironomidae	pupa			10			40	8	4		3		4		
		Tanytarsini	Tanypodinae				20	30	4	1	16	4	20	25	4	8	
			<i>Ablabesmyia</i>	11													
			<i>Labrundinia</i>				10	4									
			<i>Procladius</i>														
			<i>Thienemannimyia</i> gr.	51		40	30	30	32		8		65	33	20	27	8
	Chironomini	(i/d)		10			90	60	84		88		20	15	36	14	32
			<i>Chironomus</i>														
			<i>Cladopelma</i>														
			<i>Cryptochironomus</i>	10												2	
			<i>Demicryptochironomus</i>					10	8					5		2	4
			<i>Dicrotendipes</i>														
			<i>Glyptotendipes</i>														
			<i>Microtendipes</i>			200											
			<i>Pagastiella</i>														
			<i>Parachironomus</i>														
			<i>Paracladopelma</i>														
			<i>Paralauterborniella</i>														
			<i>Paratendipes</i>														
			<i>Phaenopsectra</i>														
			<i>Polypedilum</i>	80	10	20	460	70	64	60	80	84	40	10	88	22	32
			<i>Robackia</i>					10			8						
			<i>Stictochironomus</i>												4	8	1
			<i>Saetheria</i>	40	30	20	150	40	96	80	5	44	20	10	64	6	96
			<i>Tribelos</i>														
			<i>Tanytarsini</i>														
			<i>Cladotanytarsus</i>	30	5		80	10	32	30	8	8				6	16

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample [depositional] or Neill cylinder sample [erosional]) for the Muskeg River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Lower Reach of the Muskeg River (erosional)														
			MUR-E-1	MUR-E-2	MUR-E-3	MUR-E-4	MUR-E-5	MUR-E-6	MUR-E-7	MUR-E-8	MUR-E-9	MUR-E-10	MUR-E-11	MUR-E-12	MUR-E-13	MUR-E-14	MUR-E-15
		<i>Micropsectra/Tanytarsus</i>	80		820	710	230	132	760	160	28	75	120	120	38	24	28
		<i>Paratanytarsus</i>															
		<i>Rheotanytarsus</i>	10		20	180	190	24	120	16	8	30	35	16	20	40	12
		<i>Stempellina</i>											30	4		152	4
		<i>Stempellinella</i>	40		20			30	4		8	4		30	16	6	8
	Orthocladiinae	(i/d)				40	40	16			16	15	15	28	16	8	4
		<i>Brillia</i>															
		<i>Corynoneura</i>				40	20	20	40	8	16		15	12	24		
		<i>Cricotopus/Orthocladius</i>	10			10			70		68		20	5			
		<i>Euryhapsis</i>				20		21			1	10	22		2	64	6
		<i>Heterotrissocladius</i>															
		<i>Krenosmittia</i>				10		4	50								16
		<i>Lopescladius</i>					10										
		<i>Nanocladius</i>				10	20	4									
		<i>Parakiefferiella</i>	20														
		<i>Parametriocnemus</i>	1			20	20	28	20			15	25	20	16	8	12
		<i>Rheocricotopus</i>														2	
		<i>Rheosmittia</i>															
		<i>Synorthocladius</i>					10				4						
		<i>Tvetenia</i>							12	20	8	24	10	20	44	10	40
	Diamesinae	<i>Pothastia (longimana</i> gr.)				20	10	4			8	8			8	3	1
Terrestrial	-	-															
Total			808	119	1413	2635	1288	1045	2218	925	662	589	828	863	567	1289	574

(i/d) = immature or damaged specimen.

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample [depositional] or Neill cylinder sample [erosional]) for the Muskeg River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Lower to Mid-Reach of the Muskeg River (depositional)														
			MUR-D-1	MUR-D-2	MUR-D-3	MUR-D-4	MUR-D-5	MUR-D-6	MUR-D-7	MUR-D-8	MUR-D-9	MUR-D-10	MUR-D-11	MUR-D-12	MUR-D-13	MUR-D-14	MUR-D-15
Nematoda	-	-	32		4	30	8	2	2		4	2		6		36	20
Hirudinea	Glossiphoniidae	(i/d)															
		<i>Glossiphonia complanata</i>			2												1
	Erpobdellidae	<i>Helobdella stagnalis</i>												2			1
Oligochaeta	Enchytraeidae	(i/d)			1												
		<i>Erpobdella punctata</i>			1												
		<i>Nephelopsis obscura</i>															1
	Lumbriculidae	-															26
	Naididae	-	4	8			6		14		16	1	16		2		
Hydracarina	Tubificidae	-		32	47		2		2		5					13	4
	-	-	7			10	4				4	1		4		20	14
Ostracoda	-	-															
Copepoda - Cyclopoida	-	-	1			5											12
Copepoda - Harpacticoida	-	-															
Cladocera	Chydoridae	(i/d)															2
	Daphnidae	<i>Daphnia</i>															4
	Macrothricidae	(i/d)															
Amphipoda	Gammaridae	<i>Gammarus lacustris</i>						2							1		22
	Talitridae	<i>Hyalella azteca</i>															

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample [depositional] or Neill cylinder sample [erosional]) for the Muskeg River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Lower to Mid-Reach of the Muskeg River (depositional)														
			MUR-D-1	MUR-D-2	MUR-D-3	MUR-D-4	MUR-D-5	MUR-D-6	MUR-D-7	MUR-D-8	MUR-D-9	MUR-D-10	MUR-D-11	MUR-D-12	MUR-D-13	MUR-D-14	MUR-D-15
Gastropoda	Planorbidae	(i/d)															
		<i>Promenetus exacuous</i>															
Pelecypoda	Valvatidae	<i>Valvata sincera</i>													2		
															1		
Ephemeroptera	Unionidae	<i>Anodonta grandis</i>	1													1	
		<i>Pisidium / Sphaerium</i>	6						2	4					4	14	10
	Baetidae	(i/d)															
		<i>Acentrella</i>															
	Ephemerellidae	<i>Baetis</i>	1	8													
		<i>Ephemerella</i>															
	Heptageniidae	(i/d)															
		<i>Heptagenia</i>	2	1													
	Leptophyphidae	<i>Stenonema</i>															
		<i>Tricorythodes</i>	2		1										2	4	
		<i>Caenis</i>							1						2	1	
		<i>Leptophlebia</i>								6					2	22	
Plecoptera	Chloroperlidae	(i/d)															
		<i>Perlidae</i>	(i/d)														
	Perlodidae	<i>Acroneuria</i>															
		<i>Claassenia sabulosa</i>															
	Pteronarcyidae	(i/d)												1			
Trichoptera	Brachycentridae	<i>Isogenoides</i>															
		<i>Isoperla</i>															
	Hydroptilidae	<i>Brachycentrus</i>															
		<i>Glossosoma</i>															
	Hydropsychidae	<i>Protoptila</i>															
		<i>Hydroptila</i>															
	Leptoceridae	(i/d)															
		<i>Cheumatopsyche</i>															
	Lepidostomatidae	<i>Hydropsyche</i>															
		<i>Ceraclea</i>															
	Limnephilidae	<i>Mystacides</i>															
		<i>Lepidostoma</i>															
Odonata - Anisoptera	Phryganeidae	<i>Nemotaulius</i>															
		<i>Ptilostomis</i>							1								
	Polycentropodidae	<i>Phryganea</i>													2	2	
		<i>Polycentropus</i>															
	Psychomyiidae	<i>Psychomyia</i>															
	Aeshnidae	<i>Aeshna</i>								1							
		<i>Epitheca</i>															
Hemiptera	Corduliidae	<i>Somatochlora</i>													1		
		<i>Gomphididae</i>	<i>Ophiogomphus</i>														
	Corixidae	<i>Sigara</i>															
Coleoptera	Chrysomelidae	<i>Donacia</i>															
		<i>Elmidae</i>	<i>Optioservus</i>														
Diptera	Tabanidae	(i/d)															
		<i>Dicranota</i>															
	Empididae	<i>Chrysops</i>		2				2	1				2	1		2	
		<i>Hemerodromia</i>			2									1			
	Ceratopogonidae - Ceratopogoninae	(i/d)	1		6	5	2	12	3				8	13	37	40	
		pupa															
	Chironomidae	(i/d)	3	16		10	10	6					5		8		
		<i>Tanypodinae</i>													2		
		<i>Ablabesmyia</i>															

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample [depositional] or Neill cylinder sample [erosional]) for the Muskeg River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Lower to Mid-Reach of the Muskeg River (depositional)														
			MUR-D-1	MUR-D-2	MUR-D-3	MUR-D-4	MUR-D-5	MUR-D-6	MUR-D-7	MUR-D-8	MUR-D-9	MUR-D-10	MUR-D-11	MUR-D-12	MUR-D-13	MUR-D-14	MUR-D-15
Chironomidae	Chironomini	<i>Labrundinia</i>	1				2										
		<i>Procladius</i>			1		2	4	3						10	62	
		<i>Thienemannimyia</i> gr.	2														
		(i/d)								4			3	2	16	50	
		<i>Chironomus</i>								20							
		<i>Cladopelma</i>															
		<i>Cryptochironomus</i>	1					8									
		<i>Demicryptochironomus</i>	1			1				4					2		
		<i>Dicrotendipes</i>															
		<i>Glyptotendipes</i>															
		<i>Microtendipes</i>															
		<i>Pagastiella</i>					2						8	8	10		
		<i>Parachironomus</i>															
		<i>Paracladopelma</i>															
		<i>Paralauterborniella</i>				18	14										
		<i>Paratendipes</i>															
		<i>Phaenopsectra</i>															
		<i>Polypedilum</i>	31	192	4	275	284	49	19	21	141	5	33		90	72	80
		<i>Robackia</i>															
		<i>Stictochironomus</i>															
		<i>Saetheria</i>	24	56		60	12			46	84	83	464		42	24	60
		<i>Tribelos</i>															
Tanytarsini	Tanytarsini	(i/d)															
		<i>Cladotanytarsus</i>	25	32		15	12	2		16	6	16			8	30	
		<i>Micropsectra/Tanytarsus</i>	37	184		20	14	36		36	2		1		50	6	
		<i>Paratanytarsus</i>															
		<i>Rheotanytarsus</i>								8							
		<i>Stempellina</i>															
Orthocladiinae	Orthocladiinae	<i>Stempellinella</i>	1	32		15	2										
		(i/d)			8		5	2									
		<i>Brillia</i>															
		<i>Corynoneura</i>				5				4	1						
		<i>Cricotopus/Orthocladius</i>															
		<i>Euryhapsis</i>															
		<i>Heterotrissocladus</i>	1			5											
		<i>Krenosmittia</i>															
		<i>Lopescladius</i>															
		<i>Nanocladius</i>															
		<i>Parakiefferiella</i>	4	96		145	20	26		24	7	1		6	10		
		<i>Parametriocnemus</i>															
		<i>Rheocricotopus</i>															
		<i>Rheosmittia</i>							8		1			14	4		
		<i>Synorthocladius</i>															
		<i>Tvetenia</i>															
Terrestrial	Diamesinae	<i>Pottastia (longimana</i> gr.)				5	2										
		-	-														
Total			191	665	71	621	406	170	56	75	390	119	571	47	156	364	495

(i/d) = immature or damaged specimen.

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample [depositional] or Neill cylinder sample [erosional]) for the Muskeg River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Upper Reach of the Muskeg River (depositional)														
			MUR-D-16	MUR-D-17	MUR-D-18	MUR-D-19	MUR-D-20	MUR-D-21	MUR-D-22	MUR-D-23	MUR-D-24	MUR-D-25	MUR-D-26	MUR-D-27	MUR-D-28	MUR-D-29	MUR-D-30
Nematoda	-	-	40					10	10	9	15	1		10		1	
Hirudinea	Glossiphoniidae	(i/d)											10				
		<i>Glossiphonia complanata</i>	10										20		2		
		<i>Helobdella stagnalis</i>															
	Erpobdellidae	(i/d)									1						
		<i>Erpobdella punctata</i>															
		<i>Nephelopsis obscura</i>															
Oligochaeta	Enchytraeidae	-				10											
	Lumbriculidae	-								2	1	12	2				
	Naididae	-	10			10				31		10					
	Tubificidae	-		20						10	1		10	10		21	14
Hydracarina	-	-							10	12	22	1					
Ostracoda	-	-	20							1		1		29			4
Copepoda - Cyclopoida	-	-									1	1	20	10			
Copepoda - Harpacticoida	-	-															
Cladocera	Chydoridae	(i/d)											1				
	Daphnidae	<i>Daphnia</i>															
	Macrothricidae	(i/d)											10				
Amphipoda	Gammaridae	<i>Gammarus lacustris</i>					5		2	8	4	6	2	8		2	8
	Talitridae	<i>Hyalella azteca</i>												1			1
Gastropoda	Planorbidae	(i/d)						1									
	Promenetus excavous		1														
	Valvatidae	<i>Valvata sincera</i>	1								20	1		2			
Pelecypoda	Unionidae	<i>Anodonta grandis</i>															
	Sphaeriidae	<i>Pisidium / Sphaerium</i>	113	5	22	40	68	28			274	22	163	31	1		20
Ephemeroptera	Baetidae	(i/d)															
		<i>Acentrella</i>															
		<i>Baetis</i>															
	Ephemerellidae	<i>Ephemerella</i>															
	Heptageniidae	(i/d)															
		<i>Heptagenia</i>															
		<i>Stenonema</i>															
	Leptohyphidae	<i>Tricorythodes</i>															
	Caenidae	<i>Caenis</i>										1					
	Leptophlebiidae	<i>Leptophlebia</i>	10							45	42	1	23	31	12	1	31
Plecoptera	Chloroperlidae	(i/d)															
	Perlidae	(i/d)															
		<i>Acroneuria</i>															
		<i>Classenaria sabulosa</i>															
	Perlodidae	(i/d)															
	Pteronarcyidae	<i>Isogenoides</i>															
		<i>Isoperla</i>															
Trichoptera	Pteronarcyidae	<i>Pteronarcys</i>															
	Brachycentridae	<i>Brachycentrus</i>															
	Glossosomatidae	<i>Glossosoma</i>															
		<i>Protoptila</i>															
		<i>Hydroptila</i>															
	Hydropsychidae	(i/d)															
		<i>Cheumatopsyche</i>															
		<i>Hydropsyche</i>															
	Leptoceridae	<i>Ceraclea</i>									1						
		<i>Mystacides</i>															
	Lepidostomatidae	<i>Lepidostoma</i>															

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample [depositional] or Neill cylinder sample [erosional]) for the Muskeg River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Upper Reach of the Muskeg River (depositional)														
			MUR-D-16	MUR-D-17	MUR-D-18	MUR-D-19	MUR-D-20	MUR-D-21	MUR-D-22	MUR-D-23	MUR-D-24	MUR-D-25	MUR-D-26	MUR-D-27	MUR-D-28	MUR-D-29	MUR-D-30
	Limnephilidae	<i>Nemotaulus</i>	1														
	Phryganeidae	<i>Ptilostomis</i>	1			1					1	1	1				
	Polycentropodidae	<i>Polycentropus</i>															
	Psychomyiidae	<i>Psychomyia</i>															
Odonata - Anisoptera	Aeshnidae	<i>Aeshna</i>															
	Corduliidae	<i>Epitheca</i>										4					
		<i>Somatochlora</i>															
Hemiptera	Gomphidae	<i>Ophiogomphus</i>															
	Corixidae	<i>Sigara</i>	1			3	1		2				1	1			
Coleoptera	Chrysomelidae	<i>Donacia</i>	14														
	Elmidae	<i>Optioservus</i>															
Diptera	Tipulidae	(i/d)															
		<i>Dicranota</i>															
	Tabanidae	<i>Chrysops</i>							1								
	Empididae	<i>Hemerodromia</i>															
	Ceratopogonidae - Ceratopogoninae	(i/d)	10			50					10		20			10	
	Chironomidae	pupa									1						
	Tanypodinae	(i/d)	80			20	21		2	50	38	41	82		1	5	20
		<i>Ablabesmyia</i>	10			20			1	2							
		<i>Labrundinia</i>								1	3	7				5	
		<i>Procladius</i>	54	1	21	50		16	7		33	9	11	139	15	40	55
		<i>Thienemannimyia</i> gr.	10						31	8			30				
	Chironomini	(i/d)							1		10	4		10			
		<i>Chironomus</i>	10	10	10			10						5			
		<i>Cladopelma</i>							10								
		<i>Cryptochironomus</i>			10												
		<i>Demicryptochironomus</i>					10					10					
		<i>Dicrotendipes</i>	10										10			10	
		<i>Glyptotendipes</i>					1							1			
		<i>Microtendipes</i>	16			1		10		1	16	2	28		1		
		<i>Pagastiella</i>											10				
		<i>Parachironomus</i>											1				
		<i>Paracladopelma</i>				20								1	12		
		<i>Paralauterborniella</i>				10				6	10						
		<i>Paratendipes</i>				10							14	2	7		
		<i>Phaenopsectra</i>	40														
		<i>Polypedilum</i>	10		10	60			20		12	30		1	26		
		<i>Robackia</i>															
		<i>Stictochironomus</i>															
		<i>Saetheria</i>															
		<i>Tribelos</i>			2					1	2	2		1		19	9
	Tanytarsini	(i/d)					10				6						
		<i>Cladotanytarsus</i>							4	1							
		<i>Micropectra/Tanytarsus</i>		30	30			1	29	337	128	67	18	70	283	63	
		<i>Paratanytarsus</i>	30			10	10	13	10	10	2	10	10				
		<i>Rheotanytarsus</i>	10											1		1	
		<i>Stempellina</i>				10							1				
		<i>Stempellinella</i>					40		14	6	5	40	1	7	25	46	
Orthocladiinae	(i/d)	10			10						2			1	10	8	
	<i>Brillia</i>	30															
	<i>Corynoneura</i>																
	<i>Cricotopus/Orthocladius</i>	20						1									

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample [depositional] or Neill cylinder sample [erosional]) for the Muskeg River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Upper Reach of the Muskeg River (depositional)														
			MUR-D-16	MUR-D-17	MUR-D-18	MUR-D-19	MUR-D-20	MUR-D-21	MUR-D-22	MUR-D-23	MUR-D-24	MUR-D-25	MUR-D-26	MUR-D-27	MUR-D-28	MUR-D-29	MUR-D-30
		<i>Euryhapsis</i>															
		<i>Heterotriassocladius</i>									25				1	5	4
		<i>Krenosmittia</i>															
		<i>Lopescladius</i>															
		<i>Nanocladius</i>										10					
		<i>Parakiefferiella</i>					10									5	
		<i>Parametriocnemus</i>															
		<i>Rheocricotopus</i>															
		<i>Rheosmittia</i>															
		<i>Synorthocladius</i>															
		<i>Tvetenia</i>															
	Diamesinae	<i>Pothastia (longimana gr.)</i>															
Terrestrial	-	-					1	10							1		
Total			591	17	105	386	166	75	147	247	848	304	621	323	116	497	290

(i/d) = immature or damaged specimen.

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample) for Jackpine Creek, Fall 2003.

Major Taxon	Family (subfamily/tribe)	Genus/Species	Lower Reach of Jackpine Creek (depositional)														
			JAC-D-1	JAC-D-2	JAC-D-3	JAC-D-4	JAC-D-5	JAC-D-6	JAC-D-7	JAC-D-8	JAC-D-9	JAC-D-10	JAC-D-11	JAC-D-12	JAC-D-13	JAC-D-14	JAC-D-15
Nematoda	-	-	64	7				1	1			2			2		4
Oligochaeta	Enchytraeidae	-	14	16	8						13	4					1
	Naididae	-		8	2					2	2			8		1	
	Tubificidae	-							4								
Hirudinea	Glossiphoniidae	<i>Helobdella stagnalis</i>			2												
Hydracarina	-	-		8											4		
Ostracoda	-	-															
Copepoda - Cyclopoida	-	-		128	6												
Cladocera	Macrothricidae	(i/d)													1		
Amphipoda	Talitridae	<i>Hyalella azteca</i>												1			
Collembola	-	-															
Pelecypoda	Sphaeriidae	<i>Pisidium / Sphaerium</i>		17	12	11		1			6						
Ephemeroptera	Leptophlebiidae	<i>Leptophlebia</i>															
Plecoptera	Perlodidae	<i>Isoperla</i>															
Trichoptera	Brachycentridae	<i>Brachycentrus</i>															
	Lepidostomatidae	<i>Lepidostoma</i>			6												
Odonata - Anisoptera	Gomphidae	<i>Ophiogomphus</i>												1			
Odonata - Zygoptera	Calopterygidae	<i>Calopteryx</i>				1											
Coleoptera	Elmidae	(i/d)													4		
		<i>Dubiraphia</i>															
		<i>Optioservus</i>															
	Gyrinidae	<i>Gyrinus</i>							1								
Hemiptera	Halipidae	<i>Brychius</i>				1											
	Corixidae	<i>Sigara</i>			2	2											
Diptera	Tipulidae	<i>Dicranota</i>															
		<i>Erioptera</i>	2	8	4						2		1				
		<i>Hexatoma</i>					3	2						4	2		
	Tabanidae	<i>Chrysops</i>							2								
	Empididae	<i>Chelifera</i>				2									14	3	
		<i>Hemerodromia</i>						2									
	Dolichopodidae	<i>Raphium</i>			4	6					2	2					

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample) for Jackpine Creek, Fall 2003.

Major Taxon	Family (subfamily/tribe)	Genus/Species	Lower Reach of Jackpine Creek (depositional)															
			JAC-D-1	JAC-D-2	JAC-D-3	JAC-D-4	JAC-D-5	JAC-D-6	JAC-D-7	JAC-D-8	JAC-D-9	JAC-D-10	JAC-D-11	JAC-D-12	JAC-D-13	JAC-D-14	JAC-D-15	
	Ephydriidae	(i/d)			2													
	Ceratopogonidae - Ceratopogoninae	(i/d)			2	4		8	1				1		1	6	5	
	Ceratopogonidae - Dasyheleinae	<i>Dasyhelea</i>																
	Chironomidae	pupa																
	Tanypodinae	(i/d)	10	8	2	4	1	1		6	2			16	23	7		
		<i>Ablabesmyia</i>												2				
		<i>Procladius</i>				2				2	4				3	2		
		<i>Thienemannimyia</i> agr.	2															
	Chironomini	(i/d)																
		<i>Chironomus</i>			8													
		<i>Cryptochironomus</i>						2			2			2	4	2		
		<i>Demicryptochironomus</i>																
		<i>Dicrotendipes</i>																
		<i>Paracladopelma</i>	2				1	7						2	6	3		
		<i>Paralauterborniella</i>			2	2	2	58	4	2	6			2	84	41		
		<i>Phaenopsectra</i>																
		<i>Polypedilum</i>	2	32	10	12	8	74	4	2	2	2	1	1	8	52	11	
		<i>Saetheria</i>																
		<i>Stictochironomus</i>					5	2				6		4			1	
		<i>Tanytarsini</i>	(i/d)															
		<i>Cladotanytarsus</i>													3			
	Orthocladiinae	<i>Micropsectra / Tanytarsus</i>	2		4	2	1			4				14	17	18		
		<i>Paratanytarsus</i>																
		<i>Rheotanytarsus</i>							1									
		<i>Stempellina</i>		8												1		
		<i>Stempelinella</i>						3			6			8	12	4		
		<i>(i/d)</i>				2								2		1		
		<i>Cricotopus/Orthocladius</i>																
	Terrestrial	<i>Heterotrissocladius</i>	4				1		2	8	2				14	16		
		<i>Parakiefferiella</i>			2		1	2	1		4	1		2	9	4		
		<i>Parametriocnemus</i>																
		<i>Psectrocladius</i>																
		<i>Pseudosmittia</i>		57	26	24					50			1				
		<i>Smittia</i>																
		-	-			1												
	Total			38	362	111	68	23	165	18	40	94	13	2	7	75	258	125

(i/d) = immature or damaged specimen.

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample) for Jackpine Creek, Fall 2003.

Major Taxon	Family (subfamily/tribe)	Genus/Species	Upper Reach of Jackpine Creek (depositional)														
			JAC-D-16	JAC-D-17	JAC-D-18	JAC-D-19	JAC-D-20	JAC-D-21	JAC-D-22	JAC-D-23	JAC-D-24	JAC-D-25	JAC-D-26	JAC-D-27	JAC-D-28	JAC-D-29	JAC-D-30
Nematoda	-	-	16	2	20				1	1		4		29		16	3
Oligochaeta	Enchytraeidae	-	100	2	40				2	1	4	1	7		10	2	
	Naididae	-	8		20		4			1	8				15	1	
	Tubificidae	-				7	12			2	8						
Hirudinea	Glossiphoniidae	<i>Helobdella stagnalis</i>															
Hydracarina	-	-													2		
Ostracoda	-	-													1		
Copepoda - Cyclopoida	-	-															
Cladocera	Macrothricidae	(i/d)															
Amphipoda	Talitridae	<i>Hyalella azteca</i>															
Collembola	-	-	4														
Pelecypoda	Sphaeriidae	<i>Pisidium / Sphaerium</i>						4							4		
Ephemeroptera	Leptophlebiidae	<i>Leptophlebia</i>						4			3						
Plecoptera	Perlodidae	<i>Isoperla</i>		1													
Trichoptera	Brachycentridae	<i>Brachycentrus</i>													4		
	Lepidostomatidae	<i>Lepidostoma</i>															
Odonata - Anisoptera	Gomphidae	<i>Ophiogomphus</i>															
Odonata - Zygoptera	Calopterygidae	<i>Calopterix</i>															
Coleoptera	Elmidae	(i/d)												1			
	<i>Dubiraphia</i>		41	9	36						20						
	<i>Optioservus</i>							1									
	Gyrinidae	<i>Gyrinus</i>															
	Halipidae	<i>Brychius</i>															
Hemiptera	Corixidae	<i>Sigara</i>	1														
Diptera	Tipulidae	<i>Dicranota</i>											1		2		
	<i>Erioptera</i>													4			
	<i>Hexatoma</i>								1		4		1	1	2	2	
	Tabanidae	<i>Chrysops</i>						1					1	1	6		
	Empididae	<i>Chelifera</i>								1					2		
	<i>Hemerodromia</i>				4									3			
	Dolichopodidae	<i>Raphium</i>	4												2		
	Ephydriidae	(i/d)					4										
	Ceratopogonidae - Ceratopogoninae	(i/d)		2			8					8		2	2		
	Ceratopogonidae - Dasyheleinae	<i>Dasyhelea</i>							1								
	Chironomidae	pupa					4										
	Tanypodinae	(i/d)	24							1							
	<i>Ablabesmyia</i>																
	<i>Procladius</i>	8			4	8											
	<i>Thienemannimyiagr.</i>													4			
Chironomini	(i/d)				4												
	<i>Chironomus</i>	8	2														
	<i>Cryptochironomus</i>			60	8	12											
	<i>Demicryptochironomus</i>				1												
	<i>Dicrotendipes</i>				4												
	<i>Paracladopelma</i>	4		20	4	16		1		1	4	2	4				
	<i>Paralauterborniella</i>		2	20	20	56						1	2				
	<i>Phaenopsectra</i>				4												
	<i>Polypedilum</i>			40	16	88	4	1			8	3	4			1	
	<i>Saetheria</i>								3	1				90		8	
	<i>Stictochironomus</i>						16		1	1	12	1	13	3	2		

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample) for Jackpine Creek, Fall 2003.

Major Taxon	Family (subfamily/tribe)	Genus/Species	Upper Reach of Jackpine Creek (depositional)														
			JAC-D-16	JAC-D-17	JAC-D-18	JAC-D-19	JAC-D-20	JAC-D-21	JAC-D-22	JAC-D-23	JAC-D-24	JAC-D-25	JAC-D-26	JAC-D-27	JAC-D-28	JAC-D-29	JAC-D-30
Tanytarsini		(i/d)											4		2		
		<i>Cladotanytarsus</i>							1								
		<i>Micropsectra / Tanytarsus</i>	32	3		36	92	4	1		2	4		4		20	1
		<i>Paratanytarsus</i>				8	12					4					
		<i>Rheotanytarsus</i>								1					2		
		<i>Stempellina</i>					4										
		<i>Stempellinella</i>	4		20	8	12							1			
Orthocladiinae		(i/d)	4	1					1	1	2	4		3		4	2
		<i>Cricotopus/Orthocladius</i>									2	4				6	
		<i>Heterotrissocladius</i>	12		20	16	12							11	1		
		<i>Parakiefferiella</i>			20		4								2		
		<i>Parametriocnemus</i>													4		
		<i>Psectrocladius</i>				4											
		<i>Pseudosmittia</i>	8	6						1	1			15		26	
Terrestrial		<i>Smittia</i>	4							1					1	2	6
					4	1	20										
Total			245	22	341	153	388	33	6	20	22	92	8	98	106	143	24

(i/d) = immature or damaged specimen.

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample [depositional] or Neill cylinder sample [erosional]) for the Firebag River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Lower Reach of the Firebag River (depositional)														
			FBR-E-1	FBR-E-2	FBR-E-3	FBR-E-4	FBR-E-5	FBR-E-6	FBR-E-7	FBR-E-8	FBR-E-9	FBR-E-10	FBR-E-11	FBR-E-12	FBR-E-13	FBR-E-14	FBR-E-15
Hydrozoa	Hydridae	<i>Hydra</i>						2									
Nematoda	-	-	12	25	15	16	32	18	1		17	60	2	57	41	28	28
Hirudinea	Glossiphoniidae	<i>Glossiphonia complanata</i>															1
		<i>Helobdella stagnalis</i>			1		8										5
Oligochaeta	Piscicolidae	<i>Piscicola milneri</i>															1
		<i>Enchytraeidae</i>	-					16		8	40	4		16	48	40	24
Lumbriculidae			-	4				1						8			
		<i>Naididae</i>	-	8	5	20	32	8	26	4	16	24	5	30	40	20	35
Tubificidae			-		5		33	24		10		5		8			21
			-	24		25	32	8	32		24	84	65	140	137	60	144
Ostracoda	-	-	4			8	24	4	12			11					
Copepoda - Cyclopoida	-	-					48					5	8		20		8
Copepoda - Harpacticoida															20		
Amphipoda	Talitridae	<i>Hyalella azteca</i>						1			1				1	1	1
Gastropoda	Ancyliidae	<i>Ferrissia rivularis</i>				10	8			2	9	8	5	4		20	
		<i>Hydrobiidae</i>					1										
Physidae		<i>Physa</i>				6	1						2		1	1	
		<i>Planorbidae</i>	(i/d)	5				8		1	1						
Pelecypoda	Sphaeriidae	<i>Pisidium / Sphaerium</i>	61	25	56	71		12	6	27		77	32		20	8	61
Ephemeroptera	Ameletidae	<i>Ameletus subnotatus</i>				5				1				8	1		
	Baetidae	<i>Baetis</i>	40	96	36	34	24	17	3	16	97	20	134	176	68	106	15

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample [depositional] or Neill cylinder sample [erosional]) for the Firebag River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Lower Reach of the Firebag River (depositional)														
			FBR-E-1	FBR-E-2	FBR-E-3	FBR-E-4	FBR-E-5	FBR-E-6	FBR-E-7	FBR-E-8	FBR-E-9	FBR-E-10	FBR-E-11	FBR-E-12	FBR-E-13	FBR-E-14	FBR-E-15
		<i>Procloeon</i>													20		
	Ephemerellidae	<i>Drunella grandis</i>		1		1					1		1		1		
	Heptageniidae	(i/d)	4		5						1		14		2		
		<i>Heptagenia</i>	9	28	30	9	17	29	3	18	16	13	52	91	21	48	9
		<i>Leucrocuta</i>						1									
		<i>Stenonema</i>	4	2	6		1		2	2		1	5	10	4		
	Pseudironidae	<i>Pseudiron centralis</i>															
	Leptohyphidae	<i>Tricorythodes</i>	1		5	4		6		1	1			4			
	Caenidae	<i>Caenis</i>			10												
	Leptophlebiidae	<i>Leptophlebia</i>					8			10				2	1		
		<i>Paraleptophlebia</i>						2		16			4	8	2	9	5
Plecoptera	Capniidae	(i/d)						2									
	Chloroperlidae	(i/d)	4		5	4		8		16	9		1		1	14	5
	Perlidae	<i>Claassenia sabulosa</i>	1	5	1	1		1		8	13	1	11	18		10	
	Perlodidae	<i>Isogenoides</i>	2	4	6			2	2		2	1	1				
		<i>Isoperla</i>	3	3	6				1		5	5	4		1	1	
	Pteronarcyidae	<i>Pteronarcys</i>			1		1				1		2		2	5	1
	Taeniopterygidae	<i>Taeniopteryx</i>	1	15	6	1				8	17		53	27	3	21	
Trichoptera	Apataniidae	<i>Apatania</i>													1	1	
	Brachycentridae	<i>Brachycentrus</i>		1							6	16	10			3	
	Glossosomatidae	<i>Glossosoma</i>			5	1	3	10	2	30	4	6	5	26	3	20	5
		<i>Protoptila</i>	5	15	35	4		10	2	40	32	25	16	40		48	5
	Helicopsychidae	<i>Helicopsyche</i>												8			
	Hydropsychidae	<i>Hydropsyche</i>						5	1			2	2	4	3	1	1
	Leptoceridae	<i>Ceraclea</i>									1		8	8			
	Lepidostomatidae	<i>Lepidostoma</i>	12	1			4	7	5	9	25	1	25	113	54	13	12
	Limnephilidae	<i>Nemotaulius</i>															1
	Psychomyiidae	<i>Psychomyia</i>	12		15	28		4	4	4			12	24	20	18	6
Odonata - Anisoptera	Gomphidae	<i>Gomphus</i>															
		<i>Ophiogomphus</i>	5	5		1		2	3	5	1	10	2	1	7	7	6
Coleoptera	Elmidae	<i>Optioservus</i>	19	5	25	29		17		23	50	6	56	33	3	75	17
Hemiptera	Corixidae	(i/d)															
		<i>Callicorixa</i>															
		<i>Sigara</i>	8		1	1					6			2			
Diptera	Simuliidae	<i>Simulium</i>						1					8				
	Tabanidae	<i>Chrysops</i>			1	5		2		1							
	Tipulidae	<i>Dicranota</i>	8	10		4	8	6	2	17	21	15	4				5
		<i>Hexatoma</i>		5													5
		<i>Tipula</i>		1													
	Empididae	<i>Chelifera</i>	4		5	4		2		8	4	10	1	1		8	
		<i>Hemerodromia</i>	8	15	10	72	8	4	2	58	5	75	12		2		26
	Ceratopogonidae - Ceratopogoninae	(i/d)															
	Chironomidae	pupa									4						
	Tanypodinae	(i/d)	4		5	8	32	8	2	16		5	8	8	40	8	55

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample [depositional] or Neill cylinder sample [erosional]) for the Firebag River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Lower Reach of the Firebag River (depositional)														
			FBR-E-1	FBR-E-2	FBR-E-3	FBR-E-4	FBR-E-5	FBR-E-6	FBR-E-7	FBR-E-8	FBR-E-9	FBR-E-10	FBR-E-11	FBR-E-12	FBR-E-13	FBR-E-14	FBR-E-15
		<i>Ablabesmyia</i>	8	15	5	12	32		6	1			4		1	1	45
		<i>Labrundinia</i>													41		
		<i>Nilotanypus</i>												40			
		<i>Procladius</i>						2	4					40		5	
		<i>Thienemannimyia</i> gr.	5	10	46	16		14	4	35	34	10	27	86	90	30	36
	Chironomini	(i/d)			5	4			8			10	8	16	20	240	105
		<i>Chironomus</i>															
		<i>Cryptochironomus</i>				4	8	2				5	9	8	20		
		<i>Demicyptochironomus</i>						2			4		4			9	
		<i>Microtendipes</i>											4	8			
		<i>Paracladopelma</i>								24	4					16	
		<i>Paralauterborniella</i>															
		<i>Paratendipes</i>	4			4			2								
		<i>Polypedium</i>	36	81	70	96	8	44	44	120	16	40	26	16	20	58	70
		<i>Robackia</i>															
		<i>Stictochironomus</i>	1		10	21	8	6	7			5	9		3	13	60
		<i>Saetheria</i>	8						2	8	32	5				8	
	Tanytarsini	<i>Cladotanytarsus</i>	48	20	90	124	16	8	6	120	32	175	32	80	20	136	195
		<i>Micropsectra/Tanytarsus</i>	4	60	45	36	32	56	46	120	24	25	104	40	4973	313	291
		<i>Rheotanytarsus</i>	4										8	8			
		<i>Stempellina</i>												8			
		<i>Stempellinella</i>	8		5	12		8				15	16		40		45
		<i>Sublettea</i>													8	5	
	Orthocladiinae	(i/d)				4	24	2	2		10		36	8	40	64	5
		<i>Brillia</i>									1				20		
		<i>Corynoneura</i>	4	5	5	4				12	15			20	8		
		<i>Cricotopus/Orthocladius</i>								9					9		
		<i>Lopescladius</i>								8						10	
		<i>Parametriocnemus</i>						4			16	20	8			8	
		<i>Pseudosmittia</i>															
		<i>Rheosmittia</i>															
		<i>Synorthocladius</i>			5		4	2					8				
		<i>Thienemanniella</i>	4	10		24		4	20			41	8		24		
		<i>Tvetenia</i>								4							
	Diamesinae	<i>Pothastia</i> (<i>longimana</i> gr.)			5	5	12						4	8		5	
Terrestrial	-	-						2	8				5				
Total			406	480	651	758	437	390	218	879	665	773	1044	1188	5896	1613	1259

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample [depositional] or Neill cylinder sample [erosional]) for the Firebag River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Upper Reach of the Firebag River (erosional)														
			FBR-D-1	FBR-D-2	FBR-D-3	FBR-D-4	FBR-D-5	FBR-D-6	FBR-D-7	FBR-D-8	FBR-D-9	FBR-D-10	FBR-D-11	FBR-D-12	FBR-D-13	FBR-D-14	FBR-D-15
Hydrozoa	Hydridae	<i>Hydra</i>															
Nematoda	-	-			10												
Hirudinea	Glossiphoniidae	<i>Glossiphonia complanata</i>															
		<i>Helobdella stagnalis</i>															
	Piscicolidae	<i>Piscicola milneri</i>															
Oligochaeta	Enchytraeidae	-															
	Lumbriculidae	-															
	Naididae	-				5	10		144				82				
	Tubificidae	-		140	70	10	10					3	75				
Hydracarina	-	-															
Ostracoda	-	-															
Copepoda - Cyclopoida	-	-															
Copepoda - Harpacticoida																	
Amphipoda	Talitridae	<i>Hyalella azteca</i>															
Gastropoda	Ancylidae	<i>Ferrissia rivularis</i>															
	Hydrobiidae	<i>Probythinella</i>															
	Physidae	<i>Physa</i>															
	Planorbidae	(i/d)															
Pelecypoda	Sphaeriidae	<i>Pisidium / Sphaerium</i>															
Ephemeroptera	Ameletidae	<i>Ameletus subnotatus</i>															
	Baetidae	<i>Baetis</i>				5											
		<i>Procloeon</i>															
	Ephemerellidae	<i>Drunella grandis</i>															
	Heptageniidae	(i/d)															
		<i>Heptagenia</i>															
		<i>Leucrocuta</i>															
		<i>Stenonema</i>															
	Pseudironidae	<i>Pseudiron centralis</i>												1			
	Leptohyphidae	<i>Tricorythodes</i>															
	Caenidae	<i>Caenis</i>															
	Leptophlebiidae	<i>Leptophlebia</i>															
		<i>Paraleptophlebia</i>															
Plecoptera	Capniidae	(i/d)															
	Chloroperlidae	(i/d)															
	Perlidae	<i>Claassenia sabulosa</i>															
	Periodidae	<i>Isogenoides</i>															
		<i>Isoperla</i>											1				
	Pteronarcyidae	<i>Pteronarcys</i>															
	Taeniopterygidae	<i>Taeniopteryx</i>															
Trichoptera	Apataniidae	<i>Apatania</i>															
	Brachycentridae	<i>Brachycentrus</i>															
	Glossosomatidae	<i>Glossosoma</i>															
		<i>Protoptila</i>															
	Helicopsychidae	<i>Helicopsyche</i>															

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample [depositional] or Neill cylinder sample [erosional]) for the Firebag River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Upper Reach of the Firebag River (erosional)														
			FBR-D-1	FBR-D-2	FBR-D-3	FBR-D-4	FBR-D-5	FBR-D-6	FBR-D-7	FBR-D-8	FBR-D-9	FBR-D-10	FBR-D-11	FBR-D-12	FBR-D-13	FBR-D-14	FBR-D-15
	Hydropsychidae	<i>Hydropsyche</i>															
	Leptoceridae	<i>Ceraclea</i>															
	Lepidostomatidae	<i>Lepidostoma</i>															
	Limnephilidae	<i>Nemotaulius</i>															
	Psychomyiidae	<i>Psychomyia</i>															
Odonata - Anisoptera	Gomphidae	<i>Gomphus</i>	10		1												
		<i>Ophiogomphus</i>										1					
Coleoptera	Elmidae	<i>Optioservus</i>															
Hemiptera	Corixidae	(i/d)	10					8									
		<i>Callicorixa</i>						72									
		<i>Sigara</i>			2			72									
Diptera	Simuliidae	<i>Simulium</i>															
	Tabanidae	<i>Chrysops</i>					1										
	Tipulidae	<i>Dicranota</i>															
		<i>Hexatoma</i>															
		<i>Tipula</i>															
	Empididae	<i>Chelifera</i>															
		<i>Hemerodromia</i>						16									
	Ceratopogonidae - Ceratopogoninae	(i/d)					10					8					
	Chironomidae	pupa					5										
	Tanypodinae	(i/d)										8	1				
		<i>Ablabesmyia</i>				5											
		<i>Labrundinia</i>															
		<i>Nilotanyapus</i>															
		<i>Procladius</i>				31		16									
		<i>Thienemannimyia</i> gr.															
	Chironomini	(i/d)		2		10			8		4	1					
		<i>Chironomus</i>	30		5	621		16	216	147	8		222	488	60		
		<i>Cryptochironomus</i>				15			1	2	20		37	1			
		<i>Demicryptochironomus</i>															
		<i>Microtendipes</i>															
		<i>Paracladopelma</i>								8				40			
		<i>Paralauterborniella</i>	290		30	70		64			212	2	122				
		<i>Paratendipes</i>															
		<i>Polypedilum</i>	1322	59	25	185		1040		5	460	5	863	32	20		
		<i>Robackia</i>					5	6		24	9	4	144		40	2	10
		<i>Stictochironomus</i>		1													
		<i>Saetheria</i>															
	Tanytarsini	<i>Cladotanytarsus</i>					5			8	2						
		<i>Micropsectra/Tanytarsus</i>				5	145			24	6	16		80	72		
		<i>Rheotanytarsus</i>															
		<i>Stempellina</i>					5										
		<i>Stempellinella</i>	10			30					28						

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample [depositional] or Neill cylinder sample [erosional]) for the Firebag River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Upper Reach of the Firebag River (erosional)														
			FBR-D-1	FBR-D-2	FBR-D-3	FBR-D-4	FBR-D-5	FBR-D-6	FBR-D-7	FBR-D-8	FBR-D-9	FBR-D-10	FBR-D-11	FBR-D-12	FBR-D-13	FBR-D-14	FBR-D-15
		<i>Sublettea</i>															
	Orthocladiinae	(i/d)									2						
		<i>Brilla</i>															
		<i>Corynoneura</i>															
		<i>Cricotopus/Orthocladius</i>											10				
		<i>Lopescladius</i>															
		<i>Parametriocnemus</i>															
		<i>Pseudosmittia</i>			5						12						
		<i>Rheosmittia</i>					96		40	14		59	10	8	8560	3238	1410
		<i>Synorthocladius</i>															
		<i>Thienemanniella</i>															
		<i>Tvetenia</i>															
	Diamesinae	<i>Pothastia (longimana gr.)</i>															
Terrestrial	-	-															
Total			1812	142	88	1168	102	1432	337	187	789	214	1503	601	8720	3241	1420

Benthic Invertebrate Abundance Data (numbers/Neill cylinder sample) for the MacKay River, Fall 2003.

Major Taxon	Family (subfamily/tribe)	Genus/Species	Lower Reach of the MacKay River (erosional)														
			MAR-E-1	MAR-E-2	MAR-E-3	MAR-E-4	MAR-E-5	MAR-E-6	MAR-E-7	MAR-E-8	MAR-E-9	MAR-E-10	MAR-E-11	MAR-E-12	MAR-E-13	MAR-E-14	MAR-E-15
Hydrozoa	Hydridae	<i>Hydra</i>	10														
Nematoda	-	-		20				20	16	20	10	10	10	40	30	20	
Hirudinea	Erpobdellidae	<i>Erpobdella punctata</i>															
Oligochaeta	Enchytraeidae	-	80	90	30	16	40	108		30	40	30	190	50	90	30	48
	Lumbriculidae	-							20								
	Naididae	-	120	10	120	32	240	200	70	60	100	70	70	30	130	70	8
	Tubificidae	-					16										
Hydracarina	-	-	50	100	70	240	130	272	220	10	230	260	270	30	430	360	368
Ostracoda	-	-															
Gastropoda	Ancylidae	<i>Ferrissia rivularis</i>					1	8									
	Physidae	<i>Physa</i>				1											
	Planorbidae	(i/d)										10					
	Valvatidae	<i>Valvata tricarinata</i>															
Pelecypoda	Sphaeriidae	<i>Pisidium / Sphaerium</i>	70	10	161	32	10	16	40	30	20		10		20		
Ephemeroptera	Baetidae	<i>Acentrella</i>	10	1							10				10		
		<i>Baetis</i>	150	110	100	80	130	56	61	21	32	30	70	3	20	20	107
	Ephemerellidae	<i>Ephemerella</i>											10		10		
	Heptageniidae	(i/d)	40	50	30	56	130	40	90	80	90	20	60	60	10		
		<i>Heptagenia</i>	78	86	136	134	223	155	83	76	77	16	134	103	30	30	
		<i>Rhithrogena</i>		1			1			1		32		13			
	Leptophyidae	<i>Tricorythodes</i>	10	40	20			16		10	20						
	Caenidae	<i>Caenis</i>		20													
	Leptophlebiidae	<i>Leptophlebia</i>	10														
Plecoptera	Chloroperlidae	(i/d)			20	10			8	20	10	20		10		10	
	Perlidae	(i/d)															
		<i>Acroneuria</i>	1	1	4	2		2	1	1	1		1	2	2	1	

Benthic Invertebrate Abundance Data (numbers/Neill cylinder sample) for the MacKay River, Fall 2003.

Major Taxon	Family (subfamily/tribe)	Genus/Species	Lower Reach of the MacKay River (erosional)														
			MAR-E-1	MAR-E-2	MAR-E-3	MAR-E-4	MAR-E-5	MAR-E-6	MAR-E-7	MAR-E-8	MAR-E-9	MAR-E-10	MAR-E-11	MAR-E-12	MAR-E-13	MAR-E-14	MAR-E-15
		<i>Claassenia sabulosa</i>					1							1			
		<i>Isogenoides</i>					1			12		1	1		1		
		<i>Isoperla</i>	10				10					6		1			
		<i>Pteronarcys</i>			8	5	2	1		2	1	8	2	4			
Trichoptera		<i>Taeniopteryx</i>	20														
		<i>Brachycentridae</i>	<i>Brachycentrus</i>					1			1				1	1	
		<i>Glossosomatidae</i>	<i>Glossosoma</i>									1					
		<i>Helicopsychidae</i>	<i>Helicopsyche</i>		2												
		<i>Hydroptilidae</i>	<i>Hydroptila</i>														
		<i>Hydropsychidae</i>	(i/d)		10		10	8	10			10			10	10	8
		<i>Hydropsyche</i>			1	11	14	50	1	4	3	18	6	36	10	11	3
		<i>Leptoceridae</i>	(i/d)														
		<i>Lepidostomatidae</i>	<i>Lepidostoma</i>														8
		<i>Psychomyiidae</i>	<i>Psychomyia</i>														
Odonata - Anisoptera	Gomphidae	<i>Ophiogomphus</i>	23	12	18	12	3							24	23	25	14
Coleoptera	Elmidae	<i>Optioservus</i>										10					
Diptera	Simuliidae	<i>Simulium</i>												30			16
	Tabanidae	<i>Chrysops</i>	1														
	Tipulidae	<i>Antocha</i>															
	Dolichopodidae	<i>Dicranota</i>					8										
	Empididae	<i>Rhaphium</i>															
	Ceratopogonidae - Ceratopogoninae	<i>Hemerodromia</i>		10	10		10	9	10	10	30	40	60	20	30	20	
	(i/d)			10	10										1		
	Chironomidae	pupa	10								10						
	Tanypodinae	(i/d)	80	20	20	24	10	24			20	50	50	10	20	10	16
		<i>Ablabesmyia</i>															
		<i>Thienemannimyia gr.</i>	10	60		70	80	31			20		10	10	20	8	
	Chironomini	(i/d)		110	8	10							10	10	10	20	40
		<i>Cryptochironomus</i>	20	10			10		30		30	20					
		<i>Demicyptochironomus</i>		10	10		10	16	10					10			
		<i>Microtendipes</i>	10														
		<i>Paratendipes</i>															
		<i>Polypedilum</i>	140	160	160		150	108	511	220	290	360	160	240	930	450	88
		<i>Stictochironomus</i>															
		<i>Saetheria</i>	10	10		20				10	20	1	10	40	20	30	
	Tanytarsini	<i>Cladotanytarsus</i>	10	80	50	8	50	32	70	20	20	20		10	20	20	16
		<i>Micropsectra/Tanytarsus</i>	10			16			20								
		<i>Rheotanytarsus</i>	10	10	10	16	20	24	10	10	10		10		10	10	
		<i>Stempellina</i>														16	
		<i>Stempellinella</i>	50			8	20							20			
Orthocladiinae		(i/d)															
		<i>Corynoneura</i>	40	60	30	40	80	24	30	20	60		20		10	8	
		<i>Cricotopus/Orthocladius</i>		10													
		<i>Euryhapsis</i>															
		<i>Lopescladius</i>											10				
		<i>Parametriocnemus</i>															
		<i>Synorthocladius</i>	10														
		<i>Thienemannilla</i>											10				
		<i>Tvetenia</i>		40	20		80	88	1	40	10	40		90	20	40	8
		Diamesinae			<i>Pothastia (longimana gr.)</i>	10		8		8	20						
Terrestrial	-	-															

Benthic Invertebrate Abundance Data (numbers/Neill cylinder sample) for the MacKay River, Fall 2003.

Major Taxon	Family (subfamily/tribe)	Genus/Species	Lower Reach of the MacKay River (erosional)														
			MAR-E-1	MAR-E-2	MAR-E-3	MAR-E-4	MAR-E-5	MAR-E-6	MAR-E-7	MAR-E-8	MAR-E-9	MAR-E-10	MAR-E-11	MAR-E-12	MAR-E-13	MAR-E-14	MAR-E-15
Total			1022	1072	1221	764	1506	1378	1379	687	1165	1073	1178	876	1940	1183	780

(i/d) = immature or damaged specimen.

Benthic Invertebrate Abundance Data (numbers/Neill cylinder sample) for the MacKay River, Fall 2003.

Major Taxon	Family (subfamily/tribe)	Genus/Species	Upper Reach of the MacKay River (erosional)														
			MAR-E-16	MAR-E-17	MAR-E-18	MAR-E-19	MAR-E-20	MAR-E-21	MAR-E-22	MAR-E-23	MAR-E-24	MAR-E-25	MAR-E-26	MAR-E-27	MAR-E-28	MAR-E-29	MAR-E-30
Hydrozoa	Hydridae	<i>Hydra</i>															
Nematoda	-	-	16		8	14				20	5	12		2			25
Hirudinea	Erpobdellidae	<i>Erpobdella punctata</i>	1														
Oligochaeta	Enchytraeidae	-	6	10	8	1	5	6	50	58	26	28		1	76	20	21
	Lumbriculidae	-						18	2				5	1			
	Naididae	-	2	90	113	67	50	16	24	72	61	28	7	1	412	120	110
	Tubificidae	-							21	1							
Hydracarina	-	-	184	95	424	28	26	7	51	18	55	40	14	6	60	410	185
Ostracoda	-	-	12		8		5		4								5
Gastropoda	Ancylidae	<i>Ferrissia rivularis</i>									1					2	
	Physidae	<i>Physa</i>									1						
	Planorbidae	(i/d)						1	1	1		5	1		1		
	Valvatidae	<i>Valvata tricarinata</i>														1	
Pelecypoda	Sphaeriidae	<i>Pisidium / Sphaerium</i>	17	36	31	6	21	12	56	10	60	6	2	2	33	2	18
Ephemeroptera	Baetidae	<i>Acentrella</i>									1				1	1	
	<i>Baetis</i>	8	15	8	1	66	25	1	26	21	29	20	3	22	51	6	
	Ephemerellidae	<i>Ephemerella</i>															
	Heptageniidae	(i/d)	5		1		1							1	20		
	<i>Heptagenia</i>	4	16	28		42	19	2	29	19	34	18		20	34	19	
	<i>Rhithrogena</i>						1										
	Leptohyphidae	<i>Tricorythodes</i>	3	21	60	17	76	21		34	106	36	2		36	28	23
	Caenidae	<i>Caenis</i>															
	Leptophlebiidae	<i>Leptophlebia</i>					1		4								
Plecoptera	Chloroperlidae	(i/d)	3	6	9	1				3	1		2		27	15	13
	Perlidae	(i/d)	1		1								1				
	<i>Acroneuria</i>									1				2	1		
	<i>Claassenia sabulosa</i>	5	2	1		3	1		5	1	1	1	6	110			
	Perlodidae	<i>Isogenoides</i>	1			1	1			2				1			
	<i>Isoperla</i>	1				4											
	Pteronarcidae	<i>Pteronarcys</i>	1		1	1	1	5		4	1			1	17	1	
	Taeniopterygidae	<i>Taeniopteryx</i>					3	1									
Trichoptera	Brachycentridae	<i>Brachycentrus</i>			3			4	1	2		4		1	21	19	3
	Glossosomatidae	<i>Glossosoma</i>	5											1	10		5
	Helicopsychidae	<i>Helicopsyche</i>	1	1	7				2	8							15
	Hydropsytiidae	<i>Hydropsytiola</i>	5														5
	Hydropsychidae	(i/d)															
	<i>Hydropsyche</i>		5			1	4		2	1				3	9		
	Leptoceridae	(i/d)					2										
	Lepidostomatidae	<i>Lepidostoma</i>							2	1				1			
	Psychomyiidae	<i>Psychomyia</i>	1	10	28	7	2	3	9	12	12	6		1	11	6	11
Odonata - Anisoptera	Gomphidae	<i>Ophiogomphus</i>	5	5	6		1	8	1	7	6	3			9	10	2
Coleoptera	Elmidae	<i>Optioservus</i>						1									
Diptera	Simuliidae	<i>Simulium</i>	1										1				

Benthic Invertebrate Abundance Data (numbers/Neill cylinder sample) for the MacKay River, Fall 2003.

Major Taxon	Family (subfamily/tribe)	Genus/Species	Upper Reach of the MacKay River (erosional)														
			MAR-E-16	MAR-E-17	MAR-E-18	MAR-E-19	MAR-E-20	MAR-E-21	MAR-E-22	MAR-E-23	MAR-E-24	MAR-E-25	MAR-E-26	MAR-E-27	MAR-E-28	MAR-E-29	MAR-E-30
	Tabanidae	<i>Chrysops</i>										1					
	Tipulidae	<i>Antocha</i>							1								
		<i>Dicranota</i>											1	10		10	
	Dolichopodidae	<i>Rhaphium</i>												1			
	Empididae	<i>Hemerodromia</i>	2		16			1		2	1				43	40	36
	Ceratopogonidae - Ceratopogoninae	(i/d)			8												
	Chironomidae	pupa															
	Tanypodinae	(i/d)		5	24	3	5			2	10	8	4			5	
		<i>Ablabesmyia</i>									4						
		<i>Thienemannimyia</i> gr.	8	51	33	8	74	15	26	8	36	43	17	2	93	51	5
	Chironomini	(i/d)		5	40	1											
		<i>Cryptochironomus</i>											2				
		<i>Demicyptochironomus</i>	5	8						5	7	4	1			5	
		<i>Microtendipes</i>															
		<i>Paratendipes</i>	10	16													
		<i>Polypedilum</i>	2	5	16	8			8	2		4	2	1			10
		<i>Stictochironomus</i>	2						4		1	2			12		
		<i>Saetheria</i>	14	60	128	14		2			45	8		1	50	110	25
	Tanytarsini	<i>Cladotanytarsus</i>	12	15	32	4		4	48	56	5	4			100	30	15
		<i>Micropsectra/Tanytarsus</i>	10	10	16	1	15	2		24	40	4			60	30	15
		<i>Rheotanytarsus</i>	2				10								20	5	
		<i>Stempellina</i>															
		<i>Stempellinella</i>	6	10	40		30	2	8	14					20	25	
	Orthocladiinae	(i/d)		5	24	2				4		4	2				
		<i>Corynoneura</i>	1			1	5			2	5		1				
		<i>Cricotopus/Orthocladius</i>	1											10			
		<i>Euryhapsis</i>							5					10	1		
		<i>Lopescladius</i>	2			1								10			
		<i>Parametriocnemus</i>	20	5		1	5	8	4	12	10		2	41	40	5	
		<i>Synorthocladius</i>															
		<i>Thienemanniella</i>															
		<i>Tvetenia</i>	10		9	3			8	4				10	60	5	
	Diamesinae	<i>Potthastia (longimana</i> gr.)	2								5				1		
Terrestrial	-	-				1											
Total			362	513	1159	192	471	175	336	448	553	320	96	29	1191	1289	635

(i/d) = immature or damaged specimen.

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample [depositional] or Neill cylinder sample [erosional]) for the Ells River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Lower Reach of the Ells River (depositional)														
			ELR-D-1	ELR-D-2	ELR-D-3	ELR-D-4	ELR-D-5	ELR-D-6	ELR-D-7	ELR-D-8	ELR-D-9	ELR-D-10	ELR-D-11	ELR-D-12	ELR-D-13	ELR-D-14	ELR-D-15
Nematoda	-	-			1						8	5				10	
Oligochaeta	Enchytraeidae	-															
	Naididae	-	4	20	4			1	160	4	79	110	568	446	781	267	103
	Tubificidae	-	2	45	177	4048	21	5	60	6	142	1	351	132	47	292	289
Hydracarina	-	-	1	2									20	8			
Ostracoda	-	-															

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample [depositional] or Neill cylinder sample [erosional])
for the Ells River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Lower Reach of the Ells River (depositional)														
			ELR-D-1	ELR-D-2	ELR-D-3	ELR-D-4	ELR-D-5	ELR-D-6	ELR-D-7	ELR-D-8	ELR-D-9	ELR-D-10	ELR-D-11	ELR-D-12	ELR-D-13	ELR-D-14	ELR-D-15
Copepoda - Cyclopoida	-	-										5					
Cladocera	Macrothricidae	-	1														
Gastropoda	Ancylidae	<i>Ferrissia rivularis</i>									8				10	8	
	Planorbidae	(i/d)									3			8			
Pelecypoda	Sphaeriidae	<i>Pisidium / Sphaerium</i>				4	6		5	1				19		6	
Ephemeroptera	Baetidae	<i>Acentrella</i>															
		<i>Baetis</i>														24	
		<i>Procloeon</i>									3	1		1			
	Caenidae	<i>Caenis</i>								11		10	2				
	Heptageniidae	<i>Heptagenia</i>															
		<i>Rhithrogena</i>															
		<i>Stenonema</i>															
	Leptohyphidae	<i>Tricorythodes</i>															
	Leptophlebiidae	<i>Leptophlebia</i>															
Plecoptera	Chloroperlidae	(i/d)															
	Perlidae	<i>Acroneuria</i>															
		<i>Claassenia sabulosa</i>															
	Perlodidae	<i>Isogenoides</i>															
		<i>Isoperla</i>															
	Pteronarcyidae	<i>Pteronarcys</i>															
	Taeniopterygidae	<i>Taenioptericix</i>															
Trichoptera	Brachycnemidae	<i>Brachycentrus</i>															
	Glossosomatidae	<i>Glossosoma</i>															
	Helicopsychidae	<i>Helicopsyche</i>															
	Hydropsychidae	(i/d)															
		<i>Hydropsyche</i>							4								
	Leptoceridae	<i>Ceraclea</i>															
		<i>Mystacides</i>															
		<i>Oecetis</i>							4								
	Philopotamidae	<i>Chimara</i>															
	Polycentropodidae	<i>Neureclipsis</i>															
	Psychomyiidae	<i>Psychomyia</i>															
Odonata - Anisoptera	Aeshnidae	<i>Aeshna</i>												1			
	Gomphidae	<i>Ophiogomphus</i>										1					
Hemiptera	Corixidae	<i>Sigara</i>										1					
Diptera	Tipulidae	<i>Hexatoma</i>															
	Simuliidae	<i>Simulium</i>															
	Athericidae	<i>Atherix</i>															
	Tabanidae	<i>Chrysops</i>		2			2		2		4	2	2	10	1	2	2
	Empididae	<i>Hemerodromia</i>					4		8	2							
	Ceratopogonidae - Ceratopogoninae	(i/d)	7	2	8		4	1	8	5	9	18	1	137	31	80	32
	Ceratopogonidae - Dasyheleinae	<i>Dasyhelea</i>															
	Chironomidae	pupa															

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample [depositional] or Neill cylinder sample [erosional])
for the Ells River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Lower Reach of the Ells River (depositional)														
			ELR-D-1	ELR-D-2	ELR-D-3	ELR-D-4	ELR-D-5	ELR-D-6	ELR-D-7	ELR-D-8	ELR-D-9	ELR-D-10	ELR-D-11	ELR-D-12	ELR-D-13	ELR-D-14	ELR-D-15
Tanytropidae	Tanypodinae	(i/d)	1		4			1	4		8			24		20	
		<i>Ablabesmyia</i>	2								10		8	10	10		
		<i>Labrundinia</i>									8						8
		<i>Procladius</i>	7	1	50				5	2	26	17	72	18	66	1	17
		<i>Thienemannimyia</i> gr.															
Chironomidae	Chironomini	(i/d)									8	5					
		<i>Chironomus</i>	4		20						5	11					
		<i>Cryptochironomus</i>			4		2	2	8				8				8
		<i>Demicryptochironomus</i>															
		<i>Parachironomus</i>															
		<i>Paracladopelma</i>														10	
		<i>Paralauterborniella</i>	1		8				8		32	40	20	64	100	70	48
		<i>Paratendipes</i>														20	
		<i>Polypedilum</i>	1		65	2	18	2	40	4	152	10	70	80	270	20	169
		<i>Saetheria</i>					9										
Tanytarsini	<i>Stictochironomus</i>	1															
	Tanytarsini	(i/d)															
		<i>Rheotanytarsus</i>														10	16
		<i>Stempellina</i>												8			8
		<i>Stempelinella</i>															
Orthocladiinae	<i>Micropsectra</i> / <i>Tanytarsus</i>				8								10	8	10		16
	Orthocladiinae	(i/d)					1						10		8		16
		<i>Brillia</i>					1										
		<i>Corynoneura</i>											5				
		<i>Cricotopus</i> / <i>Orthocladius</i>										24	10				
		<i>Lopescladius</i>															
		<i>Parakiefferiella</i>			8												
		<i>Psectrocladius</i>															
		<i>Pseudosmittia</i>		1													
		<i>Rheocricotopus</i>															
Diptera	<i>Synorthocladius</i>																
		<i>Thienemanniella</i>															
		<i>Tvetenia</i>		9													
	Diamesinae	<i>Pothastia</i> (<i>longimana</i> gr.)															
Total			32	80	359	4055	61	18	316	24	525	256	1135	989	1337	808	764

(i/d) = immature or damaged specimen.

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample [depositional] or Neill cylinder sample [erosional]) for the Ells River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Upper Reach of the Ells River (erosional)														
			ELR-E- 1	ELR-E- 2	ELR-E- 3	ELR-E- 4	ELR-E- 5	ELR-E- 6	ELR-E- 7	ELR-E- 8	ELR-E- 9	ELR-E- 10	ELR-E- 11	ELR-E- 12	ELR-E- 13	ELR-E- 14	ELR-E- 15
Nematoda	-	-	20	10	20		10	20	20					10	56	10	
Oligochaeta	Enchytraeidae	-	10	20	70	10	10	60		10		20	20	10	40	30	13
	Naididae	-	290	210	410	180	262	342	116	201	280	90	83	113	434	90	76
	Tubificidae	-			20							5		1	8		52
Hydracarina	-	-	160	290	160	130	160	220	360	190	120	75	200	260	160		100
Ostracoda	-	-												10		10	
Copepoda - Cyclopoida	-	-															
Cladocera	Macrothricidae	-															
Gastropoda	Ancylidae	<i>Ferrissia rivularis</i>		1			11		40		1		21	10	24	1	10
	Planorbidae	(i/d)												2			1
Pelecypoda	Sphaeriidae	<i>Pisidium / Sphaerium</i>				10	10		20							21	
Ephemeroptera	Baetidae	<i>Acentrella</i>	11	10	10	10		1									
		<i>Baetis</i>	60	31	31	130	20	121	80	81	120	45	100	80	32	120	30
		<i>Procloeon</i>															
	Caenidae	<i>Caenis</i>															
	Heptageniidae	<i>Heptagenia</i>	11	3	10	16	1	1	2	23		20	25	1		60	25
		<i>Rhithrogena</i>				22											
		<i>Stenonema</i>	1		3		1			1	2	10	1	1	1	3	11
	Leptophyphidae	<i>Tricorythodes</i>		20	21	1			31	1		20	20	82	24	32	20
	Leptophlebiidae	<i>Leptophlebia</i>						10									
Plecoptera	Chloroperlidae	(i/d)	10	10		10		20				5					
	Perlidae	<i>Acroneuria</i>										1			1		
		<i>Claassenia sabulosa</i>										1					
	Perlodidae	<i>Isogenoides</i>			1												
		<i>Isoperla</i>		2	1	10		62		1		1	11	10		1	
	Pteronarcyidae	<i>Pteronarcys</i>			1					1						1	
	Taeniopterygidae	<i>Taenioptericix</i>	1	15			1	2	5	2		2	4	3	7	22	
Trichoptera	Brachycentridae	<i>Brachycentrus</i>		1											1		
	Glossosomatidae	<i>Glossosoma</i>		10													
	Helicopsychidae	<i>Helicopsyche</i>											1				
	Hydropsychidae	(i/d)											10				
		<i>Hydropsyche</i>	41	26	80	12	1	65	21	50		15	41	2	3	2	
	Leptoceridae	<i>Ceraclea</i>							1								
		<i>Mystacides</i>										20				20	
		<i>Oecetis</i>															
	Philopotamidae	<i>Chimara</i>			1				2		1						
	Polycentropodidae	<i>Neureclipsis</i>											1				
	Psychomyiidae	<i>Psychomyia</i>							1								
Odonata - Anisoptera	Aeshnidae	<i>Aeshna</i>															
	Gomphidae	<i>Ophiogomphus</i>	10	1	7	13	5	3	2	15	7	1	8	9	5	13	8
Hemiptera	Corixidae	<i>Sigara</i>															
Diptera	Tipulidae	<i>Hexatoma</i>		1	11								1				
	Simuliidae	<i>Simulium</i>			10	10							21				
	Athericidae	<i>Atherix</i>	1			2	1		1				1		1		

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample [depositional] or Neill cylinder sample [erosional]) for the Ells River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Upper Reach of the Ells River (erosional)																
			ELR-E- 1	ELR-E- 2	ELR-E- 3	ELR-E- 4	ELR-E- 5	ELR-E- 6	ELR-E- 7	ELR-E- 8	ELR-E- 9	ELR-E- 10	ELR-E- 11	ELR-E- 12	ELR-E- 13	ELR-E- 14	ELR-E- 15		
	Tabanidae	<i>Chrysops</i>								1									
	Empididae	<i>Hemerodromia</i>	50	70	100	21	10	20	20	20	35		20	8	20	1			
	Ceratopogonidae - Ceratopogoninae	(i/d)	20	90	40	20			20	10	40	5		24	10				
	Ceratopogonidae - Dasylheleinae	<i>Dasyhelea</i>	10																
	Chironomidae	pupa												16					
	Tanypodinae	(i/d)	10	30		10	60	60	60	10	200	10	60	10	24	80	20		
		<i>Ablabesmyia</i>					20		10		200			10					
		<i>Labrundinia</i>				10	20		10					24	10				
		<i>Procladius</i>								10									
		<i>Thienemannimyia</i> gr.			1	41	80	60	75	103	43	15	41	43	84	112	41		
	Chironomini	(i/d)						70	60	20		80			24				
		<i>Chironomus</i>																	
		<i>Cryptochironomus</i>					10		21					20		16	10		
		<i>Demicryptochironomus</i>															10		
		<i>Parachironomus</i>					10												
		<i>Paracladopelma</i>					10						20						
		<i>Paralauterborniella</i>																	
		<i>Paratendipes</i>				10													
		<i>Polypedilum</i>	40	300	80	90	210	220	182	150	320	25	181	71	272	170	110		
		<i>Saetheria</i>			50														
		<i>Stictochironomus</i>																	
	Tanytarsini	(i/d)	30																
		<i>Rheotanytarsus</i>	60	290	130	110	140	1080	521	330	640	60	100	80	200	390	710		
		<i>Stempellina</i>																	
		<i>Stempellinella</i>							40	20	40	5			24	20	20		
		<i>Micropsectra / Tanytarsus</i>			10			160		50	30	680	5		40	224	120	20	
	Orthocladiinae	(i/d)	20	20			60	20	70	60	240	20	40	30	64	60	20		
		<i>Brilla</i>																	
		<i>Corynoneura</i>										5							
		<i>Cricotopus / Orthocladius</i>			10			60	80	91	70	40		40	10	16	20	10	
		<i>Lopescladius</i>				10											10		
		<i>Parakiefferiella</i>						30	80	50		40			8	10			
		<i>Psectrocladius</i>						20		10			5	80					
		<i>Pseudosmittia</i>																	
		<i>Rheocricotopus</i>				10			40		10			80	20	8	10		
		<i>Synorthocladius</i>						40		30	20		10						
		<i>Thienemanniella</i>							20			5							
		<i>Tvetenia</i>	60	20	90	120	40	300	40	110	200	5	80	30	72	110	83		
	Diamesinae	<i>Pothastia (longimana</i> gr.)			30	21	10	10		10		1			1	8	10	20	
Total					926	1581	1348	1019	1553	2937	2059	1533	3294	517	1308	984	1916	1605	1424

(i/d) = immature or damaged specimen.

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample [depositional] or Neill cylinder sample [erosional]) for the Tar River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Lower Reach of the Tar River (depositional)														
			TAR-D-1	TAR-D-2	TAR-D-3	TAR-D-4	TAR-D-5	TAR-D-6	TAR-D-7	TAR-D-8	TAR-D-9	TAR-D-10	TAR-D-11	TAR-D-12	TAR-D-13	TAR-D-14	TAR-D-15
Nematoda	-	-				6						8	4	10			4
Hirudinea	Erpobdellidae	<i>Nephelopsis obscura</i>							1								
Oligochaeta	Enchytraeidae																
	Lumbriculidae																
	Naididae		32	3		20		96	20			28	36	10	40		
	Tubificidae	-		34	15					4	10					4	
Hydracarina	-	-				4			7		10		12	22		10	8
Ostracoda	-	-		4	1		2		3			4	8			4	
Copepoda - Cyclopoida	-	-					4		16	3				2			
Copepoda - Harpacticoida																	
Cladocera	Chydoridae	-			1												
Pelecypoda	Sphaeriidae	<i>Pisidium / Sphaerium</i>										4		1	10		
Collembola											4						
Ephemeroptera	Ameletidae	<i>Ameletus</i>															
	Baetidae	<i>Callibaetis</i>	1														
		<i>Baetis</i>						8									
Plecoptera	Heptageniidae	<i>Heptagenia</i>															
	Heptageniidae	(i/d)															
						4											
	Capniidae																
	Chloroperlidae																
	Nemouridae	<i>Nemoura</i>															
	Perlodidae	<i>Isoperla</i>															
		<i>Skwala</i>															
		<i>Isogenoides</i>															
	Pteronarcyidae	<i>Pteronarcella</i>															
Trichoptera	Brachycentridae	<i>Brachycentrus</i>								4							
		<i>Micrasema</i>															
	Glossosomatidae	<i>Glossosoma</i>															
	Hydropsychidae	<i>Hydropsyche</i>															
	Leptoceridae	<i>Ceraclea</i>															
	Lymnephilidae	<i>Hesperophylax</i>															
Hemiptera	Corixidae	<i>Sigara</i>															
Diptera	Tipulidae	<i>Dicranota</i>					8	1									
		<i>Hexatoma</i>							4								
		<i>Tipula</i>															
	Psychodidae	<i>Pericoma</i>															
	Tabanidae	<i>Chrysops</i>	1			2			1	1	1	5	2				
	Empididae	<i>Chelifera</i>															
		<i>Hemerodromia</i>	4		2		8		4	10		4	14		10	8	
	Ephydriidae	(i/d)															
	Ceratopogonidae - Ceratopogoninae	(i/d)		4	2		8			10		44	4		10	20	
	Chironomidae	pupa															
	Tanypodinae	(i/d)			2	2	56	2	4	20	4	40	2				
		<i>Ablabesmyia</i>					8		4			4					
		<i>Procladius</i>	8	11	2	8					4	2	20	20	4		
		<i>Thenemannomyia</i> gr.															
	Chironomini	(i/d)					16		16	30	8	20	14	180			
		<i>Cryptochironomus</i>		1								4					
		<i>Demicryptochironomus</i>	4				2			8							

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample [depositional] or Neill cylinder sample [erosional]) for the Tar River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Lower Reach of the Tar River (depositional)														
			TAR-D-1	TAR-D-2	TAR-D-3	TAR-D-4	TAR-D-5	TAR-D-6	TAR-D-7	TAR-D-8	TAR-D-9	TAR-D-10	TAR-D-11	TAR-D-12	TAR-D-13	TAR-D-14	TAR-D-15
<i>Dicrotendipes</i>		<i>Dicrotendipes</i>		1													
		<i>Paracladopelma</i>													18	20	4
		<i>Paralauterborniella</i>	8	1		8	2		1	16	230	20	12	12	240	30	4
		<i>Paratendipes</i>					4		1	4	10						
		<i>Phaenopsectra</i>											8	8		10	
		<i>Polypedilum</i>	12	1		52	4	24	1	8	550	69	24	62	1820	340	12
		<i>Saetheria</i>				22		40	78	192	40	44	8	16		50	4
		<i>Stictochironomus</i>			1					48				10		20	
		<i>Tanytarsini</i>					2		8	2		10		2		40	
		<i>Cladotanytarsus</i>					4						8	4	40	20	
<i>Orthocladiinae</i>		<i>Rheotanytarsus</i>															
		<i>Stempellina</i>													10		
		<i>Stempellinella</i>						24			20		48	14		30	4
		<i>Micropsectra / Tanytarsus</i>	12	12		14	2	360	9	16	80	8	80	16	20	80	
		(i/d)				4	2	96		24	40	8	8	2	20		
		<i>Brillia</i>											4	2			
		<i>Cricotopus / Orthocladius</i>				2			1								
		<i>Euryhapsis</i>															
		<i>Heterotrissocladius</i>				12		80	1		30	4		18			
		<i>Krenosmittia</i>											20	2		30	4
<i>Diamesinae</i>		<i>Nanocladius</i>												14		80	4
		<i>Parakiefferiella</i>											4	6			
		<i>Parametriocnemus</i>			36			2									
		<i>Parasmittia</i>			38			16	2	4						4	
		<i>Psectrocladius</i>					40	2	16	20		4					
		<i>Rheosmittia</i>						5	8	10			8				
		<i>Thienemannella</i>			2	2				4							
		<i>Tvetenia</i>															
		<i>Pothastia (longimana gr.)</i>															
		Total	119	52	1	238	26	920	143	386	1131	210	409	308	2381	820	96

(i/d) = immature or damaged specimen.

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample [depositional] or Neill cylinder sample [erosional]) for the Tar River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Upper Reach of the Tar River (erosional)														
			TAR-E- 1	TAR-E-2	TAR-E-3	TAR-E-4	TAR-E-5	TAR-E-6	TAR-E-7	TAR-E-8	TAR-E-9	TAR-E-10	TAR-E-11	TAR-E-12	TAR-E-13	TAR-E-14	TAR-E-15
Nematoda	-	-	10	2	6	24	10	12	5	5		20	10		20	10	32
Hirudinea	Erpobdellidae	<i>Nephelopsis obscura</i>															
Oligochaeta	Enchytraeidae			6	6	8	6	12	30	10			51	32	40	20	
	Lumbriculidae		8	4	4	2			5					3	17	48	
	Naididae			4		6	1	84	190	100	40		30	72	40	25	32
	Tubificidae	-	8		2			9		1	11			9	44		16
Hydracarina	-	-	2	2	12	5			5		10	20	24	40	5	8	
Ostracoda	-	-															
Copepoda - Cyclopoida	-	-							15		50		8		20		
Copepoda - Harpacticoida								1					8				
Cladocera	Chydoridae	-															
Pelecypoda	Sphaeriidae	<i>Pisidium / Sphaerium</i>															

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample [depositional] or Neill cylinder sample [erosional]) for the Tar River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Upper Reach of the Tar River (erosional)														
			TAR-E- 1	TAR-E-2	TAR-E-3	TAR-E-4	TAR-E-5	TAR-E-6	TAR-E-7	TAR-E-8	TAR-E-9	TAR-E-10	TAR-E-11	TAR-E-12	TAR-E-13	TAR-E-14	TAR-E-15
Collembola																	
Ephemeroptera	Ameletidae	<i>Ameletus</i>									5						
	Baetidae	<i>Callibaetis</i>															
		<i>Baetis</i>					4				10	11	10	8	1		
	Heptageniidae	<i>Heptagenia</i>	5	4	4	2	11	39	15	11	49	6	7	8	49	32	51
Plecoptera	Heptageniidae	(i/d)	6	4	8	2	2	32	15	10	50		20			10	8
	Capniidae			10	6	28	4	30	16	5	5	12		10	24	20	40
	Chloroperlidae				6	18	8	4	8	2	25	23	12	2	8	41	
	Nemouridae	<i>Nemoura</i>	2	6		7	3			115	90	21	20	16		10	32
	Perlodidae	<i>Isoperla</i>													1		
		<i>Skwala</i>					1		1	1		1		24		1	
		<i>Isogenoides</i>	3			5	1	2		4	4	2	2		1	2	
Trichoptera	Pteronarcyidae	<i>Pteronarcella</i>	3	2	3	1		3		1	1			2	2		
	Brachycentridae	<i>Brachycentrus</i>		2	1		1			38							
		<i>Micrasema</i>												20			
	Glossosomatidae	<i>Glossosoma</i>		2	3	8	2	4			15	47	2		1	4	16
	Hydropsychidae	<i>Hydropsyche</i>				1	2			10	11	11	1				
Hemiptera	Leptoceridae	<i>Ceraclea</i>														8	
	Lymnephilidae	<i>Hesperophylax</i>												1			
Diptera	Corixidae	<i>Sigara</i>								2							
	Tipulidae	<i>Dicranota</i>	4			8				6		10		8			
		<i>Hexatoma</i>															
		<i>Tipula</i>					4				10		6				
	Psychodidae	<i>Pericomia</i>	2														
	Tabanidae	<i>Chrysops</i>															
	Empididae	<i>Chelifera</i>	4	6	14	5	4	12	30	10	21	11	20		1	20	8
		<i>Hemerodromia</i>		2	4				15	15	30					10	
	Ephydriidae	(i/d)	4				2										
	Ceratopogonidae - Ceratopogoninae	(i/d)							5					20			
	Chironomidae	pupa						8									
	Tanytarsini	Tanytarsini	(i/d)						10				8	40	5	8	
			<i>Cryptochironomus</i>														
			<i>Demicyptochironomus</i>														
			<i>Dicrotendipes</i>														
	Chironomini	<i>Paracladopelma</i>	2														
		<i>Paralauterborniella</i>															
		<i>Paratendipes</i>															
		<i>Phaenopsectra</i>															
		<i>Polypedilum</i>	2			16	2	8	10			10	10	24	20	70	104
		<i>Saetheria</i>			2	7	10	32	30	96	10	40	10	48	40	20	24
		<i>Stictochironomus</i>	4			1								20		8	
		<i>Cladotanytarsus</i>	4		4	1	2				10			20			
		<i>Paratanytarsus</i>															
		<i>Rheotanytarsus</i>	38	44	102	15	30	112	85	110	380	360	410	80	900	110	248
	Stempellina	<i>Stempellina</i>			4		2		10			10	40	8	180	5	8
		<i>Stempellinella</i>							5								
		<i>Micropsectra /</i>				1	2	4	5	5	10			40		16	

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample [depositional] or Neill cylinder sample [erosional]) for the Tar River, Fall 2003

Major Taxon	Family (subfamily/tribe)	Genus/Species	Upper Reach of the Tar River (erosional)														
			TAR-E- 1	TAR-E-2	TAR-E-3	TAR-E-4	TAR-E-5	TAR-E-6	TAR-E-7	TAR-E-8	TAR-E-9	TAR-E-10	TAR-E-11	TAR-E-12	TAR-E-13	TAR-E-14	TAR-E-15
		<i>Tanytarsus</i>															
	Orthocladiinae	(i/d)						4	10	5		10		16	60	15	16
		<i>Brillia</i>															
		<i>Cricotopus / Orthocladius</i>															
		<i>Euryhapsis</i>			4	2	2	4									
		<i>Heterotriassocladus</i>											32			8	
		<i>Krenosmittia</i>	2				4		30	5	20	20		24		5	
		<i>Nanocladius</i>							10			10					
		<i>Parakiefferiella</i>			6	6	6		130		10	30	30	144	260	15	120
		<i>Parametriocnemus</i>		4	6	4		4				30	10				
		<i>Parasmittia</i>				2											
		<i>Psectrocladius</i>															
		<i>Rheosmittia</i>	4	12	10	43	28	68	55	195	160	21	110	168	280	60	88
		<i>Thienemanniella</i>								5							
		<i>Tvetenia</i>	8		2			4		10	10						
	Diamesinae	<i>Pothastia (longimana gr.)</i>							5								
Total			149	108	253	194	171	489	723	813	1019	763	825	810	2244	480	956

(i/d) = immature or damaged specimen.

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample) for the Calumet River, Fall 2003.

Major Taxon	Family (subfamily/tribe)	Genus/Species	Lower Reach of the Calumet River (depositional)													
			CAL-D-1	CAL-D-2	CAL-D-3	CAL-D-4	CAL-D-5	CAL-D-6	CAL-D-7	CAL-D-8	CAL-D-9	CAL-D-10	CAL-D-11	CAL-D-12	CAL-D-13	CAL-D-14
Nematoda	-	-						4								8
Hirudinea	Erpobdellidae	<i>Erpobdella punctata</i>									1					
Oligochaeta	Enchytraeidae	-													8	
	Naididae	-	72	5	41	16		4	40	10	88	1		2		20
	Tubificidae	-	41	1		16	4			6		3	16			4
Hydracarina	-	-							10							
Ostracoda	-	-	4	15	100	16		12		2				6		
Copepoda - Cyclopoida	-	-						4	10	10					94	
Cladocera	Daphniidae	<i>Daphnia</i>													1	
	Macrothricidae	-		5												
Amphipoda	Talitridae	<i>Hyalella azteca</i>														
Gastropoda	Lymnaeidae	<i>Stagnicola (?)</i>														
	Physidae	<i>Physa</i>	1			3										
	Planorbidae	(i/d)						5						2	4	
Pelecypoda	Sphaeriidae	<i>Pisidium / Sphaerium</i>	28	10	31			14				3	8	9		8
Ephemeroptera	Baetidae	<i>Callibaetis</i>		1												
Trichoptera	Limnephilidae (Limnephilini)	<i>Nemotaulius</i>														
	Phryganeidae	<i>Ptilostomis</i>		1						1						
Odonata - Anisoptera	Corduliidae	(i/d)									1		1			
		<i>Epitheca</i>														
Coleoptera	Haliplidae	<i>Haliplus</i>												2		
Hemiptera	Corixidae	<i>Callicorixa</i>		2				1	2		2					
Diptera	Tabanidae	<i>Chrysops</i>	3			1	2	11	13		1		9		1	12
	Chaoboridae	<i>Chaoborus</i>														
	Ceratopogonidae - Ceratopogoninae	(i/d)	8		10			76	11	2	4				20	
	Dolichopodidae	<i>Rhaphium</i>													5	

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample) for the Calumet River,
Fall 2003.

Major Taxon	Family (subfamily/tribe)	Genus/Species	Lower Reach of the Calumet River (depositional)														
			CAL-D-1	CAL-D-2	CAL-D-3	CAL-D-4	CAL-D-5	CAL-D-6	CAL-D-7	CAL-D-8	CAL-D-9	CAL-D-10	CAL-D-11	CAL-D-12	CAL-D-13	CAL-D-14	CAL-D-15
	Chironomidae	pupa								2							
	Tanypodinae	(i/d)				8		4					5				
		<i>Abalabesmyia</i>			10							5	8	5		20	
		<i>Procladius</i>	55	77	154	333	1	16		9	12		105	22		28	20
		<i>Tanypus</i>	4														
	Chironomini	(i/d)					1				4						
		<i>Chironomus</i>	1												33		
		<i>Cladopelma</i>		10	1	16					4		5				
		<i>Cryptochironomus</i>	4	5				20									
		<i>Cryptotendipes</i>	4	10		8		4		2							
		<i>Dicrotendipes</i>			1	2	1			7	24	1	6		3		
		<i>Endochironomus</i>															
		<i>Pagastiella</i>			10												
		<i>Parachironomus</i>								2							
		<i>Paracladopelma</i>						8									
		<i>Paratendipes</i>													8		
		<i>Phaenopsectra</i>													1		
		<i>Polypedilum</i>						16	250	22						20	480
		<i>Stictochironomus</i>	20	46	41	40	4	200	125	16	1					16	160
	Tanytarsini	(i/d)												2			
		<i>Cladotanytarsus</i>	24	10	10	8		8	30	6							
		<i>Constempellina</i>						8			12						
		<i>Paratanytarsus</i>															
		<i>Rheotanytarsus</i>													4	10	
		<i>Stempellina</i>													4		
		<i>Stempellinella</i>						28	20	2	4				12	110	
		<i>Micropsectra / Tanytarsus</i>	44	120	622	417	3	84	340	58	40	2	5	4	12	156	100
	Orthocladiinae	(i/d)					1					1				32	
		<i>Cricotopus / Orthocladius</i>					2									28	
		<i>Heterotrissocladius</i>							10								40
		<i>Parakiefferiella</i>				8	1	16	40	2		2		2		96	590
		<i>Parametriocnemus</i>					1		20								
		<i>Psectrocladius</i>				8											
		<i>Pseudosmittia</i>	4													4	
		<i>Rheocricotopus</i>								16				1			
		<i>Thienemanniella</i>						2									
		<i>Tvetenia</i>					2										
Terrestrial	-	-									4	2		2	3		
Total			317	318	1031	900	25	543	921	160	217	15	165	59	155	466	1562

(i/d) = immature or damaged specimen.

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample) for the Calumet River, Fall 2003.

Major Taxon	Family (subfamily/tribe)	Genus/Species	Upper Reach of the Calumet River (dep.)				
			CAL-D-16	CAL-D-17	CAL-D-18	CAL-D-19	CAL-D-20
Nematoda	-	-		8	30		10
Hirudinea	Erpobdellidae	<i>Erpobdella punctata</i>					
Oligochaeta	Enchytraeidae	-					
	Naididae	-			100	10	
	Tubificidae	-					
Hydracarina	-	-				40	
Ostracoda	-	-					
Copepoda - Cyclopoida	-	-			50		
Cladocera	Daphnidae	<i>Daphnia</i>			30		
	Macrothricidae	-					
Amphipoda	Talitridae	<i>Hyalella azteca</i>			37	1	1
Gastropoda	Lymnaeidae	<i>Stagnicola (?)</i>	1				
	Physidae	<i>Physa</i>			1		
	Planorbidae	(i/d)		1	137	12	
Pelecypoda	Sphaeriidae	<i>Pisidium / Sphaerium</i>				10	
Ephemeroptera	Baetidae	<i>Callibaetis</i>			2		
Trichoptera	Limnephilidae (Limnephilini)	<i>Nemotaulus</i>			3	1	
	Phryganeidae	<i>Ptilostomis</i>					
Odonata - Anisoptera	Corduliidae	(i/d)	1				
		<i>Epitheca</i>					
Coleoptera	Haliplidae	<i>Haliplus</i>					
Hemiptera	Corixidae	<i>Callicorixa</i>					
Diptera	Tabanidae	<i>Chrysops</i>					
	Chaoboridae	<i>Chaoborus</i>		16	8	3	6
	Ceratopogonidae - Ceratopogoninae	(i/d)	8		12	10	
	Dolichopodidae	<i>Rhaphium</i>					
	Chironomidae	pupa					
	Tanypodinae	(i/d)			20		10
		<i>Ablabesmyia</i>			10		
		<i>Procladius</i>			21	1	
		<i>Tanypus</i>	16	2	10	1	21
		(i/d)					
	Chironomini	<i>Chironomus</i>		53	4		22
		<i>Cladopelma</i>					
		<i>Cryptochironomus</i>					
		<i>Cryptotendipes</i>			41		
		<i>Dicrotendipes</i>					
		<i>Endochironomus</i>	17	20			
		<i>Pagastiella</i>					
		<i>Parachironomus</i>			100	40	10
		<i>Paracladopelma</i>					
		<i>Paratendipes</i>					
		<i>Phaenopsectra</i>					
Tanytarsini	<i>Polypedilum</i>						
		<i>Stictochironomus</i>					
		(i/d)					
		<i>Cladotanytarsus</i>					
		<i>Constempellina</i>					
		<i>Paratanytarsus</i>			30	20	
		<i>Rheotanytarsus</i>					
		<i>Stempellina</i>					
	<i>Stempelinella</i>						

Benthic Invertebrate Abundance Data (numbers/Ekman grab sample) for the Calumet River, Fall 2003.

Major Taxon	Family (subfamily/tribe)	Genus/Species	Upper Reach of the Calumet River (dep.)				
			CAL-D-16	CAL-D-17	CAL-D-18	CAL-D-19	CAL-D-20
		<i>Micropsectra / Tanytarsus</i>		16			
Orthocladiinae	(i/d)	<i>Cricotopus / Orthocladius</i>			20	10	
		<i>Heterotriassocladius</i>			40	40	
		<i>Parakiefferiella</i>					
		<i>Parametriocnemus</i>					
		<i>Psectrocladius</i>			20	10	
		<i>Pseudosmittia</i>					
		<i>Rheocricotopus</i>			11	10	
		<i>Thienemanniella</i>					
		<i>Tvetenia</i>					
					1		
Terrestrial	-	-	25	114	758	219	80
Total							

(i/d) = immature or damaged specimen.

Supporting Data Collected During the Benthic Invertebrate Surveys in the Peace-Athabasca Delta, Fall 2003

Lake	Station	Access	Sample Date	Sample Time	Location			Field Water Quality						Bottom Sediments (lab analysis)				Macro-phyte cover (%)	Macrophyte Species
					UTM E	UTM N	NAD	Dissolved Oxygen (mg/L)	Conduc-tivity (µS/cm)	pH	Water. Temp. (oC)	Water Depth (m)	Current Velocity (m/s)	Sand (%)	Silt (%)	Clay (%)	Total Organic Carbon (%)		
Big Point Channel	BPC-1	fly/boat	11-Sep-03	11:05	511903	6494506	83	8.6	280	7.6	16.6	0.3	0.0	39	45	16	0.7		
Big Point Channel	BPC-2	fly/boat	11-Sep-03		511903	6494506	83	8.6	280	7.6	16.6	0.3	0.0	39	45	16	0.7		
Big Point Channel	BPC-3	fly/boat	11-Sep-03		511903	6494506	83	8.6	280	7.6	16.6	0.3	0.0	39	45	16	0.7		
Big Point Channel	BPC-4	fly/boat	11-Sep-03		511903	6494506	83	8.6	280	7.6	16.6	0.3	0.0	39	45	16	0.7		
Big Point Channel	BPC-5	fly/boat	11-Sep-03		511903	6494506	83	8.6	280	7.6	16.6	0.3	0.0	39	45	16	0.7		
Goose Isl. Channel	GIC-1	fly/boat	11-Sep-03	9:45	509578	6494200	83	8.6	300	7.6	16.6	1.5	0.1	29	51	20	1.8		
Goose Isl. Channel	GIC-2	fly/boat	11-Sep-03		509578	6494200	83	8.6	300	7.6	16.6	1.5	0.1	29	51	20	1.8		
Goose Isl. Channel	GIC-3	fly/boat	11-Sep-03		509578	6494200	83	8.6	300	7.6	16.6	1.5	0.1	29	51	20	1.8		
Goose Isl. Channel	GIC-4	fly/boat	11-Sep-03		509578	6494200	83	8.6	300	7.6	16.6	1.5	0.1	29	51	20	1.8		
Goose Isl. Channel	GIC-5	fly/boat	11-Sep-03		509578	6494200	83	8.6	300	7.6	16.6	1.5	0.1	29	51	20	1.8		
Fletcher Channel	FLC-1	fly/boat	10-Sep-03	9:45	496413	6491574	83	9.4	300	7.6	16.0	1.5	0.1	44	38	18	1.3		
Fletcher Channel	FLC-2	fly/boat	10-Sep-03		496413	6491574	83	9.4	300	7.6	16.0	1.5	0.1	44	38	18	1.3		
Fletcher Channel	FLC-3	fly/boat	10-Sep-03		496413	6491574	83	9.4	300	7.6	16.0	1.5	0.1	44	38	18	1.3		
Fletcher Channel	FLC-4	fly/boat	10-Sep-03		496413	6491574	83	9.4	300	7.6	16.0	1.5	0.1	44	38	18	1.3		
Fletcher Channel	FLC-5	fly/boat	10-Sep-03		496413	6491574	83	9.4	300	7.6	16.0	1.5	0.1	44	38	18	1.3		

(a) - = no data.

* - approximate finish time

Supporting Data Collected During the Benthic Invertebrate Surveys in Rivers and Streams, Fall 2003

River/Stream	Station	General Habitat Type	Access	Sample Date	Sample Time	Location			Field Water Quality						Bankfull Channel Width (m)	Wetted Channel Width (m)	Habitat Type
						UTM E	UTM N	NAD	Dissolved Oxygen (mg/L)	Conduc-tivity (µS/cm)	pH	Water Temp. (°C)	Water Depth (m)	Current Velocity (m/s)			
Calumet	CAL-D-1	depositional	helicopter	14-Sep-03	16:50	460845	6362973	27	9.9	587	7.3	12.2	0.20	0.00	15	8	Pool/Bckwtr.
Calumet	CAL-D-2	depositional	helicopter	14-Sep-03	16:26	460807	6362976	27	9.6	594	7.3	12.3	0.30	0.00	40	4	Backwater
Calumet	CAL-D-3	depositional	helicopter	14-Sep-03	16:04	460781	6362958	27	9.0	590	7.3	12.2	0.22	0.00		6	Backwater
Calumet	CAL-D-4	depositional	helicopter	14-Sep-03	15:55	460778	6362944	27	9.4	572	7.3	12.6	0.20	0.00	20	2	Flat/pool
Calumet	CAL-D-5	depositional	helicopter	14-Sep-03	15:36	460713	6362970	27	11.6	567	7.4	11.6	0.05	0.30		0	Run
Calumet	CAL-D-6	depositional	helicopter	16-Sep-03	14:58	460682	6362937	27	11.6	742	7.8	7.0	0.10	0.05			Pool
Calumet	CAL-D-7	depositional	helicopter	16-Sep-03	14:36	460609	6362841	27	10.4	742	7.6	6.9	0.15	0.10			Run
Calumet	CAL-D-8	depositional	helicopter	16-Sep-03	14:23	460566	6362867	27	10.8	743	7.5	6.9	0.15	0.00			Pool
Calumet	CAL-D-9	depositional	helicopter	16-Sep-03	14:04	460507	6362847	27	13.1	746	7.8	8.0	0.20	0.05			Flat
Calumet	CAL-D-10	depositional	helicopter	16-Sep-03	13:45	460464	6362784	27	3.8	756	7.6	7.9	0.15	0.00			Flat
Calumet	CAL-D-11	depositional	helicopter	16-Sep-03	13:17	459833	6362651	27	8.9	747	7.5	7.4	0.20	0.00			Pool
Calumet	CAL-D-12	depositional	helicopter	16-Sep-03	12:43	459680	6362600	27	8.6	734	7.4	7.4	0.50	0.30			Flat
Calumet	CAL-D-13	depositional	helicopter	16-Sep-03	12:06	459681	6362595	27	6.8	727	7.5	8.2	0.20	0.00			Pool
Calumet	CAL-D-14	depositional	helicopter	16-Sep-03	11:30	459333	6362294	27	11.8	739	7.8	5.2	0.15	0.00			Pool
Calumet	CAL-D-15	depositional	helicopter	16-Sep-03	11:13	459281	6362240	27	10.2	750	8.0	5.2	0.20	0.00			Flat

Supporting Data Collected During the Benthic Invertebrate Surveys in Rivers and Streams, Fall 2003

River/Stream	Station	General Habitat Type	Access	Sample Date	Sample Time	Location			Field Water Quality						Bankfull Channel Width (m)	Wetted Channel Width (m)	Habitat Type	
						UTM E	UTM N	NAD	Dissolved Oxygen (mg/L)	Conductivity (µS/cm)	pH	Water Temp. (°C)	Water Depth (m)	Current Velocity (m/s)				
Calumet	CAL-D-16	depositional	helicopter	20-Sep-03	10:10	454122	6366325	27	4.2	476	7.3	8.1	0.85	0.00				pond
Calumet	CAL-D-17	depositional	helicopter	20-Sep-03	10:45	454040	6366312	27	3.5	466	7.3	7.9	0.75	0.00				pond
Calumet	CAL-D-18	depositional	helicopter	20-Sep-03	11:00	454040	6366332	27	3.5	609	7.3	7.8	0.79	0.00				pond
Calumet	CAL-D-19	depositional	helicopter	20-Sep-03	11:20	453995	6366375	27	2.8	494	7.3	7.6	0.88	0.00				pond
Calumet	CAL-D-20	depositional	helicopter	20-Sep-03	11:40	454096	6366341	27	3.2	746	7.3	7.9	0.86	0.00				pond
Mackay	MAR-E-1	erosional	helicopter	12-Sep-03		460855	6336470	27	10.0	329.3	7.9	15.6	0.16	0.57				riffle
Mackay	MAR-E-2	erosional	helicopter	13-Sep-02	15:05	460867	6336463	27	10.0	329.3	7.9	15.6	0.25	0.38				riffle
Mackay	MAR-E-3	erosional	helicopter	13-Sep-02	14:50	460413	6336659	27	9.6	328.8	7.9	15.7	0.22	0.48				riffle
Mackay	MAR-E-4	erosional	helicopter	13-Sep-02	14:13	460389	6336955	27	10.05	328.7	7.9	15.5	0.27	0.64				riffle
Mackay	MAR-E-5	erosional	helicopter	13-Sep-02	14:20	460395	6336981	27	10.1	328.7	7.9	15.5	0.16	0.60				riffle
Mackay	MAR-E-6	erosional	helicopter	13-Sep-02	14:28	460402	6337001	27	9.7	328.6	7.9	15.5	0.19	0.45				riffle
Mackay	MAR-E-7	erosional	helicopter	13-Sep-02	13:54	460540	6337280	27	9.7	329	7.9	15.2	0.25	0.37				riffle
Mackay	MAR-E-8	erosional	helicopter	13-Sep-02	13:40	460370	6337489	27	10.7	328	7.9	16.0	0.26	0.70				riffle
Mackay	MAR-E-9	erosional	helicopter	13-Sep-02	13:23	460357	6337951	27	9.8	329	7.8	15.0	0.15	0.28				riffle/run
Mackay	MAR-E-10	erosional	helicopter	13-Sep-02	13:00	460131	6338139	27	9.8	329	7.8	15.3	0.17	0.45				riffle
Mackay	MAR-E-11	erosional	helicopter	13-Sep-02	12:38	459642	6338462	27	8.4	329	7.8	14.7	0.20	0.41				riffle
Mackay	MAR-E-12	erosional	helicopter	13-Sep-02	12:22	459533	6338650	27	9.7	328	7.8	14.5	0.15	0.81				riffle
Mackay	MAR-E-13	erosional	helicopter	13-Sep-02	12:13	459546	6338683	27	9.7	329	7.8	14.4	0.20	0.39				riffle
Mackay	MAR-E-14	erosional	helicopter	13-Sep-02	11:50	459587	6338752	27	9.9	323	7.7	14.3	0.20	0.50				riffle
Mackay	MAR-E-15	erosional	helicopter	13-Sep-02	12:03	459591	6338778	27	9.7	328	7.9	14.3	0.25	0.62				riffle
MacKay	MAR-E-16	erosional	helicopter	17-Sep-02	9:58	449388	6319676	27	12.1	275	7.8	6.8	0.25	1.04				Riffle
MacKay	MAR-E-17	erosional	helicopter	17-Sep-02	10:13	449297	6319696	27	12.1	282	7.7	6.7	0.13	0.33				Riffle
MacKay	MAR-E-18	erosional	helicopter	17-Sep-02	10:38	449047	6319631	27	12.2	282	7.6	6.9	0.20	0.51				Riffle
MacKay	MAR-E-19	erosional	helicopter	17-Sep-02	10:53	449025	6319416	27	12.9	282	7.6	7.0	0.15	0.72				Riffle
MacKay	MAR-E-20	erosional	helicopter	17-Sep-02	11:14	449350	6319212	27	12.5	282	7.6	7.0	0.20	0.49				Riffle
MacKay	MAR-E-21	erosional	helicopter	17-Sep-02	11:31	449333	6319019	27	12.9	281	7.6	6.9	0.15	0.78				riffle
MacKay	MAR-E-22	erosional	helicopter	17-Sep-02	11:49	449128	6318976	27	12.5	280	7.7	6.9	0.15	0.34				riffle
MacKay	MAR-E-23	erosional	helicopter	17-Sep-02	12:08	448799	6319115	27	12.7	280	7.7	6.9	0.20	0.45				riffle
MacKay	MAR-E-24	erosional	helicopter	17-Sep-02	13:48	448922	6318632	27	12.8	280	7.7	7.1	0.15	0.36				riffle
MacKay	MAR-E-25	erosional	helicopter	17-Sep-02	13:57	448905	6318609	27	12.8	280	7.7	7.1	0.15	0.44				riffle
MacKay	MAR-E-26	erosional	helicopter	17-Sep-02	13:40	448945	6318603	27	12.8	280	7.7	7.1	0.15	0.35				riffle
MacKay	MAR-E-27	erosional	helicopter	17-Sep-02	13:22	448786	6318227	27	12.9	280	7.7	7.0	0.15	0.54				riffle
MacKay	MAR-E-28	erosional	helicopter	17-Sep-02	13:09	448567	6318337	27	12.5	280	7.6	7.0	0.15	0.32				riffle
MacKay	MAR-E-29	erosional	helicopter	17-Sep-02	12:58	448580	6318321	27	12.6	280	7.6	7.1	0.14	0.62				riffle
MacKay	MAR-E-30	erosional	helicopter	17-Sep-02	12:50	448550	6318365	27	12.8	280	7.7	7.1	0.15	0.52				riffle
Steepbank	STR-E-1	erosional																
Steepbank	STR-E-2	erosional																
Steepbank	STR-E-3	erosional																
Steepbank	STR-E-4	erosional																
Steepbank	STR-E-5	erosional																
Steepbank	STR-E-6	erosional																
Steepbank	STR-E-7	erosional																
Steepbank	STR-E-8	erosional							Note: Station not sampled in fall 2003 due to high water									

Supporting Data Collected During the Benthic Invertebrate Surveys in Rivers and Streams, Fall 2003

River/Stream	Station	General Habitat Type	Access	Sample Date	Sample Time	Location			Field Water Quality						Bankfull Channel Width (m)	Wetted Channel Width (m)	Habitat Type	
						UTM E	UTM N	NAD	Dissolved Oxygen (mg/L)	Conductivity (µS/cm)	pH	Water Temp. (°C)	Water Depth (m)	Current Velocity (m/s)				
Steepbank	STR-E-9	erosional																
Steepbank	STR-E-10	erosional																
Steepbank	STR-E-11	erosional																
Steepbank	STR-E-12	erosional																
Steepbank	STR-E-13	erosional																
Steepbank	STR-E-14	erosional																
Steepbank	STR-E-15	erosional																
Steepbank	STR-??-1	??																
Steepbank	STR-??-2	??																
Steepbank	STR-??-3	??																
Steepbank	STR-??-4	??																
Steepbank	STR-??-5	??																
Steepbank	STR-??-6	??				Note: Station not established or sampled in fall 2003 due to high water												
Steepbank	STR-??-7	??																
Steepbank	STR-??-8	??																
Steepbank	STR-??-9	??																
Steepbank	STR-??-10	??																
Steepbank	STR-??-11	??																
Steepbank	STR-??-12	??																
Steepbank	STR-??-13	??																
Steepbank	STR-??-14	??																
Steepbank	STR-??-15	??																
Muskeg	MUR-E-1	erosional	truck / foot	20-Sep-03	10:00	463437	6332126	27	11.0	277	7.5	8.0	0.25	0.45			riffle	
Muskeg	MUR-E-2	erosional	truck / foot	20-Sep-03	9:48	463467	6332154	27	10.9	277.4	7.6	8.0	0.15	0.70			riffle	
Muskeg	MUR-E-3	erosional	truck / foot	20-Sep-03	9:35	463583	6332611	27	11.0	277.2	7.7	8.0	0.20	0.50			riffle	
Muskeg	MUR-E-4	erosional	truck / foot	16-Sep-03	16:05	463987	6332212	27	7.2		7.1	9.3	0.22	0.58			riffle	
Muskeg	MUR-E-5	erosional	truck / foot	16-Sep-03	16:15	463944	6332096	27	7.4		7.1	9.3	0.32	0.38	16	15	riffle	
Muskeg	MUR-E-6	erosional	truck / foot	16-Sep-03	16:25	463949	6332038	27	7.3		7.1	9.3	0.32	1.01	4	5	riffle	
Muskeg	MUR-E-7	erosional	truck / foot	8-Sep-03	11:45	464074	6331668	27	9.2	366.4	7.5	16.0	0.30	0.56			riffle	
Muskeg	MUR-E-8	erosional	truck / foot	8-Sep-03	12:12	464080	6331628	27	9.1	371.5	8.0	16.0	0.25	0.35			riffle	
Muskeg	MUR-E-9	erosional	truck / foot	8-Sep-03	12:25	464036	6331651	27	9.3	372.1	8.1	15.9	0.15	0.65			riffle	
Muskeg	MUR-E-10	erosional	truck / foot	15-Sep-02	12:39	464650	6331845	27	11.2	357.9	6.5	10.2	0.07	0.42			riffle	
Muskeg	MUR-E-11	erosional	truck / foot	15-Sep-02	12:53	464661	6331915	27	10.9	358	6.6	10.2	0.18	0.49			riffle	
Muskeg	MUR-E-12	erosional	truck / foot	15-Sep-02	13:13	464935	6332178	27	10.8	256.7	6.9	10.3	0.20	0.80			riffle	
Muskeg	MUR-E-13	erosional	truck / foot	15-Sep-02	13:27	464966	6332188	27	10.8	357	7.4	10.4	0.15	0.69			riffle	
Muskeg	MUR-E-14	erosional	truck / foot	15-Sep-02	14:04	465347	6332357	27	10.2	169	7.3	11.3	0.32	0.54			riffle	
Muskeg	MUR-E-15	erosional	truck / foot	15-Sep-02	14:04	465347	6332357	27	11.0	329.7	7.2	10.5	0.18	0.62			riffle	
Muskeg	MUR-D-1	depositional	truck / boat	11-Sep-03	14:57	466428	6339399	27	8.4	380.9	7.8	13.6	0.49	0.06			run	
Muskeg	MUR-D-2	depositional	truck / boat	11-Sep-03	14:36	466466	6339614	27	8.6	380.4	7.8	13.8	0.35	0.12			run	
Muskeg	MUR-D-3	depositional	truck / boat	11-Sep-03	14:17	466625	6339568	27	6.4	382.2	7.6	14.3	0.35	0.00			flat	
Muskeg	MUR-D-4	depositional	truck / boat	11-Sep-03	13:46	466543	6339644	27	7.9	380.2	7.7	13.7	0.40	0.16			run	
Muskeg	MUR-D-5	depositional	truck / boat	11-Sep-03	13:40	466574	6339744	27	6.2	379.2	7.6	14.1	0.35	0.07			run	
Muskeg	MUR-D-6	depositional	truck / boat	11-Sep-03	13:19	466339	6340061	27	7.7	381.1	7.6	13.8	0.30	0.00			run	
Muskeg	MUR-D-7	depositional	truck / boat	11-Sep-03	12:56	466554	6339894	27	6.0	383.3	7.6	13.8	0.42	0.00			flat	

Supporting Data Collected During the Benthic Invertebrate Surveys in Rivers and Streams, Fall 2003

River/Stream	Station	General Habitat Type	Access	Sample Date	Sample Time	Location			Field Water Quality						Bankfull Channel Width (m)	Wetted Channel Width (m)	Habitat Type
						UTM E	UTM N	NAD	Dissolved Oxygen (mg/L)	Conductivity ($\mu\text{S}/\text{cm}$)	pH	Water Temp. ($^{\circ}\text{C}$)	Water Depth (m)	Current Velocity (m/s)			
Muskeg	MUR-D-8	depositional	truck / boat	11-Sep-03	12:40	466713	6339929	27	8.4	380.1	7.6	13.5	0.50	0.37			run
Muskeg	MUR-D-9	depositional	truck / boat	11-Sep-03	12:18	466712	6340009	27	8.5	380.5	7.6	13.4	0.28	0.07			Run
Muskeg	MUR-D-10	depositional	truck / boat	11-Sep-03	11:58	466674	6340042	27	8.2	380.8	7.6	13.3	0.17	0.21			run
Muskeg	MUR-D-11	depositional	truck / boat	11-Sep-03	11:42	466628	6340179	27	8.2	379.8	7.6	13.1	0.45	0.20			Run
Muskeg	MUR-D-12	depositional	truck / boat	11-Sep-03	11:20	466622	6340204	27	7.4	379.8	7.6	13.0	1.00	0.04			run
Muskeg	MUR-D-13	depositional	truck / boat	11-Sep-03	10:43	466748	6340381	27	8.0	379.8	7.6	12.9	0.50	0.25			run
Muskeg	MUR-D-14	depositional	truck / boat	11-Sep-03	10:13	466840	6340541	27	7.7	378.7	7.3	12.7	0.75	0.12			run
Muskeg	MUR-D-15	depositional	truck / boat	11-Sep-03	9:40	466941	6340542	27	6.9	377.9	7.1	12.6	0.50	0.00			run
Muskeg	MUR-D-16	depositional	helicopter	21-Sep-03	16:15	479699	6356953	27	3.4	380	7.3	9.5	0.95	0.00	10	10	Run
Muskeg	MUR-D-17	depositional	helicopter	21-Sep-03	15:46	479778	6357058	27	3.3	382	7.3	8.5	0.98	0.00	15	15	backwater
Muskeg	MUR-D-18	depositional	helicopter	21-Sep-03	15:15	479741	6357464	27	3.6	382	7.3	8.4	0.80	0.00	10	10	Backwater
Muskeg	MUR-D-19	depositional	helicopter	21-Sep-03	14:20	479946	6357710	27	3.4	384	7.3	7.7	0.50	0.00	12	10	Run
Muskeg	MUR-D-20	depositional	helicopter	21-Sep-03	14:15	480230	6357904	27	3.7	387	7.3	7.6	1.20	0.00	15	15	Run
Muskeg	MUR-D-21	depositional	helicopter	21-Sep-03	13:50	480441	6358182	27	3.5	387	7.3	7.4	1.70	0.00			run
Muskeg	MUR-D-22	depositional	helicopter	21-Sep-03	13:30	480763	6358460	27	3.7	387	7.3	7.2	0.85	0.00	10	10	backwater
Muskeg	MUR-D-23	depositional	helicopter	21-Sep-03	13:15	480922	6358670	27	3.8	391	7.3	7.3	0.10	0.00	7	7	Run
Muskeg	MUR-D-24	depositional	helicopter	21-Sep-03	13:00	480978	6358778	27	3.9	391	7.3	7.2	0.75	0.00	7	7	run
Muskeg	MUR-D-25	depositional	helicopter	21-Sep-03	12:45	480983	6358843	27	4.0	395	7.3	7.2	0.90	0.00	7	7	run
Muskeg	MUR-D-26	depositional	helicopter	21-Sep-03	12:10	481058	6358870	27	4.2	398	7.2	7.0	1.32	0.00	7	7	run
Muskeg	MUR-D-27	depositional	helicopter	21-Sep-03	11:55	481330	6358889	27	4.2	403	7.2	7.5	0.50	0.00	7	7	run
Muskeg	MUR-D-28	depositional	helicopter	21-Sep-03	11:30	481577	6358988	27	4.4	411	7.2	6.9	1.46	0.00	7	7	run
Muskeg	MUR-D-29	depositional	helicopter	21-Sep-03	11:15	481922	6359264	27	4.4	423	7.3	6.8	0.85	0.00	7	7	run
Muskeg	MUR-D-30	depositional	helicopter	21-Sep-03	10:55	482147	6359473	27	4.8	471	7.4	6.9	1.33	0.00	8	7	run
Clearwater d/s ^(b)	CLR-D-1	depositional	truck/boat	7-Sep-03	13:52	479550	6284300	27	7.6	304	7.7	17.4	0.22	0.20			run
Clearwater d/s	CLR-D-2	depositional	truck/boat	7-Sep-03	13:40	479761	6234027	27	8.7	307	7.5	17.4	0.40	0.29			run
Clearwater d/s	CLR-D-3	depositional	truck/boat	7-Sep-03	13:24	479882	6284043	27	7.7	310	7.5	17.8	0.24	0.11			Run
Clearwater d/s	CLR-D-4	depositional	truck/boat	7-Sep-03	12:54	480103	6284084	27	7.4	305	7.3	17.3	0.30	0.12			Run
Clearwater d/s	CLR-D-5	depositional	truck/boat	7-Sep-03	12:40	480215	6284195	27	8.5	302	7.6	17.0	0.30	0.36			Run
Clearwater d/s	CLR-D-6	depositional	truck/boat	7-Sep-03	12:26	480277	6284205	27	8.4	302	7.5	16.6	0.27	0.37			run
Clearwater d/s	CLR-D-7	depositional	truck/boat	7-Sep-03	12:04	480757	6284049	27	8.5	301	7.7	16.9	0.32	0.28			run
Clearwater d/s	CLR-D-8	depositional	truck/boat	7-Sep-03	11:43	480899	6283990	27	7.3	304	7.8	16.8	0.20	0.00			flat
Clearwater d/s	CLR-D-9	depositional	truck/boat	7-Sep-03	11:09	480704	6283710	27	8.1	305	7.7	17.2	0.22	0.00			flat
Clearwater d/s	CLR-D-10	depositional	truck/boat	7-Sep-03	10:05	480416	6283302	27	8.6	299	7.7	17.1	0.32	0.48			run
Clearwater d/s	CLR-D-11	depositional	truck/boat	7-Sep-03	10:30	480280	6283058	27	7.9	300	7.8	16.2	0.34	0.24			run
Clearwater d/s	CLR-D-12	depositional	truck/boat	7-Sep-03	10:10	480341	6282918	27	8.0	299	7.7	16.2	0.30	0.14			run
Clearwater d/s	CLR-D-13	depositional	truck/boat	7-Sep-03	9:37	480830	6282491	27	8.0	298	7.6	16.1	0.24	0.00			Run
Clearwater d/s	CLR-D-14	depositional	truck/boat	7-Sep-03	9:33	480843	6282484	27	8.6	295	7.5	16.1	0.22	0.41			Run
Clearwater d/s	CLR-D-15	depositional	truck/boat	7-Sep-03	9:15	480871	6282497	27	8.4	290	7.3	16.0	0.28	0.44			Run
Clearwater u/s ^(b)	CLR-D-16	depositional	boat	18-Sep-03	15:42	496124	6280526	83	9.8	200	7.2	9.3	0.15	0.27			Run
Clearwater u/s	CLR-D-17	depositional	boat	18-Sep-03	15:00	498479	6280005	83	10.0	199	7.3	9.2	0.17	0.30			run
Clearwater u/s	CLR-D-18	depositional	boat	18-Sep-03	14:48	498560	6280029	83	10.2	200	7.2	9.2	0.25	0.00			Flat
Clearwater u/s	CLR-D-19	depositional	boat	18-Sep-03	14:26	498939	6279901	83	10.5	199	7.2	9.1	0.15	0.32			Run
Clearwater u/s	CLR-D-20	depositional	boat	18-Sep-03	14:01	499249	6279881	83	10.2	199	7.2	9.1	0.30	0.15			Run
Clearwater u/s	CLR-D-21	depositional	boat	18-Sep-03	13:45	499476	6279881	83	10.4	199	7.1	9.1					

Supporting Data Collected During the Benthic Invertebrate Surveys in Rivers and Streams, Fall 2003

River/Stream	Station	General Habitat Type	Access	Sample Date	Sample Time	Location			Field Water Quality						Bankfull Channel Width (m)	Wetted Channel Width (m)	Habitat Type
						UTM E	UTM N	NAD	Dissolved Oxygen (mg/L)	Conductivity ($\mu\text{S}/\text{cm}$)	pH	Water Temp. ($^{\circ}\text{C}$)	Water Depth (m)	Current Velocity (m/s)			
Clearwater u/s	CLR-D-22	depositional	boat	18-Sep-03	13:26	499545	6279570	83	8.4	200	7.3	9.1	0.35	0.00			Run
Clearwater u/s	CLR-D-23	depositional	boat	18-Sep-03	13:13	499397	6279363	83	8.6	203	7.3	9.3	0.10	0.00			flat
Clearwater u/s	CLR-D-24	depositional	boat	18-Sep-03	12:50	499417	6279264	83	9.3	200	7.2	9.2	0.20	0.00			Flat
Clearwater u/s	CLR-D-25	depositional	boat	18-Sep-03	12:35	499576	6279114	83	10.1	200	7.1	8.9	0.50	0.09			Run
Clearwater u/s	CLR-D-26	depositional	boat	18-Sep-03	12:20	499712	6279111	83	9.9	200	7.2	9.1	0.40	0.05			Flat
Clearwater u/s	CLR-D-27	depositional	boat	18-Sep-03	11:57	499824	6279062	83	9.2	199	7.3	8.9	0.25	0.07			Run
Clearwater u/s	CLR-D-28	depositional	boat	18-Sep-03	11:40	499853	6279212	83	10.1	200	7.3	8.8	0.25	0.00			Flat
Clearwater u/s	CLR-D-29	depositional	boat	18-Sep-03	11:20	499901	6279379	83	9.5	201	7.4	8.9	0.30	0.00			Flat
Clearwater u/s	CLR-D-30	depositional	boat	18-Sep-03	11:00	499874	6279434	83	9.6	199	7.7	8.7	0.20	0.00			Flat
Christina	CHR-D-1	depositional	boat	19-Sep-03	10:02	495934	6280488	83	10.0	322	7.6	8.5	0.35	0.09			Run
Christina	CHR-D-2	depositional	boat	19-Sep-03	10:21	495993	6280329	83	10.7	320	7.6	8.4	0.35	0.33			Run
Christina	CHR-D-3	depositional	boat	19-Sep-03	10:57	495800	6280457	83	11.6	320	7.6	8.7	0.35	0.37			Run
Christina	CHR-D-4	depositional	boat	19-Sep-03	11:11	495857	6280322	83	10.8	321	7.6	8.8	0.17	0.01			Run
Christina	CHR-D-5	depositional	boat	19-Sep-03	15:44	495124	6280289	83	9.7	318	7.8	9.9	0.10	0.03			Run
Christina	CHR-D-6	depositional	boat	19-Sep-03	15:34	496186	6280290	83	10.3	319	7.7	9.7	0.15	0.19			Run
Christina	CHR-D-7	depositional	boat	19-Sep-03	15:18	496306	6280288	83	9.9	320	7.8	9.7	0.25	0.00			Flat
Christina	CHR-D-8	depositional	boat	19-Sep-03	14:51	496527	6280227	83	10.4	319	7.7	9.6	0.20	0.00			Backwater
Christina	CHR-D-9	depositional	boat	19-Sep-03	14:33	496567	6280134	83	10.1	318	7.8	9.7	0.20	0.00			Flat
Christina	CHR-D-10	depositional	boat	19-Sep-03	14:21	496671	6280086	83	10.5	319	7.8	9.6	0.30	0.24			Run
Christina	CHR-D-11	depositional	boat	19-Sep-03	14:00	496756	6280031	83	10.3	319	7.7	9.7	0.35	0.21			Run
Christina	CHR-D-12	depositional	boat	19-Sep-03	13:41	496961	6279851	83	10.1	320	7.7	9.6	0.20	0.03			Run
Christina	CHR-D-13	depositional	boat	19-Sep-03	13:25	496991	6279829	83	10.6	318	7.6	9.5	0.25	0.00			Flat
Christina	CHR-D-14	depositional	boat	19-Sep-03	13:00	497538	6279402	83	10.2	318	7.6	9.6	0.20	0.01			Flat
Christina	CHR-D-15	depositional	boat	19-Sep-03	12:47	497600	6279220	83	11.5	318	7.6	9.6	0.20	0.35			RUn
Christina	CHR-D-16	depositional	truck/boat	6-Sep-03	14:37	511743	6192189	27	9.1	273	7.9	17.7	0.25	0.48			Run
Christina	CHR-D-17	depositional	truck/boat	6-Sep-03	14:24	512714	6190921	27	9.3	275	7.9	8.1					run
Christina	CHR-D-18	depositional	truck/boat	6-Sep-03	16:09	511306	6192065	27	9.3	273	7.9	17.4	0.15	0.32			run
Christina	CHR-D-19	depositional	truck/boat	6-Sep-03	13:56	511276	6191756	27	9.1	273	7.7	17.2	0.31	0.34			Run
Christina	CHR-D-20	depositional	truck/boat	6-Sep-03	13:39	511366	6191618	27	9.4	273	7.8	17.6					run
Christina	CHR-D-21	depositional	truck/boat	6-Sep-03	13:21	511447	6191435	27	9.4	273	7.9	17.4	0.29	0.16			Run
Christina	CHR-D-22	depositional	truck/boat	6-Sep-03	13:08	511427	6191188	27	9.4	272	7.8	17.1	0.45	0.21			Run
Christina	CHR-D-23	depositional	truck/boat	6-Sep-03	12:56	511342	6191036	27	9.3	272	7.8	16.9	0.32	0.39			Run
Christina	CHR-D-24	depositional	truck/boat	6-Sep-03	12:42	511323	6191038	27	9.3	271	7.8	16.6	0.34	0.33			run
Christina	CHR-D-25	depositional	truck/boat	6-Sep-03	12:28	511173	6191110	27	9.4	271	7.9	16.3	0.33	0.55			Run
Christina	CHR-D-26	depositional	truck/boat	6-Sep-03	11:52	511135	6191435	27	9.3	271	7.7	16.1	0.26	0.35			Run
Christina	CHR-D-27	depositional	truck/boat	6-Sep-03	11:32	510819	6191623	27	9.2	269	7.7	16.0	0.34	0.55			Run
Christina	CHR-D-28	depositional	truck/boat	6-Sep-03	11:15	510409	6191647	27	9.3	268	7.6	15.7	0.37	0.45			run
Christina	CHR-D-29	depositional	truck/boat	6-Sep-03	10:57	510526	6191351	27	9.3	268	8.0	15.9	0.32	0.20			Run
Christina	CHR-D-30	depositional	truck/boat	6-Sep-03	10:14	510406	6191330	27	9.2	245	7.8	15.6	0.50	0.55			Run
Tar	TAR-D-1	depositional	boat, via Athabasca R.	16-Sep-03	16:44	458945	6353232	27	11.1	445	7.9	8.1	0.12	0.00			Flat
Tar	TAR-D-2	depositional	boat, via Athabasca R.	16-Sep-03	14:31	458919	6353266	27	9.5	444	8.0	8.4	0.05	0.00			Pool
Tar	TAR-D-3	depositional	boat, via Athabasca R.	16-Sep-03	16:20	458903	3653290	27	11.1	445	7.8	8.2	0.35	0.27			Run

Supporting Data Collected During the Benthic Invertebrate Surveys in Rivers and Streams, Fall 2003

River/Stream	Station	General Habitat Type	Access	Sample Date	Sample Time	Location			Field Water Quality						Bankfull Channel Width (m)	Wetted Channel Width (m)	Habitat Type
						UTM E	UTM N	NAD	Dissolved Oxygen (mg/L)	Conductivity (µS/cm)	pH	Water Temp. (°C)	Water Depth (m)	Current Velocity (m/s)			
Tar	TAR-D-4	depositional	truck	17-Sep-03	-	458730	6353483	27	7.7	363	7.3	7.2	0.20	0.14	8	6	Backwater
Tar	TAR-D-5	depositional	truck	17-Sep-03	15:45	458676	6353356	27	7.4	363		7.3	0.40	0.01	8	4	Backwater
Tar	TAR-D-6	depositional	truck	17-Sep-03	15:35	458556	6353310	27	7.2	362	7.2	7.5	0.20	0.16	10	6	Backwater
Tar	TAR-D-7	depositional	truck	17-Sep-03	15:20	458499	6353215	27	7.3	360	7.2	7.5	0.26	0.25	7	6	Run
Tar	TAR-D-8	depositional	truck	17-Sep-03		458450	6353798	27	7.4	362	7.1	7.5	0.20	0.26	8	5	Backwater
Tar	TAR-D-9	depositional	truck	17-Sep-03	13:55	458248	6353391	27	7.4	367	7.2	7.2	0.40	0.02	7	5	Backwater
Tar	TAR-D-10	depositional	truck	17-Sep-03	13:35	458111	6353407	27	7.72	367	7.2	7.2	0.17	0.32	9	7	Run
Tar	TAR-D-11	depositional	truck	17-Sep-03	13:05	457909	6353530	27	7.1	370	7.2	7.1	0.37	0.06	12	6	Backwater
Tar	TAR-D-12	depositional	truck	17-Sep-03	12:30	457565	6353822	27	7.2	370	7.2	7.1	0.28	0.14	7	5	Run
Tar	TAR-D-13	depositional	truck	17-Sep-03	12:00	457479	6353858	27	7.5	362	7.1	7.1	0.18	0.05	9	5	Backwater
Tar	TAR-D-14	depositional	truck	17-Sep-03	11:40	457474	6353942	27	7.7	359	7.1	7.1	0.21	0.05	9	6	Pool
Tar	TAR-D-15	depositional	truck	17-Sep-03	11:10	457518	6354162	27	8.6	360	7.1	6.9	0.33	0.08	7	6	Run
Tar	TAR-E-1	erosional	helicopter	16-Sep-03	10:00	442422	6360468	27	9.0	326	7.1	5.6	0.16	0.25	5	3	riffle
Tar	TAR-E-2	erosional	helicopter	16-Sep-03	10:10	442435	6360479	27	9.0	326	7.1	5.6	0.17	0.55	5	4	riffle
Tar	TAR-E-3	erosional	helicopter	16-Sep-03	10:20	442443	6360491	27	8.1	331	7.1	5.7	0.19	0.30	6	6	riffle
Tar	TAR-E-4	erosional	helicopter	16-Sep-03	10:35	442355	6360536	27	8.5		7.1	5.6	0.25	0.77	5	3	riffle
Tar	TAR-E-5	erosional	helicopter	16-Sep-03	11:00	442369	6360582	27	8.2		7.2	5.7	0.15	0.25	2	2	riffle
Tar	TAR-E-6	erosional	helicopter	16-Sep-03	11:10	442240	6360706	27	8.2		7.2	5.4	0.14	0.08	7	7	riffle
Tar	TAR-E-7	erosional	helicopter	16-Sep-03	11:15	442245	6360736	27	8.2		7.2	5.4	0.18	0.20	6	6	riffle
Tar	TAR-E-8	erosional	helicopter	16-Sep-03	11:35	442143	6360737	27	7.6		7.2	5.4	0.16	0.54	6	5	riffle
Tar	TAR-E-9	erosional	helicopter	16-Sep-03	11:45	442104	6360734	27	7.8		7.2	5.5	0.15	0.58	5	4	riffle
Tar	TAR-E-10	erosional	helicopter	16-Sep-03	12:00	442016	6360707	27	7.9		7.2	5.5	0.18	0.18	6	6	riffle
Tar	TAR-E-11	erosional	helicopter	16-Sep-03	12:10	441984	6360683	27	7.7		7.2	5.5	0.21	0.32	11	10	riffle
Tar	TAR-E-12	erosional	helicopter	16-Sep-03		441944	6360709	27	7.7		7.2	5.5	0.26	0.24	5	3	riffle
Tar	TAR-E-13	erosional	helicopter	16-Sep-03	12:30	441974	6360749	27	7.7		7.2	5.5	0.26	0.34	5	4	riffle
Tar	TAR-E-14	erosional	helicopter	16-Sep-03	12:40	441980	6360772	27	8.0		7.2	5.6	0.14	0.35	11	3	riffle
Tar	TAR-E-15	erosional	helicopter	16-Sep-03	13:00	441903	6360860	27	7.7		7.2	5.5	0.18	0.21	5	5	riffle
Ells	ELR-D-1	depositional	truck and walk	20-Sep-03	12:25	459417	6351363	27	10.4	242.3	7.4	8.2	0.30	0.15			Run
Ells	ELR-D-2	depositional	truck and walk	20-Sep-03	12:49	459299	6351311	27	10.1	242.5	7.4	8.2	0.10	0.00			Flat
Ells	ELR-D-3	depositional	truck and walk	20-Sep-03	11:50	459232	6351305	27	10.7	242.7	7.5	8.2	0.15	0.14			Run
Ells	ELR-D-4	depositional	truck and walk	20-Sep-03	11:24	459156	6351420	27	10.1	241	7.5	8.3	0.05	0.05			Run
Ells	ELR-D-5	depositional	truck and walk	20-Sep-03	11:07	459085	6351582	27	10.7	241.4	7.5	8.2	0.35	0.23			Run
Ells	ELR-D-6	depositional	truck and walk	15-Sep-03	16:30	458863	6351414	27	7.6	179	7.2	10.5	0.23	0.00	20	15	Run
Ells	ELR-D-7	depositional	truck and walk	15-Sep-03	16:00	458478	6351145	27	8.7	173	7.2	10.7	0.25	0.00		15	Backwater
Ells	ELR-D-8	depositional	truck and walk	15-Sep-03	15:30	458591	6351033	27	7.6	174	7.3	10.3	0.52	0.00			Backwater
Ells	ELR-D-9	depositional	truck and walk	15-Sep-03	15:10	458702	6350942	27	9.6	167	7.2	9.3	0.24	0.00			Backwater
Ells	ELR-D-10	depositional	truck and walk	15-Sep-03	14:35	458591	6350765	27	7.7	175	7.2	10.6	0.36	0.05	20	15	Run
Ells	ELR-D-11	depositional	truck and walk	15-Sep-03	14:12	458705	6350682	27	8.0	171	7.2	10.4	0.55	0.00			Backwater
Ells	ELR-D-12	depositional	truck and walk	15-Sep-03	13:50	458843	6350764	27	8.1	175	7.1	10.6	0.46	0.07	28	20	Backwater
Ells	ELR-D-13	depositional	truck and walk	15-Sep-03	12:55	458926	6350597	27	7.8	177	7.2	10.4	0.53	0.00			Backwater
Ells	ELR-D-14	depositional	truck and walk	15-Sep-03	12:40	458907	6350528	27	8.1	181	7.2	10.4	0.73	0.00			Backwater
Ells	ELR-D-15	depositional	truck and walk	15-Sep-03	12:20	458872	6350503	27	8.1	192	7.1	10.4	0.32	0.06			Run
Ells	ELR-E-1	erosional	helicopter	22-Sep-03	15:15	455550	6344550	27	9.7	241	7.7	8.8	0.24	0.43			riffle
Ells	ELR-E-2	erosional	helicopter	22-Sep-03	14:55	455654	6344655	27	9.8	241	7.7	8.8	0.32	0.25			riffle

Supporting Data Collected During the Benthic Invertebrate Surveys in Rivers and Streams, Fall 2003

River/Stream	Station	General Habitat Type	Access	Sample Date	Sample Time	Location			Field Water Quality						Bankfull Channel Width (m)	Wetted Channel Width (m)	Habitat Type
						UTM E	UTM N	NAD	Dissolved Oxygen (mg/L)	Conductivity (µS/cm)	pH	Water Temp. (°C)	Water Depth (m)	Current Velocity (m/s)			
Ells	ELR-E-3	erosional	helicopter	22-Sep-03	14:40	455732	6344597	27	9.5	241	7.8	8.7	0.23	0.51	26	25	riffle
Ells	ELR-E-4	erosional	helicopter	22-Sep-03	14:25	455688	6344539	27	9.5	241	7.7	8.8	0.18	0.72	28	25	riffle
Ells	ELR-E-5	erosional	helicopter	22-Sep-03	14:05	455544	6344458	27	9.9	241	7.7	8.7	0.14	0.18	29	25	riffle
Ells	ELR-E-6	erosional	helicopter	22-Sep-03	13:50	455463	6344423	27	9.5	241	7.7	8.7	0.14	0.40	30	25	riffle
Ells	ELR-E-7	erosional	helicopter	22-Sep-03	13:25	455672	6344284	27	9.8	241	7.6	8.5	0.25	0.24	25	20	riffle
Ells	ELR-E-8	erosional	helicopter	22-Sep-03	13:00	455776	6344358	27	9.3	241	7.7	8.5	0.24	0.58	28	25	riffle
Ells	ELR-E-9	erosional	helicopter	22-Sep-03	12:35	455742	6344012	27	9.5	241	7.7	8.2	0.33	0.22	27	20	riffle
Ells	ELR-E-10	erosional	helicopter	22-Sep-03	12:10	455629	6343924	27	9.3	241	7.6	8.2	0.22	0.62	22	20	riffle
Ells	ELR-E-11	erosional	helicopter	22-Sep-03	11:40	455599	6343692	27	9.7	241	7.6	8.2	0.24	0.50	25	20	riffle
Ells	ELR-E-12	erosional	helicopter	22-Sep-03	11:10	455243	6343604	27	9.7	241	7.5	8.1	0.23	0.23	22	20	riffle
Ells	ELR-E-13	erosional	helicopter	22-Sep-03	10:50	455143	6343907	27	9.4	242	7.5	8.1	0.23	0.22	33	30	riffle
Ells	ELR-E-14	erosional	helicopter	22-Sep-03	10:30	455203	6343570	27	9.7	242	7.5	8.0	0.37	0.43	25	20	riffle
Ells	ELR-E-15	erosional	helicopter	22-Sep-03	9:55	455166	6343409	27	9.3	163	7.8	8.1	0.10	0.60	25	20	riffle
Jackpine Creek	JAC-D-1	depositional	truck/ATV	21-Sep-03	11:07	472406	6345909	27	10.1	192.4	7.5	7.5	0.35	0.00			Backwater
Jackpine Creek	JAC-D-2	depositional	truck/ATV	21-Sep-03	11:22	472423	6345952	27	10.4	196.6	7.4	7.5	0.15	0.00			Flat
Jackpine Creek	JAC-D-3	depositional	truck/ATV	21-Sep-03	11:36	472434	6345960	27	10.8	195.2	7.4	7.5	0.15	0.05			Backwater
Jackpine Creek	JAC-D-4	depositional	truck/ATV	21-Sep-03	12:04	472465	6346057	27	10.7	195.3	7.3	7.7	0.20	0.00			Backwater
Jackpine Creek	JAC-D-5	depositional	truck/ATV	21-Sep-03	12:28	472535	6345986	27	10.1	194.8	7.2	7.6	0.35	0.11			Run
Jackpine Creek	JAC-D-6	depositional	truck/ATV	21-Sep-03	12:54	472576	6345940	27	9.8	194.8	7.3	7.6	0.65	0.22			Backwater
Jackpine Creek	JAC-D-7	depositional	truck/ATV	21-Sep-03	13:18	472547	6345913	27	11.0	195.2	7.3	7.7					Run
Jackpine Creek	JAC-D-8	depositional	truck/ATV	21-Sep-03	13:59	472818	6346056	27	10.2	194.5	7.4	8.0	0.68	0.00			Flat
Jackpine Creek	JAC-D-9	depositional	truck/ATV	21-Sep-03	14:18	472773	6345950	27	10.7	96.4	7.4	8.1	0.35	0.00			Flat
Jackpine Creek	JAC-D-10	depositional	truck/ATV	21-Sep-03	14:34	472912	6346064	27	11.1	194.1	7.4	8.2	0.23	0.25			Run
Jackpine Creek	JAC-D-11	depositional	truck/ATV	21-Sep-03	15:06	472979	6346129	27	11.1	194.1	7.3	8.3	0.62	0.22			Backwater
Jackpine Creek	JAC-D-12	depositional	truck/ATV	21-Sep-03	15:19	472974	6346088	27	11.1	193.9	7.2	8.3	0.10	0.17			run
Jackpine Creek	JAC-D-13	depositional	truck/ATV	21-Sep-03	15:33	473193	6345896	27	10.8	193.8	7.3	8.4	0.70	0.00			Backwater
Jackpine Creek	JAC-D-14	depositional	truck/ATV	21-Sep-03	16:10	473169	6345782	27	10.9	193.8	7.3	8.4	0.3	0.00			flat
Jackpine Creek	JAC-D-15	depositional	truck/ATV	21-Sep-03	16:26	473160	6345775	27	11.0	193.4	7.3	8.4	0.15	0.00			Flat
Jackpine Creek	JAC-D-16	depositional	helicopter	19-Sep-03	13:00	4800058	6325015	27	5.7	173	7.2	7.3	0.43	0.00	8	6	backwater
Jackpine Creek	JAC-D-17	depositional	helicopter	19-Sep-03	12:40	480092	6324930	27	5.7	180	7.3	7.2	0.50	0.00	6	4	backwater
Jackpine Creek	JAC-D-18	depositional	helicopter	19-Sep-03	12:00	480082	6324702	27	6.3	184	7.3	6.9	0.33	0.07	5	5	backwater
Jackpine Creek	JAC-D-19	depositional	helicopter	19-Sep-03	13:25	480097	6324720	27	5.5	178	7.2	7.3	0.74	0.01	6	6	run
Jackpine Creek	JAC-D-20	depositional	helicopter	19-Sep-03	13:45	480173	6324695	27	5.4	184	7.2	7.4	0.56	0.06	6	6	run
Jackpine Creek	JAC-D-21	depositional	helicopter	19-Sep-03	14:15	480308	6324662	27	5.2	176	7.2	7.6	0.26	0.11	5	5	backwater
Jackpine Creek	JAC-D-22	depositional	helicopter	19-Sep-03	15:20	480459	6324587	27	5.2	178	7.2	7.7	0.24	0.00	5	5	backwater
Jackpine Creek	JAC-D-23	depositional	helicopter	19-Sep-03		480488	6324589	27	5.1	166	7.3	7.7	0.32	0.27	4	4	run
Jackpine Creek	JAC-D-24	depositional	helicopter	19-Sep-03	16:00	480525	6324557	27	5.2	155	7.3	7.7	0.52	0.45	4	4	run
Jackpine Creek	JAC-D-25	depositional	helicopter	19-Sep-03	16:15	480593	6324553	27	5.1	149	7.3	7.7	0.66	0.35	4	5	run
Jackpine Creek	JAC-D-26	depositional	helicopter	19-Sep-03	16:35	480639	6324475	27	5.1	148	7.3	7.7	0.53	0.34	5	4	run
Jackpine Creek	JAC-D-27	depositional	helicopter	19-Sep-03	17:05	480688	6324372	27	5.2	145	7.2	7.8	0.43	0.16	6	6	run
Jackpine Creek	JAC-D-28	depositional	helicopter	19-Sep-03	17:15	480788	6324389	27	5.0	198	7.4	7.8	0.59	0.15	5	5	run
Jackpine Creek	JAC-D-29	depositional	helicopter	19-Sep-03	17:30	480815	6324452	27	5.1	198	7.3	7.8	0.23	0.10	5	5	run
Jackpine Creek	JAC-D-30	depositional	helicopter	19-Sep-03	17:45	480867	6324397	27	5.3	198	7.3	7.9	0.49	0.29	4	4	run
Firebag River	FIR-D-1**	depositional	heli. & boat	13-Sep-03	14:01	479051	6400936	83	9.7	241.1							

Supporting Data Collected During the Benthic Invertebrate Surveys in Rivers and Streams, Fall 2003

River/Stream	Station	General Habitat Type	Access	Sample Date	Sample Time	Location			Field Water Quality						Bankfull Channel Width (m)	Wetted Channel Width (m)	Habitat Type
						UTM E	UTM N	NAD	Dissolved Oxygen (mg/L)	Conductivity ($\mu\text{S}/\text{cm}$)	pH	Water Temp. ($^{\circ}\text{C}$)	Water Depth (m)	Current Velocity (m/s)			
Firebag River	FIR-D-2	depositional	heli. & boat	13-Sep-03	13:41	479161	6400855	83	9.4	241	7.1	13.1	0.14	0.36			run
Firebag River	FIR-D-3	depositional	heli. & boat	13-Sep-03	13:27	479287	6400819	83	9.7	239.1	7.1	12.6	0.18	0.11			run
Firebag River	FIR-D-4	depositional	heli. & boat	13-Sep-03	13:15	479289	6400769	83	9.6	240.1	7.0	12.6	0.33	0.15			Run
Firebag River	FIR-D-5	depositional	heli. & boat	13-Sep-03	13:01	479326	6400737	83	9.1	240.2	7.0	12.6	0.20	0.45			run
Firebag River	FIR-D-6	depositional	heli. & boat	13-Sep-03	12:42	479400	6400667	83	9.3	238.6	7.0	12.2	0.14	0.07			run
Firebag River	FIR-D-7	depositional	heli. & boat	13-Sep-03	12:27	479362	6400331	83	9.9	241.1	7.0	12.9	0.23	0.29			run
Firebag River	FIR-D-8	depositional	heli. & boat	13-Sep-03	12:14	479352	6400591	83	9.4	241.6	7.0	13.6	0.15	0.22			run
Firebag River	FIR-D-9	depositional	heli. & boat	13-Sep-03	11:58	479361	6400420	83	9.2	240.5	6.9	12.5	0.41	0.34			run
Firebag River	FIR-D-10	depositional	heli. & boat	13-Sep-03	11:46	479360	6400243	83	9.8	240.2	6.9	11.8	0.38	0.42			run
Firebag River	FIR-D-11	depositional	heli. & boat	13-Sep-03	11:32	479247	6400179	83	9.5	240.2	6.9	11.7	0.51	0.33			run
Firebag River	FIR-D-12	depositional	heli. & boat	13-Sep-03	11:20	479101	6400152	83	9.9	240.2	6.9	11.6	0.10	0.37			run
Firebag River	FIR-D-13	depositional	heli. & boat	13-Sep-03	11:15	478990	6400060	83	8.0	239.3	6.9	11.5	0.33	0.39			run
Firebag River	FIR-D-14	depositional	heli. & boat	13-Sep-03	11:05	478980	6399929	83	9.7	240	6.9	11.4	0.46	0.57			run
Firebag River	FIR-D-15	depositional	heli. & boat	13-Sep-03	10:25	479132	6399726	83	9.7	224.4	6.9	11.9	0.36	0.50			run
Firebag River	FIR-E-1**	erosional	helicopter	14-Sep-03	9:54			27	6.9	1.92	7.1	11.4	0.37	0.35			run/riffle
Firebag River	FIR-E-2	erosional	helicopter	14-Sep-03	10:09	531086	6354985	27	6.9	187	7.1	11.4	0.39	0.23			riffle
Firebag River	FIR-E-3	erosional	helicopter	14-Sep-03	10:19	531113	6354977	27	6.1	181	7.1	11.4	0.36	0.44			riffle
Firebag River	FIR-E-4	erosional	helicopter	14-Sep-03	10:33	531221	6354941	27	5.9	175	7.2	11.5	0.32	0.42			riffle
Firebag River	FIR-E-5	erosional	helicopter	14-Sep-03	10:53	531386	6354838	27	6.5	165	7.2	11.7	0.28	0.15			riffle
Firebag River	FIR-E-6	erosional	helicopter	14-Sep-03	11:05	531418	6354830	27	6.5	165	7.2	11.6	0.36	0.38			riffle
Firebag River	FIR-E-7	erosional	helicopter	14-Sep-03	11:17	531487	6354806	27	7.3	160	7.2	12.2	0.43	0.18			riffle
Firebag River	FIR-E-8	erosional	helicopter	14-Sep-03	11:29	531521	6354780	27	7.6	162	7.2	11.9	0.38	0.17			riffle
Firebag River	FIR-E-9	erosional	helicopter	14-Sep-03	12:18	531557	6354636	27	9.1	157	7.2	12.1	0.40	0.43			riffle
Firebag River	FIR-E-10	erosional	helicopter	14-Sep-03	12:31	531696	6354540	27	9.1	158	7.2	12.2	0.21	0.18			riffle
Firebag River	FIR-E-11	erosional	helicopter	14-Sep-03	12:47	531803	6354647	27	8.9	157	7.2	12.0	0.36	0.40			riffle
Firebag River	FIR-E-12	erosional	helicopter	14-Sep-03	13:00	531889	6354817	27	9.2	157	7.3	12.1	0.30	0.71			riffle
Firebag River	FIR-E-13	erosional	helicopter	14-Sep-03	13:16	531981	6354885	27	9.3	160	7.3	12.1	0.25	0.10			riffle
Firebag River	FIR-E-14	erosional	helicopter	14-Sep-03	13:31	532120	6354887	27	9.6	158	7.3	12.1	0.25	0.37			riffle
Firebag River	FIR-E-15	erosional	helicopter	14-Sep-03	13:40	532158	6354869	27	9.4	159	7.3	12.1	0.20	0.30			riffle
Fort Creek	FOC-D-1	depositional	boat, via Athabasca R.	13-Sep-03	10:08	461644	6362677	27	10.0	560	7.9	10.3	0.05	0.06			Run
Fort Creek	FOC-D-2	depositional	boat, via Athabasca R.	13-Sep-03		461649	6362679	27	10.0	560	7.9	10.3	0.07	0.18			Run
Fort Creek	FOC-D-3	depositional	boat, via Athabasca R.	13-Sep-03	10:59	461690	6362660	27	10.0	560	7.8	10.3	0.15	0.00			Run
Fort Creek	FOC-D-4	depositional	boat, via Athabasca R.	13-Sep-03	11:20	461696	6362658	27	10.0	560	7.9	10.3	0.10	0.07			Run
Fort Creek	FOC-D-5	depositional	boat, via Athabasca R.	13-Sep-03	11:31	461705	6362672	27	10.0	560	7.9	10.3	0.07	0.01			Run

^(a) - = no data.

^(b) Clearwater d/s = Clearwater River downstream of Christina River; Clearwater u/s = Clearwater River upstream of Christina River.

** - benthic field samples incorrectly labelled as "FBR". Changed back to "FIR" at data entry

Supporting Data Collected During the Benthic Invertebrate Surveys in Rivers and Streams, Fall 2003

River/Stream	Station	Benthic Algal Chlorophyll a (mg/m ²)	Macro-phyte cover (%)	Macrophyte Species	Bottom Sediments (lab analysis)				Substratum as Areal Cover (visual estimates)						
					Sand (%)	Silt (%)	Clay (%)	Total Organic Carbon (%)	Sand/Silt/Clay (%)	Small Gravel (%)	Large Gravel (%)	Small Cobble (%)	Large Cobble (%)	Boulder (%)	Bedrock (%)
Calumet	CAL-D-1	-	0	-	70	17	13	1.7	-	-	-	-	-	-	-
Calumet	CAL-D-2	-	0	-	75	15	10	1.6	-	-	-	-	-	-	-
Calumet	CAL-D-3	-	0	-	75	20	5	2.7	-	-	-	-	-	-	-
Calumet	CAL-D-4	-	0	-	77	18	5	2.5	-	-	-	-	-	-	-
Calumet	CAL-D-5	-	0	-	57	22	21	2.3	-	-	-	-	-	-	-
Calumet	CAL-D-6	-	0	-	85	12	3	1.8	-	-	-	-	-	-	-
Calumet	CAL-D-7	-	-	-	79	16	5	4.1	-	-	-	-	-	-	-
Calumet	CAL-D-8	-	0	-	82	13	5	3.6	-	-	-	-	-	-	-
Calumet	CAL-D-9	-	0	-	62	27	11	4.0	-	-	-	-	-	-	-
Calumet	CAL-D-10	-	0	-	73	17	10	3.4	-	-	-	-	-	-	-
Calumet	CAL-D-11	-	0	-	59	28	13	6.5	-	-	-	-	-	-	-
Calumet	CAL-D-12	-	0	-	73	18	9	4.6	-	-	-	-	-	-	-
Calumet	CAL-D-13	-	0	-	69	22	9	4.3	-	-	-	-	-	-	-
Calumet	CAL-D-14	-	0	-	75	12	13	2.4	-	-	-	-	-	-	-
Calumet	CAL-D-15	-	-	-	71	16	13	2.6	-	-	-	-	-	-	-
Calumet	CAL-D-16			cattails surrounding shore	14	40	45	4.9							
Calumet	CAL-D-17			cattails surrounding shore	31	29	40	3.9							
Calumet	CAL-D-18			cattails surrounding shore	12	35	53	6.1							
Calumet	CAL-D-19			cattails surrounding shore	21	25	53	13.0							
Calumet	CAL-D-20			cattails surrounding shore	22	38	39	5.5							
Mackay	MAR-E-1	9	20	Equisetum	-	-	-	-	5	10	40	40	15		
Mackay	MAR-E-2	12	10	Equisetum	-	-	-	-	5	5	50	30	10		
Mackay	MAR-E-3	38	20	grass	-	-	-	-		25	50	20	5		
Mackay	MAR-E-4	10	5		-	-	-	-	15	50	30	5			
Mackay	MAR-E-5	6	0	-	-	-	-	-	15	50	30	5			
Mackay	MAR-E-6	17	0	-	-	-	-	-	10	60	20	10			
Mackay	MAR-E-7	36	0	-	-	-	-	-	20	70	10				
Mackay	MAR-E-8	8	0	-	-	-	-	-	10	50	30	10			
Mackay	MAR-E-9	6	5	-	-	-	-	-	5	25	65	5			
Mackay	MAR-E-10	18	20	-	-	-	-	-	10	40	50				
Mackay	MAR-E-11	6	0	-	-	-	-	-	40	50	10				
Mackay	MAR-E-12	8	0	-	-	-	-	-	20	20	60				
Mackay	MAR-E-13	12	0	-	-	-	-	-	20	30	50				
Mackay	MAR-E-14	4	0	-	-	-	-	-	20	60	10		10		
Mackay	MAR-E-15	22	0	-	-	-	-	-	20	60	10		10		
MacKay	MAR-E-16	1	0	-	-	-	-	-	5	10	25	50	10		
MacKay	MAR-E-17	1	0	-	-	-	-	-	10	20	50	20			
MacKay	MAR-E-18	3	0	-	-	-	-	-	10	10	50	30			
MacKay	MAR-E-19	3	0	-	-	-	-	-	20	20	50	10			
MacKay	MAR-E-20	<1	5	-	-	-	-	-	20	10	50	20			
MacKay	MAR-E-21	3	0	-	-	-	-	-	20	10	50	20			
MacKay	MAR-E-22	<1	0	-	-	-	-	-	10	20	60	10			
MacKay	MAR-E-23	3	0	-	-	-	-	-	10	10	60	20			
MacKay	MAR-E-24	5	0	-	-	-	-	-	10	80	10				

Supporting Data Collected During the Benthic Invertebrate Surveys in Rivers and Streams, Fall 2003

River/Stream	Station	Benthic Algal Chlorophyll a (mg/m ²)	Macro-phyte cover (%)	Macrophyte Species	Bottom Sediments (lab analysis)				Substratum as Areal Cover (visual estimates)						
					Sand (%)	Silt (%)	Clay (%)	Total Organic Carbon (%)	Sand/Silt/Clay (%)	Small Gravel (%)	Large Gravel (%)	Small Cobble (%)	Large Cobble (%)	Boulder (%)	Bedrock (%)
MacKay	MAR-E-25	<1	0	-	-	-	-	-		20	40	40			
MacKay	MAR-E-26	<1	0	-	-	-	-	-	20	20	25	30	5		
MacKay	MAR-E-27	<1	0	-	-	-	-	-		10	70	20			
MacKay	MAR-E-28	3	0	-	-	-	-	-		10	10	60	20		
MacKay	MAR-E-29	21	0	-	-	-	-	-		10	20	50	10		
MacKay	MAR-E-30	6	0	-	-	-	-	-		10	20	50	20		
Steepbank	STR-E-1														
Steepbank	STR-E-2														
Steepbank	STR-E-3														
Steepbank	STR-E-4														
Steepbank	STR-E-5														
Steepbank	STR-E-6														
Steepbank	STR-E-7														
Steepbank	STR-E-8														
Steepbank	STR-E-9														
Steepbank	STR-E-10														
Steepbank	STR-E-11														
Steepbank	STR-E-12														
Steepbank	STR-E-13														
Steepbank	STR-E-14														
Steepbank	STR-E-15														
Steepbank	STR-??-1														
Steepbank	STR-??-2														
Steepbank	STR-??-3														
Steepbank	STR-??-4														
Steepbank	STR-??-5														
Steepbank	STR-??-6														
Steepbank	STR-??-7														
Steepbank	STR-??-8														
Steepbank	STR-??-9														
Steepbank	STR-??-10														
Steepbank	STR-??-11														
Steepbank	STR-??-12														
Steepbank	STR-??-13														
Steepbank	STR-??-14														
Steepbank	STR-??-15														
Muskeg	MUR-E-1	<1	0	-	-	-	-	-	20	60	20				
Muskeg	MUR-E-2	<1	0	-	-	-	-	-	20	30	50				
Muskeg	MUR-E-3	<1	0	-	-	-	-	-	20	20	60				
Muskeg	MUR-E-4	2	0	-	-	-	-	-	15	50	20	10	5		
Muskeg	MUR-E-5	3	0	-	-	-	-	-	5	15	45	30	5		
Muskeg	MUR-E-6	2	0	-	-	-	-	-	10	20	50	30			
Muskeg	MUR-E-7	3	0	-	-	-	-	-	10	70	20				
Muskeg	MUR-E-8	2	0	-	-	-	-	-	10	70	20				
Muskeg	MUR-E-9	2	0	-	-	-	-	-	10	70	20				

Supporting Data Collected During the Benthic Invertebrate Surveys in Rivers and Streams, Fall 2003

River/Stream	Station	Benthic Algal Chlorophyll a (mg/m ²)	Macro-phyte cover (%)	Macrophyte Species	Bottom Sediments (lab analysis)				Substratum as Areal Cover (visual estimates)						
					Sand (%)	Silt (%)	Clay (%)	Total Organic Carbon (%)	Sand/Silt/Clay (%)	Small Gravel (%)	Large Gravel (%)	Small Cobble (%)	Large Cobble (%)	Boulder (%)	Bedrock (%)
Muskeg	MUR-E-10	<1	0	-	-	-	-	-	10	80	10	-	-	-	-
Muskeg	MUR-E-11	<1	0	-	-	-	-	-	20	70	10	-	-	-	-
Muskeg	MUR-E-12	<1	0	-	-	-	-	-	10	10	70	10	-	-	-
Muskeg	MUR-E-13	<1	5	-	-	-	-	-	10	10	50	30	-	-	-
Muskeg	MUR-E-14	<1	0	-	-	-	-	-	10	20	60	10	-	-	-
Muskeg	MUR-E-15	3	0	-	-	-	-	-	10	20	60	10	-	-	-
Muskeg	MUR-D-1	-	30		95	4	1	1.0	-	-	-	-	-	-	-
Muskeg	MUR-D-2	-	0		95	3	1	0.6	-	-	-	-	-	-	-
Muskeg	MUR-D-3	-	80		92	4	4	0.6	-	-	-	-	-	-	-
Muskeg	MUR-D-4	-	0		98	1	1	<0.1	-	-	-	-	-	-	-
Muskeg	MUR-D-5	-	30		97	2	1	<0.1	-	-	-	-	-	-	-
Muskeg	MUR-D-6	-	0		96	3	1	0.3	-	-	-	-	-	-	-
Muskeg	MUR-D-7	-	30		95	4	1	1.3	-	-	-	-	-	-	-
Muskeg	MUR-D-8	-	0		74	17	9	<0.1	-	-	-	-	-	-	-
Muskeg	MUR-D-9	-	0		98	1	1	<0.1	-	-	-	-	-	-	-
Muskeg	MUR-D-10	-	0		97	2	1	<0.1	-	-	-	-	-	-	-
Muskeg	MUR-D-11	-	0		98	<1	1	<0.1	-	-	-	-	-	-	-
Muskeg	MUR-D-12	-	0		97	2	1	4.6	-	-	-	-	-	-	-
Muskeg	MUR-D-13	-	0	-	71	20	9	<0.1	-	-	-	-	-	-	-
Muskeg	MUR-D-14	-	10		97	2	1	1.4	-	-	-	-	-	-	-
Muskeg	MUR-D-15	-	20	-	82	11	7	1.5	-	-	-	-	-	-	-
Muskeg	MUR-D-16	-	20	-	78	8	14	13	-	-	-	-	-	-	-
Muskeg	MUR-D-17	-	20		41	19	40	27.5	-	-	-	-	-	-	-
Muskeg	MUR-D-18	-	0		19	24	57	31.3	-	-	-	-	-	-	-
Muskeg	MUR-D-19	-	0	-	92	2	6	7.2	-	-	-	-	-	-	-
Muskeg	MUR-D-20	-	25	broad leaf grass	51	17	32	27.6	-	-	-	-	-	-	-
Muskeg	MUR-D-21	-	20		49	12	39	24.6	-	-	-	-	-	-	-
Muskeg	MUR-D-22	-	20		24	25	51	30.4	-	-	-	-	-	-	-
Muskeg	MUR-D-23	-	10		46	13	42	34.5	-	-	-	-	-	-	-
Muskeg	MUR-D-24	-	0		86	4	9	35.6	-	-	-	-	-	-	-
Muskeg	MUR-D-25	-	0		29	20	51	22.5	-	-	-	-	-	-	-
Muskeg	MUR-D-26	-	0	-					-	-	-	-	-	-	-
Muskeg	MUR-D-27	-			84	5	10	35.5	-	-	-	-	-	-	-
Muskeg	MUR-D-28	-	0		87	3	10	16.9	-	-	-	-	-	-	-
Muskeg	MUR-D-29	-	30		3	51	46	6.5	-	-	-	-	-	-	-
Muskeg	MUR-D-30	-	60		23	42	35	29.7	-	-	-	-	-	-	-
Clearwater d/s ^(b)	CLR-D-1	-	0		95	1	4	<0.1	-	-	-	-	-	-	-
Clearwater d/s	CLR-D-2	-	0	-	88	7	5	1.8	-	-	-	-	-	-	-
Clearwater d/s	CLR-D-3	-	10		55	30	15	1.2	-	-	-	-	-	-	-
Clearwater d/s	CLR-D-4	-	0		43	41	16	1.3	-	-	-	-	-	-	-
Clearwater d/s	CLR-D-5	-	0	-	97	1	2	<0.1	-	-	-	-	-	-	-
Clearwater d/s	CLR-D-6	-	0		97	<1	2	<0.1	-	-	-	-	-	-	-
Clearwater d/s	CLR-D-7	-	0		97	1	2	<0.1	-	-	-	-	-	-	-
Clearwater d/s	CLR-D-8	-	10		40	42	18	1.5	-	-	-	-	-	-	-
Clearwater d/s	CLR-D-9	-	0		80	14	7	0.3	-	-	-	-	-	-	-

Supporting Data Collected During the Benthic Invertebrate Surveys in Rivers and Streams, Fall 2003

River/Stream	Station	Benthic Algal Chlorophyll a (mg/m ²)	Macro-phyte cover (%)	Macrophyte Species	Bottom Sediments (lab analysis)				Substratum as Areal Cover (visual estimates)						
					Sand (%)	Silt (%)	Clay (%)	Total Organic Carbon (%)	Sand/Silt/Clay (%)	Small Gravel (%)	Large Gravel (%)	Small Cobble (%)	Large Cobble (%)	Boulder (%)	Bedrock (%)
Clearwater d/s	CLR-D-10	-	0	-	98	<1	2	<0.1	-	-	-	-	-	-	-
Clearwater d/s	CLR-D-11	-	10	-	57	30	13	0.8	-	-	-	-	-	-	-
Clearwater d/s	CLR-D-12	-	5	-	32	47	22	1.8	-	-	-	-	-	-	-
Clearwater d/s	CLR-D-13	-	0	-	72	18	10	0.8	-	-	-	-	-	-	-
Clearwater d/s	CLR-D-14	-	0	-	97	1	2	<0.1	-	-	-	-	-	-	-
Clearwater d/s	CLR-D-15	-	0	-	98	<1	2	<0.1	-	-	-	-	-	-	-
Clearwater u/s ^(b)	CLR-D-16	-	30	-	90	5	5	0.8	-	-	-	-	-	-	-
Clearwater u/s	CLR-D-17	-	20	-	100	<1	<1	<0.1	-	-	-	-	-	-	-
Clearwater u/s	CLR-D-18	-	50	-	49	38	13	3.0	-	-	-	-	-	-	-
Clearwater u/s	CLR-D-19	-	0	-	99	3	<1	<0.1	-	-	-	-	-	-	-
Clearwater u/s	CLR-D-20	-	0	-	99	2	<1	<0.1	-	-	-	-	-	-	-
Clearwater u/s	CLR-D-21	-	30	-	100	1	<1	<0.1	-	-	-	-	-	-	-
Clearwater u/s	CLR-D-22	-	50	-	48	34	18	3.9	-	-	-	-	-	-	-
Clearwater u/s	CLR-D-23	-	80	-	92	5	3	0.5	-	-	-	-	-	-	-
Clearwater u/s	CLR-D-24	-	80	Equisetum	92	6	2	0.5	-	-	-	-	-	-	-
Clearwater u/s	CLR-D-25	-	50	-	47	34	19	0.7	-	-	-	-	-	-	-
Clearwater u/s	CLR-D-26	-	20	-	56	29	15	2.9	-	-	-	-	-	-	-
Clearwater u/s	CLR-D-27	-	0	-	94	5	1	1.0	-	-	-	-	-	-	-
Clearwater u/s	CLR-D-28	-	0	-	96	5	<1	0.3	-	-	-	-	-	-	-
Clearwater u/s	CLR-D-29	-	0	-	92	7	1	0.2	-	-	-	-	-	-	-
Clearwater u/s	CLR-D-30	-	20	-	98	5	<1	0.2	-	-	-	-	-	-	-
Christina	CHR-D-1	-	0	-	67	21	11	0.5	-	-	-	-	-	-	-
Christina	CHR-D-2	-	0	-	73	16	11	0.9	-	-	-	-	-	-	-
Christina	CHR-D-3	-	0	-	61	26	13	1.3	-	-	-	-	-	-	-
Christina	CHR-D-4	-	20	-	97	5	<1	<0.1	-	-	-	-	-	-	-
Christina	CHR-D-5	-	70	-	62	28	10	1.2	-	-	-	-	-	-	-
Christina	CHR-D-6	-	5	-	62	27	11	1.0	-	-	-	-	-	-	-
Christina	CHR-D-7	-	10	-	81	14	5	1.1	-	-	-	-	-	-	-
Christina	CHR-D-8	-	0	-	97	4	<1	0.3	-	-	-	-	-	-	-
Christina	CHR-D-9	-	0	-	83	11	6	0.5	-	-	-	-	-	-	-
Christina	CHR-D-10	-	0	-	49	31	20	1.5	-	-	-	-	-	-	-
Christina	CHR-D-11	-	30	-	61	27	12	1.1	-	-	-	-	-	-	-
Christina	CHR-D-12	-	20	-	77	14	9	1.1	-	-	-	-	-	-	-
Christina	CHR-D-13	-	0	-	77	13	11	0.9	-	-	-	-	-	-	-
Christina	CHR-D-14	-	15	-	69	19	12	0.7	-	-	-	-	-	-	-
Christina	CHR-D-15	-	10	-	48	36	15	1.3	-	-	-	-	-	-	-
Christina	CHR-D-16	-	0	-	97	<1	2	<0.1	-	-	-	-	-	-	-
Christina	CHR-D-17	-	0	-	97	<1	3	<0.1	-	-	-	-	-	-	-
Christina	CHR-D-18	-	0	-	97	1	2	<0.1	-	-	-	-	-	-	-
Christina	CHR-D-19	-	0	-	98	<1	2	<0.1	-	-	-	-	-	-	-
Christina	CHR-D-20	-	0	-	95	2	2	<0.1	-	-	-	-	-	-	-
Christina	CHR-D-21	-	0	-	98	<1	2	<0.1	-	-	-	-	-	-	-
Christina	CHR-D-22	-	0	-	98	<1	2	<0.1	-	-	-	-	-	-	-
Christina	CHR-D-23	-	0	-	98	<1	2	<0.1	-	-	-	-	-	-	-
Christina	CHR-D-24	-	0	-	98	1	1	<0.1	-	-	-	-	-	-	-

Supporting Data Collected During the Benthic Invertebrate Surveys in Rivers and Streams, Fall 2003

River/Stream	Station	Benthic Algal Chlorophyll a (mg/m ²)	Macro-phyte cover (%)	Macrophyte Species	Bottom Sediments (lab analysis)				Substratum as Areal Cover (visual estimates)						
					Sand (%)	Silt (%)	Clay (%)	Total Organic Carbon (%)	Sand/Silt/Clay (%)	Small Gravel (%)	Large Gravel (%)	Small Cobble (%)	Large Cobble (%)	Boulder (%)	Bedrock (%)
Christina	CHR-D-25	-	0		97	1	2	0.1	-	-	-	-	-	-	-
Christina	CHR-D-26	-	0	-	98	<1	2	<0.1	-	-	-	-	-	-	-
Christina	CHR-D-27	-	0	-	97	<1	2	<0.1	-	-	-	-	-	-	-
Christina	CHR-D-28	-	0	-	98	1	2	<0.1	-	-	-	-	-	-	-
Christina	CHR-D-29	-	0	-	98	<1	2	<0.1	-	-	-	-	-	-	-
Christina	CHR-D-30	-	0	-	98	1	1	<0.1	-	-	-	-	-	-	-
Tar	TAR-D-1	-			51	27	22	2.1	-	-	-	-	-	-	-
Tar	TAR-D-2	-			60	19	21	1.1	-	-	-	-	-	-	-
Tar	TAR-D-3	-			87	6	7	0.2	-	-	-	-	-	-	-
Tar	TAR-D-4	-			90	5	5	<0.1	-	-	-	-	-	-	-
Tar	TAR-D-5	-	0	-	87	8	6	0.2	-	-	-	-	-	-	-
Tar	TAR-D-6	-			85	12	3	0.2	-	-	-	-	-	-	-
Tar	TAR-D-7	-			95	4	1	<0.1	-	-	-	-	-	-	-
Tar	TAR-D-8	-			77	12	11	0.8	-	-	-	-	-	-	-
Tar	TAR-D-9	-			95	2	3	<0.1	-	-	-	-	-	-	-
Tar	TAR-D-10	-			91	4	5	0.1	-	-	-	-	-	-	-
Tar	TAR-D-11	-			71	24	5	0.2	-	-	-	-	-	-	-
Tar	TAR-D-12	-			87	6	7	<0.1	-	-	-	-	-	-	-
Tar	TAR-D-13	-	0		86	7	7	0.3	-	-	-	-	-	-	-
Tar	TAR-D-14	-	5		75	10	15	0.9	-	-	-	-	-	-	-
Tar	TAR-D-15	-	5		85	9	5	<0.1	-	-	-	-	-	-	-
Tar	TAR-E-1	<1	0		-	-	-	-		20	30	40	10		
Tar	TAR-E-2	<1	0		-	-	-	-		20	30	40	10		
Tar	TAR-E-3	<1	0		-	-	-	-		10	20	50	20		
Tar	TAR-E-4	<1	0		-	-	-	-		10	25	40		25	
Tar	TAR-E-5	<1	0		-	-	-	-		10	20	30	30	10	
Tar	TAR-E-6	<1	0		-	-	-	-		5	30	30	25		
Tar	TAR-E-7	2	0		-	-	-	-		20		20	20		
Tar	TAR-E-8	<1	0		-	-	-	-		20	40	20	20		
Tar	TAR-E-9	26	0		-	-	-	-		10	20	40	20	10	
Tar	TAR-E-10	<1	0		-	-	-	-		10	10	30	30	10	
Tar	TAR-E-11	5	0		-	-	-	-		5	20	50	20	5	
Tar	TAR-E-12	<1	0		-	-	-	-		10	15	40	20	5	
Tar	TAR-E-13	<1	5	aquatic moss	-	-	-	-		10	20	40	30		
Tar	TAR-E-14	13	0		-	-	-	-		10	20	30	40		
Tar	TAR-E-15	6	0		-	-	-	-		10	20	20	30	10	10
Ells	ELR-D-1	-	0	-	24	27	49	14.5	-	-	-	-	-	-	-
Ells	ELR-D-2	-	80		72	18	10	1.3	-	-	-	-	-	-	-
Ells	ELR-D-3	-	0		52	31	17	2.0	-	-	-	-	-	-	-
Ells	ELR-D-4	-	20		40	39	21	4.3	-	-	-	-	-	-	-
Ells	ELR-D-5	-	0		100	3	<1	0.3	-	-	-	-	-	-	-
Ells	ELR-D-6	-	0		83	10	7	0.5	-	-	-	-	-	-	-
Ells	ELR-D-7	-	5		76	13	11	1.0	-	-	-	-	-	-	-
Ells	ELR-D-8	-	10		90	5	5	0.8	-	-	-	-	-	-	-
Ells	ELR-D-9	-	20		69	20	11	1.1	-	-	-	-	-	-	-

Supporting Data Collected During the Benthic Invertebrate Surveys in Rivers and Streams, Fall 2003

River/Stream	Station	Benthic Algal Chlorophyll a (mg/m ²)	Macro-phyte cover (%)	Macrophyte Species	Bottom Sediments (lab analysis)				Substratum as Areal Cover (visual estimates)						
					Sand (%)	Silt (%)	Clay (%)	Total Organic Carbon (%)	Sand/Silt/Clay (%)	Small Gravel (%)	Large Gravel (%)	Small Cobble (%)	Large Cobble (%)	Boulder (%)	Bedrock (%)
Ells	ELR-D-10	-	30		91	5	4	0.7	-	-	-	-	-	-	-
Ells	ELR-D-11	-	20	milfoil / duckweed / horsetail	57	26	17	1.8	-	-	-	-	-	-	-
Ells	ELR-D-12	-	20		57	29	14	1.5	-	-	-	-	-	-	-
Ells	ELR-D-13	-	10		60	28	12	0.8	-	-	-	-	-	-	-
Ells	ELR-D-14	-	10	-	72	20	8	1.6	-	-	-	-	-	-	-
Ells	ELR-D-15	-	25	-	66	25	9	1.5	-	-	-	-	-	-	-
Ells	ELR-E-1	34	0		-	-	-	-	5	25	30	30	10		
Ells	ELR-E-2	13	10	grass	-	-	-	-	10	20	30	50			
Ells	ELR-E-3	30	0		-	-	-	-	20	50	30				
Ells	ELR-E-4	81	0		-	-	-	-	5	10	30	40	15		
Ells	ELR-E-5	47	0		-	-	-	-	10	20	40	30			
Ells	ELR-E-6	52	10	moss	-	-	-	-	10	10	30	30	20		
Ells	ELR-E-7	83	50	moss	-	-	-	-	10	20	30	25	15		
Ells	ELR-E-8	82	10	broad leaf grass	-	-	-	-							
Ells	ELR-E-9	48	10		-	-	-	-		20	20	30	30		
Ells	ELR-E-10	42	20	mare's tail	-	-	-	-		5	30	50	15		
Ells	ELR-E-11	8	20		-	-	-	-	10	10	20	40	30		
Ells	ELR-E-12	18	5		-	-	-	-		20	40	40			
Ells	ELR-E-13	18	30	mare's tail, broad leaf grass	-	-	-	-	10	10	30	40	10		
Ells	ELR-E-14	30	20	sago pond weed	-	-	-	-	10	10	40	30	10		
Ells	ELR-E-15	33	10	sago pond weed	-	-	-	-	10	20	40	20	10		
Jackpine Creek	JAC-D-1	-	0	-	68	24	8	3.0	-	-	-	-	-	-	-
Jackpine Creek	JAC-D-2	-	0	-	59	30	11	4.1	-	-	-	-	-	-	-
Jackpine Creek	JAC-D-3	-	0	-	75	18	7	3.7	-	-	-	-	-	-	-
Jackpine Creek	JAC-D-4	-	10	-	58	31	11	5.0	-	-	-	-	-	-	-
Jackpine Creek	JAC-D-5	-	0		97	4	<1	0.7	-	-	-	-	-	-	-
Jackpine Creek	JAC-D-6	-	0	-	100	2	<1	0.5	-	-	-	-	-	-	-
Jackpine Creek	JAC-D-7	-	0	-	97	5	<1	1.5	-	-	-	-	-	-	-
Jackpine Creek	JAC-D-8	-	0	-	61	29	10	3.1	-	-	-	-	-	-	-
Jackpine Creek	JAC-D-9	-	0	-	74	20	6	2.6	-	-	-	-	-	-	-
Jackpine Creek	JAC-D-10	-	0	-	99	3	<1	1.2	-	-	-	-	-	-	-
Jackpine Creek	JAC-D-11	-	0	-	95	6	<1	1.2	-	-	-	-	-	-	-
Jackpine Creek	JAC-D-12	-	0	-	100	1	<1	0.7	-	-	-	-	-	-	-
Jackpine Creek	JAC-D-13	-	0	-	96	7	<1	1.0	-	-	-	-	-	-	-
Jackpine Creek	JAC-D-14	-	0	-	100	4	<1	0.4	-	-	-	-	-	-	-
Jackpine Creek	JAC-D-15	-	0	-	98	3	<1	1.3	-	-	-	-	-	-	-
Jackpine Creek	JAC-D-16		40	blade grass	58	24	18	1.6							
Jackpine Creek	JAC-D-17		10		15	36	49	2.0							
Jackpine Creek	JAC-D-18		10		46	31	23	2.6							
Jackpine Creek	JAC-D-19		0		35	38	27	2.7							
Jackpine Creek	JAC-D-20		20		42	31	26	1.5							
Jackpine Creek	JAC-D-21		0		97	2	1	0.3							
Jackpine Creek	JAC-D-22		5		93	3	4	0.5							
Jackpine Creek	JAC-D-23		10	horsetail	98	1	1	0.2							
Jackpine Creek	JAC-D-24		10	horsetail	94	3	3	0.9							

Supporting Data Collected During the Benthic Invertebrate Surveys in Rivers and Streams, Fall 2003

River/Stream	Station	Benthic Algal Chlorophyll a (mg/m ²)	Macro-phyte cover (%)	Macrophyte Species	Bottom Sediments (lab analysis)				Substratum as Areal Cover (visual estimates)						
					Sand (%)	Silt (%)	Clay (%)	Total Organic Carbon (%)	Sand/Silt/Clay (%)	Small Gravel (%)	Large Gravel (%)	Small Cobble (%)	Large Cobble (%)	Boulder (%)	Bedrock (%)
Jackpine Creek	JAC-D-25		20		88	6	6	2.1							
Jackpine Creek	JAC-D-26		0		100	<1	<1	<0.1							
Jackpine Creek	JAC-D-27		0		97	1	2	<0.1							
Jackpine Creek	JAC-D-28		0		94	2	4	<0.1							
Jackpine Creek	JAC-D-29		0		54	27	19	2.9							
Jackpine Creek	JAC-D-30		0		100	3	<1	<0.1							
Firebag River	FIR-D-1**		0		34	53	13	3.8							
Firebag River	FIR-D-2		0		93	5	3	0.2							
Firebag River	FIR-D-3		0		57	34	9	2.2							
Firebag River	FIR-D-4		0		79	17	4	1.3							
Firebag River	FIR-D-5		0		97	2	1	<0.1							
Firebag River	FIR-D-6		20		75	20	5	1.4							
Firebag River	FIR-D-7		0		96	3	1	0.1							
Firebag River	FIR-D-8		5		98	1	1	<0.1							
Firebag River	FIR-D-9		15		90	8	2	0.2							
Firebag River	FIR-D-10		0		97	2	1	<0.1							
Firebag River	FIR-D-11		10		45	46	9	2.4							
Firebag River	FIR-D-12		0		96	3	1	0.4							
Firebag River	FIR-D-13		0		98	1	1	<0.1							
Firebag River	FIR-D-14		0		98	1	1	<0.1							
Firebag River	FIR-D-15		0		95	4	1	<0.1							
Firebag River	FIR-E-1**	<1	25	long, wavy grass	-	-	-	-		30	60	10			
Firebag River	FIR-E-2	<1	25	long, wavy grass	-	-	-	-		30	60	10			
Firebag River	FIR-E-3	4	30		-	-	-	-		30	60	10			
Firebag River	FIR-E-4	<1	20		-	-	-	-	10	20	20	40	10		
Firebag River	FIR-E-5	3	20		-	-	-	-	10	10	20	30	30		
Firebag River	FIR-E-6	<1	10		-	-	-	-	10	20	20	30	20		
Firebag River	FIR-E-7	<1	10		-	-	-	-	20	20	40	20			
Firebag River	FIR-E-8	4	10		-	-	-	-	15	15	20	20	30		
Firebag River	FIR-E-9	<1	30		-	-	-	-	10	10	20	30	30		
Firebag River	FIR-E-10	<1	50		-	-	-	-	10	15	15	40	10	10	
Firebag River	FIR-E-11	<1	30		-	-	-	-	20	30	40	10			
Firebag River	FIR-E-12	<1	0		-	-	-	-		20	40	20	20		
Firebag River	FIR-E-13	<1	20		-	-	-	-	10	30	50	10			
Firebag River	FIR-E-14	<1	30		-	-	-	-	10	20	30	30	10		
Firebag River	FIR-E-15	<1	20		-	-	-	-	10	10	30	40	10		
Fort Creek	FOC-D-1	-	0	-	75	16	9	1.9	-	-	-	-	-	-	-
Fort Creek	FOC-D-2	-	0	-	71	18	11	3.3	-	-	-	-	-	-	-
Fort Creek	FOC-D-3	-	0	-	75	15	10	3.1	-	-	-	-	-	-	-
Fort Creek	FOC-D-4	-	0	-	80	13	8	2.4	-	-	-	-	-	-	-
Fort Creek	FOC-D-5	-	0	-	77	14	9	2.7	-	-	-	-	-	-	-

(a) - = no data.

(b) Clearwater d/s = Clearwater River downstream of Christina River; Clearwater u/s = Clearwater River upstream of Christina River.

** - benthic field samples incorrectly labelled as "FBR". Changed back to "FIR" at data entry

Supporting Data Collected During the Benthic Invertebrate Surveys in Lakes, Fall 2003

Lake	Station	Access	Sample Date	Sample Time	Location			Water Depth (m)	Field Water Quality				Bottom Sediments (lab analysis)				Macro-phyte cover (%)	Macrophyte Species
					UTM E	UTM N	NAD		Dissolved Oxygen (mg/L)	Conduc-tivity (µS/cm)	pH	Water. Temp (oC)	Sand (%)	Silt (%)	Clay (%)	Total Organic Carbon (%)		
Kearl	KEL-1	truck/boat	10-Sep-03	10:42	484914	6350792	27	1.3	5.5	170	7.3	16.0	14	33	53	38.4		
Kearl	KEL-2	truck/boat	10-Sep-03		484956	6350829	27	1.3	-	-	-	-	16	31	53	38.7		
Kearl	KEL-3	truck/boat	10-Sep-03		485068	6350890	27	1.5	-	-	-	-	14	39	48	34.7		
Kearl	KEL-4	truck/boat	10-Sep-03		485583	6351117	27	1.5	-	-	-	-	20	33	48	37.5		
Kearl	KEL-5	truck/boat	10-Sep-03		485739	6350945	27	1.8	-	-	-	-	-	-	-	39.7		
Kearl	KEL-6	truck/boat	10-Sep-03		486124	6350323	27	2.1	-	-	-	-	-	-	-	30.5		
Kearl	KEL-7	truck/boat	10-Sep-03		484931	6350687	27	1.5	-	-	-	-	-	-	-	38.1		
Kearl	KEL-8	truck/boat	10-Sep-03		484963	6350397	27	1.8	-	-	-	-	-	-	-	38.7		
Kearl	KEL-9	truck/boat	10-Sep-03		485001	6350128	27	2.0	6.9	178	7.1	15.9	7	38	55	34.5		
Kearl	KEL-10	truck/boat	10-Sep-03		485203	6349978	27	2.0					-	-	-	33		
<hr/>																		
McClelland	MCL-1	truck/boat	14-Sep-03	10:48	478738	6371497	83	2.0	9.4	252	-	14.0	70	14	16	24.7		
McClelland	MCL-2	truck/boat	14-Sep-03		478277	6371112	83	1.7	-	-	-	-	39	27	34	42.2		
McClelland	MCL-3	truck/boat	14-Sep-03		477824	6370637	83	1.7	8.4	253	-	13.9	41	21	38	45		
McClelland	MCL-4	truck/boat	14-Sep-03		478788	6371927	83	1.6	-	-	-	-	14	37	49	33.6		
McClelland	MCL-5	truck/boat	14-Sep-03		480460	6374361	83	1.8	-	-	-	-	24	34	42	26.4		
McClelland	MCL-6	truck/boat	14-Sep-03		480657	6374399	83	1.7	-	-	-	-	12	55	34	83.4		
McClelland	MCL-7	truck/boat	14-Sep-03		480795	6374452	83	2.5	-	-	-	-	95	2	3	<0.1		
McClelland	MCL-8	truck/boat	14-Sep-03		480944	6374090	83	2.7	9.3	256	-	14.6	20	40	40	31.9		
McClelland	MCL-9	truck/boat	14-Sep-03		481155	6373870	83	2.5	-	-	-	-	-	-	-	32.4		
McClelland	MCL-10	truck/boat	14-Sep-03		481384	6373886	83	1.8	-	-	-	-	-	-	-	30.9		
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Shipyard	SHL-1	truck/boat	9-Sep-03	10:16	473628	6312892	27	2.2	3.5	418	7.3	16.3	8	41	51	4.7		
Shipyard	SHL-2	truck/boat	9-Sep-03		473567	6312904	27	2.1	-	-	-	-	3	43	54	14.7		
Shipyard	SHL-3	truck/boat	9-Sep-03		473628	6312877	27	2.0	-	-	-	-	9	38	53	6.8		
Shipyard	SHL-4	truck/boat	9-Sep-03		473635	6312871	27	2.0		-	-	-	5	40	55	5.9		
Shipyard	SHL-5	truck/boat	9-Sep-03		473643	6312894	27	2.0	3.2	427	7.4	16.7	5	48	47	19.2		
Shipyard	SHL-6	truck/boat	9-Sep-03		473615	6312889	27	2.0	-	-	-	-	4	36	60	8.4		
Shipyard	SHL-7	truck/boat	9-Sep-03		473624	6312865	27	2.0	-	-	-	-	12	39	49	6.6		
Shipyard	SHL-8	truck/boat	9-Sep-03		473629	6312846	27	2.0	-	-	-	-	17	35	48	7.6		
Shipyard	SHL-9	truck/boat	9-Sep-03		473628	6312819	27	2.0	-	-	-	-	17	34	49	7.8		
Shipyard	SHL-10	truck/boat	9-Sep-02		473608	6312808	27	2.0	4.0	426	7.3	17.2	2	43	54	5.9		

(a) - = no data.