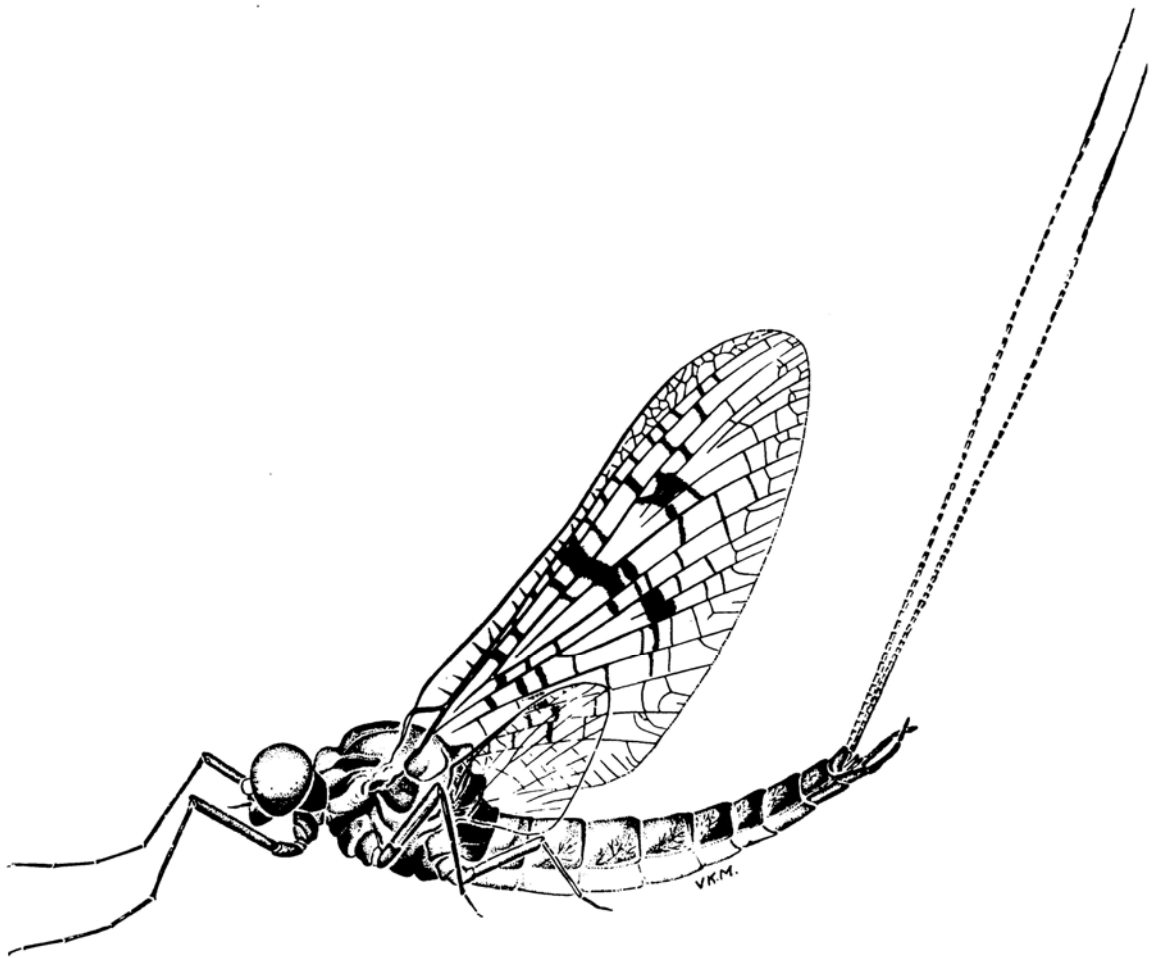


Technical Report No. 03-05

**Aquatic Baselines Sampling, Wulik River Drainage.
Volume II: Appendices of Tabulated Data**

by **Phyllis Weber Scannell
and Alvin G. Ott**



April 2006

Alaska Department of Natural Resources
Office of Habitat Management and Permitting

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Appendix 1. Station 207

Water quality and biological data from Ikalukrok Creek at Cub Creek, Station 207.

Sample	Sample	Lab	Ag	Al	Alk	As	Ca	Cd	Cl	Cl	Cr	Cu	Fe	K	Mg	Mn
Date	Number		µg/L	µg/L	mg/L CaCO3	µg/L	mg/L	µg/L	mg/L	Q	µg/L	µg/L	µg/L	mg/L	mg/L	µg/L
6/4/00	00-205	CTE&E		1,050	<2	1	7.7	4.9	0.9	54.7		15.5	5480	0.7	5	1250
6/12/00	(Field Result)															
6/22/00	00-288	CTE&E	<0.2	1,460	<2			22.8		217	<5	24.6	9620			2100
7/16/00	00-1352	CTE&E		1,500	6.6	<10	32.3	17.4	1.2	865		24.9	8910	<2.5	25.3	1780
8/25/00	00-1697	CTE&E	<2	1,680	<2	20.4	23.6	26.9	<5	234	<12.5	27.6	17600	<2.5	16.9	1240
8/31/00	00-1740	CTE&E	<2	1,980	<2	10.7	28.5	25.2	<5	232	<12.5	29.2	16300	<2.5	20.2	1360
9/10/00	00-1818	CTE&E	<2	1,250	<2	10.4	20.5	18.6	<5	160	<12.5	19.1	12200	<2.5	13.4	1120
9/23/00	00-1927	CTE&E	<2	3,640	<2	<10	31.3	46.3	<5	264	<12.5	48.4	25300	<2.5	20.2	1810
10/6/00	00-2055	CTE&E	<2	1,890	<2	<10	31.8	27.3	<5	290	<12.5	25.9	13900	<2.5	21	1320
6/1/01	01-1485	CTE&E		1,240	<10		10	6.5	<10	87.5		9.7	8160	1	6.5	1020
6/24/01	01-1863	CAS		1,560	<2		13.1	25.4	0.7	151		28.3	17000	<2	9.1	989
7/13/01	01-2050	CTE&E	<2.5	2,150	<5	11.3	28.1	28.5	<5	320	10.6	39.2	16800	0.7	19.9	1420
7/26/01	01-2213	CAS		1,490	3		25.7	15.7	0.4	213		20.9	9460	<2	17.9	1420
8/3/01	01-2335	CTE&E		795	11.5		19.3	11	<2.5	163		16.5	5520	<0.5	12	929
8/19/01	01-2530	CAS		3,110	<2		21.5	40.5	0.5	9.2		66.7	31400	<2	13.3	985
9/13/01	01-2692	CAS								167						
9/22/01	01-2866	CAS		1,410	4		27	15.2	0.5	195		23.1	9210	<2	18.1	1210
10/9/01	(Field Result)	Field								265						
10/9/01	01-2979	CTE		2,560	2.5		38.2	29.1	<5			34.6	12,400	0.7	26.5	1,560
10/28/01	(Field Result)	Field								401						
10/28/01	01-3216	CAS		858	<2		61.7	28.5	0.8			19.1	575	< 2	35.3	1,390
12/8/01	(Field Result)	Field								259						
12/8/01	01-3446	CTE	<1	53.3	67	<1.5	48.8	1.7	2.5		<4	1.4	90.1	< 0.5	27.9	15

Ikalukrok Creek at Cub Creek, Station 207.

				Alk									
Sample	Sample	Lab	Al	mg/L	Ca	Cd	Cl	Cl	Cu	Fe	K	Mg	Mn
Date	Number		µg/L	CaCO3	mg/L	µg/L	mg/L	Q	µg/L	µg/L	mg/L	mg/L	µg/L
5/26/02	(Field Result)	Field						58.1					
5/26/02	02-1702	CAS											
5/26/02	02-1702	CTE	482	<5	2.9	3.4	0.4		6.3	3,900	<0.5	1.6	392
5/31/02	(Field Result)	Field											
6/1/02	(Field Result)	Field						82.5					
6/14/02	02-2062	CAS											
6/14/02	02-2062	CTE	657	5	9.4	9	<2		8	5,340	<0.5	6.1	647
6/14/02	(Field Result)	Field											
6/21/02	(Field Result)	Field											
6/27/02	(Field Result)	Field						181					
6/27/02	02-2302	CAS	1,020	2	15.5	12.5	0.4		9.8	6,380	<2	10.4	813
7/16/02	(Field Result)	Field						281					
7/16/02	02-2565	CAS											
7/16/02	02-2565	CTE	820	<10	16.1	10.1	<2		9.8	5,890	<0.5	10.4	637
7/28/02	(Field Result)	Field						261					
8/24/02	(Field Result)	Field						283					
8/24/02	02-3162	CAS	1,130	7	27.8	14.7	0.7		12.6	5,440	<2	20.9	1,240
9/11/02	(Field Result)	Field						138					
9/11/02	02-3395	CTE	389	21	14.4	4.9	0.6		6.4	2,660	<0.5	8.8	520
9/22/02	(Field Result)	Field						134					
9/22/02	02-3632	CAS	717	10	19	8.9	0.6		9	3,820	<2	12.2	652
10/6/02	(Field Result)	Field						160					
10/23/02	(Field Result)	Field						216					
10/23/02	02-4046	CAS	1,120	6	31.3	17.2	0.6		13.4	6,750	<2	20.9	963

Ikalukrok Creek at Cub Creek, Station 207.

									Analyzed	Summation			
Sample	Sample	Na	Ni	NO ₂ +NO ₃	pH	Pb	Se	SO ₄	TDS	TDS	Tot P	TSS	Zn
Date	Number	mg/L	µg/L	mg/L		µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L
6/4/00	00-205	0.9	46.5	0.6	5.8	5.7	2.5	55.5		77	<0.2	25.6	2,070
6/12/00	(Field Result)												
6/22/00	00-288		126	0.6	6	6.8	5	169	266	181	<0.2		6,660
7/16/00	00-1352	4.3	161	1.2	6.3	8.4	3	230	314	312		18.6	5,160
8/25/00	00-1697	3.5	86.6	<5	5.9	10.8	2	184	262	247	0.2		6,590
8/31/00	00-1740	4	110	<5	6.2	9	1	188	274	258	<0.2		6,690
9/10/00	00-1818	2.9	76.3	<5	6	8.1	2	133	190	183	<0.2		4,660
9/23/00	00-1927	3.9	126	<5	5.3	10.8	1	283	344	366	<0.2		14,000
10/6/00	00-2055	3.8	112	<5	5.5	5.6	2	277	328	349	<0.2		7,990
6/1/01	01-1485	1.6	54	<10	6.4	7.4	1	53.4	<50	82		35.2	2,150
6/24/01	01-1863	1.8	63.8	<0.2	5.6	8.5	1.6	94.3	151	137		18	6,800
7/13/01	01-2050	3.8	110	<5	5.5	9.9	2.1	209	330	280		27.2	7,700
7/26/01	01-2213	3.6	86.5	<0.2	6.7	4.7	1	155	216	217		19	4,870
8/3/01	01-2335	2.7	63.9	<2.5	6.1	4.1	1		126	54		14.4	2,800
8/19/01	01-2530	3.1	64.6	<0.2	5.1	14.8	1.1	180	275	251		28	11,800
9/13/01	01-2692				6.8		1.6						
9/22/01	01-2866	3.7	83.9	<0.2	7.2	5.1	1	149	253	214		18	4,580
10/9/01	(Field Result)				5.9								
10/9/01	01-2979						<1						
10/9/01	01-2979	4.7	132	<5		4.2		225	368			19.6	8,670
10/28/01	(Field Result)				5.4								
10/28/01	01-3216	5.9	242	<0.2		2.2	1.3	319	432			<5	9,970
12/8/01	(Field Result)				6.5								
12/8/01	01-3446						<1						
12/8/01	01-3446	6.1	45.7	2.2		0.5		186	<800		< 0.2	3.2	856

Ikalukrok Creek at Cub Creek, Station 207.

									Analyzed		
Sample	Sample	Na	Ni	NO ₂ +NO ₃	pH	Pb	Se	SO ₄	TDS	TSS	Zn
Date	Number	mg/L	µg/L	mg/L		µg/L	µg/L	mg/L	mg/L	mg/L	µg/L
5/26/02	02-1702	0.5	17	0.2	6	4.1	<1	20.9	<50	19.6	1,050
5/31/02	(Field Result)										
6/1/02	(Field Result)				6.5						
6/14/02	02-2062						<1				
6/14/02	02-2062	1.5	37.5			8.6		56.7	106	11.6	2,540
6/14/02	(Field Result)										
6/21/02	(Field Result)										
6/27/02	(Field Result)				6.4						
6/27/02	02-2302	2.3	54.8	<0.2		6.6	<1	93	144	10	3,850
7/16/02	(Field Result)				6.5						
7/16/02	02-2565						<1				
7/16/02	02-2565	2.4	47.1	<2		5.8		87.9	139	12.4	3,050
7/16/02	(Field Result)										
7/28/02	(Field Result)				7						
7/28/02	(Field Result)										
8/6/02	(Field Result)										
8/24/02	(Field Result)										
8/24/02	(Field Result)				6.4						
8/24/02	02-3162	3.8	97.8	<0.2		6.8	1.2	172	241	14	4,110
9/11/02	(Field Result)				6.7						
9/11/02	02-3395						1.5				
9/11/02	02-3395	2.2	37.2	0.3		6.3		62.6	97.5	8.4	1,390
9/11/02	(Field Result)										
9/22/02	(Field Result)										
9/22/02	02-3632	3	48.5	<0.2		6	<1	91	159	9	2,520
10/6/02	(Field Result)				6.6						
10/6/02	02-3859						<1				
10/23/02	(Field Result)				6.6						
10/23/02	02-4046	4.1	80.9	<0.2		2.2	<1	175	196	10	5,540

Estimates of Periphyton biomass from Ikalukrok Creek near Cub Creek, Station 207. Sample size was 0.0025 m², extract volume was 0.01 liters.

			Fluor.					Spect.	Spect.	Spect.
Site	Date	Fluor	Chlor <i>a</i>					Chlor <i>a</i>	Chlor <i>b</i>	Chlor <i>c</i>
	Collected	Reading.	mg/m ²	750	664	647	630	mg/m ²	mg/m ²	mg/m ²
Station 207	26-Jun-97	0	0		<MDL					
Station 207	26-Jun-97	0	0		<MDL					
Station 207	26-Jun-97	0	0		<MDL					
Station 207	26-Jun-97	0	0		<MDL					
Station 207	26-Jun-97	0	0		<MDL					
Station 207	26-Jun-97	0	0		<MDL					
Station 207	26-Jun-97	0	0		<MDL					
Station 207	26-Jun-97	0	0		<MDL					
Station 207	26-Jun-97	0	0		<MDL					
Station 207	26-Jun-97	0	0		<MDL					
Station 207	30-Jul-97	0	0		<MDL					
Station 207	30-Jul-97	0	0		<MDL					
Station 207	30-Jul-97	0	0		<MDL					
Station 207	30-Jul-97	3.9	0.65		<MDL					
Station 207	30-Jul-97	0	0		<MDL					
Station 207	30-Jul-97	0	0		<MDL					
Station 207	30-Jul-97	0	0		<MDL					
Station 207	30-Jul-97	0	0		<MDL					
Station 207	30-Jul-97	0	0		<MDL					
Station 207	30-Jul-97	0	0		<MDL					

Ikalukrok Creek at Cub Creek, Station 207. Sample size was 0.0025 m², extract volume was 0.01 liters.

			Fluor.					Spect.	Spect.	Spect.
Site	Date	Fluor	Chlor <i>a</i>					Chlor <i>a</i>	Chlor <i>b</i>	Chlor <i>c</i>
	Collected	Reading.	mg/m ²	750	664	647	630	mg/m ²	mg/m ²	mg/m ²
Station 207	26-Jun-98	0.4	0		<MDL					
Station 207	26-Jun-98	0.12	0		<MDL					
Station 207	26-Jun-98	0.14	0		<MDL					
Station 207	26-Jun-98	0.12	0		<MDL					
Station 207	26-Jun-98	0.15	0		<MDL					
Station 207	26-Jun-98	0.15	0		<MDL					
Station 207	26-Jun-98	0.17	0		<MDL					
Station 207	26-Jun-98	0.12	0		<MDL					
Station 207	26-Jun-98	0.1	0		<MDL					
Station 207	26-Jun-98	0.12	0		<MDL					
Station 207	25-Jul-98	1.2	0		<MDL					
Station 207	25-Jul-98	0.25	0		<MDL					
Station 207	25-Jul-98	0.24	0		<MDL					
Station 207	25-Jul-98	0.1	0		<MDL					
Station 207	25-Jul-98	0.11	0		<MDL					
Station 207	25-Jul-98	0.06	0		<MDL					
Station 207	25-Jul-98	0.1	0		<MDL					
Station 207	25-Jul-98	0.58	0		<MDL					
Station 207	25-Jul-98	0.34	0		<MDL					
Station 207	25-Jul-98	0.19	0		<MDL					

Ikalukrok Creek at Cub Creek, Station 207. Sample size was 0.0025 m², extract volume was 0.01 liters.

			Fluor.					Spect.	Spect.	Spect.
Site	Date	Fluor	Chlor <i>a</i>					Chlor <i>a</i>	Chlor <i>b</i>	Chlor <i>c</i>
	Collected	Reading.	mg/m ²	750	664	647	630	mg/m ²	mg/m ²	mg/m ²
Station 207	07-Jul-00	0.02	0		<MDL					
Station 207	07-Jul-00	0.07	0		<MDL					
Station 207	07-Jul-00	0.03	0		<MDL					
Station 207	07-Jul-00	0.09	0		<MDL					
Station 207	07-Jul-00	0.69	0		<MDL					
Station 207	07-Jul-00	0.03	0		<MDL					
Station 207	07-Jul-00	0.02	0		<MDL					
Station 207	07-Jul-00	0.06	0		<MDL					
Station 207	07-Jul-00	0.02	0		<MDL					
Station 207	07-Jul-00	0.11	0		<MDL					
Station 207	06-Jul-01			0	0.002	0.002	0.001	0.08	0.11	0.02
Station 207	06-Jul-01			0.003	0.005	0.005	0.005	0.08	0.10	0.12
Station 207	06-Jul-01			0.002	0.004	0.005	0.004	0.07	0.18	0.09
Station 207	06-Jul-01			0.002	0.004	0.005	0.004	0.07	0.18	0.09
Station 207	06-Jul-01			0.002	0.004	0.004	0.004	0.08	0.10	0.12
Station 207	06-Jul-01			0.003	0.005	0.006	0.005	0.07	0.18	0.09
Station 207	06-Jul-01			0.001	0.003	0.003	0.004	0.08	0.09	0.22
Station 207	06-Jul-01			0	0.002	0.002	0.002	0.08	0.10	0.12
Station 207	06-Jul-01			0.003	0.006	0.006	0.006	0.12	0.15	0.18
Station 207	06-Jul-01			0.004	0.006	0.006	0.006	0.08	0.10	0.12

Ikalukrok Creek at Cub Creek, Station 207. Sample size was 0.0025 m², extract volume was 0.01 liters.

Site	Date	750	664	647	630	Mg Chlor-a	Mg Chlor-b	Mg Chlor-c
	Collected					/m2	/m2	/m2
Station 207	07-Jul-02	0.004	0.003	0.003	0.002	0	0	0
Station 207	07-Jul-02	0.001	0	0	0	0	0	0
Station 207	07-Jul-02	0.004	0.004	0.004	0.004	0	0	0
Station 207	07-Jul-02	0.003	0.003	0.003	0.003	0	0	0
Station 207	07-Jul-02	0.002	0.002	0.001	0.001	0	0	0
Station 207	07-Jul-02	0.002	0.001	0	0	0	0	0
Station 207	07-Jul-02	0.004	0.005	0.005	0.005	0	0	0
Station 207	07-Jul-02	0.005	0.005	0.005	0.005	0	0	0
Station 207	07-Jul-02	0.004	0.004	0.004	0.004	0	0	0
Station 207	07-Jul-02	0.001	0.001	0.001	0.001	0	0	0

June 26, 1997. Ikalukrok Creek at Cub Creek, Station 207.

	Water Volume (m3) =		133.0		91.8		50.5		94.2		156.7	
	Proportion of sample		0.5		0.25		1		0.25		0.25	
	Taxon	Net #	1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	55		21		50		66		75	
Plecoptera	Capniidae	<i>Capnia</i>	8		5		10		15		23	
	Nemouridae	<i>Nemoura</i>					1		1		2	
	Perlodidae	<i>Alloperla</i>			3		1		5		10	
Diptera	Chironomidae	larvae	239	52	139	41	314	44	257	54	351	81
	Chironomidae	pupae	12		4		9		12		9	
	Tipulidae	<i>Tipula</i>		2			3		3		6	
	Simuliidae	<i>Simulium</i>	9		8		11		13		30	
Coleoptera	Hydrophilidae larvae		1	1			2		2	1	2	1
Collembola	Poduridae	<i>Podura</i>	2		1		6		5		3	
		<i>Sminthurus</i>					1				1	
Lepidoptera	Pyralidae					1		2				2
Acari	Acarina		8		6		12		9		31	
Oligochaeta								2				
Terrestrial Diptera				19		9		46		49		44
Hymenoptera				10		6		20		15		28
Homoptera	Cicadellidae							2		2		1

July 30, 1997. Ikalukrok Creek at Cub Creek, Station 207.

	Water Volume (m3) =		381.5		88.0		289.0		213.0		296.0	
	Proportion of sample		0.25		0.25		0.25		0.125		0.125	
	Taxon	Net #	1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	6		3		24		4		3	
	Heptageniidae	<i>Cinygmula</i>	10		10		31		11		5	
Plecoptera	Capniidae	<i>Capnia</i>	5	4	12		10		5		4	
	Nemouridae	<i>Nemoura</i>			3				1			
		<i>Podmosta</i>			1		6		1			
	Perlodidae	<i>Alloperla</i>	3									
Trichoptera	Brachycentridae	<i>Brachycentrus</i>					2		2			
Diptera	Chironomidae	larvae	43	12	25	58	59	17	74	3	46	
	Chironomidae	pupae	11		18		19		9		10	
	Tipulidae	<i>Tipula</i>	2		1		5		1		1	
	Simuliidae	<i>Simulium</i>	6		4		11		7		2	
Coleoptera	Hydrophilidae	larvae			3		2		1			
Collembola	Poduridae	<i>Podura</i>			1				1			
	Sminthuridae	<i>Sminthides</i>										
		<i>Sminthurus</i>			1							
Lepidoptera	Pyalidae							1				2
Acari	Acarina		10		13		17		12		2	
Oligochaeta			1									
Terrestrial Diptera				25		75		16		5		5
Hymenoptera				29		92		33		13		14
Arachnida						1		1				
Homoptera	Cicadellidae			12		13		15		5		5

June 26, 1998. Ikalukrok Creek at Cub Creek, Station 207.

	Volume of Water through net		87.92		89.91		133.95		130.74		155.97	
	Proportion of sample		1		0.5		0.25		0.25		0.125	
Taxon	Net #		1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	2		5		4		2		3	
	Heptageniidae	<i>Cinygmula</i>	12		14		1		12		13	
Plecoptera	Capniidae	<i>Capnia</i>	3		44		42		13		54	
	Nemouridae	<i>Nemoura</i>	17		11	1	4		17	1		
Diptera	Chironomidae	larvae	163	1	93		115	20	114	18	126	39
	Chironomidae	pupae	2		44		7		8		7	
	Simuliidae	<i>Simulium</i>	5		3				5		1	
Collembola	Poduridae	<i>Podura</i>	7		7		7		14		10	
Acari	Acarina		9		1		3		6		8	
Terrestrial Diptera						12		6		2		
Hymenoptera				1		1						
Homoptera	Cicadellidae			1				4				

July 25, 1998. Ikalukrok Creek at Cub Creek, Station 207.

	Flow through net		178.9		88.1		81.4		229.4		238.5	
	Proportion of sample		0.125		0.25		0.125		0.125		0.125	
Taxon	Net #		1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	73		59	5	75	3	37		89	
	Heptageniidae	<i>Cinygmula</i>	8		4		8	1	5		3	
Plecoptera	Capniidae	<i>Capnia</i>	38		32		30		25		50	
	Nemouridae	<i>Nemoura</i>				5	3	10		11		
Diptera	Chironomidae	larvae	32		17		16	7	9		29	
	Chironomidae	pupae	5		8		8		15		6	
	Tipulidae	<i>Tipula</i>	5				2				3	
	Simuliidae	<i>Simulium</i>	1		3		5		5		2	
Coleoptera	Curculionidae									1		
	Staphylinidae				3	1		2		9		12
	Coccinellidae									1		
Collembola	Poduridae	<i>Podura</i>	3		3		12		2			
Acari	Acarina		7		7		15				8	
Terrestrial Diptera				23		27		28		103		10
Hymenoptera				14		61		58		123		38
Thysanoptera				1			7					
Arachnida							2					
Homoptera	Cicadellidae			68		78		170		236		120

July 7, 2000. Ikalukrok Creek at Cub Creek, Station 207.

	Volume of Water through net	41.6		45.4		73.8		68.8		30.96		
	Proportion of sample	1		1		1		1		1		
	Taxon	Net #	1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	ameltidae	Ameletus										
	Baetidae	Baetis	7		3		10		6		14	
	Heptageniidae	Cinygmula	6		9		11		14		3	
Plecoptera	Capniidae	Capnia	14		72		97		119		73	
		Nemoura	2		8		8		10		13	
Diptera	Chironomidae larvae		48		36		49		57		39	
	Chironomidae pupae		41		134		8		28		106	
	Empididae	Rhamphomyia							1			
	Tipulidae	Tipula			1						1	
	Simuliidae	Simulium	1		6		4		3		6	
Coleoptera	Carabidae		1		1						1	
	Curculionidae						1					
	Ptiliidae		1									
	Staphylinidae		12		12		4		2		6	
Hemiptera	Macroveliidae						2					
Collembola	Hypogasturidae		2				4		2		8	
	Isotomidae		3		7		10		6		8	
		Sminthurus	1		1		1		3		1	
Lepidoptera	Pyralidae		3		3						1	
Acari			157		230		337		367		218	
Nematoda											1	
Terrestrial Flies				272		254		280		234		220
Thysanoptera				6		8		11		10		2
Arachnida				1		4				3		4
Homoptera	Aphididae			4		8		6		11		2
	Cicadellidae			3		1		4		5		2

July 6, 2001. Ikalukrok Creek at Cub Creek, Station 207.

		Water Volume (m3) =	199.88		127.53		77.86		76.94		120.74	
		Proportion of sample =	0.2		0.2		0.2		0.4		0.2	
	Taxon	Net #	1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	5		1		1				3	
	Heptageniidae	<i>Cinygmula</i>	69		23		13		25		33	
Plecoptera	Capniidae	<i>Capnia</i>	59		27		23		23		13	
	Nemouridae	<i>Nemoura</i>	3		2				1		1	
Diptera	Chironomidae	larvae	1735		499		421		630		470	
	Chironomidae	pupae	8		3		1		3		2	
	Empididae	<i>Chelifera</i>	3				2		1			
	Tipulidae	<i>Tipula</i>					1					
	Simuliidae	<i>Simulium</i>	9				3		2			
Coleoptera	Staphylinidae		1									
Collembola	Isotomidae	<i>Axelsonia</i>	14		2		1		1		4	
	Onychiuridae	<i>Lophognathella</i>	1									
		<i>Sminthurus</i>	5		3						2	
Lepidoptera	Pyrilidae		1						1			
Acari	Acarina		16		4		1		2		2	
Copepoda	Cyclopoida		1									
Terrestrial Diptera				119		26		17		27		26
Hymenoptera				8		6		1		2		3
Misc. Terr. Insects				11		3				1		5

July 10, 2002. Ikalukrok Creek at Cub Creek, Station 207.

		Water Volume (m3) =	181.96		109.33		129.21		122.33		85.63	
		Proportion of sample =	0.25		0.25		0.25		0.5		0.5	
Taxon		Sample Number (Net)=	1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	48		33		51		56		46	
	Heptageniidae	<i>Cinygmula</i>	4				2				2	
Plecoptera	Capniidae	<i>Capnia</i>	15		9		15		21		9	
	Nemouridae	<i>Nemoura</i>	10		2	1	2	1	5	2	2	
Diptera	Chironomidae	larvae	440		175		295		439		163	
	Chironomidae	pupae	302		120		194		343		158	
	Simuliidae	<i>Simulium</i>	4		3		6		4		3	
Coleoptera	Dytiscidae		1									
	Hydroscaphidae							1				
	Staphylinidae		1	1								1
Collembola	Isotomidae	<i>Axelsonia</i>	4		4		2		4		3	
	Onychiuridae	<i>Lophognathella</i>	4		1				3		9	
		<i>Onychiurus</i>	2				1		2		2	
		<i>Sminthurus</i>	3		2		4		13		5	
Lepidoptera	Pyralidae							1				
Acari	Acarina		23		25		15		31		18	
Oligochaeta			1						2			
Ostracoda									1			
Copepoda	Cyclopoida		1		4		3					
Misc. Terrestrial Diptera				169		58		76		97		70
Hymenoptera				17		2		10		17		13
Misc. Terr. Insects				15		2		13		7		9

Summary of aquatic invertebrate data. Ikalukrok Creek at Cub Creek, Station 207.

Year	1997	1998	2000	2001	2002
Total aquatic taxa	12	11	21	16	19
Total Ephemeroptera	162	51	17	161	152
Total Plecoptera	57	181	83	140	57
Total Trichoptera	0	0	0	0	0
Total Aq. Diptera	1008	598	114	3475	1675
Misc.Aquatic species	57	59	284	60	119
% Ephemeroptera	13%	6%	3%	4%	8%
% Plecoptera	4%	20%	17%	4%	3%
% Trichoptera	0%	0%	0%	0%	0%
% Aq. Diptera	79%	67%	23%	91%	84%
% other	4%	7%	57%	2%	6%
% EPT	17%	26%	20%	8%	10%
% Chironomidae	74%	66%	22%	90%	83%
% Dominant Aquatic Taxon	68%	57%	53%	90%	48%
Volume of water (m3)	526.2	598.5	260.6	603.0	628.5
average water/net	105.2	119.7	52.1	120.6	125.7
StDev of water volume	41.0	29.7	18.4	50.2	35.6
Estimated total inverts/m3 water	13.7	7.6	14.7	33.8	19.0
Estimated aquatic inverts/m3 water	10.6	6.7	9.5	31.8	15.9
average inv/m3	10.4	6.1	10.2	28.9	15.2
Stdev of aq. Inv. Den.	4.7	3.4	3.7	11.3	3.7
Total aquatic invertebrates	5560	3984	2486	19177.5	10012
Total. terrestrial invertebrates	1624	555	1351	1200	1900
Total invertebrates	7184	4539	3837	20377.5	11912
% Sample aquatic	77%	88%	65%	94%	84%
% Sample terrestrial	23%	12%	35%	6%	16%
Average # aquatic inverts / net	1112	796.8	497.2	3835.5	2002.4
stdev aq inv/net	729.0	616.0	118.9	3277.2	980.4
Average # terr. inverts / net	324.8	111.0	270.2	240.0	380.0
Average # inverts / net	1436.8	907.8	767.4	4075.5	2382.4
stdev inv/net	949.0	740.6	117.1	3532.0	1222.6
Total Larval Fish/site	0	0	0	0	0

Ikalukrok Creek at Cub Creek, Station 207.
Ten minnow traps sampled for Dolly Varden.

7/8/00	7/29/00	7/8/01	8/3/01	7/12/02	8/2/02
FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)
no DVs	no DVs	no DVs	no DVs	no DVs	no DVs

Appendix 2. Station 206

Baseline data for Ikalukrok Creek upstream of the West Fork, Station 206.

Date	Sample	Lab	Ag	Al	Alk	As	Ba	Ca	Cd	Cl	Cond	Cr	Cu	Fe	K	Mg
			µg/L	µg/L	mg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µS/cm	µg/L	µg/L	µg/L	mg/L	mg/L
06/04/00	00-205	CTE&E		1,050	<2	<1		7,680	4.9	0.9			15.5	5,480	0.75	5
06/22/00	00-288	CTE&E	< 2	1,460	<2				22.8			<5	24.6	9,620		
7/16/00	00-349	CTE&E	< 2	< 75	49.2	< 10		22.6	< 1	< 5	186	< 12.5	< 7.5	< 250	< 2.5	16.7
8/16/00	00-1639	CTE&E	< 2	< 75	39.6	< 10		18	< 1	< 0.5	107	< 12.5	< 7.5	< 250	< 2.5	9.6
8/31/00	00-1738	CTE&E	< 2	< 75	46.2	< 10		23.7	< 1	< 5	159	< 12.5	< 7.5	< 250	< 2.5	15.6
9/9/00	00-1807	CTE&E	< 2	< 75	40	< 10		18	< 1	< 5	126	< 12.5	< 7.5	< 250	< 2.5	10.6
9/21/00	00-1912	CTE&E	< 2	< 75	45.7	< 10		23.6	< 1	0.6	151	< 12.5	< 7.5	< 250	< 2.5	18.4
10/6/00	00-2054	CTE&E	< 2	< 75	46.2	< 10		29.4	< 1	< 5	201	< 12.5	< 7.5	< 250	< 2.5	19.9
6/1/01	01-1489	CTE&E		102	23		128	10.4	0.1	< 0.5	67.8		7.7	190	0.9	6.3
6/24/01	01-1843	CAS		45.5	32			12	0.1	0.5	84.5		1.6	501	< 2	7.4
7/13/01	01-2051	CTE&E	< 2.5	21	35.5	< 1.5	59	22.7	< 0.1	< 5	189	< 4.5	1.3	< 50	< 0.5	14.7
7/26/01	01-2211	CAS		35.6	56			21.8	< 0.1	0.4	153		2.5	84.9	< 2	13.9
8/4/01	01-2360	CTE&E		279	42.5			24	2.3	< 2.5	127		20.8	< 50	< 0.5	19.7
8/19/01	01-2531	CAS		36	42			19.5	0.1	0.4	117		1.9	28.7	< 2	11.2
9/13/01	01-2691	CAS									132					
9/22/01	01-2867	CAS		42.9	49			25.1	0.1	0.5	157		2.7	< 20	< 2	15.7
10/9/01	01-2978	CTE&E		269	51			33.2	< 0.1	< 5	202		1.2	< 50	< 0.5	23.1

Ikalukrok Creek upstream of the West Fork, Station 206.

Date	Sample	Lab	Al	Alk	Ca	Cd	Cl	Cond	Cu	Fe	K	Mg
			µg/L	mg/L	mg/L	µg/L	mg/L	µS/cm	µg/L	µg/L	mg/L	mg/L
5/26/02	(Field Result)							36.8				
5/26/02	02-1704	CAS										
5/26/02	02-1704	CTE	335	7.5	2.6	< 0.1	0.4		3.3	668	< 0.5	1.5
6/1/02	(Field Result)	Field						56.3				
6/14/02	02-2058	CAS										
6/14/02	02-2058	CTE	47.7	28	9.1	< 0.1	< 2		1.9	59.6	< 0.5	5.2
6/27/02	(Field Result)	Field						131				
6/27/02	02-2307	CAS	< 20	35	13.8	< 0.1	0.4		< 1	< 20	< 2	8.4
7/16/02	(Field Result)	Field						133				
7/16/02	02-2564	CAS										
7/16/02	02-2564	CTE	< 20	40	14.8	< 0.1	< 2		1.3	< 40	< 0.5	8.3
7/28/02	(Field Result)	Field						188				
8/7/02	(Field Result)	Field						235				
8/23/02	(Field Result)	Field						156				
8/23/02	02-3142	CAS	< 20	46	24.4	< 0.1	0.5		1.1	< 20	< 2	15.7
9/10/02	(Field Result)	Field						121				
9/10/02	02-3353	CTE	56.8	36.5	14.3	0.5	0.6		6.3	< 40	< 0.5	7.4
9/22/02	(Field Result)	Field						116				
9/22/02	02-3633	CAS	69.5	43	19.2	< 0.1	0.7		2	66.7	< 2	11.1
10/6/02	(Field Result)	Field						132				
10/6/02	02-3858	CAS										
10/23/02	(Field Result)	Field						153				
10/23/02	02-4047	CAS	< 20	58	29.3	< 0.1	0.6		1.1	21.8	< 2	18.7
						19						

Ikalukrok Creek upstream of the West Fork, Station 206.

											Analyzed	Summation
Date	Sample	Lab	Na	Ni	NO ₂ +NO ₃	pH	Pb	Se	Si	SO ₄	TDS	TDS
			mg/L	µg/L	mg/L		µg/L	µg/L	mg/L	mg/L	mg/L	mg/L
06/04/00	00-205	CTE&E	0.9	46.5	0.6		5.7	<2.5		55.5		
06/22/00	00-288	CTE&E		126	0.6		6.8	<5		169	266	
7/16/00	00-349	CTE&E	3.4	< 50	< 5	7.5	< 2	3		86.7	164	189
8/16/00	00-1639	CTE&E	2.3	< 50	< 0.5	6.9	< 2	1		58.8	134	137
8/31/00	00-1738	CTE&E	3.3	< 50	< 5	6.6	< 2	1		89.1	152	187
9/9/00	00-1807	CTE&E	3.3	< 50	< 5	6.5	< 2	2		60.8	104	141
9/21/00	00-1912	CTE&E	3.4	< 50	< 0.5	6.8	< 2	2		113	168	214
10/6/00	00-2054	CTE&E	3.6	< 50	< 5	6.6	< 2	2		132	204	241
6/1/01	01-1489	CTE&E	1.8	19.5	< 0.5	7.1	2	1.0 *	< 1.0	3.2	68.8	51
6/24/01	01-1843	CAS	1.7	12.6	< 0.2	7	0.02	1.4		30.5	98	91
7/13/01	01-2051	CTE&E	3.1	8.1	< 5	6.9	< 0.4	2	2.1	84.7	138	168
7/26/01	01-2211	CAS	2.9	17.1	< 0.2	6.9	< 0.04	1		71.2	169	178
8/4/01	01-2360	CTE&E	3.5	208	< 2.5	7.4	< 0.4	1		50.7	53.8	152
8/19/01	01-2531	CAS	2.8	17	< 0.2	6.9	< 0.04	1		52.1	138	137
9/13/01	01-2691	CAS				7.1		1.4				
9/22/01	01-2867	CAS	3.3	19.7	< 0.2	7.6	< 0.04	1		81.9	161	186
10/9/01	01-2978	CTE&E	4	11.4	< 5	6.8	< 0.4	1.2		129	259	251

Ikalukrok Creek upstream of the West Fork, Station 206.

													Analyzed
Date	Sample	Lab	Na	Ni	NO ₂ +NO ₃	pH	P	Pb	PO ₄		Se	SO ₄	TDS
			mg/L	µg/L	mg/L		µg/L	µg/L	µg/L		µg/L	mg/L	mg/L
6/27/02	02-2307	CAS	2	3.2	< 2			< 0.04		<	1	40	106
7/16/02	(Field Result)	Field				6.7							
7/16/02	02-2564	CAS								<	1		
7/16/02	02-2564	CTE	2.2	< 10	< 2			< 0.4				40.9	110
7/28/02	(Field Result)	Field				7.1							
8/7/02	(Field Result)	Field				7.9							
8/23/02	(Field Result)	Field				8.1							
8/23/02	02-3142	CAS	3.5	5.2	< 2			< 0.04			1.1	76	161
9/10/02	(Field Result)	Field				7.1							
9/10/02	02-3353	CTE	2.1	11.1	0.3			< 0.4				48.4	133
9/22/02	(Field Result)	Field				7.6							
9/22/02	02-3633	CAS	2.7	11	< 2			0.06		<	1	51	130
10/6/02	(Field Result)	Field				7.1							
10/6/02	02-3858	CAS								<	1		
10/23/02	(Field Result)	Field				6.7							
10/23/02	02-4047	CAS	3.7	7.6	< 2			< 0.04		<	1	93	158

Ikalukrok Creek upstream of the West Fork, Station 206.

								Hardness				
Date	Sample	Lab	Temp	TOC	Tot P	TSS	Zn	mg/L	Anions	Cations	Charge	Flow
			°C	mg/L	mg/L	mg/L	µg/L	CaCO3			Balance	cfs
06/04/00	00-205	CTE&E		5.7	<0.2	25.6	2,070					
06/22/00	00-288	CTE&E		0.5	<0.2		6,660					
7/16/00	00-349	CTE&E	10.5	0.8	< 0.2	0.8	< 100	125	2.8	2.7	-2.5	
8/16/00	00-1639	CTE&E	4.9	0.5	< 0.2		< 100	85	2.0	1.8	-5.7	42.8
8/31/00	00-1738	CTE&E	3.7	< 0.5	< 0.2		< 100	123	2.8	2.6	-2.9	11.4
9/9/00	00-1807	CTE&E	3.2	< 0.5	< 0.2		< 100	89	2.1	1.9	-3.4	39.3
9/21/00	00-1912	CTE&E	1.5	0.7	< 0.2		< 100	135	3.3	2.9	-7.0	10.7
10/6/00	00-2054	CTE&E	0.2	0.6	< 0.2		< 100	155	3.7	3.3	-5.8	
6/1/01	01-1489	CTE&E	0.4	4.4		1.2	24.4	52	0.5	1.2	37.6	
6/24/01	01-1843	CAS	4.3	0.5		< 5.0	14	60	1.3	1.3	1.0	
7/13/01	01-2051	CTE&E	10.2	< 0.5		0.6	10.5	117	2.5	2.5	0.1	
7/26/01	01-2211	CAS	6.1	< 0.5		< 5.0	20.2	112	2.6	2.4	-4.8	
8/4/01	01-2360	CTE&E	4.4	0.6		0.6	337	141	1.9	3.1	23.5	
8/19/01	01-2531	CAS	4	< 0.5		< 5.0	21.9	95	1.9	2.0	2.3	
9/13/01	01-2691	CAS	4.3									
9/22/01	01-2867	CAS	1.9	< 0.5		< 5.0	29.1	127	2.7	2.7	0.1	
10/9/01	01-2978	CTE&E	0.3	< 0.5		< 0.4	10.8	178	3.7	3.7	0.4	

Ikalukrok Creek upstream of the West Fork, Station 206.

Date	Sample	Lab	Temp	Tl (µg/L)	TOC	TSS	Zn
			°C		mg/L	mg/L	µg/L
5/26/02	(Field Result)		0.2				
5/26/02	02-1704	CAS					
5/26/02	02-1704	CTE			7	18	19
6/1/02	(Field Result)	Field	2.7				
6/14/02	02-2058	CAS					
6/14/02	02-2058	CTE			1.5	1	8.9
6/27/02	(Field Result)	Field	7				
6/27/02	02-2307	CAS			< 0.5	< 5	4.5
7/16/02	(Field Result)	Field	11.5				
7/16/02	02-2564	CAS					
7/16/02	02-2564	CTE			1	0.4	6.5
7/28/02	(Field Result)	Field	9.6				
8/7/02	(Field Result)	Field	10.1				
8/23/02	(Field Result)	Field	4				
8/23/02	02-3142	CAS			< 0.5	< 5	8
9/10/02	(Field Result)	Field	3.1				
9/10/02	02-3353	CTE		< 0.3	1	0.6	6.2
9/22/02	(Field Result)	Field	0.1				
9/22/02	02-3633	CAS		< 0.04	0.7	< 5	17.8
10/6/02	(Field Result)	Field	0.6				
10/6/02	02-3858	CAS					
10/23/02	(Field Result)	Field	0				
10/23/02	02-4047	CAS		< 0.04	0.5	< 5	10.7
							8

Periphyton data, estimated by Fluorometer (Fluor.) or Spectrophotometer (Spectro.). Ikalukrok Creek upstream of the West Fork, Station 206. Sample size was 0.0025 m², extract volume was 0.01 liters.

Date	Fluor.	Ca	Fluor.					Spectro.	Spectro.	Spectro.
Collected	Reading	mg/L	chlor <i>a</i>	750	664	647	630	chlor <i>a</i>	chlor <i>b</i>	chlor <i>c</i>
			mg/m ²					mg/m ²	mg/m ²	mg/m ²
07/27/00	2.6	0.12	0.49							
07/27/00	3.2	0.16	0.65							
07/27/00	3.6	0.19	0.76							
07/27/00	5.3	0.30	1.21	0.002	0.025	0.011	0.008	1.03	0.30	0.28
07/27/00	2.1	0.09	0.36							
07/27/00	3.8	0.20	0.81							
07/27/00	7.6	0.45	1.81	0.002	0.036	0.014	0.01	1.54	0.29	0.31
07/27/00	12.8	0.80	3.18	0.002	0.066	0.029	0.017	2.86	0.83	0.34
07/27/00	2.95	0.15	0.59							
07/27/00	3.05	0.15	0.61							
07/06/01				0	0.005	0.001	0	0	0	0
07/06/01				0.001	0.008	0.005	0.004	0.33	0	0
07/06/01				0	0.01	0.005	0.004	0.47	0	0
07/06/01				0	0.018	0.005	0.004	0.85	0	0
07/06/01				0.003	0.023	0.011	0.009	0.90	0.17	0.21
07/06/01				0.003	0.012	0.007	0.007	0.40	0.10	0.21
07/06/01				0.001	0.006	0.004	0.003	0.24	0	0
07/06/01				0	0.003	0.002	0.002	0	0	0
07/06/01				0	0.024	0.009	0.006	1.08	0.17	0.15
07/06/01				0.004	0.01	0.007	0.007	0.26	0.09	0.16

Ikalukrok Creek upstream of the West Fork, Station 206. Sample size was 0.0025 m², extract volume was 0.01 liters.

Date					acidified	Acidified	Spectro.	Spectro.	Spectro.
Collected	750	664	647	630	665	750	chlor <i>a</i>	chlor <i>b</i>	chlor <i>c</i>
							mg/m ²	mg/m ²	mg/m ²
07/10/02	0.005	0.101	0.031	0.024	0.063	0.004	4.38	0	0.43
07/10/02	0.004	0.015	0.008	0.007			0.50	0.07	0.10
07/10/02	0.005	0.058	0.017	0.011	0.057	0.005	2.44	0	0
07/10/02	0.005	0.132	0.039	0.031	0.078	0.005	5.80	0	0.67
07/10/02	0.002	0.089	0.025	0.019	0.051	0.003	3.98	0	0.39
07/10/02	0.004	0.038	0.013	0.01	0.023	0.004	1.55	0	0.09
07/10/02	0.004	0.093	0.028	0.021	0.055	0.004	4.07	0	0.34
07/10/02	0.001	0.078	0.026	0.019	0.045	0.004	3.49	0.24	0.49
07/10/02	0.005	0.094	0.029	0.023	0.055	0.004	4.07	0	0.44
07/10/02	0.004	0.104	0.031	0.022	0.06	0.004	4.57	0	0.28

July 7, 2000 Ikalukrok Creek upstream of the West Fork, Station 206.

	Volume of Water through net		120.42		110.1		102.76		113.54		82.57	
	Proportion of sample		0.25		0.25		0.25		0.25		0.25	
	Taxon	Net No.	1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	767		407		613		579		533	
	Heptageniidae	<i>Cinygmula</i>	61		37		86		55		1	
Plecoptera	Capniidae	<i>Capnia</i>	50		17		31		34		12	
	Nemouridae	<i>Nemoura</i>	2		3		1		2			
Trichoptera	Brachycentridae	<i>Brachycentrus</i>					1					
Diptera	Chironomidae	larvae	97		95		70		60		59	
	Chironomidae	pupae	10		6		8		5		6	
		<i>Clinocera</i>			1							
	Tipulidae	<i>Tipula</i>							1			
	Simuliidae	<i>Simulium</i>	32		34		26		12		10	
Coleoptera	Chrysomelidae								1			
	Hydroscaphidae									2		3
Collembola	Isotomidae	<i>Axelsonia</i>									1	
		<i>Sminthurus</i>							1			
Acari			3		1		4		1			
Oligochaeta			2		2		1		1		1	
Gastropoda	Planorbidae						1					
Ostracoda			1				1		1			
Copepoda	Calanoida		1		1							
Miscellaneous terrestrial Diptera				3								
Homoptera	<i>Aphididae</i>							2				

July 6, 2001. Ikalukrok Creek upstream of the West Fork, Station 206.

		Water Volume (m3) =	57.34		102.76		116.29		261.17		137.62	
		Proportion of sample =	1		1		1		0.2		0.2	
	Taxon	Net No.	1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>							2		3	
	Heptageniidae	<i>Cinygmula</i>	10		64		85		60		4	
		<i>Epeorus</i>	2				1		5			
Plecoptera	Capniidae	<i>Capnia</i>	84		460		494		397		140	
	Nemouridae	<i>Nemoura</i>	2				3					
Diptera	Chironomidae	larvae	484		1031		1971		1366		570	
	Chironomidae	pupae	4		4		18		5		9	
	Empididae	<i>Chelifera</i>	1		2		3		5			
	Tipulidae	<i>Tipula</i>			4		1		1			
	Simuliidae	<i>Simulium</i>	7		11		14		9		8	
Coleoptera	Carabidae						1					
	Staphylinidae						1		1		1	
Collembola	Isotomidae	<i>Axelsonia</i>	1		1		2				3	
Acari			7		8		11		9		4	
Oligochaeta							1		1			
Copepoda	Cyclopoida										1	
Miscellaneous terrestrial Diptera				23		14		16		14		7
Hymenoptera				2				1				
Misc Terrestrial				3		1						

July 10, 2002. Ikalukrok Creek upstream of the West Fork, Station 206.

		Water Volume (m3) =	122.33		194.96		198.78		183.49		142.97	
		Proportion of sample =	0.25		0.5		1		1		1	
Taxon		Sample Number (Net)=	1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	10		15		13		5		8	
	Heptageniidae	<i>Cinygmula</i>					1					
Plecoptera	Capniidae	<i>Capnia</i>	35		62		6		1		3	
	Nemouridae	<i>Nemoura</i>	2		11		3		3		1	
Diptera	Chironomidae	larvae	239		56		8		6		2	
	Chironomidae	pupae	745		643		450		295		301	
	Simuliidae	<i>Simulium</i>	4		2						1	
Coleoptera	Carabidae				1							
Collembola	Isotomidae	<i>Axelsonia</i>	1		3		3		4		3	
	Onychiuridae	<i>Lophognathella</i>	1		4		8		5		7	
		<i>Sminthurus</i>			3		13		2		3	
Acari			6		6		15		8		7	
Ostracoda									2		4	
Copepoda	Cyclopoida						2					
Misc. Terrestrial Diptera				105		68		53		55		118
Hymenoptera						6		3		2		1
Misc Terrestrial				2		4		3				

Summary of Invertebrate Data. Ikalukrok Creek upstream of the West Fork, Station 206.

Year	2000	2001	2002
Total aquatic taxa	18	16	14
Total Ephemeroptera	2511.2	106.4	19.4
Total Plecoptera	121.6	745.6	62.2
Total Trichop.	0.8	0	0
Total Aquatic Diptera	425.6	2684	1283.4
Misc.Aquaticsp	20	26.6	30.4
% Ephemeroptera	82%	3%	1%
% Plecoptera	4%	21%	4%
% Trichoptera	0%	0%	0%
% Aquatic Diptera	14%	75%	92%
% other	1%	1%	2%
% EPT	86%	24%	6%
% Chironomidae	11%	74%	92%
% Dominant Aquatic Taxon	75%	74%	76%
Volume of water (m3)	529.4	675.2	842.5
average water/net	105.9	135.0	168.5
StDev of water volume	14.5	76.4	34.0
Estimated total inverts/m3 water	29.2	26.6	9.3
Estimated aquatic inverts/m3 water	29.1	26.4	8.3
average inv/m3	29.1	22.2	9.8
Stdev of Aquatic Inv. Den.	4.9	9.8	13.8
Total aquatic invertebrates	15396	17813	6977
Total. terrestrial invertebrates	40	165	819
Total invertebrates	15436	17978	7796
% Sample aquatic	100%	99%	89%
% Sample terrestrial	0%	1%	11%
Average # aquatic inverts / net	3079	3563	1395
stdev aq inv/net	694	3413	1641
Average # terr. inverts / net	8	33	164
Average # inverts / net	3087	3596	1559
stdev inv/net	696	3433	1791
Total Larval Fish/site	0	0	0

Ikalukrok Creek, Station 206. Ten Minnor Traps, sampling for Dolly Varden.

	7/28/00	7/7/01	8/3/01	7/11/02	8/2/02
FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)
not sampled	no DVs	no DVs	no DVs	no DVs	no DVs

Appendix 3. Station 205

Baseline data for West Fork Ikalukrok Creek, Station 205.

Date	Sample	Lab Name	Al	Alk mg/L	Ca mg/L	Cd µg/L	Cr µg/L	Cu µg/L	Fe µg/L	Ni µg/L
			µg/L	CaCO3						
24-Jun-99	99-486	CAS	2,140	< 2		7	< 5	91	881	892
16-Jul-99	99-568	CAS	4380	< 2		7.23	1.1	178	1940	1740
9-Aug-99	99-779	CAS	904	< 2		5.8	< 0.5	45	160	526
17-Sep-99	99-955	CAS	1,380	< 2		8	< 5	64	266	721
1-Oct-99	99-1011	CAS	1,430	< 2		5.8	0.5	56	286	662
4-Jun-00	00-203	CTE&E	175	< 2	4.5	0.4		5.4	132	41.9
4-Jun-00	00-204	CAS	266	< 2		0.5	< 0.5	6	255	42
21-Jun-00	00-287	CTE&E	609	< 2		5.5	< 5	38.7	110	585
16-Jul-00	00-1353	CTE&E	< 75	< 2	41.5	<1		7.5	< 250	< 50
16-Aug-00	00-1637	CTE&E	339	< 2	25.8	1.1	< 12.5		311	247
31-Aug-00	00-1737	CTE&E	561	< 2	38.4	3.2	< 12.5	28.8	< 250	398
9-Sep-00	00-1806	CTE&E	118	< 2	25.3	2.5	< 12.5	16.9	< 250	198
21-Sep-00	00-1911	CTE&E	510	< 2	34.7	2.1	< 12.5	24.8	< 250	357
6-Oct-00	00-2053	CTE&E	610	< 2	41.9	4.3	< 12.5	33.2	< 250	487
1-Jun-01	01-1491	CTE&E	161		41.2	3.8	0.6	4.5	90	44.7
24-Jun-01	01-1841	CAS	258	< 2	17.8	2.2		16.9	185	236
13-Jul-01	55519	CTE&E	661	< 2	39	4.8	< 4.5	51.7	38.6	624
26-Jul-01	113957	CAS	475	< 2	33.6	3.5		27.8	111	378
4-Aug-01	167648	CTE&E	< 20	< 2	21	0.1		26.4	87.8	2.2
19-Aug-01	230835	CAS	175	< 2	23	1.8		15.1	92.4	163
22-Sep-01	353557	CAS	338		2	32.1	2.8	26.4	173	282
9-Oct-01	397386	CTE	688		0	46.4	4.6	46.5	< 50	624
28-Oct-01	480296	CAS	1,340	< 2	74.1	8.7		72	21.4	1,180

West Fork Ikalukrok Creek, Station 205.

				Alk					
Date	Sample	Lab Name	Al	mg/L	Ca	Cd	Cu	Fe	Ni
			µg/L	CaCO3	mg/L	µg/L	µg/L	µg/L	µg/L
26-May-02	02-1703	CTE	123	< 5	1.6	0.2	2.3	171	10.8
14-Jun-02	58107	CTE	114	< 5	8.3	1.1	7.1	84.4	88.8
27-Jun-02	147590	CAS	145		15.9	1.7	13.5	< 20	207
16-Jul-02	242189	CTE	166	< 10	17.6	1.6	15.9	< 40	191
24-Aug-02	460604	CAS	597	< 2	36.9	4.2	33.6	43.5	474
11-Sep-02	548262	CTE	186	< 10	14.4	1.2	10.2	90.1	106
22-Sep-02	633364	CAS	208	< 2	20.8	1.7	14	174	167

West Fork Ikalukrok Creek, Station 205.

							Analyzed			Hardness
Date	Sample	Lab Name	Pb	pH	Se	SO4	TDS	□TDS	Zn	mg/L
			µg/L		µg/L	mg/L	mg/L	mg/L	µg/L	CaCO3
24-Jun-99	99-486	CAS	0.05	4.6	< 1	347	606	361	1,200	315
16-Jul-99	99-568	CAS	0.39	4.3	< 1	640	989		2740	635
9-Aug-99	99-779	CAS	0.05	5.2	< 2	330	497	337	797	314
17-Sep-99	99-955	CAS	2	5.4	2	413	611	423	1,070	419
1-Oct-99	99-1011	CAS	0.08	4.9	2	427	655	430	1,140	422
4-Jun-00	00-203	CTE&E	1.5		< 2.5	25		36	65	24
4-Jun-00	00-204	CAS	1.9	5.7	< 1	24		25	68	23.5
14-Jun-00	Field									
21-Jun-00	00-287	CTE&E	2	5.1	< 5	305	406	315	879	250
16-Jul-00	00-1353	CTE&E	2	4.9	< 3	538	630	592	100	148
16-Aug-00	00-1637	CTE&E	2	6.1	2	200	248	251	349	136
26-Aug-00	Field									
31-Aug-00	00-1737	CTE&E	2	5.3	2	256	382	337	626	231
9-Sep-00	00-1806	CTE&E	2	5.5	3	165	228	215	344	143
21-Sep-00	00-1911	CTE&E	2	5.5	2	274	348	353	590	230
6-Oct-00	00-2053	CTE&E	2	5	2	336	430	424	747	250
1-Jun-01	01-1491	CTE&E	1.4	5.8	< 1.0 *	24.8	50	84	77.4	23
24-Jun-01	01-1841	CAS	0.05	6	1.1	118	162	159	343	111
13-Jul-01	55519	CTE&E	0.4	4.8	1.7	316	386	407	921	257
26-Jul-01	113957	CAS	0.04	5.2	1.1	245	324	322	606	220
4-Aug-01	167648	CTE&E	2.6	6.7	1	143	180	174	2	65
19-Aug-01	230835	CAS	0.04	6	< 1	127	201	175	274	132
13-Sep-01	288544	CAS		6.7	1.4					
22-Sep-01	353557	CAS	0.04	6.8	< 1	200	314	270	434	198
9-Oct-01	397386	CTE	< 0.4	5.2	1.3	318	464		934	
28-Oct-01	480296	CAS	0.07	4.6	1.6	551	708		1,630	

West Fork Ikalukrok Creek, Station 205.

							Analyzed	
Date	Sample	Lab Name	Pb	pH	Se	SO4	TDS	Zn
			µg/L		µg/L	mg/L	mg/L	µg/L
26-May-02	Field	Field		5.9				
26-May-02	02-1703	CAS			< 1			
26-May-02	02-1703	CTE	1.2			9.1	50	20.4
1-Jun-02	Field	Field		6.4				
14-Jun-02	58107	CAS			< 1			
14-Jun-02	58107	CTE	0.4			54.5	123	138
27-Jun-02	Field	Field		6.2				
27-Jun-02	147590	CAS	0.04		< 1	121	168	296
16-Jul-02	Field	Field		5.5				
16-Jul-02	242189	CTE	0.4			133	185	284
28-Jul-02	Field	Field		5.6				
24-Aug-02	Field	Field		4.9				
24-Aug-02	460604	CAS	0.08		1.3	254	364	754
11-Sep-02	Field	Field		6				
11-Sep-02	548262	CAS			1.6			
11-Sep-02	548262	CTE	0.4			87.3	130	200
22-Sep-02	Field	Field		6.4				
22-Sep-02	633364	CAS	0.06		< 1	130	204	283
6-Oct-02	Field	Field		5.9				
6-Oct-02	714813	CAS			< 1			

Estimates of periphyton biomass, based on chlorophyll-a, -b, and -c. West Fork Ikalukrok Creek, Station 205. Sample size was 0.0025 m², extract volume was 0.01 liters.

			Fluor.					Spect.	Spect.	Spect.
Date	Fluorometer	Ca	chlor-a					chlor-a	chlor-b	chlor-c
Collected	Reading	mg/L	mg/m^2	750	664	647	630	mg/m2	mg/m2	mg/m2
07/07/00	12.5	0.78	3.10	0	0.054	0.014	0.009	2.47	0.00	0.10
07/07/00	10.8	0.66	2.66	0	0.051	0.016	0.012	2.32	0.11	0.35
07/07/00	18.8	1.19	4.76	0	0.126	0.034	0.024	5.76	0.00	0.48
07/07/00	14.3	0.89	3.58	0	0.071	0.019	0.014	3.24	0.00	0.32
07/07/00	10.6	0.65	2.60	0	0.047	0.012	0.009	2.15	0.00	0.20
07/07/00	12.3	0.76	3.05	0	0.06	0.015	0.01	2.75	0.00	0.12
07/07/00	13.1	0.82	3.26	0	0.067	0.02	0.015	3.05	0.07	0.42
07/07/00	11.5	0.71	2.84	0	0.051	0.014	0.01	2.33	0.00	0.21
07/07/00	8.8	0.53	2.13	0	0.038	0.012	0.01	1.72	0.08	0.36
07/07/00	12.9	0.80	3.21	0	0.063	0.018	0.013	2.87	0.01	0.31
07/06/01				0	0.01	0.004	0.003	0.45	0.09	0.11
07/06/01				0.005	0.018	0.01	0.009	0.58	0.10	0.15
07/06/01				0.001	0.01	0.005	0.004	0.40	0.11	0.11
07/06/01				0.004	0.016	0.01	0.01	0.53	0.18	0.33
07/06/01				0	0.006	0.001	0	0.28	0.00	0.00
07/06/01				0.002	0.001	0.006	0.006	0.00	0.32	0.28
07/06/01				0	0.002	0.001	0	0.09	0.04	0.00
07/06/01				0.005	0.014	0.01	0.01	0.39	0.17	0.28
07/06/01				0	0.006	0.001	0	0.28	0.00	0.00
07/06/01				0	0.012	0.006	0.005	0.53	0.19	0.23

West Fork Ikalukrok Creek, Station 205. Sample size was 0.0025 m², extract volume was 0.01 liters.

							Spect.	Spect.	Spect.
Date							chlor-a	chlor-b	chlor-c
Collected	750	664	647	630	665-b	750-b	mg/m2	mg/m2	mg/m2
07/10/02	0.003	0.082	0.024	0.018	0.05	0.003	3.61	0.00	0.31
07/10/02	0.005	0.038	0.015	0.012			1.50	0.05	0.16
07/10/02	0.002	0.07	0.021	0.015	0.042	0.002	3.10	0.00	0.24
07/10/02	0.001	0.126	0.036	0.026	0.077	0.001	5.70	0.00	0.55
07/10/02	0.002	0.13	0.036	0.026	0.077	0.002	5.85	0.00	0.47
07/10/02	0.003	0.019	0.008	0.006			0.73	0.04	0.04
07/10/02	0.002	0.064	0.019	0.014	0.038	0.002	2.83	0.00	0.25
07/10/02	0.003	0.065	0.02	0.015	0.038	0.003	2.83	0.00	0.25
07/10/02	0.005	0.099	0.032	0.023	0.06	0.004	4.28	0.04	0.32
07/10/02	0.006	0.096	0.031	0.025	0.055	0.003	4.11	0.00	0.50

July 7, 2000. West Fork Ikalukrok Creek, Station 205.

	Volume of Water through net		108.1		34.3		45.9		57.3		28.3	
	Proportion of sample		1		1		1		1		1	
	Taxon	Net #	1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Plecoptera	Capniidae	<i>Capnia</i>	7		2		6		5		3	
	Nemouridae	<i>Nemoura</i>			1						1	
		<i>Podmosta</i>			1						1	
Diptera	Chironomidae larvae		28		11		17		16		15	
	Chironomidae pupae		4		1				5			
	Tabanidae		1						1			
	Tipulidae	<i>Tipula</i>					3		1			
	Simuliidae	<i>Simulium</i>					1		1			
Coleoptera	Hydroscaphidae										1	
	Staphylinidae			2							1	
Collembola	Hypogasturidae		1				1				1	
	Isotomidae		3				1				9	
	Onychiuridae	<i>Sensiphorura</i>			1							
		<i>Sminthurus</i>	1				1				2	
	Lepidoptera	Pyralidae	1						1		3	
	Acari		3		1		7		3		7	
	Copepoda	Cyclopoida					1					
Terrestrial flies	Miscellaneous terrestrial			58		19		13		95		13
Thysanoptera				4				1				2
Homoptera	Aphididae			1		6		1		1		
	Cicadellidae					1		2		2		

July 6, 2001. West Fork Ikalukrok Creek, Station 205.

		Water Volume (m3) =	44.04		165.14		179.13		61.01		176.76	
		Proportion of sample =	1		1		1		1		1	
	Taxon	Net #	1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Plecoptera	Capniidae	<i>Capnia</i>	23		65		71		23		75	
	Nemouridae	<i>Nemoura</i>			2		11				7	
		<i>Podmosta</i>			4		4				1	
Diptera	Chironomidae	larvae	28		104		117		31		135	
	Chironomidae	pupae			3		5				4	
	Empididae	<i>Chelifera</i>			1		1		3		3	
		<i>Rhamphomyia</i>			1		1					
	Tipulidae	<i>Tipula</i>			1							
	Simuliidae	<i>Simulium</i>			4		5		1		5	
Coleoptera	Carabidae								1			
	Staphylinidae		1		1		1				1	
Collembola	Isotomidae	<i>Axelsonia</i>	14		12		29		14		31	
	Onychiuridae	<i>Lophognathella</i>					4					
	Onychiuridae	<i>Onychiurus</i>					1				1	
		<i>Sminthurus</i>	1		2		10				8	
Lepidoptera	Pyrilidae		12		4		1				3	
Acari	Acarina		2		19		37		4		46	
Oligochaeta							4				1	
Copepoda	Cyclopoida						3				2	
Terrestrial Flies				106		91		102		37		159
Hymenoptera				6		7		14		3		14
Misc. Terr. Insects				19		22		44		18		49

July 10, 2002. West Fork Ikalukrok Creek, Station 205.

		Water Volume (m3) =	85.63		149.09		183.49		114.68		121.95	
		Proportion of sample =	1		1		1		1		1	
Taxon		Sample Number (Net)=	1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>					1		1		1	
	Heptageniidae	<i>Cinygmula</i>									1	
Plecoptera	Capniidae	<i>Capnia</i>			4	1				2	2	
	Nemouridae	<i>Nemoura</i>										1
Trichoptera	Glossosomatidae											1
Diptera	Chironomidae	larvae	3		42		4		6		18	
	Chironomidae	pupae	0		9		3		2		7	
	Tabanidae				1							
	Tipulidae	<i>Tipula</i>	1								1	2
	Simuliidae	<i>Simulium</i>	4		2				5		2	
	Dixidae											
Coleoptera	Carabidae					1						
	Chrysomelidae					1						
	Hydroscaphidae							1				
	Staphylinidae					2				1		1
Collembola	Isotomidae	<i>Axelsonia</i>	12		19		6		7		16	
	Onychiuridae	<i>Lophognathella</i>	8		14		9		2		8	
	Onychiuridae	<i>Onychiurus</i>			2							
		<i>Sminthurus</i>	13		12		6		5		9	
Lepidoptera	Pyalidae					1					1	1
Acari	Acarina		19		38		19		29		18	
Oligochaeta					1							
Copepoda	Cyclopoida										1	
Misc. Terrestrial Diptera				17		246		8		28		203
Hymenoptera				8		40		4		6		33
Misc. Terr. Insects				2		86				6		79

Summary of Invertebrate data. West Fork Ikalukrok Creek, Station 205.

Year			2000	2001	2002
Total aquatic taxa			16	19	20
Tot. Ephemeroptera			0	0	0.8
Tot. Plecoptera			5.4	57.2	1.2
Tot. Trichop.			0	0	0
Total Aq. Diptera			21	90.6	22
Misc.Aq.sp			7.2	54	55.6
% Ephemeroptera			0%	0%	1%
% Plecoptera			16%	28%	2%
% Trichoptera			0%	0%	0%
% Aq. Diptera			63%	45%	28%
% other			21%	27%	70%
Total Chironomidae					
% EPT			16%	28%	3%
% Chironomidae			58%	42%	24%
% Dominant Aquatic Taxon			53%	41%	32%
Volume of water (m3)			273.9	626.1	654.8
average water/net			54.8	125.2	131.0
StDev of water volume			31.8	66.8	37.0
Estimated total inverts/m3 water			1.5	2.7	1.8
Estimated aquatic inverts/m3 water			0.60	1.61	0.60
average inv/m3			0.67	1.60	0.62
Stdev of aq. Inv. Den.			0.21	0.27	0.26
Total aquatic invertebrates			165	1009	394
Total. terrestrial invertebrates			239	691	782
Total invertebrates			404	1700	1176
% Sample aquatic			41%	59%	34%
% Sample terrestrial			59%	41%	66%
Average # aquatic inverts / net			33	201.8	78.8
stdev aq inv/net			11.6	118.3	38.9
Average # terr. inverts / net			47.8	138.2	156.4
Average # inverts / net			80.8	340.0	235.2
stdev inv/net			47.6	170.3	213.3
Total Larval Fish/site			0	0	0

West Fork Ikalukrok Creek, Station 205. Ten minnow traps per sample event for Dolly Varden.

7/8/00	7/28/00	7/7/01	8/3/01	8/2/02	7/11/02
FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)
no DVs	no DVs	no DVs	no DVs	no DVs	no DVs

Appendix 4. Station 208

Water quality and biological data from East Fork Ikalukrok Creek, Station 208.

Date	Sample	Lab	Al	Cd	Cu	Fe	Ni	Pb	pH
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
6/5/00	00-225	CTE&E	249	< 0.1	5	501	8.2	< 1	7.3
6/22/00	00-289	CTE&E	< 50	< 0.2	< 10	88.5	< 10	< 2	7.6
7/16/00	00-1351	CTE&E	< 75	< 1	< 7.5	< 250	< 50	< 2	7.7
8/25/00	00-1694	CTE&E	< 75	< 1	< 7.5	< 250	< 50	< 2	7.9
8/31/00	00-1739	CTE&E	< 75	< 1	< 7.5	< 250	< 50	< 2	7.4
9/10/00	00-1819	CTE&E	< 75	< 1	< 7.5	< 250	< 50	< 2	7.5
9/22/00	00-1917	CTE&E	< 75	< 1	< 7.5	< 250	< 50	< 2	8.2
10/6/00	00-2056	CTE&E	< 75	< 1	< 7.5	< 250	< 50	< 2	7.6
6/1/01	01-1488	CTE&E	1,100	0.3	2.5	2140	4.3	2.9	7.5
6/24/01	01-1839	CAS	22.1	< 0.05	< 1	35.8	1.2	0.04	7.7
7/13/01	01-2049	CTE&E	< 20	< 0.1	< 0.8	< 50	< 2	< 0.4	7.5
7/26/01	01-2214	CAS	< 10	< 0.1	< 2	< 20	1.6	< 0.04	8.1
8/4/01	01-2357	CTE&E	< 20	< 0.1	< 0.8	< 50	< 2	< 0.4	8.2
8/19/01	01-2529	CAS	11.1	< 0.1	< 1	22.4	1.6	< 0.04	7.8
9/13/01	01-2693	CAS							8.2
9/22/01	01-2865	CAS	< 20	< 0.1	< 1	< 20	1	< 0.04	8.5
10/9/01	Field	Field							8.2
10/9/01	01-2976	CTE	< 20	< 0.1	< 0.8	70.9	2.9	< 0.4	
10/28/01	Field	Field							7.2
10/28/01	01-3217	CAS	< 20	< 0.1	< 1	< 20	4.1	0.04	
12/8/01	Field	Field							7.4
12/8/01	01-3447	CTE	< 20	< 0.1	1.1	< 50	13.2	0.5	

Date	Sample	Lab	Al	Cd	Cu	Fe	Ni	Pb	pH
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
5/26/02	Field	Field							6.7
5/26/02	02-1701	CTE	292	0.2	1.4	601	< 5	1.1	
6/1/02	Field	Field							7
6/14/02	02-2061	CTE	42.2	< 0.1	< 1	65.7	< 5	< 0.4	
6/27/02	Field	Field							6.6
6/27/02	02-2301	CAS	< 20	< 0.1	< 1	36.8	0.8	0.04	
7/16/02	Field	Field							7.3
7/16/02	02-2566	CAS							
7/16/02	02-2566	CTE	< 20	< 0.1	< 1	< 40	< 10	< 0.4	
7/28/02	Field	Field							7.9
8/7/02	Field	Field							8.3
8/23/02	Field	Field							8.4
8/23/02	02-3141	CAS	< 20	< 0.1	< 1	< 20	3.1	< 0.04	
9/9/02	Field	Field							7.9
9/9/02	02-3342	CTE	23.8	< 0.1	< 1	< 40	< 5	< 0.4	
9/22/02	02-3631	CAS	< 20	< 0.1	< 1	< 20	1.8	0.3	
10/6/02	Field	Field							7.8
10/23/02	Field	Field							7.3
10/23/02	02-4045	CAS	< 20	< 0.1	< 1	< 20	2.5	< 0.04	

East Fork Ikalukrok Creek, Station 208.

					Hardness				
Date	Sample	Lab	Se	Zn	mg/L	Anions	Cations	Charge	Flow
			µg/L	µg/L	CaCO3			Balance	cfs
6/5/00	00-225	CTE&E	2.5	< 10	52	1.0	1.1	5.2	
6/11/00	Field								309
6/22/00	00-289	CTE&E	5	< 20	105	2.4	0.0		44.6
7/16/00	00-1351	CTE&E	3	< 100	101	2.4	2.0	-8.2	
8/25/00	00-1694	CTE&E	1	< 100	155	3.3	3.2	-1.0	
8/31/00	00-1739	CTE&E	1	< 100	127	2.3	2.6	6.0	100
9/10/00	00-1819	CTE&E	2	< 100	130	3.0	2.7	-5.3	78.8
9/22/00	00-1917	CTE&E	2	< 100	153	3.4	3.2	-3.2	40.7
10/6/00	00-2056	CTE&E	2	< 100	168	4.1	3.5	-8.3	
6/1/01	01-1488	CTE&E	1	8.8	54	1.2	1.3	5.8	
6/24/01	01-1839	CAS	1	< 1	70	1.5	1.4	-0.9	
7/13/01	01-2049	CTE&E	1.7	< 2	118	2.5	2.5	-1.2	
7/26/01	01-2214	CAS	1	1.6	151	2.8	3.1	4.9	
8/4/01	01-2357	CTE&E	1	< 2	142	2.8	2.9	2.2	
8/19/01	01-2529	CAS	1	1.7	154	2.9	3.2	4.0	
9/13/01	01-2693	CAS	1.2						
9/22/01	01-2865	CAS	1	2.5	172	3.6	3.6	0.0	
10/9/01	01-2976	CAS	1						
10/9/01	01-2976	CTE		82.7					
10/28/01	01-3217	CAS	1.3	9.4					
12/8/01	01-3447	CAS	1						
12/8/01	01-3447	CTE		148					

East Fork Ikalukrok Creek, Station 208.

Date	Sample	Lab		Se		Zn
				µg/L		µg/L
5/26/02	02-1701	CAS		1		
5/26/02	02-1701	CTE				12.1
6/14/02	02-2061	CAS		1		
6/14/02	02-2061	CTE			<	2
6/27/02	02-2301	CAS		1	<	2
7/16/02	02-2566	CAS		1		
7/16/02	02-2566	CTE			<	2
8/23/02	02-3141	CAS		1.3	<	2
9/9/02	02-3342	CTE			<	2
9/22/02	02-3631	CAS		1		3.7
10/6/02	02-3856	CAS		1		
10/23/02	02-4045	CAS		1		2.5

Chlorophyll Samples, not measured on spectrophotometer 1997-1998. East Fork Ikalukrok Creek, Station 208. Sample size was 0.0025 m², extract volume was 0.01 liters.

Station	Date	Fluor.	Ca	chlor-a
number	Collected	Reading	mg/L	mg/m^2
Station 208	26-Jun-97	17	0.71	2.86
Station 208	26-Jun-97	7.3	0.31	1.23
Station 208	26-Jun-97	7.1	0.30	1.19
Station 208	26-Jun-97	8.9	0.37	1.50
Station 208	26-Jun-97	6.3	0.26	1.06
Station 208	26-Jun-97	7	0.29	1.18
Station 208	26-Jun-97	8.7	0.37	1.46
Station 208	26-Jun-97	10.5	0.44	1.76
Station 208	26-Jun-97	9.7	0.41	1.63
Station 208	26-Jun-97	7.8	0.33	1.31
at mouth	26-Jun-97	15.5	0.65	2.60
at mouth	26-Jun-97	16.5	0.69	2.77
at mouth	26-Jun-97	21	0.88	3.53
at mouth	26-Jun-97	14	0.59	2.35
at mouth	26-Jun-97	9.1	0.38	1.53
at mouth	26-Jun-97	16.5	0.69	2.77
at mouth	26-Jun-97	12.5	0.53	2.10
at mouth	26-Jun-97	9	0.38	1.51
at mouth	26-Jun-97	16	0.67	2.69
at mouth	26-Jun-97	11.5	0.48	1.93
Station 208	30-Jul-97	4.3	0.18	0.72
Station 208	30-Jul-97	4.8	0.20	0.81
Station 208	30-Jul-97	11.5	0.48	1.93
Station 208	30-Jul-97	14.5	0.61	2.44
Station 208	30-Jul-97	12	0.50	2.02
Station 208	30-Jul-97	1.2	0.05	0.20
Station 208	30-Jul-97	14	0.59	2.35
Station 208	30-Jul-97	16	0.67	2.69
Station 208	30-Jul-97	13	0.55	2.18
Station 208	30-Jul-97	9.3	0.39	1.56
at mouth	30-Jul-97	17.5	0.74	2.94
at mouth	30-Jul-97	11	0.46	1.85
at mouth	30-Jul-97	14.5	0.61	2.44
at mouth	30-Jul-97	15	0.63	2.52
at mouth	30-Jul-97	11	0.46	1.85
at mouth	30-Jul-97	14.5	0.61	2.44
at mouth	30-Jul-97	1.3	0.05	0.22
at mouth	30-Jul-97	17.5	0.74	2.94
at mouth	30-Jul-97	17	0.71	2.86
at mouth	30-Jul-97	17.5	0.74	2.94

East Fork Ikalukrok Creek, Station 208. Sample size was 0.0025 m², extract volume was 0.01 liters.

Station	Date	Fluor.	Ca	chlor-a	750	664	647	630	chlor-a	chlor-b	chlor-c
number	Collected	Reading	mg/L	mg/m ²					mg/m ²	mg/m ²	mg/m ²
Station 208	26-Jun-98	22	1.36	5.44	0.015	0.086	0.036	0.032	3.2306	0.04352	0.55468
Station 208	26-Jun-98	17.5	1.05	4.19							
Station 208	26-Jun-98	29.5	1.88	7.51	0.026	0.172	0.073	0.063	6.61904	0.38884	1.22488
Station 208	26-Jun-98	31.5	1.83	7.31	0.033	0.198	0.08	0.067	7.5206	0.00808	0.80372
Station 208	26-Jun-98	19	1.15	4.61							
Station 208	26-Jun-98	18.5	1.12	4.47							
Station 208	26-Jun-98	28	1.77	7.09	0.016	0.136	0.052	0.044	5.46	0.12	0.85
Station 208	26-Jun-98	14.5	0.84	3.37							
Station 208	26-Jun-98	23	1.43	5.71							
Station 208	26-Jun-98	21	1.29	5.16							
at mouth	26-Jun-98	31.5	1.83	7.31	0.005	0.159	0.052	0.037	7.00	0.27	0.68
at mouth	26-Jun-98	26	1.64	6.54	0.027	0.172	0.078	0.056	6.55	0.83	0.33
at mouth	26-Jun-98	28	1.77	7.09	0.039	0.2	0.089	0.07	7.31	0.38	0.45
at mouth	26-Jun-98	17	1.01	4.06							
at mouth	26-Jun-98	23.5	1.46	5.85	0.048	0.169	0.089	0.079	5.47	0.49	0.99
at mouth	26-Jun-98	27	1.70	6.82	0.008	0.145	0.048	0.039	6.24	0.06	0.91
at mouth	26-Jun-98	31.5	1.83	7.31	0.006	0.108	0.035	0.027	4.65	0.00	0.50
at mouth	26-Jun-98	12	0.67	2.68							
at mouth	26-Jun-98	22	1.36	5.44	0.014	0.107	0.041	0.034	4.24	0.04	0.52
at mouth	26-Jun-98	27	1.70	6.82	0.007	0.139	0.048	0.034	6.00	0.29	0.52

East Fork Ikalukrok Creek, Station 208. Sample size was 0.0025 m², extract volume was 0.01 liters.

Station	Date	Fluor.	chlor-a	750	664	647	630	chlor-a	chlor-b	chlor-c
number	Collected	Reading	mg/m ²					mg/m2	mg/m2	mg/m2
at mouth	1-Jul-98	14.9	3.48							
at mouth	1-Jul-98	31.5	7.31	0.03	0.091	0.228	0.071	1.66	14.89	0.00
at mouth	1-Jul-98	17	4.06							
at mouth	1-Jul-98	7.4	1.41							
at mouth	1-Jul-98	7.6	1.46							
at mouth	1-Jul-98	12.2	2.73							
at mouth	1-Jul-98	15.5	3.64							
at mouth	1-Jul-98	17.5	4.19							
at mouth	1-Jul-98	15.6	3.67							
at mouth	1-Jul-98	10	2.12							
Station 208	25-Jul-98	16	3.78							
Station 208	25-Jul-98	7.6	1.46							
Station 208	25-Jul-98	9	1.85							
Station 208	25-Jul-98	9.4	1.96							
Station 208	25-Jul-98	4.4	0.58							
Station 208	25-Jul-98	5.4	0.85							
Station 208	25-Jul-98	2	0.00							
Station 208	25-Jul-98	11.5	2.54							
Station 208	25-Jul-98	10.4	2.23							
Station 208	25-Jul-98	8.4	1.68							

East Fork Ikalukrok Creek, Station 208. Sample size was 0.0025 m², extract volume was 0.01 liters.

Date	Fluor.	chlor-a	750	664	647	630	665-a	750-a	chlor-a	chlor-b	chlor-c
Collected	Reading	mg/m ²							mg/m ²	mg/m ²	mg/m ²
7-Jul-00	12.5	3.10	0	0.066	0.018	0.013			3.01	0.00	0.29
7-Jul-00	24.5	6.27	0	0.233	0.063	0.046			10.64	0.00	1.04
7-Jul-00	12.5	3.10	0	0.069	0.018	0.013			3.16	0.00	0.27
7-Jul-00	19	4.82	0.001	0.135	0.037	0.028			6.12	0.00	0.72
7-Jul-00	19	4.82	0	0.122	0.034	0.025			5.57	0.00	0.60
7-Jul-00	17.5	4.42	0	0.107	0.03	0.022			4.88	0.00	0.53
7-Jul-00	22	5.61	0	0.173	0.048	0.036			7.89	0.00	0.92
7-Jul-00	21	5.34	0.001	0.167	0.046	0.035			7.58	0.00	0.92
7-Jul-00	9.4	2.29	0.002	0.05	0.016	0.012			2.19	0.13	0.36
7-Jul-00	17.5	4.42	0.002	0.117	0.034	0.027			5.25	0.03	0.83
6-Jul-01			0.003	0.101	0.032	0.025	0.059	0.001	4.46	0.06	0.16
6-Jul-01			0.001	0.059	0.018	0.013	0.037	0	2.64	0.03	0.10
6-Jul-01			0.002	0.059	0.023	0.017	0.037	0.002	2.57	0.04	0.10
6-Jul-01			0.003	0.125	0.039	0.026	0.074	0.001	5.55	0.06	0.20
6-Jul-01			0.003	0.057	0.022	0.016	0.037	0.004	2.44	0.03	0.09
6-Jul-01			0	0.078	0.024	0.017	0.047	0	3.54	0.05	0.13
6-Jul-01			0	0.145	0.042	0.029	0.086	0	6.61	0.08	0.24
6-Jul-01			0.003	0.153	0.047	0.034	0.093	0.003	6.83	0.08	0.25
6-Jul-01			0.003	0.077	0.024	0.017	0.047	0.003	3.37	0.04	0.12
6-Jul-01			0.002	0.04	0.015	0.011	0.025	0.002	1.72	0.02	0.06

East Fork Ikalukrok Creek, Station 208. Sample size was 0.0025 m², extract volume was 0.01 liters.

Date	750	664	647	630	665-a	750-a	chlor-a	chlor-b	chlor-c
Collected							mg/m2	mg/m2	mg/m2
10-Jul-02	0.005	0.179	0.055	0.042	0.103	0.004	7.93	0.10	0.29
10-Jul-02	0.006	0.262	0.078	0.061	0.153	0.004	11.67	0.15	0.43
10-Jul-02	0.003	0.116	0.038	0.027	0.071	0.004	5.13	0.06	0.19
10-Jul-02	0.003	0.136	0.043	0.032	0.084	0.004	6.05	0.08	0.22
10-Jul-02	0.007	0.295	0.098	0.068	0.198	0.006	13.07	0.16	0.48
10-Jul-02	0.006	0.028	0.013	0.011			1.00	0.01	0.04
10-Jul-02	0.005	0.142	0.042	0.032	0.084	0.004	6.26	0.07	0.23
10-Jul-02	0.005	0.245	0.071	0.053	0.144	0.004	10.95	0.13	0.40
10-Jul-02	0.005	0.132	0.04	0.031	0.079	0.006	5.80	0.07	0.21
10-Jul-02	0.005	0.131	0.041	0.031	0.075	0.002	5.74	0.07	0.21

June 26, 1997. East Fork Ikalukrok Creek, Station 208.

	Volume of Water		97.86		76.46		114.68		108.26		42.82	
	Proportion of sample		0.25		0.5		0.125		0.5		1	
Taxon	Net #		1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	16		24		32		22		22	
	Heptageniidae	<i>Cinygmula</i>	34		26		39		34		12	
Plecoptera	Capniidae	<i>Capnia</i>	26		32		21		46		15	
	Nemouridae	<i>Nemoura</i>	3		5		3		6			
		<i>Podmosta</i>	9		5		13		11		4	
	Perlodidae	<i>Alloperla</i>	3				3		1		3	
Diptera	Chironomidae	larvae	157		259	7	123	22	333	24	226	18
	Chironomidae	pupae	27	26	21		32		19		3	
	Tipulidae	<i>Tipula</i>	1		1							
	Simuliidae	<i>Simulium</i>	23		20		12		22		4	
	Dixidae			10		6		5		11		14
	Ephydriidae			2	1				1			1
Collembola	Poduridae	<i>Podura</i>					1		3		4	
		<i>Sminthurus</i>							1			
Acari	Acarina		13		8		11		11		3	
Oligochaeta				1				1				
Hymenoptera				2		5				5		
Arachnida								1				
	Cicadellidae									1		

July 30, 1997. East Fork Ikalukrok Creek, Station 208.

	Volume of Water		214		133.8		160.56		169.27		152.91	
	Proportion of sample		0.125		0.125		0.125		0.125		0.125	
Taxon		Net #	1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	70		47	8	21		24	2	37	1
	Heptageniidae	<i>Cinygmula</i>	17		28	2			6		8	1
		<i>Epeorus</i>	63		45	8	8		24	2	35	
Plecoptera	Capniidae	<i>Capnia</i>	3		1		11		4		7	1
	Nemouridae	<i>Nemoura</i>	7				3		1		1	
		<i>Podmosta</i>	16		9		3				15	1
Trichoptera	Brachycentridae	<i>Brachycentrus</i>					1					
	Glossosomatidae						2					
Diptera	Chironomidae	larvae	21	6	6	5	6	10	13	2	14	15
	Chironomidae	pupae	6		3		7		3		3	
	Tipulidae	<i>Tipula</i>			1						3	
	Simuliidae	<i>Simulium</i>	20		13		3		1		3	
	Dixidae			9		23		25				6
	Ephydriidae			1	1	1						
Collembola	Isotomidae	<i>Axelsonia</i>							1		2	
	Poduridae	<i>Podura</i>						1				
		<i>Sminthurus</i>	1									
Acari	Acarina			25	1		5		5			
Oligochaeta										1		
Hymenoptera				7		44		33		4		14
	Cicadellidae			1		4		5				3

June 28, 1998. East Fork Ikalukrok Creek, Station 208.

	Volume of Water through net		156.58		130.59		112.39		81.56		46.61	
	Proportion of sample		0.125		0.125		0.125		0.125		0.125	
	Taxon	Net #	1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	Baetis	7		2		2					
	Heptageniidae	Cinygmula			16		30		6		6	
Plecoptera	Capniidae	Capnia	9				47		3		4	
	Nemouridae	Nemoura	19		10		31	1	6		29	
		Podmosta			1							
	Perlodidae	Alloperla			24							
Diptera	Chironomidae	larvae	134	12	195	9	173	13	109	10	225	13
	Chironomidae	pupae	4		4		10		8		11	
	Tipulidae	Tipula					19					
	Simuliidae	Simulium	23		15				6		16	
	Staphylinidae					1						
Collembola	Hypogasturidae										2	
	Isotomidae	Axelsonia	9						10		3	
	Poduridae	Podura					4					
		Sminthurus					1					
Acari	Acarina		3		4		3		1		7	
Oligochaeta								4				
Miscellaneous terrestrial Diptera				2						4		1
Thysanoptera												1
Homoptera	Cicadellidae			1				1		1		3

July 25, 1998. East Fork Ikalukrok Creek, Station 208.

			198.8		286.7		117.7		240.8		318.1	
	Proportion of sample		0.25		0.125		0.125		0.125		0.125	
Taxon	Net #		1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	315		90		30		98		130	
	Heptageniidae	<i>Cinygmula</i>			4		1		4		1	
Plecoptera	Capniidae	<i>Capnia</i>	15		22		4		6	1	22	1
	Nemouridae	<i>Nemoura</i>	34	1	7		11		23	1	42	
Diptera	Chironomidae	larvae	24	12	11	4	1	6	10	2	19	23
	Chironomidae	pupae	13		22		1		2		3	
	Empididae	<i>Chelifera</i>							1			
	Tipulidae	<i>Tipula</i>	1								1	
	Simuliidae	<i>Simulium</i>	22		2		6		19		18	
Coleoptera	Hydrophilidae	larvae	1								1	
	Staphylinidae											1
Collembola	Isotomidae	<i>Axelsonia</i>					1				1	
	Poduridae	<i>Podura</i>	1								2	
	Sminthuridae	<i>Sminthurus</i>	1								2	
Acari	Acarina		6		6		1		1		2	
Miscellaneous terrestrial Diptera				6				1		2		14
	Cicadellidae			6				3		3		5
Psocoptera												1

July 7, 2000. East Fork Ikalukrok Creek, Station 208.

		Water Volume (m3) =	118.8		73.4		127.8		118.5		56.6	
		Proportion of sample =	0.25		0.25		0.25		0.25		1	
Taxon	Net #		1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	34		8		6		17		28	
	Heptageniidae	<i>Cinygmula</i>	14		6		11		14		7	
Plecoptera	Capniidae	<i>Capnia</i>	235		13		82		102		131	
	Nemouridae	<i>Nemoura</i>	15		1				1		2	
Diptera	Chironomidae	larvae	197		95		160		100		272	
	Chironomidae	pupae	204		127		246		163		137	
	Empididae	<i>Chelifera</i>			1				1			
	Simuliidae	<i>Simulium</i>	24		1		4		4		7	
Coleoptera	Dytiscidae		1									
Collembola	Sminthuridae	<i>Dicyrtoma</i>					1					
Acari	Acarina		6		4		9		19		17	
Oligochaeta			1						1		3	
Nematoda									1			
Ostracoda					1							
Copepoda	Cyclopoida								1			
Miscellaneous terrestrial Diptera				21		33		45		24		24
Thysanoptera				1						1		
Arachnida								1		1		1

July 6, 2001. East Fork Ikalukrok Creek, Station 208.

		Water Volume (m3)	=	120		91.75		171.63		178.29		181.29	
		Proportion of sample	=	0.2		0.2		0.2		0.2		0.2	
Taxon	Net #		1	Adult	2	Adult	3	Adult	4	Adult	5	Adult	
Ephemeroptera	Baetidae	<i>Baetis</i>	9		1						1		
	Heptageniidae	<i>Cinygmula</i>	19		38		20		19		38		
		<i>Epeorus</i>	1										
Plecoptera	Capniidae	<i>Capnia</i>	42		81		44		40		61		
	Nemouridae	<i>Nemoura</i>					6		3				
		<i>Podmosta</i>	7		12		2		2		6		
Diptera	Chironomidae	larvae	314		727		506		412		573		
	Chironomidae	pupae	42		27		91		71		118		
	Empididae	<i>Chelifera</i>	1		7		4		7		8		
	Tipulidae	<i>Tipula</i>	1		2		1						
	Simuliidae	<i>Simulium</i>	10		13		19		10		15		
Coleoptera	Staphylinidae								2		1		
	Hypogasturidae												
Collembola	Isotomidae	<i>Axelsonia</i>					2				1		
	Onychiuridae	<i>Lophognathella</i>					1						
	Onychiuridae	<i>Onychiurus</i>							1				
Acari	Acarina		5		13		14		4		17		
Oligochaeta			5		5		4		1		2		
Ostracoda											2		
Copepoda	Cyclopoida		2				6				3		
	Harpacticoida						1						
Miscellaneous terrestrial Diptera				12		3		23		20		15	
Hymenoptera								1		1		4	
Misc. Terr. Insects								1				5	

July 11, 2002. East Fork Ikalukrok Creek, Station 208.

		Water Volume (m3) =	110.1		244.66		116.98		68.81		128.45	
		Proportion of sample =	1		1		1		1		1	
Taxon		Sample Number (Net)=	1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	47		16		8		16		29	
	Heptageniidae	<i>Cinygmula</i>	11								1	
Plecoptera	Capniidae	<i>Capnia</i>	18		10				3		7	
	Nemouridae	<i>Nemoura</i>	4		2						2	
Diptera	Chironomidae	larvae	17		7		8		9		12	
	Chironomidae	pupae	34		23		16		8		15	
	Tipulidae	<i>Tipula</i>	1									
	Simuliidae	<i>Simulium</i>			2						1	
Collembola	Isotomidae	<i>Axelsonia</i>	5		1		2				1	
	Onychiuridae	<i>Lophognathella</i>	3		5		1		3		4	
		<i>Sminthurus</i>	5						1		3	
Acari	Acarina		11		1						3	
Oligochaeta			3									
Ostracoda			8		4				4		10	
Copepoda	Cyclopoida		2								4	
Misc. Terrestrial Diptera				56		43		22		9		17
Hymenoptera						1		1		1		1

Summary of Invertebrate data. East Fork Ikalukrok Creek, Station 208.

		1997	1998	2000	2001	2002
Total aquatic taxa		13	16	15	20	15
Tot. Ephemeroptera		202.8	110.4	95	146	25.6
Tot. Plecoptera		143.6	292.8	385.8	306	9.2
Tot. Trichop.		0	0	0	0	0
Total Aq. Diptera		847.8	1614.4	1144.8	2979	30.6
Misc.Aq.sp		40.2	76.8	40	92	16.8
% Ephemeroptera		16%	5%	6%	4%	31%
% Plecoptera		12%	14%	23%	9%	11%
% Trichoptera		0%	0%	0%	0%	0%
% Aq. Diptera		69%	77%	69%	85%	37%
% other		3%	4%	2%	3%	20%
% EPT		28%	19%	29%	13%	42%
% Chironomidae		62%	71%	67%	82%	36%
% Dominant Aquatic Taxon		53%	67%	40%	72%	32%
Volume of water (m3)		440.1	527.7	495.1	743.0	669.0
average water/net		88.0	105.5	99.0	148.6	133.8
StDev of water volume		29.1	42.8	31.8	40.4	65.9
Estimated total inverts/m3 water		14.2	20.1	17.9	24.3	0.8
Estimated aquatic inverts/m3 water		12.9	19.0	16.8	23.7	0.6
average inv/m3		12.0	23.3	16.0	26.0	0.7
Stdev of aq. Inv. Den.		5.1	16.6	5.2	13.9	0.5
Total aquatic invertebrates		5688	10008	8328	17615	411
Total. terrestrial invertebrates		547	616	533	425	151
Total invertebrates		6235	10624	8861	18040	562
% Sample aquatic		91%	94%	94%	98%	73%
% Sample terrestrial		9%	6%	6%	2%	27%
Average # aquatic inverts / net		1138	2002	1666	3523	82
stdev aq inv/net		749	567	906	961	53
Average # terr. inverts / net		109	123	107	85	30
Average # inverts / net		1247	2125	1772	3608	112
stdev inv/net		831	577	930	954	69
Total Larval Fish/site		0	0	0	0	0

East Fork Ikalukrok Creek Station 208, Ten Minnow Traps per event for Dolly Varden.

7/8/00	7/29/00	7/8/01	8/3/01	7/12/02	8/1/02
FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)
no DVs	113	no DVs	no DVs	no DVs	110
					89
					112

Appendix 5. Station 209

Water Quality and Biological data from Grayling Junior Creek, Station 209.

Date	Lab	Al µg/L	Alk mg/L CaCO3	As µg/L	Ca mg/L	Cd µg/L	Cl mg/L	Cond µS/cm	Cr µg/L	Cu µg/L	Fe µg/L	K mg/L
6/4/00	CTE&E	302	34	1	16.1	0.2	0.9	38.2		6.1	716	0.7
6/11/00												
6/22/00	CTE&E	< 50	84.3			< 0.2		211	< 5	< 10	111	
7/16/00	CTE&E	< 75	95.9	< 10	41.6	< 1	1	182		< 7.5	< 250	< 2.5
8/25/00	CTE&E	< 75	102	< 10	56.5	< 1	< 5.0	253	< 12.5	< 7.5	< 250	< 2.5
8/31/00												
9/9/00	CTE&E	< 75	90	< 10	43.5	< 1	< 5.0	177	< 12.5	< 7.5	< 250	< 2.5
9/22/00	CTE&E	< 75	107	< 10	54.4	< 1	0.6	224	< 12.5	< 7.5	< 250	< 2.5
10/6/00	CTE&E	< 75	128	< 10	69.9	< 1	< 5.0	256	< 12.5	< 7.5	< 250	< 2.5
1/22/01	CTE&E	< 75	231	< 5	112	< 1	< 2.5		< 12.5	< 7.5	335	< 2.5
2/17/01	CTE&E	< 75	235	< 5	122	< 1	< 5.0		< 12.5	< 7.5	515	0.8
3/18/01	CTE&E	< 100	265	< 5	147	< 1	< 0.5		< 20	< 7.5	80	< 2.5
6/2/01	CAS							63.6				
6/24/01	CAS	24.5	62		27.2	< 0.05	0.4	175		< 1	33.9	< 2.0
7/13/01	CTE&E	< 20	92.5		46	< 0.1	< 5.0	249		0.8	< 20.0	< 0.5
7/26/01	CAS	< 10	94		49.2	< 0.1	0.4	220		1.1	< 20.0	< 2.0
8/4/01	CTE&E	< 20	90		46.5	< 0.1	< 2.5	208		< 0.8	< 50.0	< 0.5
8/19/01	CAS	13.9	92		50.8	< 0.1	0.4	187		< 1	50.1	< 2.0
9/13/01	CAS							234				
9/22/01	CAS	< 20	114		67.2	< 0.1	0.5	246		< 1	38.5	< 2.0
10/9/01	Field							304				
10/9/01	CTE	< 20	140		81.3	< 0.1	< 5			< 0.8	< 50	< 0.5
10/28/01	Field							468				
10/28/01	CAS	42.3	176		102	< 0.1	1			< 1	177	< 2

Grayling Junior Creek, Station 209.

Date	Lab	Al µg/L	Alk mg/L CaCO3	Ca mg/L	Cd µg/L	Cl mg/L	Cond µS/cm	Cu µg/L	Fe µg/L	K mg/L
5/26/02	CTE	388	32	11.7	< 0.1	< 1	83.2	3.3	1,140	< 0.5
6/1/02	Field						107			
6/14/02	CTE	40	65	25.3	< 0.1	< 2		< 1	63.1	< 0.5
6/27/02	CAS	< 20	84	36.3	< 0.1	0.4	191	< 1	22.8	< 2
7/15/02	Field						193			
7/15/02	CAS									
7/15/02	CTE	< 20	89	38	< 0.1	< 1		< 1	< 40	< 0.5
7/28/02	Field									
7/28/02	Field						292			
8/7/02	Field						317			
8/23/02	Field						218			
8/23/02	CAS	22	108	59.2	< 0.1	0.5		< 1	50.3	< 2
9/9/02	Field						188			
9/9/02	CTE	32.8	81	36.2	< 0.1	0.5		1.4	< 40	< 0.5
9/22/02	Field						186			
9/22/02	CAS	22	100	53	< 0.1	0.6		< 1	46	< 2
10/6/02	Field						221			
10/6/02	CAS									
10/23/02	Field						290			
10/23/02	CAS	< 20	137	79.9	< 0.1	0.7		< 1	27.9	< 2

Grayling Junior Creek, Station 209.

Date	Lab	Mg	Mn	Na	Ni	NO ₂	NO ₂ +NO ₃	NO ₃	pH	P	Pb	PO ₄	Se
		mg/L	µg/L	mg/L	µg/L	mg/L	mg/L	mg/L		µg/L	µg/L	µg/L	µg/L
6/4/00	CTE&E	3.3	189	0.8	6		0.6		7.2		2.4		2.5
6/11/00													
6/22/00	CTE&E		< 10.0		< 10		0.6		7.7		< 2		5
7/16/00	CTE&E	10.8	< 10.0	< 2.0	< 50		1.2		7.8		< 2		3
8/25/00	CTE&E	15.5	< 10.0	3	< 50		5		7.6		< 2		2
8/31/00													
9/9/00	CTE&E	11.1	24.1	2.6	< 50		5		6.9		< 2		2
9/22/00	CTE&E	16.5	10.2	3	< 50		0.5		7.8		< 2		2
10/6/00	CTE&E	18.1	19.6	4	< 50		5		7.6		< 2		2
1/22/01	CTE&E	50.4	< 10.0	20.3	< 50		2.5				2.6		1
2/17/01	CTE&E	46	< 10.0	13.5	< 50		5				< 2		1
3/18/01	CTE&E	56.5	34.8	19	< 50	< 0.5		< 0.5	7.6		< 2	< 0.5	1
6/2/01	CAS								6.9				1
6/24/01	CAS	6	7.9	0.9	1.9		0.2		7.3		0.02		1
7/13/01	CTE&E	10.9	< 3.0	2.4	2.4		5		8.1		< 0.4		1.4
7/26/01	CAS	11.9	6.1	2.3	2.3		0.2		8.2		< 0.04		1
8/4/01	CTE&E	11	< 3.0	2.4	2.7		2.5		7.8		< 0.4		1
8/19/01	CAS	12.1	12.6	2.6	3.3		0.2		7.5		< 0.04		1
9/13/01	CAS								8.3				1.3
9/22/01	CAS	16.8	18.1	3.5	1.1		0.2		7.7		< 0.04		1.1
10/9/01	CTE	21.6	26.9	5.1	4.5		5		7.9		< 0.4		1.1
10/28/01	CAS	25.9	25.2	8.5	2.2		0.2		7.2		0.8		1.2
5/26/02	CTE	1.7	107	< 0.5	5		1		6.8		1.4		
6/1/02	Field								6.8				
6/14/02	CTE	5.8	< 5	1.3	< 5						< 0.4		< 1
6/27/02	CAS	8.5	1.9	1.8	1.3		0.2		7.5		< 0.04		< 1

Grayling Junior Creek, Station 209.

Date	Lab	Mg	Mn	Na	Ni	NO ₂ +NO ₃	NO ₃	pH	P	Pb	Se
		mg/L	µg/L	mg/L	µg/L	mg/L	mg/L		µg/L	µg/L	µg/L
7/15/02	Field							8			
7/15/02	CAS										< 1
7/15/02	CTE	9.5	< 5	2	< 5	1.2				< 0.4	
7/28/02	Field										
7/28/02	Field							6.9			
8/7/02	Field							8.3			
8/23/02	Field							8.1			
8/23/02	CAS	14.7	8.5	3.3	4.8	0.2				0.06	1.3
9/9/02	Field							7.5			
9/9/02	CTE	8	14.1	1.5	5	0.2				< 0.4	
9/22/02	Field							7.5			
9/22/02	CAS	13.1	14.2	2.8	3.3	0.2				< 0.04	1.1
10/6/02	Field							7.4			
10/6/02	CAS										< 1
10/23/02	Field							7.2			
10/23/02	CAS	20.2	15.4	5	3.3	0.2				< 0.04	< 1

Grayling Junior Creek, Station 209.

			Analyzed	Summation						Hardness
Date	Lab	SO4	TDS	TDS	Temp	TOC	Tot P	TSS	Zn	mg/L
		mg/L	mg/L	mg/L	°C	mg/L	mg/L	mg/L	µg/L	CaCO3
6/4/00	CTE&E	23.6		87	0.7	8.7	< 0.2	34.2	19.6	54
6/11/00										
6/22/00	CTE&E	104	256	205	5.6	< 0.5	< 0.2		< 20	152
7/16/00	CTE&E	74.5	196	243	10.4			0.8	< 100	148
8/25/00	CTE&E	107	230	304	5.7	0.9	< 0.2		< 100	205
8/31/00										
9/9/00	CTE&E	75.6	186	241	1.4	< 0.5	< 0.2		< 100	154
9/22/00	CTE&E	116	244	319	1.2	1	< 0.2		< 100	204
10/6/00	CTE&E	166	344	412	0.3	0.6	< 0.2		< 100	249
1/22/01	CTE&E	359	748	819		1	< 0.2	1.2	104	487
2/17/01	CTE&E	401	679	866	0.5	1	< 0.2	0.4	< 100	494
3/18/01	CTE&E	408	794	949	0.3	1.9	< 0.2	0.4	< 100	600
6/2/01	CAS				0.5					
6/24/01	CAS	36	116	145	4	< 0.5		< 5	2.1	93
7/13/01	CTE&E	73.1	136	243	11.1	< 0.5		< 0.5	5.7	160
7/26/01	CAS	82	231	259	6.6	< 0.5		< 5	2.7	172
8/4/01	CTE&E	66	123	234	5.3	0.7		< 0.4	< 2	162
8/19/01	CAS	71.4	210	248	4.2	0.6		< 5	3.8	177
9/13/01	CAS				5					
9/22/01	CAS	116	234	341	1.1	< 0.5		< 5	6.5	237
10/9/01	CAS				0.4					
10/9/01	CTE	162	370			0.7		< 0.4	< 2	
10/28/01	CAS	233	512		5	0.9		< 5	106	
5/26/02	CTE	7.9	65		1.1	3.4		46.6	25.7	
6/1/02	Field				3.2					
6/14/02	CTE	32.5	153			1		1.6	< 2	
6/27/02	CAS	48	167		8.7	< 0.5		< 5	< 2	

Grayling Junior Creek, Station 209.

			Analyzed					
Date	Lab	SO4	TDS	Temp	Tl (µg/L)	TOC	TSS	Zn
		mg/L	mg/L	°C		mg/L	mg/L	µg/L
7/15/02	Field			8.5				
7/15/02	CAS							
7/15/02	CTE	51.4	155			0.8	0.6	< 2
7/28/02	Field			9.4				
7/28/02	Field							
8/7/02	Field			8.5				
8/23/02	Field			4.5				
8/23/02	CAS	96	258			< 0.5	< 5	5.2
9/9/02	Field			2.8				
9/9/02	CTE	72.8	148		< 0.3	0.9	1.6	< 2
9/22/02	Field			-0.1				
9/22/02	CAS	79	234		< 0.04	0.9	< 5	4.4
10/6/02	Field			0.6				
10/6/02	CAS							
10/23/02	Field			0.1				
10/23/02	CAS	143	276		< 0.04	0.7	< 5	5.6

Estimates of periphyton biomass. Grayling Junior Creek, Station 209. Sample size was 0.0025 m², extract volume was 0.01 liters.

Date	Fluor.	Fluor. Chlor-a					Spect.	Spect.	Spect.
Collected	Reading	mg/m2	750	664	647	630	chlor-a, mg/m2	chlor-b, mg/m2	chlor-c, mg/m2
07/10/00	9.7	2.36532	0.002	0.048	0.017	0.013	2.08	0.25	0.44
07/10/00	15	3.7624	0	0.071	0.023	0.016	3.22	0.22	0.40
07/10/00	7.2	1.70632	0.002	0.031	0.013	0.008	1.30	0.34	0.18
07/10/00	16	4.026	0	0.08	0.023	0.016	3.65	0.03	0.34
07/10/00	15	3.7624	0	0.076	0.021	0.014	3.47	0.00	0.23
07/10/00	13.5	3.367	0	0.063	0.019	0.014	2.86	0.08	0.37
07/10/00	13	3.2352	0.002	0.062	0.02	0.015	2.73	0.18	0.45
07/10/00	12.5	3.1034	0.002	0.057	0.019	0.014	2.50	0.21	0.41
07/10/00	16.5	4.1578	0.002	0.091	0.029	0.022	4.05	0.23	0.67
07/10/00	22.5	5.7394	0.001	0.206	0.058	0.04	9.35	0.00	0.78
07/08/01			0	0.036	0.01	0.007	1.64	0.00	0.14
07/08/01			0.005	0.048	0.017	0.013	1.96	0.00	0.13
07/08/01			0	0.04	0.011	0.008	1.83	0.00	0.18
07/08/01			0	0.029	0.007	0.005	1.33	0.00	0.08
07/08/01			0	0.053	0.02	0.011	2.39	0.41	0.12
07/08/01			0	0.072	0.024	0.013	3.26	0.32	0.06
07/08/01			0	0.029	0.011	0.009	1.30	0.20	0.35
07/08/01			0	0.029	0.007	0.004	1.33	0.00	0.00
07/08/01			0	0.019	0.005	0.004	0.87	0.00	0.11
07/08/01			0.004	0.031	0.012	0.01	1.23	0.02	0.16
07/11/02			0.004	0.098	0.029	0.023	4.29552	0	0.4756
07/11/02			0.004	0.082	0.026	0.02	3.55656	0	0.37944
07/11/02			0.006	0.101	0.033	0.026	4.33028	0	0.5062
07/11/02			0.006	0.125	0.04	0.032	5.42284	0	0.72156
07/11/02			0.002	0.099	0.029	0.023	4.42476	0	0.59092
07/11/02			0.004	0.117	0.035	0.028	5.15756	0	0.65668
07/11/02			0.005	0.122	0.035	0.028	5.35364	0	0.56228
07/11/02			0.004	0.115	0.036	0.029	5.05628	0.01492	0.73772
07/11/02			0.005	0.085	0.029	0.024	3.63808	0.07912	0.59952
07/11/02			0.003	0.114	0.034	0.026	5.06308	0	0.57196

July 8, 2000. Grayling Junior Creek, Station 209.

	Vol. Of Water		103.61		81.96		132.27		65.14		100.8	
	Proportion of sample		0.25		0.25		0.25		0.25		0.25	
	Taxon	Net No.	1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Heptageniidae	<i>Cinygmula</i>	7		18		17		10		36	
Plecoptera	Capniidae	<i>Capnia</i>	17		33		13		20		1	
	Nemouridae	<i>Nemoura</i>	10		11		3		6			
Diptera	Chironomidae	larvae	110		217		182		189		161	
	Chironomidae	pupae	14		47		19		14		6	
	Empididae	<i>Chelifera</i>			1				2		2	
	Tipulidae	<i>Tipula</i>					1					
	Simuliidae	<i>Simulium</i>	12		27		29		31		8	
Collembola	<i>Isotomidae</i>	<i>Axelsonia</i>			1							
Acari					1		4		2		4	
Oligochaeta									3		1	
Miscellaneous terrestrial Diptera				14		45		14				5
Thysanoptera						1						
Homoptera	<i>Aphididae</i>					1						

July 8, 2001. Grayling Junior Creek, Station 209.

	Water Volume (m3) =		236.16		125.6		318.24		177.38		286.25	
	Proportion of sample =		1		0.6		0.2		0.2		0.2	
	Taxon	Net No.	1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	21		12		4				2	
	Heptageniidae	<i>Cinygmula</i>	17		16		7		7		4	
Plecoptera	Capniidae	<i>Capnia</i>	253		135		79		48		48	
	Nemouridae	<i>Nemoura</i>	8		17		6		5		1	
Diptera	Chironomidae	larvae	300		149		145		146		121	
	Chironomidae	pupae	160		29		46		33		63	
	Empididae	<i>Chelifera</i>	16		12		10		7		3	
	Tipulidae	<i>Tipula</i>	1									
	Simuliidae	<i>Simulium</i>	54		43		19		17		10	
Coleoptera	Carabidae		1				1				1	
	Staphylinidae		1						1		2	
Collembola	Isotomidae	<i>Axelsonia</i>	14				3		1		10	
	Onychiuridae	<i>Lophognathella</i>									4	
	Onychiuridae	<i>Onychiurus</i>	2								1	
		<i>Sminthurus</i>	2								2	
Acari			93		44		25		22		25	
Oligochaeta			2		5		1		1			
Miscellaneous terrestrial Diptera				44		7		31		11		41
Hymenoptera				7		1		4		2		7
Misc Terrestrial				4		2		2		1		3

July 11, 2002. Grayling Junior Creek, Station 209.

	Water Volume (m3) =		123.86		116.98		109.33		96.33		64.22	
	Proportion of sample =		1		1		1		1		1	
Taxon	Sample Number (Net)=		1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	86		17		27		37		12	
	Heptageniidae	<i>Cinygmula</i>							1			
Plecoptera	Capniidae	<i>Capnia</i>	89		11		86		33		6	
	Nemouridae	<i>Nemoura</i>	11		2		26		11			
Diptera	Chironomidae	larvae	106		35		42		39		6	
	Chironomidae	pupae	406		60		177		276		45	
	Tipulidae	<i>Tipula</i>					1					
	Simuliidae	<i>Simulium</i>	5		4		1		3			
Coleoptera	Carabidae										1	
	Staphylinidae							3		1		
Collembola	Isotomidae	<i>Axelsonia</i>	11				3		6			
	Onychiuridae	<i>Lophognathella</i>	7				3		5			
	Onychiuridae	<i>Onychiurus</i>							1			
	Sminthuridae	<i>Sminthurus</i>	3				2		2			
Acari			23		14		6		9		4	
Oligochaeta					3							
Copepoda	Cyclopoida										1	
Misc. Terrestrial Diptera				185		12		95		92		5
Hymenoptera				15		1		16		18		
Misc Terrestrial				9		1		12		9		

Summary of invertebrate data, Grayling Junior Creek, Station 209.

	2000	2001	2002
Total aquatic taxa	11	17	17
Tot. Ephemeroptera	70	41	36
Tot. Plecoptera	91	290	55
Tot. Trichop.	0	0	0
Total Aq. Diptera	858	804	241
Misc.Aq.sp	13	139	22
% Ephemeroptera	7%	3%	10%
% Plecoptera	9%	23%	16%
% Trichoptera	0%	0%	0%
% Aq. Diptera	83%	63%	68%
% other	1%	11%	6%
% EPT	16%	26%	26%
% Chironomidae	74%	55%	67%
% Dominant Aquatic Taxon	67%	41%	55%
average water/net	96.8	228.7	102.1
StDev of water volume	25.2	78.5	23.5
Estimated total inverts/m3 water	11.3	6.1	4.4
Estimated aquatic inverts/m3 water	10.7	5.6	3.5
average inv/m3	11.5	5.8	3.3
Stdev of aq. Inv. Den.	5.2	1.5	2.1
Total aquatic invertebrates	5160	6370	1765
Total. terrestrial invertebrates	320	581.66667	474
Total invertebrates	5480	6951.66667	2239
% Sample aquatic	94%	92%	79%
% Sample terrestrial	6%	8%	21%
Average # aquatic inverts / net	1032	1274	353
stdev aq inv/net	278.1	400.7	264.9
Average # terr. inverts / net	64.0	116.3	94.8
Average # inverts / net	1096.0	1390.3	447.8
stdev inv/net	330.5	481.8	349.3
Total Larval Fish/site	0	0	0

Grayling Junior Creek Station 209, Ten Minnow Traps per event for Dolly Varden.

7/11/00	7/29/00	7/10/01	8/1/01	7/12/02	8/1/02	8/1/02
FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)
94	83	105	81	no DVs	98	134
84	97	118	83		82	92
94	98	118	84		83	88
86	94	128	85		78	85
77	97	140	87		102	98
134	94		87		118	91
95	91		90		98	100
77	94		90		102	88
78			94		104	92
82			108		104	134
98			109		98	
92			137		93	
93					84	
93					90	
					90	
					108	
					104	
					82	
					135	
					128	
					86	
					88	
					125	
					98	
					92	
					82	
					94	
					138	
					117	
					92	
					94	
					94	
					100	
					82	
					84	

Concentrations of metals in whole body fish tissues, dry wt. basis.

Grayling Junior Creek, Tributary to the upper Ikalukrok Creek								
	Date	Weight	Length	Cd	Pb	Se	Zn	%
Sample Number	Collected	grams	mm	mg/kg	mg/kg	mg/kg	mg/kg	Solids
080501GJ01DVJ01	8/1/01	20.99	137	0.69	0.16	7.40	171	22.4
080501GJ01DVJ02	8/1/01	11.27	109	3.78	1.44	7.20	573	21.9
080501GJ01DVJ03	8/1/01	5.17	85	1.64	0.48	6.40	235	20.1
080501GJ01DVJ04	8/1/01	9.9	108	2.3	0.89	6.60	344	19.7
080501GJ01DVJ05	8/1/01	6.09	90	0.71	0.28	5.90	202	21.3
080501GJ01DVJ06	8/1/01	5.77	90	1.27	0.55	7.50	250	19.1
080501GJ01DVJ07	8/1/01	5.14	87	1.66	0.45	7.40	273	19.9
080501GJ01DVJ08	8/1/01	4.63	87	1.48	0.59	6.00	299	18.8
080501GJ01DVJ09	8/1/01	6.08	94	1.6	0.57	7.20	328	19.2
080501GJ01DVJ10	8/1/01	3.93	81	1.96	0.93	7.50	499	18.6

Appendix 6. Station 210

Water quality and biological data for Noa Creek, Station 210.

Date	Lab Name	Ag	Al	CaCO ₃	As	Ca	Cd	Cl	Cond	Cr	Cu	Fe		Hg	K
		µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	mg/L	µS/cm	µg/L	µg/L	µg/L		µg/L	mg/L
5-Jun-00	CTE&E		191	2.1	1	7.7	0.3	0.8	26.5		6.4	262			0.6
14-Jun-00															
22-Jun-00	CTE&E	< 2	124	2.6			2.8		307	< 5	< 10	191	<	0.2	
19-Jul-00	CTE&E		450	< 2.0	< 10	63.3	3.4	1.2	392		16.3	391			< 2.5
25-Aug-00	CTE&E	< 2	613	< 2.0	< 10	51.4	1.5	< 5.0	263	< 12.5	11	< 250			< 2.5
9-Sep-00	CTE&E	< 2	609	< 2.0	< 10	36.5	1.7	< 5.0	187	< 12.5	19.2	< 250			< 2.5
22-Sep-00	CTE&E	< 2	344	2	< 10	48.9	< 1	0.7	262	< 12.5	< 7.5	323			< 2.5
6-Oct-00	CTE&E	< 2	186	5	< 10	59.9	1.5	< 5.0	245	< 12.5	< 7.5	325			< 2.5
2-Jun-01	CAS								66.6						
24-Jun-01	CAS		329	< 2.0		34.7	1.4	0.5	183		13.7	272			< 2.0
13-Jul-01	CTE&E		262	< 5.0		62.8	1.7	< 5.0	354		11.1	333			< 0.5
26-Jul-01	CAS		577	< 2.0		54	1.6	0.6	269		17.6	370			< 2.0
4-Aug-01	CTE&E		522	< 5.0		38.7	1.4	< 2.5			23.8	194			< 0.5
19-Aug-01	CAS		374	< 2.0		35.3	1.1	0.4	168		14.4	198			< 2.0
13-Sep-01	CAS								236						
22-Sep-01	CAS		314	4		48.6	1.4	0.5	242		11	274			< 2.0

Water quality and biological data for Noa Creek, Station 210.

Date	Lab Name	Al	mg/L	Ca	Cd	Cl	Cond	Cu		Fe	K
		µg/L	CaCO3	mg/L	µg/L	mg/L	µS/cm	µg/L		µg/L	mg/L
5/26/02	CTE	110	<5	4.9	0.2	<1	63.7	3.5		115	< 0.5
6/1/02	Field						104				
6/14/02	CTE	79.9	<5	19.8	1.1	<2		3.8		51	< 0.5
6/27/02	CAS	94.5	2	35.8	1.3	0.5	238	3.8		93.7	< 2
7/15/02	CTE	177	<5	36	0.8	<1	204	8.8		99.4	< 0.5
7/28/02	Field						319				
8/7/02	Field						354				
8/23/02	CAS	151	5	58.1	1.1	0.9	259	4.8		138	< 2
9/9/02	CTE	303	<5	23.2	0.8	0.7	164	12.8		94.6	< 0.5
9/22/02	CAS	256	3	35.7	1	0.6	125	9.1		165	< 2
10/6/02	Field						217				

Noa Creek, Station 210.

Date	Lab Name	Mg	Mn	Na	Ni	NO ₂ +NO ₃	pH	Pb	Se	SO ₄
		mg/L	µg/L	mg/L	µg/L	mg/L	Field	µg/L	µg/L	mg/L
5-Jun-00	CTE&E	2.7	1050	0.7	33.5	< 0.5	6.8	2.6	2.5	30.8
22-Jun-00	CTE&E		1650		340	0.7	6.1	< 2	5	271
19-Jul-00	CTE&E	28.7	2170	3.1	418	1.3	5.8	< 2	5.1	308
25-Aug-00	CTE&E	21.7	2230	3.1	355	< 5	5.6	< 2	5	224
9-Sep-00	CTE&E	14	1540	3.1	250	< 5	5.9	< 2	5	165
22-Sep-00	CTE&E	24	1440	3.2	302	< 0.5	6.5	< 2	4	249
6-Oct-00	CTE&E	23.4	934	3.3	285	< 5	6.3	< 2	4	288
2-Jun-01	CAS						5.6		1	
24-Jun-01	CAS	15	1840	2	248	< 0.2	5.5	< 0.04	3.3	151
13-Jul-01	CTE&E	26.9	1380	3.8	326	< 5	6.4	< 0.4	3.9	281
26-Jul-01	CAS	24.8	2360	3.1	358	< 0.2	6.2	< 0.04	3.6	230
4-Aug-01	CTE&E	16	1980	2.6	284	< 2.5	6.1	< 0.4	2.8	152
19-Aug-01	CAS	13.8	1470	2.5	195	< 0.2		< 0.04	3.7	137
13-Sep-01	CAS						7.3		3.9	
22-Sep-01	CAS	19.9	1420	3	268	0.3	6.4	< 0.04	3.3	193
5/26/02	CTE	1.2	284	< 0.5	17.8	< 1	5.8	1.4	< 1	18.2
6/1/02	Field						6.3			
6/14/02	CAS								1.7	
6/14/02	CTE	8.6	1,400	1.7	151			< 0.4		90.8
6/27/02	Field						7.1			
6/27/02	CAS	15.6	800	2.4	219	< 0.2		< 0.04	< 1	168
7/15/02	CTE	14.8	1,120	2.3	232	1.2	6.7	< 0.4	3	151
7/28/02	Field						6.2			
8/7/02	Field						6.6			
8/23/02	CAS	24.3	471	3.6	206	0.2	6.4	< 0.04	2.7	231
9/9/02	CTE	8.4	1,140	1.6	151	0.4	6.2	< 0.4		123
9/22/02	CAS	14.5	974	2.4	186	0.2	6.2	0.09	2.3	146
10/6/02	CAS						6.4		1.4	

Noa Creek, Station 210.

Date	Lab Name	TDS	TDS	Temp	Tl (µg/L)	TOC	Tot P	TSS		Zn	CaCO ₃	Anions	Cations	Charge	Flow
		mg/L	mg/L	°C		mg/L	mg/L	mg/L		µg/L	mg/L			Balance	cfs
				field											
5-Jun-00	CTE&E		47.132	0.4		6.8	< 0.2	3.4		62.9	30.36	0.71	0.70	-0.09	20.9
22-Jun-00	CTE&E	442	275.961	2.6		<0.5	< 0.2			598	243.00	5.69	0.07		0.8
19-Jul-00	CTE&E	412	406.861	3.7						635	276.36	6.45	5.76	-5.66	
25-Aug-00	CTE&E	314	302.43	2.2		1	< 0.2			614	217.80	4.66	4.57	-1.05	5
9-Sep-00	CTE&E	238	220.14	0.8		<0.5	< 0.2			424	148.86	3.44	3.16	-4.10	8.9
22-Sep-00	CTE&E	340	329.963	0.7		0.8	< 0.2			468	221.02	5.24	4.62	-6.28	2.2
6-Oct-00	CTE&E	376	381.859	0.3		0.5	< 0.2			445	246.05	6.10	5.11	-8.80	6.7
2-Jun-01	CAS			0.3											
24-Jun-01	CAS	228	205.312	2.7		<0.5		< 5		365	148.48	3.16	3.13	-0.37	
13-Jul-01	CTE&E	369	376.213	4.9		<0.5		2		469	267.70	5.85	5.58	-2.36	6
26-Jul-01	CAS	378	315.23	3		<0.5		< 5		520	237.06	4.81	4.98	1.75	
4-Aug-01	CTE&E	155	211.474	2.9		0.8		1.8		411	162.59	3.16	3.44	4.22	4.5
19-Aug-01	CAS	221	190.668	2.1		0.5		< 5		319	145.04	2.86	3.07	3.48	
13-Sep-01	CAS			2.9											
22-Sep-01	CAS	452	271.494	1		<0.5		< 5		404	203.39	4.11	4.26	1.76	
5/26/02	CTE	61.3		0.4		3.4		1.4		38.1					
6/1/02	Field			1.4											
6/14/02	CTE	160				1.4		2.8		230					
6/27/02	CAS	234		3.9		0.5		< 5		327					
7/15/02	CTE	215		3.4		0.9		0.6		343					
7/28/02	Field			3.5											
8/7/02	Field			5.2											
8/23/02	CAS	372		2		0.5		< 5		341					
9/9/02	CTE	170		1.8	< 0.3	0.9		1.4		210					
9/22/02	CAS	267		-0.1	< 0.04	0.7		< 5		308					
10/6/02	Field			0.6											

Chlorophyll data, 2000 through 20002. Noa Creek, Station 210. Sample size was 0.0025 m², extract volume was 0.01 liters.

		Fluor.					Spect.	Spect.	Spect.
Date	Fluor.	chlor-a					chlor-a	chlor-b	chlor-c
Collected	Reading	mg/m^2	750	664	647	630	mg/m2	mg/m2	mg/m2
07/09/00	0.55	0							
07/09/00	5.3	1.21	0	0.018	0.002	0	0.84	0	0
07/09/00	1.5	0.20		<MDL					
07/09/00	1.2	0.12		<MDL					
07/09/00	1.8	0.28		<MDL					
07/09/00	1.8	0.28		<MDL					
07/09/00	2.95	0.58		<MDL					
07/09/00	1.7	0.25		<MDL					
07/09/00	0.41	0		<MDL					
07/09/00	1.65	0.24		<MDL					
07/09/01			0.003	0.008	0.006	0.006	0.22	0.11	0.17
07/09/01			0.001	0.008	0.005	0.005	0.31	0.14	0.22
07/09/01			0.002	0.009	0.005	0.005	0.31	0.07	0.16
07/09/01			0.003	0.005	0.005	0.005	0.08	0.10	0.12
07/09/01			0.004	0.009	0.008	0.008	0.21	0.19	0.24
07/09/01			0.004	0.008	0.007	0.007	0.17	0.13	0.18
07/09/01			0.003	0.008	0.006	0.0054	0.22	0.12	0.11
07/09/01			0.001	0.006	0.004	0.004	0.22	0.11	0.17
07/09/01			0.001	0.006	0.004	0.004	0.22	0.11	0.17
07/09/01			0.002	0.005	0.005	0.004	0.12	0.17	0.08

Noa Creek, Station 210. Sample size was 0.0025 m², extract volume was 0.01 liters.

					Spect.	Spect.	Spect.
Date					chlor-a	chlor-b	chlor-c
Collected	750	664	647	630	mg/m2	mg/m2	mg/m2
07/31/02	0.001	0.005	0.001	0.002	0.19	0.00	0.07
07/31/02	0.002	0.006	0.003	0.002	0.18	0.00	0.00
07/31/02	0.001	0.005	0.002	0.001	0.18	0.00	0.00
07/31/02	0.003	0.005	0.002	0.002	0.10	0.00	0.00
07/31/02	0.001	0.004	0.001	0	0.14	0.00	0.00
07/31/02	0.002	0.005	0.002	0.002	0.14	0.00	0.00
07/31/02	0.004	0.006	0.005	0.004	0.09	0.04	0.00
07/31/02	0.003	0.011	0.004	0.003	0.37	0.00	0.00
07/31/02	0.002	0.004	0.002	0.001	0.10	0.00	0.00
07/31/02	0.003	0.008	0.004	0.003	0.23	0.00	0.00

July 9, 2000. Noa Creek, Station 210

	Volume of Water through net		51.38		46.24		47.7		65.5		38.7	
	Proportion of sample		0.13		0.25		0.25		0.25		0.25	
	Taxon	Net No.	1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Plecoptera	Capniidae	<i>Capnia</i>									1	
Diptera	Chironomidae	larvae	5		2		12		2		19	
	Chironomidae	pupae					1				15	
	Tabanidae		1		1				1		1	
	Tipulidae	<i>Tipula</i>									1	
	Simuliidae	<i>Simulium</i>							1			
Coleoptera	Carabidae								1		1	
	Curculionidae						1		1			
	Dytiscidae						2					
	Hydroscaphidae										1	
	Ptiliidae			1	1	1			1		2	
Collembola	<i>Hypogasturidae</i>		1				1		2		4	
	<i>Isotomidae</i>	<i>Axelsonia</i>	9		2		11		15		13	
	<i>Onychiuridae</i>	<i>Lophognathella</i>			1							
	<i>Sminthuridae</i>	<i>Sminthurus</i>			1		2				1	
Lepidoptera	Pyrilidae		2		1		3		2		3	
Acari	Acarina		6		3		5		17		24	
Oligochaeta					1							
Miscellaneous terrestrial Diptera				32		38		44		74		140
Thysanoptera				3		3		7		8		11
Arachnida						1		3		1		8
Homoptera	<i>Aphididae</i>			6		9		3		3		8
	<i>Cicadellidae</i>			1		3		6		3		4

July 9, 2001. Noa Creek, Station 210.

	Volume of Water through net		131.98		83.18		114.5		68.99		66.06	
	Proportion of sample		0.2		0.6		0.4		0.4		0.6	
	Taxon	Net No.	1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Plecoptera	Nemouridae	Nemoura							2		1	
Diptera	Chironomidae	larvae	135		228		201		276		250	
	Chironomidae	pupae	3		2		3		9		11	
	Empididae	Rhamphomyia			1							
	Tipulidae	Tipula			1				1			
	Simuliidae	Simulium			2				1			
Coleoptera	Staphylinidae		1				1		6		2	
Collembola	Isotomidae	Axelsonia	27		30		25		39		41	
	Onychiuridae	Lophognathella			1		1		3			
		Onychiurus	1						1		2	
	Sminthuridae	Sminthurus	1		3		5		12		4	
Lepidoptera		Pyralidae	1								2	
Acari	Acarina		12		16		35		29		27	
Oligochaeta					1		2		1		1	
Copepoda	Cyclopoida						1					
Miscellaneous terrestrial Diptera				140		136		89		112		111
Hymenoptera				16		20		11		23		22
Misc. Terr. Insects				19		15		23		31		26

July 31, 2002. Noa Creek, Station 210.

		Water Volume (m3) =	42.82		30.58		18.35		42.82		75.69	
		Proportion of sample =	1		0.5		0.5		0.5		0.5	
Taxon		Sample Number (Net)=	1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	2	2	3	7	1		1			
Plecoptera	Capniidae	<i>Capnia</i>	1							1		
	Nemouridae	<i>Nemoura</i>	2									
Diptera	Chironomidae	larvae	1216		585		430		559		1317	
	Chironomidae	pupae	36		43		18		24		42	
	Empididae	<i>Clinocera</i>	1									
	Simuliidae	<i>Simulium</i>									1	
Coleoptera	Dytiscidae			1		1						
	Staphylinidae					2			1			1
Hemiptera	Macroveliidae					1						
Collembola	Isotomidae	<i>Axelsonia</i>	2		13		3		5		8	
	Onychiuridae	<i>Lophognathella</i>	2		3		1					
	Onychiuridae	<i>Onychiurus</i>	1									
	Sminthuridae	<i>Sminthurus</i>	4		6		1		1		6	
Lepidoptera	Pyrilidae					1						
Acari	Acarina		25		16		8		14		23	
Copepoda	Cyclopoida				1						1	
Misc. Terrestrial Diptera				94		73		18		25		57
Hymenoptera				12		15		3		13		19
Misc. Terr. Insects				33		22		2		15		30

Summary of invertebrate data from Noa Creek, Station 210.

		2000	2001	2002
Total aquatic taxa		18	15	17
Tot. Ephemeroptera		0	0	2.4
Tot. Plecoptera		0.8	1.3	0.6
Tot. Trichop.		0	0	0
Total Aq. Diptera		54	549	1458
Misc.Aq.sp		126	167	52
% Ephemeroptera		0%	0%	0%
% Plecoptera		0%	0%	0%
% Trichoptera		0%	0%	0%
% Aq. Diptera		30%	77%	96%
% other		70%	23%	3%
% EPT		0%	0%	0%
% Chironomidae		27%	76%	96%
% Dominant Aquatic Taxon		32%	74%	93%
Volume of water (m3)		250	465	210
average water/net		50	93	42
StDev of water volume		10	29	21
Estimated total inverts/m3 water		11	12	40
Estimated aquatic inverts/m3 water		4	8	36
average inv/m3		4	8	38
Stdev of aq. Inv. Den.		3	3	9
Total aquatic invertebrates		905	3583	7562
Total. terrestrial invertebrates		1843	2148	754
Total invertebrates		2747	5731	8316
% Sample aquatic		33%	63%	91%
% Sample terrestrial		67%	37%	9%
Average # aquatic inverts / net		180.9	716.7	1512.4
stdev aq inv/net		105.1	207.0	735.5
Average # terr. inverts / net		368.6	429.5	150.8
Average # inverts / net		549.5	1146.2	1663.2
stdev inv/net		286.7	424.3	786.2
Total Larval Fish/site		0	0	0

Noa Creek Station 210, Ten Minnow Traps per event for Dolly Varden

7/10/00	7/30/00	7/10/01	8/1/01		8/1/02
FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)
no DVs	no DVs	no DVs	no DVs	not sampled	no DVs

Appendix 7. Station 211

Water quality and biological data for Moil Creek, Station 211.

Date	Sample	Lab	Ag µg/L	Al µg/L	CaCO ₃ mg/L	As µg/L	Ca mg/L	Cd µg/L	Cl mg/L	Cond µS/cm	Cr µg/L	Cu µg/L	Fe µg/L
										field			
7/19/00	00-1378	CTE&E	< 2	1,720	< 2	< 10	67.1	5.9	1.4			46	8540
8/25/00	00-1699	CTE&E	< 2	1,800	< 2	< 10	52.9	2.3	< 5	270	< 12.5	34.8	11800
9/9/00	00-1810	CTE&E	< 2	1,070	< 2	< 10	46.4	2.1	< 5	203	< 12.5	24.3	7360
9/22/00	00-1914	CTE&E	< 2	1,180	< 2	< 10	55	1.2	< 0.5	273	< 12.5	39.8	13200
10/6/00	00-2059	CTE&E	< 2	1,870	< 2	< 10	67.6	3.2	< 5	230	< 12.5	33.4	13400
6/2/01	01-1505	CAS								67.4			
6/24/01	01-1836	CAS		882	< 2		50.6	2.5	0.5	263		26.1	8960
7/13/01	01-2040	CTE&E		1,270	< 5		84.6	4.3	< 5	469		28.9	12400
7/26/01	01-2207	CAS		1,960	< 2		72.7	3.5	0.6	340		34	12000
8/4/01	01-2354	CTE&E		978	< 5		53.5	2.5	< 2.5	257		28.2	6360
8/19/01	01-2526	CAS		1,250	< 2		49.3	1.8	0.4	219		22.3	6060
9/13/01	01-2696	CAS								273			
9/22/01	01-2862	CAS		1,400	< 2		59.9	2.5	0.5	260		32.2	9360
5/26/02	02-1698	CTE		235	< 5		6.7	0.2	< 1	75		7.7	1,950
6/14/02	02-2055	CTE		877	< 5		42.7	2.1	< 2	190		23.9	7,760
6/27/02	02-2295	CAS		755	< 2		54.7	2.5	0.4	307		10.4	7,210
7/15/02	02-2536	CTE		777	< 5		45.8	1.8	< 1	237		16.5	4,530
7/28/02	field	Field								377			
8/7/02	field	Field								449			
8/23/02	02-3138	CAS		635	< 2		83	2.7	0.8	330		14.3	6,090
9/9/02	02-3339	CTE		387	8.5		33.7	0.9	0.7	193		11.3	2,540
9/22/02	02-3628	CAS		451	10		46.5	1.4	0.7	189		13.6	2,770
10/6/02	02-3853	CAS								231			

Moil Creek, Station 211.

Date	Sample	Lab	K	Mg	Mn	Na	Ni	NO ₂ +NO ₃	pH	Pb	Se	SO ₄	Analyzed	Summation	Temp
			mg/L	mg/L	µg/L	mg/L	µg/L	mg/L	SU	µg/L	µg/L	mg/L	TDS	TDS	°C
									Field		CAS		mg/L	mg/L	
7/19/00	00-1378	CTE&E	< 2.5	26.9	2220	2.3	418	1.3	4.7	2	3.8	331	474	439	4.8
8/25/00	00-1699	CTE&E	< 2.5	17.5	1250	< 2	259	< 5	5.5	2	6	273	348	356	3.2
9/9/00	00-1810	CTE&E	< 2.5	12.5	890	2.4	163	< 5	5.8	2	7	188	258	258	0.7
9/22/00	00-1914	CTE&E	< 2.5	19.7	1130	< 2	282	< 0.5	6.4	2	5	263	358	352	0.5
10/6/00	00-2059	CTE&E	< 2.5	20.9	1460	< 2	323	< 5	5.8	2	6	336	448	439	0.1
6/2/01	01-1505	CAS							5.7		1				0.4
6/24/01	01-1836	CAS	< 2	14.4	1620	1.1	219	< 0.2	4.8	0.3	4.2	193	302	270	3.3
7/13/01	01-2040	CTE&E	0.6	28	2410	2.4	397	< 5	6.2	0.4	4.4	373	528	503	7.5
7/26/01	01-2207	CAS	< 2	26.8	2510	2.2	352	< 0.2	6.1	0.2	3.6	309	372	426	3.3
8/4/01	01-2354	CTE&E	< 0.5	15.8	1320	2	220	< 2.5	6.6	0.4	3.4	192	235	271	3.6
8/19/01	01-2526	CAS	< 2	12.7	988	1.8	155	0.3	6.3	0.06	1.8	172	264	243	2.3
9/13/01	01-2696	CAS							6.7		4.8				3.3
9/22/01	01-2862	CAS	< 2	16.7	1250	1.9	235	< 0.2	6.5	0.07	3.9	214	326	304	0.4
5/26/02	02-1698	CTE	< 0.5	1.5	134	< 0.5	20.6	< 1	5.9	1.1	< 1	25.9	83.8		
6/1/02	field	Field							5.9						0.6
6/14/02	02-2055	CTE	< 0.5	12.8	1,750	1.4	178	0.3		0.9	2.2	192	275		
6/27/02	02-2295	CAS	< 2	16.6	1,120	1.5	232	< 0.2	6.4	0.3	1.8	224	310		
7/15/02	02-2536	CTE	< 0.5	15.8	1,030	1.8	192	1.1	6.4	< 0.4	3.1	191	280		
7/28/02	field	Field							6.1						4.4
8/7/02	field	Field							6.6						7.5
8/23/02	02-3138	CAS	< 2	27.5	794	2.5	244	< 0.2	6.6	0.1	3.3	276	490		
9/9/02	02-3339	CTE	< 0.5	8	439	1.4	87.7	0.3	6.5	< 0.4		131	168		
9/22/02	02-3628	CAS	< 2	11.9	576	1.8	117	0.2	6.5	0.04	2.9	157	294		
10/6/02	field	Field							6.5						0.6

Moil Creek, Station 211.

								Hardness				
Date	Sample	Lab	Tl (µg/L)	TOC	Tot P	TSS	Zn	mg/L	Anions	Cations	Charge	Flow
				mg/L	mg/L	mg/L	µg/L	CaCO3			Balance	cfs
7/19/00	00-1378	CTE&E		1.4	< 0.2		1,230	278	6.9	6.2	-5.6	
8/25/00	00-1699	CTE&E		1.5	< 0.2		862	204	5.7	4.8	-8.9	11
9/9/00	00-1810	CTE&E		0.8	< 0.2		499	167	3.9	3.9	-0.5	6.4
9/22/00	00-1914	CTE&E		1.5	< 0.2		881	219	5.5	5.1	-3.4	2.2
10/6/00	00-2059	CTE&E		0.9	< 0.2		1,000	255	7.0	5.9	-8.8	
6/2/01	01-1505	CAS										
6/24/01	01-1836	CAS		0.7		12	616	186	4.0	4.3	3.2	
7/13/01	01-2040	CTE&E		0.7		16.5	1,150	327	7.8	7.4	-2.4	5
7/26/01	01-2207	CAS		0.9		13	1,030	292	6.5	6.7	1.6	
8/4/01	01-2354	CTE&E		1.4		11.6	627	199	4.0	4.4	5.3	3
8/19/01	01-2526	CAS		1		12	475	176	3.6	3.9	4.7	
9/13/01	01-2696	CAS										
9/22/01	01-2862	CAS		0.9		16	709	218	4.5	5.0	5.5	
5/26/02	02-1698	CTE		4.9		7.6	56.2					
6/14/02	02-2055	CTE		2		21.2	540					
6/27/02	02-2295	CAS		0.7		< 5	729					
7/15/02	02-2536	CTE		1.1		8.8	594					
8/23/02	02-3138	CAS		0.6		12	814					
9/9/02	02-3339	CTE	< 0.3	1.6		9.6	218					
9/22/02	02-3628	CAS	< 0.04	1.2		7	365					

Moil Creek, Station 211. Sample size was 0.0025 m², extract volume was 0.01 liters.

		Fluor.					Spect.	Spect.	Spect.
Date	Fluor.	chlor-a	750	664	647	630	chlor-a	chlor-b	chlor-c
Collected	Reading	mg/m ²		<MDR			mg/m ²	mg/m ²	mg/m ²
7/9/00	0.56	0.00		<MDR					
7/9/00	0.30	0.00		<MDR					
7/9/00	0.48	0.00		<MDR					
7/9/00	0.76	0.01		<MDR					
7/9/00	0.23	0.00		<MDR					
7/9/00	0.66	0.00		<MDR					
7/9/00	2.50	0.47		<MDR					
7/9/00	0.17	0.00		<MDR					
7/9/00	1.35	0.16		<MDR					
7/9/00	1.80	0.28		<MDR					
7/8/01			0.003	0.006	0.006	0.006	0.12	0.16	0.18
7/8/01			0.003	0.006	0.005	0.006	0.13	0.07	0.21
7/8/01			0.005	0.009	0.009	0.009	0.16	0.21	0.24
7/8/01			0.001	0.003	0.003	0.003	0.08	0.10	0.12
7/8/01			0.003	0.005	0.005	0.005	0.08	0.10	0.12
7/8/01			0.004	0.007	0.007	0.008	0.12	0.14	0.28
7/8/01			0.003	0.005	0.005	0.005	0.08	0.10	0.12
7/8/01			0.003	0.005	0.005	0.005	0.08	0.10	0.12
7/8/01			0.001	0.003	0.003	0.003	0.08	0.10	0.12
7/8/01			0.003	0.008	0.006	0.006	0.22	0.11	0.17

Moil Creek, Station 211. Sample size was 0.0025 m², extract volume was 0.01 liters.

					Spect.	Spect.	Spect.
Date	750	664	647	630	chlor-a	chlor-b	chlor-c
Collected					mg/m2	mg/m2	mg/m2
7/31/02	0	0	0	0	0.00	0.00	0.00
7/31/02	0.001	0.001	0	0	0.01	0.00	0.00
7/31/02	0.001	0	0	0	0.00	0.00	0.00
7/31/02	0.001	0	0	0	0.00	0.00	0.00
7/31/02	0.001	0	0	0	0.00	0.00	0.00
7/31/02	0.004	0.003	0.003	0	0.00	0.00	0.00
7/31/02	0.003	0.002	0.002	0.002	0.00	0.00	0.00
7/31/02	0.003	0.002	0.002	0.002	0.00	0.00	0.00
7/31/02	0.002	0.001	0.001	0	0.00	0.00	0.00
7/31/02	0.001	0	0	0	0.00	0.00	0.00

July 9, 2000. Moil Creek, Station 211.

	Volume of Water through net		69.67		59.64		69.73		58.26		70.64	
	Proportion of sample		0.25		0.25		0.25		0.25		0.25	
	Taxon	Net No.	1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Plecoptera	Capniidae	Capnia	1				1					
Diptera	Chironomidae	larvae			3				3		1	
	Empididae	Chelifera							1			
	Psychodidae				1							
Coleoptera	Carabidae										1	
	Chrysomelidae								1			
	Hydrophilidae larvae										1	
	Hydroscaphidae								1			
	Staphylinidae		1				1					
Collembola	Hypogasturidae				1		1		2		1	
	Isotomidae	Axelsonia	5				5		11		8	
	Onychiuridae	Lophognathella									1	
	Sminthuridae	Sminthurus			1				1			
Lepidoptera	Pyralidae		1									
Acari	Acarina										3	
Miscellaneous terrestrial Diptera				19		18		41		40		55
Thysanoptera				1		2	4			5		4
Arachnida				1								
Homoptera	Aphididae					1		1		2		
	Cicadellidae					1		1				
Misc Terrestrial												1

July 8, 2001. Moil Creek, Station 211.

		Water Volume (m3) =	58.69		46.91		56.15		93.86		46.91	
		Proportion of sample =	1		1		1		1		1	
	Taxon	Net No.	1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	2		3		2		1			
	Heptageniidae	<i>Cinygmula</i>	1									
Plecoptera	Capniidae	<i>Capnia</i>	12		3		3		3		3	
Diptera	Chironomidae	larvae	90		57		131		110		38	
	Chironomidae	pupae	60		10		44		49		15	
	Simuliidae	<i>Simulium</i>	25		8		30		19		14	
Coleoptera	Carabidae						1		2		2	
	Chrysomelidae						1					
	Hydroscaphidae						2					
	Staphylinidae				1				5		4	
Collembola	Isotomidae	<i>Axelsonia</i>	52		18		31		30		13	
	Onychiuridae	<i>Lophognathella</i>	3				5		7		2	
	Onychiuridae	<i>Onychiurus</i>	1						2			
	<i>Sminthuridae</i>	<i>Sminthurus</i>	3				1		4			
Lepidoptera	Pyalidae						2		3			
Acari	Acarina		19		4		47		52		14	
Oligochaeta							1				2	
Miscellaneous terrestrial Diptera				194		147		217		266		99
Hymenoptera				9		29		38		36		7
Misc Terrestrial				11		3		41		33		16

July 31, 2002. Moil Creek, Station 211.

		Water Volume (m3) =	50.46		21.41		37.46		12.23		32.11	
		Proportion of sample =	1		1		0.5		1		1	
Taxon		Sample Number (Net)=	1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>		99		30		23		4		13
Plecoptera	Capniidae	<i>Capnia</i>	1	2							1	
	Chloroperlidae	<i>Suwallia</i>	1									
	Nemouridae	<i>Nemoura</i>		1			1					
Diptera	Chironomidae	larvae	20		14		12		10		32	
	Chironomidae	pupae	108		61		91		21		88	
Coleoptera	Carabidae										1	
	Dytiscidae							1				
	Staphylinidae			2		1		1				1
Hemiptera	Macroveliidae											1
	Hypogasturidae											
Collembola	Isotomidae	<i>Axelsonia</i>	17		10		11		9		24	
	Onychiuridae	<i>Lophognathella</i>	19		8		8		5		16	
	Onychiuridae	<i>Onychiurus</i>	3		2		4		2		2	
		<i>Sminthurus</i>	12		6		7		7		6	
Lepidoptera	Pyralidae			3								1
Acari	Acarina		97		44		27		9		20	
Misc. Terrestrial Diptera				548		249		238		104		289
Hymenoptera				95		45		38		11		30
Misc Terrestrial				114		65		67		18		79

Summary Table for Moil Creek, 2000 – 2002.

	2000	2001	2002
Total aquatic taxa	15	17	15
Tot. Ephemeroptera	0	1.8	0
Tot. Plecoptera	1.6	4.8	1
Tot. Trichop.	0	0	0
Total Aq. Diptera	7.2	140	112
Misc.Aq.sp	37.6	66.8	87.8
% Ephemeroptera	0%	1%	0%
% Plecoptera	3%	2%	0%
% Trichoptera	0%	0%	0%
% Aq. Diptera	16%	66%	56%
% other	81%	31%	44%
% EPT	3%	3%	0%
% Chironomidae	12%	57%	56%
% Dominant Aquatic Taxon	55%	40%	46%
Volume of water (m3)	327.94	302.52	153.67
average water/net	65.588	60.504	30.734
StDev of water volume	6.09	19.39	14.71
Estimated total inverts/m3 water	3.06	7.32	23.03
Estimated aquatic inverts/m3 water	0.71	3.53	6.49
average inv/m3	0.72	3.50	6.39
Stdev of aq. Inv. Den.	0.42	1.41	1.37
Total aquatic invertebrates	232	1067	998
Total. terrestrial invertebrates	772	1146	2541
Total invertebrates	1004	2213	3539
% Sample aquatic	23%	48%	28%
% Sample terrestrial	77%	52%	72%
Average # aquatic inverts / net	46.4	213.4	199.6
stdev aq inv/net	24.27	99.20	103.51
Average # terr. inverts / net	154.4	229.2	508.2
Average # inverts / net	200.8	442.6	707.8
stdev inv/net	87.0	179.4	390.4
Total Larval Fish/site	0	0	0

Moil Creek Sta 211, Ten Minnow Traps per event for Dolly Varden

7/10/00	7/30/00	7/10/01	8/5/01		8/1/02
FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)
no DVs	no DVs	no DVs	no DVs	not sampled	no DVs

Appendix 8. Station 212

Water quality and biological data for Sled Creek, Station 212.

Date	Lab	Ag	Al	CaCO ₃	As	Ca	Cd	Cl	Cond	Cr	Cu	Fe	K	Mg
		µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	mg/L	µS/cm	µg/L	µg/L	µg/L	mg/L	mg/L
6/5/2000	CTE&E		194	9	1	4.8	< 0.1	0.9	6.6		< 5	412	1	1.2
6/22/2000	CTE&E	< 2	< 50	58.4			< 0.2		137	< 5	< 10	63.7		
7/19/2000	CTE&E		< 75	57.9	< 10	29.6	< 1	< 1	166		< 7.5	< 250	< 2.5	7
8/25/2000	CTE&E	< 2	< 75	51.5	< 10	26.5	< 1	< 5	132	< 12.5	< 7.5	< 250	< 2.5	6.4
8/31/2000	CTE&E	< 2	< 75	55.3	< 10	30.4	< 1	< 5	123	< 12.5	< 7.5	< 250	< 2.5	7
9/9/2000	CTE&E	< 2	< 75	47.5	< 10	23.2	< 1	< 5	83	< 12.5	< 7.5	< 250	< 2.5	5.3
9/21/2000	CTE&E	< 2	< 75	53.3	< 10	28	< 1	0.8	100	< 12.5	< 7.5	< 250	< 2.5	7.2
10/6/2000	CTE&E	< 2	< 75	69.4	< 10	34	< 1	< 5	137	< 12.5	< 7.5	< 250	< 2.5	7.9
6/2/2001	CTE&E		46.4	< 10		2.1	< 0.1	< 5	13.1		0.9	60	1.4	0.7
6/24/2001	CAS		34.4	33		14.9	0.05	0.4	72.1		4.3	81.7	< 2	3.6
7/13/2001	CTE&E		< 20	61		31	< 0.1	< 5	167		1.1	< 50	0.5	7.3
7/26/2001	CAS		11.7	70		35.2	< 0.1	0.4	161		1.5	25.5	< 2	8
8/4/2001	CTE&E		31.6	58.4		29.1	< 0.1	< 2.5	126		1.2	< 50	< 0.5	6.3
8/19/2001	CAS		47.7	50		25.4	< 0.1	0.4	101		1	82.5	< 2	5.5
9/13/2001	CAS								140					
9/22/2001	CAS		< 20	66		33.5	< 0.1	0.6	132		1	23.1	< 2	7.6
10/9/01	CTE		< 20	80		37.7	< 0.1	< 5	160		< 0.8	< 50	< 0.5	9.3
5/26/02	CTE		52	< 5		1.4	< 0.1	< 1	16.3		< 1	99.2	0.7	<0.5
6/14/02	CTE		57.1	35		15.3	< 0.1	< 2	64.8		1.5	66.9	< 0.5	3.5
6/27/02	CAS		< 20	45		21.3	< 0.1	0.3	136		< 1	< 20	< 2	5.1
7/15/02	CTE		23.2	51		22.9	< 0.1	< 1	118		2.1	26.7	< 0.5	5.1
7/28/02	Field								193					
8/7/02	Field								206					
8/23/02	CAS		< 20	78		41.8	< 0.1	0.5	170		< 1	< 20	< 2	10.5
9/9/02	CTE		121	41		19.7	5.9	1	118		1.7	139	< 0.5	4.3
9/22/02	CAS		41.7	53		25.1	< 0.1	0.8	107		1.2	29	< 2	5.9

Date	Lab	Mn	Na	Ni	NO ₂ +NO ₃	pH	Pb	Se	SO ₄	TDS	TDS	Temp	TI	TOC
		µg/L	mg/L	µg/L	mg/L	SU	µg/L	µg/L	mg/L	mg/L	mg/L	°C	µg/L	mg/L
6/5/2000	CTE&E	202	0.6	< 5	< 0.5	6.8	1.1	2.5	6		26	0.6		7.6
6/22/2000	CTE&E	< 10		< 10	0.6	7.3	2	5	54.3	184	124	5.2		2.3
7/19/2000	CTE&E	< 10	2.9	< 50	1.2	7.2	2	3	76.7	138	186	6.2		
8/25/2000	CTE&E	< 10	2.6	< 50	< 5	7	2	1	51.9	108	149	3.5		2.8
8/31/2000	CTE&E	< 10	3.1	< 50	< 5	6.5	2	1	50.9	128	158	3.9		2.6
9/9/2000	CTE&E	< 10	3	< 50	< 5	6.6	2	2	43.9	104	132	1		2.4
9/21/2000	CTE&E	< 10	2.9	< 50	< 0.5	6.8	2	4	58.5	114	161	1.2		2.7
10/6/2000	CTE&E	< 10	3.4	< 50	< 5	7.9	2	2	63.7	166	192	0.5		1.9
6/2/2001	CTE&E	17.4	0.8	< 2	< 5	6.5	2.1	1	<5	< 50	5	0.4		8.1
6/24/2001	CAS	5.4	1.4	2.3	< 0.2	7.1	0.2	1	20.5	72	80	4.4		1.5
7/13/2001	CTE&E	< 3	3.7	< 2	< 5	7.4	0.4	1.1	53.8	111	170	9.3		1.6
7/26/2001	CAS	1.3	3.3	1.6	< 0.2	7.5	0.04	1.5	55	138	186	5.5		2
8/4/2001	CTE&E	< 3	2.7	< 2	< 2.5	7.7	0.4	1	38	86.3	146	4.9		2.7
8/19/2001	CAS	3.1	2.4	1.9	< 0.2	7.3	0.08	2.8	34.6	122	128	3.4		2.5
9/13/2001	CAS					7.3		1				4.4		
9/22/2001	CAS	1.1	3.3	< 1	< 0.2	7	0.04	1	46.5	145	171	1		2
10/9/01	CTE	< 3	4.9	< 2	< 5	7.2	< 0.4	< 1	55.8	189				1.2
5/26/02	CTE	17.6	< 0.5	< 5	< 1	6.4	0.5	< 1	1.7	< 50				9.2
6/14/02	CTE	< 5	1.5	< 5		6.7	< 0.4	< 1	22.9	97.5				3.6
6/27/02	CAS	0.7	2.3	1.3	< 0.2	6.7	< 0.04	< 1	32	107				2.4
7/15/02	CTE	< 5	2.4	< 5	< 1	7.8	1	< 1	32.6	106				3.4
7/28/02	Field					7.1						6.9		
8/7/02	Field					7.7						6.8		
8/23/02	CAS	0.9	5.3	2.9	< 0.2	6.8	0.9	1	62	198		3		1.3
9/9/02	CTE	7.9	1.8	< 5	0.2	6.9	0.7		36.4	90		2.8	< 0.3	3.5
9/22/02	CAS	1.1	2.6	1.5	< 0.2	6.9	0.04	1	34	148		-0.1	<0.04	2.8
10/6/02	CAS					6.6		< 1				0.7		

Sled Creek, Station 212.

Date	Lab	Tot P mg/L	TSS mg/L	Zn µg/L	mg/L CaCO3	Anions	Cations	Charge Balance	Flow cfs
6/5/2000	CTE&E	< 0.2	13.6	< 10	17	0.3	0.4	11.9	45.7
6/14/2000									3.1
6/22/2000	CTE&E	< 0.2		< 20	93.9	2.3	0.0		0.7
7/19/2000	CTE&E			< 100	103	2.8	2.2	-11.6	
8/25/2000	CTE&E	< 0.2		< 100	93	2.1	2.0	-3.6	1
8/31/2000	CTE&E	< 0.2		< 100	105	2.2	2.2	1.4	3.6
9/9/2000	CTE&E	< 0.2		< 100	80	1.9	1.7	-3.9	8.1
9/21/2000	CTE&E	< 0.2		< 100	100	2.3	2.1	-4.3	2.7
10/6/2000	CTE&E	< 0.2		< 100	118	2.7	2.5	-4.2	
6/2/2001	CTE&E		2	9.6	8	0.0	0.2		
6/24/2001	CAS		< 5	1.4	52	1.1	1.1	0.4	10
7/13/2001	CTE&E		< 0.4	4	108	2.3	2.3	-0.4	
7/26/2001	CAS		< 5	1.1	121	2.6	2.6	0.1	
8/4/2001	CTE&E		0.6	< 2	99	2.0	2.1	3.2	2
8/19/2001	CAS		< 5	1.9	86	1.7	1.8	2.8	
9/13/2001	CAS								
9/22/2001	CAS		< 5	2.7	115	2.3	2.4	2.9	
10/9/01	CTE		0.6	12.3					
5/26/02	CTE		2.1	7.2					
6/14/02	CTE		0.8	2.1					
6/27/02	CAS		< 5	< 2					
7/15/02	CTE		0.4	11.8					
8/23/02	CAS		< 5	2.9					
9/9/02	CTE		2.2	164					
9/22/02	CAS		< 5	< 2					

Sled Creek, Station 212. Sample size was 0.0025 m², extract volume was 0.01 liters.

			Fluor.							Spect.	Spect.	Spect.
Project	Date	Fluor.	chlor-a							chlor-a	chlor-b	chlor-c
	Collected	Reading	mg/m^2	750	664	647	630	665-a	750-a	mg/m2	mg/m2	mg/m2
Sled Cr.	7/8/00	17	4.2896	0	0.126	0.038	0.025			5.73	0.19	0.46
Sled Cr.	7/8/00	15.2	3.81512	0	0.088	0.025	0.017			4.01	0.01	0.32
Sled Cr.	7/8/00	19.5	4.9486	0	0.286	0.087	0.057			13.00	0.50	1.04
Sled Cr.	7/8/00	15.5	3.8942	0	0.118	0.034	0.022			5.38	0.06	0.34
Sled Cr.	7/8/00	14.2	3.55152	0	0.081	0.025	0.016			3.68	0.17	0.27
Sled Cr.	7/8/00	14.5	3.6306	0	0.083	0.027	0.017			3.76	0.29	0.29
Sled Cr.	7/8/00	19.5	4.9486	0.001	0.153	0.052	0.033			6.88	0.70	0.63
Sled Cr.	7/8/00	12.5	3.1034	0.001	0.076	0.024	0.017			3.41	0.19	0.43
Sled Cr.	7/8/00	17.5	4.4214	0.002	0.182	0.055	0.037			8.19	0.28	0.74
Sled Cr.	7/8/00	20	5.0804	0	0.174	0.051	0.036			7.92	0.13	0.82
Sled Cr.	7/6/01			0.002	0.074	0.025	0.018	0.045	0.001	3.27	0.20	0.39
Sled Cr.	7/6/01			0.002	0.086	0.028	0.021	0.053	0.003	3.82	0.16	0.51
Sled Cr.	7/6/01			0.001	0.036	0.014	0.009			1.58	0.25	0.16
Sled Cr.	7/6/01			0	0.093	0.031	0.019	0.055	0	4.21	0.39	0.30
Sled Cr.	7/6/01			0.004	0.155	0.066	0.039			6.76	1.56	0.54
Sled Cr.	7/6/01			0.002	0.071	0.025	0.016			3.12	0.29	0.21
Sled Cr.	7/6/01			0.001	0.069	0.021	0.016			3.10	0.05	0.41
Sled Cr.	7/6/01			0.005	0.049	0.02	0.017			1.99	0.18	0.43
Sled Cr.	7/6/01			0.005	0.117	0.047	0.03			5.04	0.83	0.43
Sled Cr.	7/6/01			0.004	0.134	0.049	0.036			5.87	0.62	0.90

Sled Creek, Station 212. Sample size was 0.0025 m², extract volume was 0.01 liters.

								Spect.	Spect.	Spect.
Project	Date							chlor-a	chlor-b	chlor-c
	Collected	750	664	647	630	665-a	750-a	mg/m2	mg/m2	mg/m2
Sled Cr.	7/29/02	0.001	0.042	0.011	0.007	0.023	0	1.88	0.00	0.01
Sled Cr.	7/29/02	0	0.061	0.018	0.008	0.036	0	2.78	0.10	0.00
Sled Cr.	7/29/02	0.003	0.055	0.017	0.012	0.031	0.002	2.38	0.00	0.11
Sled Cr.	7/29/02	0.002	0.04	0.015	0.009	0.025	0.003	1.72	0.19	0.04
Sled Cr.	7/29/02	0.001	0.031	0.008	0.005			1.38	0.00	0.00
Sled Cr.	7/29/02	0.005	0.047	0.017	0.013			1.91	0.01	0.14
Sled Cr.	7/29/02	0	0.043	0.013	0.007			1.96	0.09	0.00
Sled Cr.	7/29/02	0.004	0.034	0.011	0.008			1.38	0.00	0.00
Sled Cr.	7/29/02	0.002	0.034	0.01	0.006			1.47	0.00	0.00
Sled Cr.	7/29/02	0.004	0.04	0.015	0.01			1.64	0.08	0.01

July 8, 2000. Sled Creek, Station 212.

	Volume of Water through net		41.3		45.9		19.5		45.9		53.5	
	Proportion of sample		0.25		1		0.25		0.25		0.25	
	Taxon	Net No.	1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	21		42		37		17		20	
	Heptageniidae	<i>Cinygmula</i>	1		9		5		7		2	
Plecoptera	Capniidae	<i>Capnia</i>	36		70		51		57		34	
	Nemouridae	<i>Nemoura</i>	16		63		34		45		9	
		<i>Podmosta</i>	6		1		2		2			
Trichoptera	Brachycentridae	<i>Brachycentrus</i>	1								1	
Diptera	Chironomidae larvae		85		127		83		76		43	
	Chironomidae pupae		15		21		13		13		82	
	Empididae	<i>Clinocera</i>	2		1							
	Tipulidae	<i>Tipula</i>			1				1			
	Simuliidae	<i>Simulium</i>	3		31		15		16		7	
Coleoptera	Carabidae			1							1	
	Curculionidae					1				1		
	Hydrophilidae larvae				6							
Collembola	Hypogasturidae		5		1		4		1		5	
	Isotomidae	<i>Axelsonia</i>			2		7		1		16	
	Neelidae	<i>Neelus</i>	1									
	Sminthuridae	<i>Sminthurus</i>	10		1		2		1		22	
		<i>Dicyrtoma</i>	1									
Lepidoptera	Pyrilidae			1								
Acari			22		11		30		16		51	
Ostracoda					3		1				3	
Thysanoptera				9		6		22		1		13
Arachnida				5		3		6		3		5
Homoptera	Aphididae			3		2		1				2
	Cicadellidae			14		6		12		2		9

July 6, 2001. Sled Creek, Station 212.

	Water Volume (m3)		58.1		57.2		69.2		108.		82.5	
	Proportion of sample		0.2		0.2		0.6		0.6		0.6	
	Net No.		1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>					6		2		2	
	Heptageniidae	<i>Cinygmula</i>	1		13		7		19		32	
Plecoptera	Capniidae	<i>Capnia</i>	19		40		39		36		54	
	Nemouridae	<i>Nemoura</i>	14		59		77		31		50	
Diptera	Chironomidae	larvae	44		76		187		139		242	
	Chironomidae	pupae	50		27		97		23		48	
	Empididae	<i>Chelifera</i>			1		3		5		2	
	Simuliidae	<i>Simulium</i>	3		10		24		16		19	
Coleoptera	Carabidae				1							
	Staphylinidae		1				1				2	
Collembola	Isotomidae	<i>Axelsonia</i>	3		4		10		3		33	
	Onychiuridae	<i>Lophognathella</i>					1				4	
		<i>Onychiurus</i>			2						2	
	Sminthuridae	<i>Sminthurus</i>			3		2					
Lepidoptera	Pyrilidae				1							
Acari	Acarina		13		21		51		26		49	
Oligochaeta			9		9		9		11		5	
Hirudinoidea	Glossiphoniidae		1									
Ostracoda									1		2	
Copepoda	Cyclopoida				2		1				2	
Miscellaneous terrestrial Diptera				71		495		44		30		160
Hymenoptera				2		21		10		2		5
Misc Terrestrial				3		8		3		7		11

July 30, 2002. Sled Creek, Station 212.

	Water Volume (m3) =		6.12		15.29		3.06		21.41		13.76	
	Proportion of sample =		1		1		1		1		1	
Taxon	Sample Number		1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	11		5		10	4	70	5	26	9
	Heptageniidae	<i>Cinygmula</i>	1				2		3		2	
Plecoptera	Capniidae	<i>Capnia</i>	9		5		4	2	36	1	27	4
	Nemouridae	<i>Nemoura</i>	1				3		3			
Diptera	Chironomidae	larvae	12		0		7		21		23	
	Chironomidae	pupae	1		1		3		47		50	
	Simuliidae	<i>Simulium</i>							4		3	
Coleoptera	Chrysomelidae									1		
Collembola	Isotomidae	<i>Axelsonia</i>	1				1		8		10	
	Onychiuridae	<i>Lophognathella</i>	1				1		1		5	
	Onychiuridae	<i>Onychiurus</i>							1			
	Sminthuridae	<i>Sminthurus</i>							2		5	
Acari	Acarina				1		1		12		11	
Ostracoda									1		5	
Copepoda	Cyclopoida										1	
Misc. Terrestrial Diptera				1		2		20		194		117
Hymenoptera										7		6
Misc Terrestrial								3				6

Summary of invertebrate data, Sled Creek, Station 212.

	2000	2001	2002
Total aquatic taxa	20	20	15
Tot. Ephemeroptera	98	37	26
Tot. Plecoptera	260	228	18
Tot. Trichop.	1.6	0	0
Total Aq. Diptera	399	479	34
Misc.Aq.sp	165	142	14
% Ephemeroptera	11%	4%	28%
% Plecoptera	28%	26%	19%
% Trichoptera	0%	0%	0%
% Aq. Diptera	43%	54%	38%
% other	18%	16%	15%
% EPT	39%	30%	48%
% Chironomidae	39%	50%	36%
% Dominant Aquatic Taxon	31%	36%	32%
Volume of water (m3)	206	375	60
average water/net	41	75	12
StDev of water volume	13	21	7
Estimated total inverts/m3 water	25	21	14
Estimated aquatic inverts/m3 water	22	12	8
average inv/m3	27	13	8
Stdev of aq. Inv. Den.	19	7	5
Total aquatic invertebrates	4622	4427	458
Total. terrestrial invertebrates	458	3453	382
Total invertebrates	5080	7880	840
% Sample aquatic	91%	56%	55%
% Sample terrestrial	9%	44%	45%
Average # aquatic inverts / net	924	885	92
stdev aq inv/net	319	298	90
Average # terr. inverts / net	92	691	76
Average # inverts / net	1016	1576	168
stdev inv/net	365	1358	183
Total Larval Fish/site	0	0	0

Sled Creek Sta 212, Ten Minnow Traps per event for Dolly Varden

7/9/00	7/29/00	7/10/01	8/5/01		7/31/02
FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)
no DVs	no DVs	no DVs	no DVs	not sampled	no DVs

Appendix 9. Ott Creek

Biological data for Ott Creek, 2002.

No water samples were collected from this creek.

Ott Creek, sampled in 2002 only. (No station number.) Sample size was 0.0025 m², extract volume was 0.01 liters.

								chlor-a	chlor-b	chlor-c
		750	664	647	630	665-a	750-a	mg/m2	mg/m2	mg/m2
Site	Date									
Ott Cr.	7/5/2002	0.005	0.084	0.026	0.019	0.048	0.003	3.61	0.00	0.21
Ott Cr.	7/5/2002	0.003	0.069	0.021	0.016	0.042	0.002	3.01	0.00	0.29
Ott Cr.	7/5/2002	0.005	0.139	0.042	0.033	0.081	0.003	6.11	0.00	0.73
Ott Cr.	7/5/2002	0.005	0.126	0.037	0.028	0.075	0.004	5.53	0.00	0.47
Ott Cr.	7/5/2002	0.002	0.136	0.039	0.031	0.082	0.002	6.11	0.00	0.82
Ott Cr.	7/5/2002	0.004	0.12	0.037	0.029	0.071	0.004	5.29	0.00	0.67
Ott Cr.	7/5/2002	0.003	0.166	0.05	0.037	0.097	0.003	7.43	0.05	0.82
Ott Cr.	7/5/2002	0.003	0.128	0.036	0.026	0.075	0.002	5.71	0.00	0.42
Ott Cr.	7/5/2002	0.004	0.069	0.021	0.015	0.039	0.002	2.97	0.00	0.13
Ott Cr.	7/5/2002	0.004	0.077	0.0223	0.017	0.044	0.003	3.34	0.00	0.23

July 5, 2002. Ott Creek (no station number.)

	Water Volume (m3)		18.35		39.76		21.41		39.76		30.58	
	Proportion of sample		1		1		1		1		1	
Taxon	Sample Number		1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>			1		5					
	Heptageniidae	<i>Cinygmula</i>			7				2		1	
Plecoptera	Capniidae	<i>Capnia</i>	13		145				60		21	
	Nemouridae	<i>Nemoura</i>	1		63		2		18			
Diptera	Chironomidae	larvae	47		311		10		74		31	
	Chironomidae	pupae	28		57		13		36		19	
	Empididae	<i>Chelifera</i>			1							
	Simuliidae	<i>Simulium</i>	4		27				7		4	
Coleoptera	Dytiscidae				1							
Collembola	Isotomidae	<i>Axelsonia</i>	8		7		1		6		8	
	Onychiuridae	<i>Lophognathella</i>	7		3				2		3	
	Onychiuridae	<i>Onychiurus</i>	1		1		1		2		1	
	Sminthuridae	<i>Sminthurus</i>	26		3		1				1	
Acari	Acarina		6		16				4			
Oligochaeta					28							
Misc. Terrestrial Diptera				66		129		35		69		118
Hymenoptera						4				2		1
Misc Terrestrial				1		1		1		2		

Ott Creek Sta 212, Ten Minnow Trapsper event for Dolly Varden

2000	2001		7/8/02
		FL (mm)	FL (mm)
not sampled	not sampled	not sampled	no DVs

Appendix 10. North Fork Red Dog Creek

Water quality and biological data for North Fork Red Dog Creek, upstream site. No station number.
North Fork Red Dog Creek, East Branch.

Date	Lab	pH	Temp °C	Cond µS/cm	Flow cfs	Acid mg/L	Ag µg/L	Al µg/L	Alk CaCO ₃ mg/L	As µg/L	Ca mg/L	Cd µg/L	Cl mg/L	Cr µg/L	Cu µg/L
6/24/1999	CAS					< 2			123						
7/16/1999	CAS					< 2	< 0.02	296	30			0.4		2	5
8/9/1999	CAS					4	< 0.5	< 20	131			0.05		3.9	2
9/17/1999	CAS					3	< 10	29	214			< 4		< 5	< 10
10/1/1999	CAS						< 0.5	21	156			< 0.05		2.8	< 1
6/7/2000	CTE&E					< 0.005	0.2	1,150	51			0.2		3.1	7
7/31/2000	CTE&E	7.7	5.3	372		< 2	< 2	< 75	138			< 1		< 12.5	< 7.5
8/12/2000	CTE&E	7.2		159			< 2	406	83.3	< 10	50.6	< 1	< 0.5	< 12.5	< 7.5
9/11/2000	CTE&E	7.7	0	211			< 2	< 75	117	< 10	68.6	< 1	< 5	< 12.5	< 7.5
9/23/2000	CTE&E	7.5	0.4	271			< 2	< 75	148	< 10	84.1	< 1	< 5	< 12.5	< 7.5
10/6/2000	CTE&E						< 2	< 75	169	< 10	95.2	< 1	< 5	< 12.5	< 7.5
6/2/2001	CTE&E	6.9	0.5	41.2				42.3	46.2		11.5	0.2	< 5		0.9
6/27/2001	CAS	7.9	10	267	12			15.6	98		60.9	< 0.1	0.5		< 1
7/14/2001	CTE&E	8.3	11.3	348	8.1			20.7	134		77.5	< 0.1	< 5		1.1
7/26/2001	CAS	8.1	13.9	381				31.3	131		79.1	< 0.1	0.5		< 2
8/8/2001	CTE&E	7.4	6.2	203	38			1,160	91.7		50.5	0.1	< 0.5		4.2
8/19/2001	CAS	7.9	6.7	270				18.5	120		78.2	< 0.1	0.4		< 1
9/14/2001	CAS	8.1	3.9	299											
9/22/2001	CAS	8.2	4.3	313				< 20	148		90.8	0.1	0.6		< 1
10/9/2001	CTE&E	7.7	0.4	324				< 20	178		108	< 0.1	< 5		< 0.8

North Fork Red Dog Creek, East Branch.

Date	Lab	Fe	Hg	K	Mg	Mn	Na	Ni	NO ₂ +NO ₃	NO ₃	P	Pb	Se
		µg/L	µg/L	mg/L	mg/L	µg/L	mg/L	µg/L	mg/L	mg/L	µg/L	µg/L	µg/L
6/24/1999	CAS									< 0.2	< 10		
7/16/1999	CAS	307	< 0.2			430		57	< 0.2		< 10	0.09	1
8/9/1999	CAS	25	< 0.2			5.4		5.6	< 0.2		< 10	0.05	2
9/17/1999	CAS	94	< 0.2			22		< 20	< 0.2		< 10	2	1
10/1/1999	CAS	42				1.6		5		< 0.2	< 10	0.06	1
6/7/2000	CTE&E	3480	< 0.2			190		12.2		< 0.5		3.6	2.5
7/31/2000	CTE&E	< 250	< 0.2			< 10		< 50	< 5			2	3
8/12/2000	CTE&E	865		< 2.5	6.5	22.4	< 2	< 50	< 5			2	1
9/11/2000	CTE&E	< 250		< 2.5	8.1	< 10	2.3	< 50	< 5			2	4
9/23/2000	CTE&E	< 250		< 2.5	11	< 10	2.1	< 50	< 5			2	2
10/6/2000	CTE&E	< 250		< 2.5	10.6	< 10	2.3	< 50	< 5			2	3
6/2/2001	CTE&E	260		1.4	1.3	38	0.9	2.1	< 5			10	1
6/27/2001	CAS	75.1		< 2	6.8	4.1	1.8	2.7	< 0.2			0.1	1.2
7/14/2001	CTE&E	< 50		< 0.5	8.7	< 3	2.5	3.2	< 5			0.5	1.7
7/26/2001	CAS	102		< 2	9	5.2	1.8	3.5	< 0.2			0.2	1
8/8/2001	CTE&E	3400		< 0.5	5.8	77.4	1.4	11.2	< 0.5			3.6	1
8/19/2001	CAS	62.1		< 2	8.5	5.8	1.9	4.4	< 0.2			0.06	2.4
9/14/2001	CAS												2
9/22/2001	CAS	30.5		< 2	10.1	6.1	2.2	1.1	< 0.2			0.07	1.2
10/9/2001	CTE&E	< 50		< 0.5	11.8	5.2	2.6	4.7	5			0.4	1

North Fork Red Dog Creek, East Branch.

			Analyzed	Summation					Hardness			
Date	Lab	SO ₄	TDS	TDS	TOC	Tot P	TSS	Zn	mg/L	Anions	Cations	Charge
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	CaCO ₃			Balance
6/24/1999	CAS	111	293	259	0.6					4.8	0.0	
7/16/1999	CAS	168	290	205	0.5			104	201	4.1	0.0	
8/9/1999	CAS	105	269	262	< 0.5			3	238	4.8	0.0	
9/17/1999	CAS	182	486	439	1.4			< 10	412	8.1	0.0	
10/1/1999	CAS	59.6	223	247	0.6			< 5	214	4.4	0.0	
6/7/2000	CTE&E	33.3	65	98	6	< 0.2		30.3	76.3	1.7	0.2	
7/31/2000	CTE&E	127	316	293	1.6	< 0.2		< 100	239	5.4	0.0	
8/12/2000	CTE&E	63.5	170	221	2.9	< 0.2		< 100	153	3.0	3.1	2.0
9/11/2000	CTE&E	97.6	268	317	1.2	< 0.2		< 100	205	4.4	4.2	-2.1
9/23/2000	CTE&E	129	322	404	1.8	< 0.2		< 100	256	5.6	5.2	-4.1
10/6/2000	CTE&E	153	360	464	1.3	< 0.2		< 100	282	6.6	5.7	-6.8
6/2/2001	CTE&E	10.4	< 50	81	5.9		7.2	41.5	34	1.1	0.8	-19.3
6/27/2001	CAS	70.3	212	258	1.3		< 5	1.8	180	3.4	3.7	3.4
7/14/2001	CTE&E	116	363	366	1.1		0.6	6	230	5.1	4.7	-4.1
7/26/2001	CAS	105	292	353	1.4		< 5	2.5	235	4.8	4.8	-0.5
8/8/2001	CTE&E	56.3	218	228	3.6		112	37	150	3.0	3.2	3.8
8/19/2001	CAS	90.3	144	323	1.4		< 5	3.9	230	4.3	4.7	4.4
9/14/2001	CAS											
9/22/2001	CAS	120	344	401	1.3		< 5	4.4	269	5.5	5.5	-0.1
10/9/2001	CTE&E	147	405	483	1.1		1.2	23.6	319	6.6	6.5	-1.1

North Fork Red Dog Creek, West Branch

									Alk					
Date	Lab	pH	Temp	Cond	Flow	Acid	Ag	Al	mg/L	As	Ca	Cd	Cl	Cr
			°C	µS/cm	cfs	mg/L	µg/L	µg/L	CaCO3	µg/L	mg/L	µg/L	mg/L	µg/L
6/24/1999	CAS					< 2			36					
7/16/1999	CAS					< 2	< 0.02	31	166			0.2		6.2
8/9/1999	CAS					4	< 0.5	132	31			2.3		2
9/17/1999	CAS					2	< 10	27	150			< 4		< 5
6/7/2000	CTE&E					< 0.005	< 0.1	157	20.1			1.2		< 2.5
7/31/2000	CTE&E	6.7	2.4	230		3.8	< 2	< 75	31			< 1		< 12.5
8/12/2000	CTE&E	6.5	3.8	65.7			< 2	148	23.2	< 10	19.7	< 1	< 0.5	< 12.5
9/11/2000	CTE&E	7.2	0.1	116			< 2	< 75	32	< 10	25.6	< 1	< 5	< 12.5
9/23/2000	CTE&E	7.2	0.4	144			< 2	< 75	34.7	< 10	32.2	< 1	< 5	< 12.5
10/6/2000	CTE&E						< 2	< 75	38.2	< 10	36.2	< 1	< 5	< 12.5
6/2/2001	CTE&E	6.4	0.4	34.3				82.6	17.8		5.8	0.6	< 5	
6/27/2001	CAS	7	6.8	15.1	8			32.3	26		28.1	0.5	0.6	
7/14/2001	CTE&E	6.9	5.4	186	1.8			20.1	30.5		38.1	0.3	< 5	
7/26/2001	CAS	7.6	13.6	245				20.2	24		35.1	0.4	0.5	
8/8/2001	CTE&E	7.1	4.4	119	18			117	31.6		22.5	0.3	< 0.5	
8/19/2001	CAS	7.5	4					48	30		25.5	0.4	0.4	
9/14/2001	CAS	7.6	2.5	157										
9/22/2001	CAS	7.9	2.6	158				28	37		32.1	0.5	0.5	
10/9/2001	CTE&E	7	0.4	178				< 20	38		38.7	< 0.1	< 5	

North Fork Red Dog Creek, West Branch

Date	Lab	Cu	Fe	Hg	K	Mg	Mn	Na	Ni	NO ₂ +NO ₃	NO ₃	P	Pb	Se
		µg/L	µg/L	µg/L	mg/L	mg/L	µg/L	mg/L	µg/L	mg/L	mg/L	µg/L	µg/L	µg/L
6/24/1999	CAS										< 0.2	10		
7/16/1999	CAS	< 1	56	< 0.2			4.9		1	< 0.2		< 10	0.1	1
8/9/1999	CAS	5	152	< 0.2			335		56.1	< 0.2		< 10	0.05	2
9/17/1999	CAS	< 10	43	< 0.2			9		< 20	< 0.2		< 10	2	1
6/7/2000	CTE&E	8.6	613	< 0.2			954		39.5		0.6		1	2.5
7/31/2000	CTE&E	< 7.5	< 250	< 0.2			43.4		< 50	5.8			2	3
8/12/2000	CTE&E	< 7.5	< 250		< 2.5	6.9	182	2.5	< 50	< 5			2	2
9/11/2000	CTE&E	< 7.5	< 250		< 2.5	8.3	146	3.5	< 50	< 5			2	4
9/23/2000	CTE&E	< 7.5	< 250		< 2.5	11.7	35.7	2.8	< 50	< 5			2	3
10/6/2000	CTE&E	< 7.5	< 250		< 2.5	10.7	33.7	2.6	< 50	< 5			2	4
6/2/2001	CTE&E	2.2	230		0.8	2	129	1	11.4	< 5			5.6	1
6/27/2001	CAS	5.5	53.6		< 2	9	99.3	2.4	33.5	< 0.2			0.04	3.1
7/14/2001	CTE&E	1.4	< 50		< 0.5	11.2	19.2	2.7	23.1	< 5			0.4	3.2
7/26/2001	CAS	< 2	32.2		< 2	11.1	56.4	2.8	25.7	< 0.2			0.06	2.2
8/8/2001	CTE&E	3.9	277		< 0.5	6.9	62	2.4	19.1	< 0.5			0.4	1
8/19/2001	CAS	2.1	65		< 2	7.5	81.3	2.5	21.4	0.2			0.05	3.3
9/14/2001	CAS													3.5
9/22/2001	CAS	6	28.8		< 2	9.6	53.8	2.8	22	0.3			0.05	2.7
10/9/2001	CTE&E	1.2	< 50		< 0.5	11.9	25.7	3	25.7	< 5			0.4	2.3

North Fork Red Dog Creek, West Branch

			Analyzed	Summation					Hardness			
Date	Lab	SO ₄	TDS	TDS	TOC	Tot P	TSS	Zn	mg/L	Anions	Cations	Charge
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	CaCO ₃			Balance
6/24/1999	CAS	115	211	158	< 0.5					3.1	0.0	
7/16/1999	CAS	142	382	341	1			3	321	6.3	0.0	
8/9/1999	CAS	108	235	146	< 0.5			123	152	2.9	0.0	
9/17/1999	CAS	128	343	308	0.8			< 10	290	5.7	0.0	
6/7/2000	CTE&E	46.6	86	72	7	< 0.2		98	57.3	1.4	0.1	
7/31/2000	CTE&E	129	214	166	0.8	< 0.2		< 100	149	3.3	0.0	
8/12/2000	CTE&E	53.5	104	111	1.7	< 0.2		< 100	78	1.6	1.7	2.7
9/11/2000	CTE&E	72.1	136	148	0.7	< 0.2		< 100	98	2.1	2.1	-0.5
9/23/2000	CTE&E	97.9	174	186	0.9	0.4		< 100	129	2.7	2.7	-0.7
10/6/2000	CTE&E	116	180	211	0.9	< 0.2		< 100	135	3.2	2.8	-6.3
6/2/2001	CTE&E	15.2	< 50	47	5.2		2.2	47	23	0.7	0.5	-11.4
6/27/2001	CAS	77.9	157	149	0.6		< 5	66.1	107	2.2	2.3	2.2
7/14/2001	CTE&E	112	249	201	0.8		< 0.4	51.7	141	2.9	2.9	0.0
7/26/2001	CAS	106	166	184	0.6		< 5	59.2	133	2.7	2.8	1.6
8/8/2001	CTE&E	51.1	140	121	1.8		1.2	38	85	1.7	1.8	3.3
8/19/2001	CAS	60.4	141	132	0.9		< 5	49.8	95	1.9	2.0	3.5
9/14/2001	CAS											
9/22/2001	CAS	83.2	175	173	0.7		< 5	57.3	120	2.5	2.5	0.6
10/9/2001	CTE&E	110	196	209	0.8		< 0.4	64.9	146	3.0	3.0	-0.1

North Fork Red Dog Creek, upstream site. Sample size was 0.0025 m², extract volume was 0.01 liters.

	Fluor.	Fluor.					acidified	acidified	Spect.	Spect.	Spect.
Date	Reading	chlor-a	750	664	647	630	665	750	chlor-a	chlor-b	chlor-c
Collected		mg/m^2							mg/m2	mg/m2	mg/m2
7/27/00	11.8	2.92	0.002	0.065	0.021	0.016			2.86	0.18	0.50
7/27/00	11.5	2.84	0.002	0.062	0.021	0.015			2.72	0.26	0.42
7/27/00	18.8	4.76	0	0.135	0.049	0.027			6.09	0.90	0.26
7/27/00	19.9	5.05	0.002	0.257	0.088	0.056			11.54	1.22	1.10
7/27/00	18.3	4.63	0.001	0.133	0.052	0.028			5.93	1.19	0.28
7/27/00	13.2	3.29	0.001	0.077	0.026	0.017			3.44	0.33	0.36
7/27/00	14.8	3.71	0.001	0.088	0.031	0.019			3.93	0.49	0.33
7/27/00	17.5	4.42	0	0.112	0.039	0.023			5.06	0.60	0.32
7/27/00	8.9	2.15	0	0.043	0.013	0.009			1.96	0.06	0.20
7/27/00	14	3.50	0.001	0.075	0.024	0.018			3.36	0.20	0.53
7/8/01			0.005	0.123	0.044	0.03	0.08	0.005	5.34	0.45	0.48
7/8/01			0.004	0.066	0.023	0.017	0.044	0.003	2.82	0.11	0.28
7/8/01			0.001	0.031	0.012	0.009			1.35	0.19	0.25
7/8/01			0.003	0.019	0.01	0.008			0.71	0.19	0.17
7/8/01			0.002	0.25	0.112	0.062	0.163	0.003	11.06	3.23	0.88
7/8/01			0.004	0.071	0.028	0.02	0.048	0.005	3.02	0.39	0.39
7/8/01			0.003	0.016	0.008	0.007			0.58	0.10	0.15
7/8/01			0.004	0.173	0.052	0.042	0.118	0.003	7.70	0.00	1.14
7/8/01			0.005	0.086	0.034	0.026	0.057	0.006	3.65	0.46	0.64
7/8/01			0.002	0.016	0.007	0.006			0.63	0.07	0.15

North Fork Red Dog Creek, upstream site. Sample size was 0.0025 m², extract volume was 0.01 liters.

					acidified	acidified	Spect.	Spect.	Spect.
Date	750	664	647	630	665	750	chlor-a	chlor-b	chlor-c
Collected							mg/m2	mg/m2	mg/m2
7/11/02	0.004	0.183	0.066	0.039	0.114	0.004	8.09	0.96	0.35
7/11/02	0.003	0.072	0.031	0.018	0.045	0.003	3.09	0.70	0.16
7/11/02	0.002	0.047	0.015	0.011	0.029	0.003	2.05	0.02	0.19
7/11/02	0.003	0.043	0.018	0.011	0.026	0.003	1.80	0.31	0.06
7/11/02	0.004	0.051	0.018	0.012	0.031	0.003	2.14	0.07	0.05
7/11/02	0.007	0.093	0.032	0.022	0.059	0.007	3.92	0.08	0.14
7/11/02	0.004	0.088	0.029	0.021	0.053	0.004	3.82	0.10	0.35
7/11/02	0.007	0.166	0.057	0.039	0.111	0.007	7.22	0.41	0.56
7/11/02	0.004	0.032	0.015	0.01	0.021	0.003	1.26	0.25	0.07
7/11/02	0.008	0.139	0.05	0.033	0.084	0.008	5.94	0.42	0.30

July 27, 2000. North Fork Red Dog Creek, upstream site.

	Volume of Water through net		115.6		105.51		74.5		68.81		15.29	
	Proportion of sample		0.25		0.25		0.25		0.25		1	
	Net No.		1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	5		5		15		8		10	
	Heptageniidae	<i>Cinygmula</i>							1		1	
Plecoptera	Capniidae	<i>Capnia</i>	2		5							
	Nemouridae	<i>Nemoura</i>	1								3	
		<i>Podmosta</i>					4		4		2	
Trichoptera	Brachycentridae	<i>Brachycentrus</i>	6		4							
Diptera	Chironomidae	larvae	61	23	49	3	35		25		51	
	Chironomidae	pupae	7		22		14		19		22	
	Empididae	<i>Clinocera</i>					3		3		2	
	Tipulidae	<i>Tipula</i>	7		1						1	
	Simuliidae	<i>Simulium</i>	28		29		51		32		40	
	Dixidae								1			
Coleoptera	Hydrophilidae larvae				1							
	Staphylinidae									1		
Collembola	Hypogasturidae						1		2		1	
	Isotomidae	<i>Axelsonia</i>							5		4	
	Sminthuridae	<i>Dicyrtoma</i>									1	
Acari			7		19		15		5		6	
Oligochaeta			4		2		1					
Ostracoda			6		17		15		3		10	
Copepoda	Cyclopoida						2					
	Calanoida						2					
Thysanoptera												2

July 8, 2001. North Fork Red Dog Creek, upstream site.

	Water Volume (m3)		62.75		136.76		203.68		330.78		401.97	
	Proportion of sample		0.2		0.2		0.2		0.2		1	
	Net No.		1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	5		8		9		9		30	
	Heptageniidae	<i>Cinygmula</i>	1				2				3	
Plecoptera	Capniidae	<i>Capnia</i>	14		7		15		7		18	
	Nemouridae	<i>Nemoura</i>					2		2		1	
Trichoptera	Brachycentridae	<i>Brachycentrus</i>							2			
Diptera	Chironomidae	larvae	101		115		141		99		195	
	Chironomidae	pupae	65		57		98		133		159	
	Empididae	<i>Chelifera</i>	2									
	Tipulidae	<i>Tipula</i>					1		1			
	Simuliidae	<i>Simulium</i>	66		153		196		163		120	
Coleoptera	Carabidae						1					
	Staphylinidae								1			
Collembola	Isotomidae	<i>Axelsonia</i>	40		16		53		27		20	
	Onychiuridae	<i>Lophognathella</i>	1				1		2		9	
	Sminthuridae	<i>Sminthurus</i>			1		3		8		7	
Acari	Acarina		12		5		20		40		33	
Oligochaeta			2				2				1	
Ostracoda							28		1			
Copepoda	Cyclopoida		1						2		2	
Miscellaneous terrestrial Diptera				86		86		260		388		390
Hymenoptera				2		10		11		21		19
Misc Terrestrial				5		1		5		4		4

July 11, 2003. North Fork Red Dog Creek, upstream site.

	Water Volume (m3)		37.46		45.87		48.17		53.52		42.82	
	Proportion of sample		1		1		0.5		0.5		0.5	
Taxon	Sample Number		1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	29		62		23		13		17	
Plecoptera	Capniidae	<i>Capnia</i>	37		35		29		16		11	
	Nemouridae	<i>Nemoura</i>	1				3		1			
Diptera	Chironomidae	larvae	222		313		112		110		83	
	Chironomidae	pupae	304		406		399		864		448	
	Empididae	<i>Chelifera</i>	1									
	Simuliidae	<i>Simulium</i>	10		12		10		6		8	
Coleoptera	Carabidae									4		
	Hydrophilidae larvae			1								
	Hydrosaphidae							1				
	Staphylinidae			1	1			2		2		
Collembola	Isotomidae	<i>Axelsonia</i>	3		14		9		33		9	
	Onychiuridae	<i>Lophognathella</i>	4		3		5		13		11	
	Onychiuridae	<i>Onychiurus</i>							2			
	Sminthuridae	<i>Sminthurus</i>	34		18		5		31		14	
Lepidoptera	Pyalidae									2		
Acari	Acarina		30		26		12		16		14	
Oligochaeta					1							
Ostracoda			29		34		14		7		12	
Copepoda	Cyclopoida		1		1		1					
Misc. Terrestrial Diptera				270		354		222		997		438
Hymenoptera				15		16		18		73		50
Misc Terrestrial				6		2		2		17		10

Summary of invertebrate data, North Fork Red Dog Creek, upstream site.

	2000	2001	2002
Total aquatic taxa	22	20	20
Tot. Ephemeroptera	29.4	40.6	39.4
Tot. Plecoptera	13.8	50.8	38.6
Tot. Trichop.	8	2	0
Total Aq. Diptera	332.8	1485.8	1069.6
Misc.Aq.sp	90.8	282.4	124.8
% Ephemeroptera	6%	2%	3%
% Plecoptera	3%	3%	3%
% Trichoptera	2%	0%	0%
% Aq. Diptera	70%	80%	84%
% other	19%	15%	10%
% EPT	11%	5%	6%
% Chironomidae	47%	47%	83%
% Dominant Aquatic Taxon	35%	35%	65%
Volume of water (m3)	379.7	1135.9	227.8
average water/net	75.9	227.2	45.6
StDev of water volume	39.3	138.8	6.0
Estimated total inverts/m3 water	6.5	12.4	46.9
Estimated aquatic inverts/m3 water	6.2	8.2	27.9
average inv/m3	7.1	12.2	27.1
Stdev of aq. Inv. Den.	2.2	8.6	9.1
Total aquatic invertebrates	2370	9308	6353
Total. terrestrial invertebrates	110	4808	4341
Total invertebrates	2480	14116	10694
% Sample aquatic	96%	66%	59%
% Sample terrestrial	4%	34%	41%
Average # aquatic inverts / net	474	1861.6	1270.6
stdev aq inv/net	195.7	878.7	580.6
Average # terr. inverts / net	22.0	961.6	868.2
Average # inverts / net	496.0	2823.2	2138.8
Total Larval Fish/site	0	0	0

Upper North Fork Red Dog Creek, Ten Minnow Traps per event for Dolly Varden

7/28/00	7/10/01	8/1/01	7/12/02	8/1/02
FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)
109	130	130	180	152
136	130	138	171	158
142	135		158	139
132			136	128
132			115	95
137			124	129
150			121	133
			119	116
			121	133
			138	
			140	
			116	
			127	
			120	
			116	

Appendix 11. Miscellaneous Data

Miscellaneous data from Ikalukrok Creek Drainage.

Arctic Grayling Tags and Recaptures, Ikalukrok Drainage Upstream of Mainstem Red Dog Creek

Tag Number	Color	Length (mm)	Tag Scar	Date Captured	Site Captured	Recapture Date	Recapture Site	Length (mm)
1561	W	232		6/29/95	North Fork	7/11/01	Gray Jr. Mouth	370
1703	W	240		7/17/95	North Fork	7/10/00	Grayling Jr.	351
1808	White	241		8/14/95	North Fork	7/11/01	Gray Jr. Mouth	370
1866	White	261		8/15/95	North Fork	7/11/01	Gray Jr. Mouth	410
1602	White	430		6/26/98	EF Ikalukrok			
1603	White	395		6/26/98	EF Ikalukrok			
13115	Green	223		7/10/00	Grayling Jr.			
13116	Green	410		7/10/00	Grayling Jr.	7/10/01	Buddy	420
13117	Green	345		7/10/00	Grayling Jr.			
13118	Green	218		7/10/00	Grayling Jr.			
13119	Green	282		7/10/00	Grayling Jr.			
13121	Green	390		7/10/00	Grayling Jr.			
13122	Green	425		7/10/00	Grayling Jr.			
13136	Green	370		7/11/00	Grayling Jr.	7/11/01	Gray Jr. Mouth	374
13137	Green	258		7/11/00	Grayling Jr.			
13138	Green	211		7/11/00	Grayling Jr.			
13139	Green	425		7/11/00	Grayling Jr.	7/29/00	Grayling Jr.	425
13140	Green	420		7/11/00	Grayling Jr.			
13141	Green	420		7/11/00	Grayling Jr.			
13142	Green	380		7/11/00	Grayling Jr.			
13143	Green	425		7/11/00	Grayling Jr.			
13144	Green	378		7/11/00	Grayling Jr.			
13145	Green	390		7/11/00	Grayling Jr.			
13146	Green	238		7/11/00	Grayling Jr.			
13147	Green	288		7/11/00	Grayling Jr.			
13148	Green	245		7/11/00	Grayling Jr.			
13149	Green	407		7/11/00	Grayling Jr.	7/11/01	Gray Jr. Mouth	405
13120	Green	415		7/11/00	Grayling Jr.			
13150	Green	280		7/11/00	Grayling Jr.			
13151	Green	425		7/11/00	Grayling Jr.			
13152	Green	252		7/11/00	Grayling Jr.			

Tag		Length	Tag	Date	Site	Recapture	Recapture	Length
Number	Color	(mm)	Scar	Captured	Captured	Date	Site	(mm)
13153	Green	368		7/11/00	Grayling Jr.			
13154	Green	400		7/11/00	Grayling Jr.			
13155	Green	390		7/11/00	Grayling Jr.			
13156	Green	356		7/11/00	Grayling Jr.			
13157	Green	398		7/11/00	Grayling Jr.			
13158	Green	310		7/11/00	Grayling Jr.			
13159	Green	340		7/11/00	Grayling Jr.			
13160	Green	358		7/11/00	Grayling Jr.			
13161	Green	410		7/11/00	Grayling Jr.			
13162	Green	365		7/11/00	Grayling Jr.			
13164	Green	408		7/11/00	Grayling Jr.			
13165	Green	430		7/11/00	Grayling Jr.			
13166	Green	390		7/11/00	Grayling Jr.			
13173	Green	383		7/29/00	EF Ikalukrok	6/11/01	North Fork	385
13174	Green	210		7/29/00	Grayling Jr.			
13176	Green	213		7/29/00	Grayling Jr.			
13177	Green	215		7/29/00	Grayling Jr.			
13178	Green	212		7/29/00	Grayling Jr.			
13179	Green	205		7/29/00	Grayling Jr.			
13180	Green	205		7/29/00	Grayling Jr.			
10885	Orange	375		6/16/01	North Fork	6/6/02	North Fork	380
						8/1/02	Gray Jr. Mouth	381
10667	Orange	374		6/17/01	Mainstem	8/1/02	Gray Jr. Mouth	374
10651	Orange	268		7/11/01	Gray Jr. Mouth			
10650	Orange	245		7/11/01	Gray Jr. Mouth			
8024	Orange	362		7/11/01	Gray Jr. Mouth			
8023	Orange	395		7/11/01	Gray Jr. Mouth			
8022	Orange	435		7/11/01	Gray Jr. Mouth			
8021	Orange	395		7/11/01	Gray Jr. Mouth	6/5/02	North Fork	405
8020	Orange	295		7/11/01	Gray Jr. Mouth			
8019	Orange	410		7/11/01	Gray Jr. Mouth			
8018	Orange	380		7/11/01	Gray Jr. Mouth			
8017	Orange	400		7/11/01	Gray Jr. Mouth			
8016	Orange	310		7/11/01	Gray Jr. Mouth			
8015	Orange	235		7/11/01	Gray Jr. Mouth			
8014	Orange	290		7/11/01	Gray Jr. Mouth			
8013	Orange	374		7/11/01	Gray Jr. Mouth	8/1/02	Gray Jr. Mouth	385

Tag		Length	Tag	Date	Site	Recapture	Recapture	Length
Number	Color	(mm)	Scar	Captured	Captured	Date	Site	(mm)
8012	Orange	360		7/11/01	Gray Jr. Mouth			
8011	Orange	405		7/11/01	Gray Jr. Mouth			
8010	Orange	420		7/11/01	Gray Jr. Mouth			
8009	Orange	272		7/11/01	Gray Jr. Mouth			
8008	Orange	425		7/11/01	Gray Jr. Mouth			
8007	Orange	375		7/11/01	Gray Jr. Mouth			
8006	Orange	398		7/11/01	Gray Jr. Mouth	5/31/02	North Fork	396
8005	Orange	300		7/11/01	Gray Jr. Mouth			
8004	Orange	380		7/11/01	Gray Jr. Mouth			
8003	Orange	388		7/11/01	Gray Jr. Mouth			
8002	Orange	398		7/11/01	Gray Jr. Mouth			
8001	Orange	360		7/11/01	Gray Jr. Mouth			
8000	Orange	410		7/11/01	Gray Jr. Mouth			
8074	Orange	385		7/11/01	Gray Jr. Mouth			
8073	Orange	390		7/11/01	Gray Jr. Mouth			
8072	Orange	375		7/11/01	Gray Jr. Mouth			
8071	Orange	380		7/11/01	Gray Jr. Mouth			
8070	Orange	390		7/11/01	Gray Jr. Mouth			
8069	Orange	410		7/11/01	Gray Jr. Mouth			
8068	Orange	385		7/11/01	Gray Jr. Mouth			
8067	Orange	388		7/11/01	Gray Jr. Mouth			
8066	Orange	415		7/11/01	Gray Jr. Mouth			
8065	Orange	410		7/11/01	Gray Jr. Mouth			
8064	Orange	400		7/11/01	Gray Jr. Mouth			
8063	Orange	430		7/11/01	Gray Jr. Mouth			
8062	Orange	370		7/11/01	Gray Jr. Mouth			
8061	Orange	384		7/11/01	Gray Jr. Mouth			
8060	Orange	388		7/11/01	Gray Jr. Mouth			
8059	Orange	265		7/11/01	Gray Jr. Mouth			
8058	Orange	298		7/11/01	Gray Jr. Mouth			
8057	Orange	420		7/11/01	Gray Jr. Mouth			
8056	Orange	430		7/11/01	Gray Jr. Mouth			
8055	Orange	415		7/11/01	Gray Jr. Mouth			
8054	Orange	385		7/11/01	Gray Jr. Mouth			
8053	Orange	335		7/11/01	Gray Jr. Mouth			

Tag		Length	Tag	Date	Site	Recapture	Recapture	Length
Number	Color	(mm)	Scar	Captured	Captured	Date	Site	(mm)
8052	Orange	397		7/11/01	Gray Jr. Mouth			
8051	Orange	405		7/11/01	Gray Jr. Mouth			
8050	Orange	440		7/11/01	Gray Jr. Mouth			
10798	Orange	395		7/11/01	Gray Jr. Mouth			
7849	Orange	400		7/11/01	Gray Jr. Mouth			
7848	Orange	430		7/11/01	Gray Jr. Mouth			
7847	Orange	390		7/11/01	Gray Jr. Mouth			
7846	Orange	420		7/11/01	Gray Jr. Mouth			
7845	Orange	390		7/11/01	Gray Jr. Mouth			
7844	Orange	390		7/11/01	Gray Jr. Mouth			
7843	Orange	400		7/11/01	Gray Jr. Mouth			
7842	Orange	420		7/11/01	Gray Jr. Mouth			
7841	Orange	400		7/11/01	Gray Jr. Mouth			
7840	Orange	385		7/11/01	Gray Jr. Mouth			
7839	Orange	350		7/11/01	Gray Jr. Mouth			
7838	Orange	395		7/11/01	Gray Jr. Mouth			
7837	Orange	410		7/11/01	Gray Jr. Mouth			
7836	Orange	410		7/11/01	Gray Jr. Mouth			
7835	Orange	415		7/11/01	Gray Jr. Mouth			
7834	Orange	420		7/11/01	Gray Jr. Mouth			
7833	Orange	374		7/11/01	Gray Jr. Mouth			
7832	Orange	365		7/11/01	Gray Jr. Mouth			
10663	Orange	425		7/11/01	Gray Jr. Mouth			
10664	Orange	430		7/11/01	Gray Jr. Mouth			
13381	Green	420		8/1/02	Gray Jr. Mouth			
13380	Green	293		8/1/02	Gray Jr. Mouth			
13379	Green	235		8/1/02	Gray Jr. Mouth			
13378	Green	412		8/1/02	Gray Jr. Mouth			

Appendix 12. Station 203

Water quality and biological data for Competition Creek upstream of Sourdock Creek.

Date		Ag	Al	As	Ca	Cd	Cl	Cond	Cu	Fe	K	Mg	Mn	Na
		µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µS/cm	µg/L	µg/L	mg/L	mg/L	µg/L	mg/L
								Field						
06/04/00	CTE		195	< 1	11,100	0.7	0.9		5.8	517	923	3,010	401	642
7/19/00	CTE&E	< 2	< 75	< 10	84.1	2.9	1.2	457	< 7.5	< 250	< 2.5	26.6	405	3.1
8/15/00	CTE&E	< 2	179	< 10	37.1	< 1	< 0.5	178	< 7.5	1030	< 2.5	8.7	200	< 2
8/31/00	CTE&E	< 2	617	< 10	87.3	2.5	< 5	381	16.5	498	< 2.5	24.9	879	2.7
9/10/00	CTE&E	< 2	739	< 10	60.5	3.5	< 5	270	21.7	300	< 2.5	17.1	983	2.6
9/23/00	CTE&E	< 2	312	< 10	76.6	3.4	< 5	321	< 7.5	< 250	< 2.5	25.7	700	2.7
10/5/00	CTE&E	< 2	264	< 10	94.5	4.8	< 5	391	< 7.5	320	< 2.5	28.4	850	3
6/2/01	CAS							78.8						
6/24/01	CAS		659		39.8	3.2	0.5	223	20.1	522	< 2	14	1480	1.5
7/13/01	CTE&E		485		89.6	5.4	< 5	509	19.4	511	0.6	33.1	1720	3.6
7/26/01	CAS		963		76.9	4.1	0.5	352	27	691	< 2	26	1410	2.7
8/4/01	CTE&E		122		44.1	0.4	< 2.5	287	4.2	616	< 0.5	11.5	140	1.9
8/19/01	CAS		521		59.5	2.4	0.4	251	16.3	518	< 2	16.5	962	2.3
9/13/01	CAS							302						
9/22/01	CAS		721		87.5	3.1	2.1	324	17.2	884	< 2	22.9	1170	2.5
10/9/01	CTE&E		172		112	3.2	< 5	421	10.7	845	0.5	34.3	1120	3.4

Competition Creek upstream of Sourdock Creek, Station 203.

Date		Al	Ca	Cd	Cl	Cond	Cu	Fe	K	Mg	Mn	Na
		µg/L	mg/L	µg/L	mg/L	µS/cm	µg/L	µg/L	mg/L	mg/L	µg/L	mg/L
						Field						
5/26/02	CTE	110	4.5	0.2	< 1		2.9	181	< 0.5	1	97	< 0.5
6/15/02	CTE	184	32.2	1.9	0.5	151	5.7	246	< 0.5	9.1	544	1.2
6/27/02	Field					284						
6/27/02	CAS	39.4	53.6	2.1	0.4		2.2	33.3	< 2	16.4	448	1.9
7/15/02	CTE	196	52.7	1.6	< 1	265	6.4	155	< 0.5	16.7	548	2.1
7/28/02	Field					448						
8/7/02	Field					535						
8/23/02	Field											
8/23/02	CAS	112	102	2.7	1	485	4.7	164	< 2	36.5	570	3.7
9/10/02	CTE	308	42.6	1.5	0.8		11.5	199	< 0.5	9.5	427	1.3
9/22/02	CAS	385	63.8	1.9	0.8		9	267	< 2	17.3	567	2.2
10/6/02	CAS											
10/23/02	CAS	59.6	97.2	2.3	0.8		4.3	101	< 2	32.3	540	3.2

Competition Creek upstream of Sourdock Creek, Station 203.

								Analyzed	Summation				
Date		Ni	NO ₂ +NO ₃	Pb	pH	Se	SO ₄	TDS	TDS	Temp	TOC	TSS	Zn
		µg/L	mg/L	µg/L	Field	µg/L	mg/L	mg/L	mg/L	°C	mg/L	mg/L	µg/L
						CAS				Field			
06/04/00	CTE	18	0.6	1		< 2.5	32.3				6.2	10.4	80
7/19/00	CTE&E	131	1.2	< 2	7.1	3.5	327	472	476	5.7	1.5		437
8/15/00	CTE&E	< 50	< 0.5	< 2	6.5	4	119	208	214	3.7	1.4		107
8/31/00	CTE&E	164	< 5	< 2	6.5	6	299	442	457	4.4	1.1		607
9/10/00	CTE&E	116	< 5	< 2	6.5	6	227	312	341	1.8	0.8		429
9/23/00	CTE&E	133	< 5	< 2	7.4	4	314	440	466	0.3	1.1		524
10/5/00	CTE&E	183	< 5	< 2	6.4	6	393	528	564	0.3	0.9		692
6/2/01	CAS				6.5	< 1				0.5			
6/24/01	CAS	137	< 0.2	0.7	7.2	3	151	224	223	3.1	1.5	< 5	424
7/13/01	CTE&E	268	< 5	< 0.4		4.1	370	539	526	9	0.7	3.4	845
7/26/01	CAS	171	< 0.2	0.5	6.5	3.3	255	436	402	4.7	0.9	5	611
8/4/01	CTE&E	40.5	< 2.5	< 0.4	7.2	3	191	240	285	3.2	1.1	4.6	119
8/19/01	CAS	100	< 0.2	0.3	6.7	3.5	189	302	305	2.8	0.9	< 5	336
9/13/01	CAS				7.3	4.4				3.3			
9/22/01	CAS	151	0.2	0.3	7.2	3.3	246	480	413	0.4	0.9	6	493
10/9/01	CTE&E	209	< 5	< 0.4	6.7	2.7	356	599	560	0.2	1	2.4	675

Competition Creek upstream of Sourdock Creek, Station 203.

								Summation				
Date		Ni	NO ₂ +NO ₃	Pb	pH	Se	SO ₄	TDS	Temp	TOC	TSS	Zn
		µg/L	mg/L	µg/L	Field	µg/L	mg/L	mg/L	°C	mg/L	mg/L	µg/L
						CAS			Field			
5/26/02	CTE	7.6	< 1	1.4	6.5	< 1	13.8	< 50	0.3	4.4	5.2	38.8
6/15/02	CTE	75.2	0.2	< 0.4	6.9	1.5	110	180	2.3	1.5	5	249
6/27/02	Field				6.7				5.7			
6/27/02	CAS	98.7	< 0.2	0.05		1.8	213	308		0.9	< 5	338
7/15/02	CTE	95.7	< 1	< 0.4	7.1	3	181	298		1.5	1.2	305
7/28/02	Field				6.8				8.1			
8/7/02	Field				7.4				8.5			
8/23/02	CAS	164	< 0.2	0.06	7.4	3.5	343	568	3.2	0.6	< 5	555
9/10/02	CTE	56.3	0.3	0.5	6.8		141	203	2.6	2.1	1.2	172
9/22/02	CAS	91	< 0.2	0.2	6.9	2.6	192	330	-0.1	1.3	< 5	334
10/6/02	CAS				6.9	2.1			0.6			
10/23/02	CAS	132	< 0.2	< 0.04	6.5	2.2	322	450	0	1	< 5	485

Competition Creek upstream of Sourdock Creek, Station 203.

		Alk		Hardness				
Date		mg/L	Tl (µg/L)	mg/L	Anions	Cations	Charge	Flow
		CaCO ₃		CaCO ₃			Balance	cfs
7/19/00	CTE&E	28.4		320	7.4	6.5	-6.3	
8/15/00	CTE&E	39.6		129	3.3	2.6	-10.8	9.8
8/31/00	CTE&E	34.5		321	6.9	6.6	-2.5	4
9/10/00	CTE&E	27		222	5.3	4.6	-6.8	9
9/23/00	CTE&E	38.7		297	7.3	6.1	-9.2	3.5
10/5/00	CTE&E	36.7		353	8.9	7.2	-10.4	5.6
6/24/01	CAS	12		157	3.4	3.3	-1.7	
7/13/01	CTE&E	22.5		360	8.2	7.5	-4.5	4
7/26/01	CAS	32		299	6.0	6.2	1.8	2
8/4/01	CTE&E	29.5		158	4.6	3.3	-16.6	
8/19/01	CAS	30		217	4.5	4.5	-0.6	
9/22/01	CAS	42		313	6.0	6.4	3.4	
10/9/01	CTE&E	43		421	8.3	8.7	2.3	
5/26/02	CTE	5						
6/15/02	CTE	14.5						
6/27/02	CAS	17						
7/15/02	CTE	25						
8/23/02	CAS	23						
9/10/02	CTE	29	< 0.3					
9/22/02	CAS	30	< 0.04					
10/23/02	CAS	47	< 0.04					

Competition Creek upstream of Sourdock Creek, Station 203. Sample size was 0.0025 m², extract volume was 0.01 liters.

Date	Fluorometer	Fluor.					chlor <i>a</i>	chlor <i>b</i>	chlor <i>c</i>
Collected	Reading	chlor <i>a</i>	750	664	647	630	mg/m ²	mg/m ²	mg/m ²
		mg/m ²							
07/27/00	0.77	0.01							
07/27/00	3.9	0.84							
07/27/00	2.5	0.47							
07/27/00	0.29	0.00							
07/27/00	2.75	0.53							
07/27/00	2.8	0.55							
07/27/00	1.65	0.24							
07/27/00	2.95	0.59							
07/27/00	2.45	0.45							
07/27/00	1.15	0.11							
07/05/01			0	0	0	0	0.00	0.00	0.00
07/05/01			0	0	0	0	0.00	0.00	0.00
07/05/01			0	0	0	0	0.00	0.00	0.00
07/05/01			0	0	0	0	0.00	0.00	0.00
07/05/01			0	0	0	0	0.00	0.00	0.00
07/05/01			0	0	0	0	0.00	0.00	0.00
07/05/01			0	0	0	0	0.00	0.00	0.00
07/05/01			0	0	0	0	0.00	0.00	0.00
07/05/01			0.002	0.002	0.002	0.002	0.00	0.00	0.00
07/05/01			0	0	0	0	0.00	0.00	0.00
07/05/01			0	0.002	0	0	0.09	0.00	0.00

Competition Creek upstream of Sourdock Creek, Station 203. Sample size was 0.0025 m², extract volume was 0.01 liters.

Date	Fluorometer	Fluor.					chlor <i>a</i>	chlor <i>b</i>	chlor <i>c</i>
Collected	Reading	chlor <i>a</i>	750	664	647	630	mg/m ²	mg/m ²	mg/m ²
		mg/m ²							
07/08/03			0.003	0.015	0.006	0.005	0.55	0.00	0.02
07/08/03			0.001	0.001	0.001	0.001	0.00	0.00	0.00
07/08/03			0.002	0.012	0.005	0.004	0.45	0.01	0.04
07/08/03			0.003	0.015	0.007	0.006	0.54	0.04	0.09
07/08/03			0.002	0.014	0.005	0.004	0.55	0.00	0.02
07/08/03			0.002	0.014	0.006	0.005	0.54	0.04	0.09
07/08/03			0.004	0.008	0.005	0.005	0.18	0.00	0.04
07/08/03			0.005	0.015	0.01	0.009	0.44	0.16	0.17
07/08/03			0.003	0.02	0.007	0.006	0.78	0.00	0.06
07/08/03			0.002	0.005	0.003	0.003	0.14	0.01	0.05

July 27, 2000. Competition Creek upstream of Sourdock Creek, Station 203.

Volume of Water through net		10.7		149.09		57.8		41.29		73.4		
Proportion of sample		0.25		0.13		0.25		0.25		0.25		
		Net No.	1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	Baetis	26		7		13		13		11	
	Heptageniidae	Cinygmula			1		2		1			
Plecoptera	Capniidae	Capnia	2		2				2		4	
	Nemouridae	Nemoura	2		1						1	
Diptera	Chironomidae larvae		17		13		6		10		16	
	Chironomidae pupae		2		2		4		4			
Collembola	Hypogasturidae				1				2		1	
	Isotomidae	Axelsonia	1									
	Sminthuridae	Sminthurus							1			
Acari							1				1	
Oligochaeta			1									
Ostracoda			1		1		1		1			
	Calanoida						1		1			
Miscellaneous terrestrial Diptera				1		4		7		3		13
Thysanoptera				1				2		1		
Homoptera	Aphididae			4		1		3		3		4
	Cicadellidae					1		3		1		1

July 5, 2001. Competition Creek upstream of Sourdock Creek, Station 203.

		Water Volume (m3) =	55.05		46.42		34.74		47.1		46.12	
		Proportion of sample =	0.4		0.2		0.6		0.26		0.8	
		Net No.	1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Heptageniidae	<i>Cinygmula</i>							1			
Plecoptera	Capniidae	<i>Capnia</i>	9		6		8		7		12	
	Nemouridae	<i>Nemoura</i>	6		11		7		15		14	
Diptera	Chironomidae	larvae	109		118		60		82		93	
	Chironomidae	pupae	12		19		3		5		3	
	Empididae	<i>Chelifera</i>			1						1	
		<i>Rhamphomyia</i>			1							
	Tipulidae	<i>Tipula</i>			1							
	Simuliidae	<i>Simulium</i>	4		11		2		1		4	
Coleoptera	Carabidae		1		1				1			
	Staphylinidae						1				2	
Hemiptera	Macroveliidae		1									
Collembola	Isotomidae	<i>Axelsonia</i>	63		83		42		50		38	
	Onychiuridae	<i>Lophognathella</i>	4		10		4		7		6	
		<i>Onychiurus</i>	5		2		3		4		4	
	Sminthuridae	<i>Sminthurus</i>	9		16		9		9		15	
Lepidoptera	Pyralidae										1	
Acari			10		35		6		19		28	
Copepoda	Cyclopoida		1		1				3		1	
Miscellaneous terrestrial Diptera				160		189		122		126		92
Hymenoptera				22		25		12		13		17
Misc Terrestrial				36		38		9		40		33

July 8, 2002. Competition Creek upstream of Sourdock Creek, Station 203.

		Water Volume, m3	64.22		68.81		32.11		21.03		89.45	
		Proportion of sample	1		1		1		1		1	
Taxon		Sample Number	1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	3		3						2	
Plecoptera	Capniidae	<i>Capnia</i>	9				1				1	
	Nemouridae	<i>Nemoura</i>									2	
Diptera	Chironomidae	larvae	64				3		9		2	
	Chironomidae	pupae	4				1		1		0	
	Simuliidae	<i>Simulium</i>	1						1		5	
Collembola	Isotomidae	<i>Axelsonia</i>	12		3		25		1		26	
	Onychiuridae	<i>Lophognathella</i>	9		8		7		3		41	
		<i>Onychiurus</i>	1								1	
	Sminthuridae	<i>Sminthurus</i>	4				10		1		21	
Acari			3		2		11		1		35	
Copepoda	Cyclopoida										1	
	Harpacticoida						1					
Misc. Terrestrial Diptera				82		5		7		7		19
Hymenoptera				8		1		3		1		4
Misc Terrestrial				7		1		6				9

Competition Creek upstream of Sourdock Creek, Station 203.
Summary of invertebrate data.

	2000	2001	2002
Total aquatic taxa	14	19	13
Tot. Ephemeroptera	65.1	0.8	1.6
Tot. Plecoptera	13.4	52.9	2.6
Tot. Trichop.	0.0	0.0	0.0
Total Aq. Diptera	86.8	328.1	18.2
Misc.Aq.sp	13.5	312.0	45.4
% Ephemeroptera	36%	0%	2%
% Plecoptera	8%	8%	4%
% Trichoptera	0%	0%	0%
% Aq. Diptera	49%	47%	27%
% other	8%	45%	67%
% EPT	44%	8%	6%
% Chironomidae	39%	45%	25%
% Dominant Aquatic Taxon	42%	40%	43%
Volume of water (m3)	332	229	276
average water/net	66	46	55
StDev of water volume	52	7	28
Estimated total inverts/m3 water	3	28	2
Estimated aquatic inverts/m3 water	3	15	1
average inv/m3	6	15	1
Stdev of aq. Inv. Den.	8	12	1
Total aquatic invertebrates	894	3469	339
Total. terrestrial invertebrates	234	2909	160
Total invertebrates	1128	6378	499
% Sample aquatic	79%	54%	68%
% Sample terrestrial	21%	46%	32%
Average # aquatic inverts / net	179	694	68
stdev aq inv/net	52	544	55
Average # terr. inverts / net	47	582	32
Average # inverts / net	226	1276	100
stdev inv/net	45	976	84
Total Larval Fish/site	0	0	0

Upper Competition Creek Station 203, Ten Minnow traps per sample event for Dolly Varden

	7/28/00	7/7/01	8/4/01	7/9/02	8/3/02
FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)
not sampled	80	no DVs	no DVs	no DVs	112
	83				121
	88				130
	114				
	117				

Appendix 13. Station 202

Water quality and biological data for Competition Creek downstream of Sourdock Creek.

Date	Lab	Ag	Al	Alk	As	Ca	Cd	Cl	Cond	Cr	Cu	Fe
		µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	mg/L	(µMHOS/cm	µg/L	µg/L	µg/L
									Field			
06/04/00									39.2			
06/21/00	CTE&E	< 2	< 50	34.5			0.2		289	< 5	< 10	142
07/19/00	CTE&E	< 2	< 75	44.2	< 10	59,600	< 1	< 1	323	< 12.5	< 7.5	< 250
08/15/00	CTE&E	< 2	170	34.5	< 10	44,100	< 1	0.5	199	< 12.5	< 7.5	307
08/31/00	CTE&E	< 2	76.5	42.1	< 10	68,300	< 1	< 5	298	< 12.5	< 7.5	< 250
09/10/00	CTE&E	< 2	295	36.5	< 10	48,300	1.1	< 5	226	< 12.5	< 7.5	< 250
09/21/00	CTE&E	< 2	94.8	41.2	< 10	65,800	< 1	0.8	270	< 12.5	< 7.5	< 250
10/06/00	CTE&E	< 2	< 75	51.8	< 10	74,500	1.9	< 5		< 12.5	< 7.5	< 250
06/02/01	CTE&E		70.4	< 10		11.3	0.3	< 5	57.3		2.3	140
06/24/01	CAS		80.7	26		33.1	0.9	0.5	158		4.1	106
07/13/01	CTE&E		28.5	38.6		67.2	0.2	< 5	366		2.1	< 50
07/26/01	CAS		111	46		62.8	0.7	0.5	287		3.2	90.5
08/05/01	CTE&E		166	42.5		50.2	0.8	< 2.5	228		6.6	179
08/19/01	CAS		91.8	37		47.9	0.7	0.4	194		3.6	125
09/13/01	CAS								251			
09/22/01	CAS		237	54		66.9	0.9	0.5	277		6.3	299
10/09/01	CTE&E		< 20	58		82.8	0.1	< 5	325		1.4	< 50

Competition Creek downstream of Sourdock Creek, Station 202.

Date	Lab	Al µg/L	Alk mg/L	Ca µg/L	Cd µg/L	Cl mg/L	Cond (µMHOS/cm)	Cu µg/L	Fe µg/L
							Field		
05/26/02	Field								
05/26/02	CAS								
05/26/02	CTE	220	6.5	4.4	0.2	< 1	59.2	4.3	673
05/31/02	Field								
06/15/02	Field								
06/15/02	CAS								
06/15/02	CTE	29.7	25	24.6	0.2	0.5	134	2.6	31.5
06/15/02	Field								
06/27/02	Field						250		
06/27/02	CAS	< 20	32	42.8	0.2	0.4		1.2	< 20
07/15/02	Field								
07/15/02	CAS								
07/15/02	CTE	< 20	38	43.4	< 0.1	< 1	236	1.3	< 40
07/28/02	Field						339		
08/23/02	CAS	< 20	48	81.7	0.2	0.7	413	< 1	< 20
09/11/02	CAS								
09/11/02	CTE	143	39.8	37.1	0.6	0.7	198	4.9	144
09/22/02	CAS	155	40	51.1	0.5	0.7	202	3.4	219
10/06/02	Field						221		
10/23/02	CAS	< 20	62	80.3	0.3	0.9	307	< 1	< 20

Competition Creek downstream of Sourdock Creek, Station 202.

Date	Lab	Hardness	Hg	K	Mg	Mn	Na	Ni	NO ₂ +NO ₃	pH	Pb
		mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	Field	µg/L
06/04/00										6.7	
06/14/00											
06/21/00	CTE&E	213	< 0.2			< 10		18.2	0.6	7.3	< 2
07/08/00											
07/19/00	CTE&E	225		< 2,500	18,600	< 10	2,370		1.2	7.1	< 2
08/15/00	CTE&E			< 2,500	11,200	285	< 2,000	< 50		6.3	< 2
08/15/00	CAS										
08/31/00	CAS									6.7	
08/31/00	CTE&E			< 2,500	19,600	101	2,470	< 50			< 2
09/10/00	CAS									6.7	
09/10/00	CTE&E			< 2,500	13,400	275	< 2,000	< 50			< 2
09/21/00	CAS									6.8	
09/21/00	CTE&E			< 2,500	22,200	125	2,540	< 50			< 2
10/06/00	CAS									7	
10/06/00	CTE&E			< 2,500	21,000	17	2,510	< 50			< 2
06/02/01	CTE&E			1.3	3.7	139	1.1	10.5	< 5	6.6	0.9
06/24/01	CAS			< 2	10.3	252	1.2	39.2	< 0.2	7.1	0.1
07/13/01	CTE&E			0.6	21.2	< 3	2.6	20.4	< 5	7.5	< 0.4
07/26/01	CAS			< 2	19.5	130	2.2	37.1	< 0.2	6.9	0.1
08/05/01	CTE&E			< 0.5	14.8	254	2	46.6	< 2.5	7.4	< 0.4
08/19/01	CAS			< 2	13.2	196	1.9	35.7	< 0.2	6.9	0.1
09/13/01	CAS									7.7	
09/22/01	CAS			< 2	18.7	205	2.4	41.4	0.2	7.9	0.1
10/09/01	CTE&E			< 0.5	24.2	6.3	2.8	24.7	< 5	7.2	< 0.4

Competition Creek downstream of Sourdock Creek, Station 202.

Date	Lab	K	Mg	Mn	Na	Ni	NO ₂ +NO ₃	pH	Pb
		µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	Field	µg/L
05/26/02	Field								
05/26/02	CAS								
05/26/02	CTE	0.5	1.2	175	< 0.5	11.2	< 1		1.6
05/31/02	Field								
06/15/02	Field								
06/15/02	CAS								
06/15/02	CTE	< 0.5	7.3	15.8	1.2	16.9	0.2	6.5	< 0.4
06/15/02	Field								
06/27/02	Field								
06/27/02	CAS	< 2	12.6	1.4	1.6	10.9	< 0.2	7.1	< 0.04
07/15/02	Field								
07/15/02	CAS								
07/15/02	CTE	< 0.5	13.4	< 5	1.8	13.1	< 1	7.6	< 0.4
07/28/02	Field							7.1	
08/23/02	CAS	< 2	25.1	1.1	2.9	14.7	< 0.2		< 0.04
09/11/02	CAS								
09/11/02	CTE	< 0.5	9.4	155	1.3	30.3	0.3	7.5	< 0.4
09/22/02	CAS	< 2	14.5	105	2	30.5	< 0.2	7.7	0.2
10/06/02	Field							7.2	
10/23/02	CAS	< 2	23.1	3.4	2.7	19.8	< 0.2	6.5	< 0.04

Competition Creek downstream of Sourdock Creek, Station 202.

Date	Lab	Se	SO ₄	TempW	TSS	TDS	TOC	Tot P	Zn	Flow	TDS	mg/L	Anions	Cations	Charge
		CAS	mg/L	°C	mg/L	mg/L	mg/L	mg/L	µg/L	cfs	mg/L	CaCO ₃			Balance
				Field											
06/04/00				0.6						53.9					
06/14/00										28.1					
06/21/00	CTE&E	< 5	210	5.3		314	1.2	< 0.2	57.5	4.9					
07/08/00										4.8					
07/19/00	CTE&E		219	6.6		302			< 100						
08/15/00	CTE&E		145	4.6		250	1.2	< 0.2	124						
08/15/00	CAS	4													
08/31/00	CAS	4		4.5						8.3					
08/31/00	CTE&E		205			336	1.2	< 0.2	129						
09/10/00	CAS	5		1.6						19					
09/10/00	CTE&E		163			244	1	< 0.2	166						
09/21/00	CAS	1		1						8.3					
09/21/00	CTE&E		245			120	1.6	< 0.2	129						
10/06/00	CAS	5								3.4					
10/06/00	CTE&E		272			404	1.1	< 0.2	118						
06/02/01	CTE&E	< 1	30	0.5	3.2	< 50	5.4		48.9		48	43	0.6	1.0	21.3
06/24/01	CAS	2.6	98.4	3.9	< 5.0	160	1		108	19.8	175	125	2.6	2.6	-0.3
07/13/01	CTE&E	2.8	235	9.6	< 0.4	404	0.8		60.6	5.5	373	255	5.7	5.2	-4.0
07/26/01	CAS	2.8	187	5.4	< 5.0	284	0.9		114		327	237	4.8	4.8	0.2
08/05/01	CTE&E	2.7	137	4.1	1	178	1.2		140		255	186	3.7	3.8	1.7
08/19/01	CAS	2.6	132	3.1	< 5.0	250	1		109		240	174	3.5	3.6	1.1
09/13/01	CAS	3.7		3.5											
09/22/01	CAS	2.9	193	1.3	< 5.0	308	1		141		347	244	5.1	5.0	-1.0
10/09/01	CTE&E	2.5	239	0.4	0.8	414	1.2		75.8		418	307	6.1	6.2	0.9

Competition Creek downstream of Sourdock Creek, Station 202.

Date	Lab	Se	SO ₄	TempW	TSS	TDS	TOC	Zn
		CAS	mg/L	°C	mg/L	mg/L	mg/L	µg/L
				Field				
05/26/02	CTE	< 1	11.8		14.2	50	4.4	44.4
06/15/02	Field			4				
06/15/02	CTE	1.7	68.9		0.4	123	1.8	44
06/27/02	Field			7				
06/27/02	CAS	1.4	136		< 5	252	1	34.6
07/15/02	CTE	2	127	8.2	< 0.4	231	1.7	33.5
07/28/02	Field			10.3				
08/23/02	CAS	2.6	243	6.7	< 5	448	0.6	44.6
09/11/02	CTE	3	93.9	1.9	1.2	180	2.1	100
09/22/02	CAS	1.8	145	0	< 5	233	1.4	99.6
10/06/02	Field	1.4		0.6				
10/23/02	CAS	2.3	220	0	< 5	312	1.2	75.2

Competition Creek downstream of Sourdock Creek, Station 202. Sample size was 0.0025 m², extract volume was 0.01 liters.

Date	Fluorometer	chlor <i>a</i>					chlor <i>a</i>	chlor <i>b</i>	chlor <i>c</i>
Collected	Reading	mg/m ²	750	664	647	630	mg/m ²	mg/m ²	mg/m ²
07/08/00	10.8	2.65528	0	0.051	0.013	0.008	2.33	0.00	0.05
07/08/00	12.5	3.1034	0	0.059	0.016	0.011	2.69	0.00	0.20
07/08/00	7.7	1.83812	0.001	0.035	0.011	0.008	1.55	0.08	0.22
07/08/00	9.1	2.20716	0	0.041	0.011	0.008	1.87	0.00	0.18
07/08/00	15.1	3.78876	0.001	0.086	0.027	0.021	3.86	0.18	0.66
07/08/00	6.1	1.41636	0.002	0.029	0.011	0.009	1.22	0.20	0.35
07/08/00	10.1	2.47076	0	0.047	0.014	0.009	2.14	0.06	0.14
07/08/00	8.2	1.96992	0	0.044	0.011	0.007	2.02	0.00	0.06
07/08/00	9.2	2.23352	0	0.044	0.013	0.008	2.00	0.05	0.10
07/08/00	10.7	2.62892	0	0.052	0.016	0.013	2.36	0.08	0.44
07/05/01			0	0.043	0.013	0.01	1.95	0.05	0.30
07/05/01			0	0.019	0.007	0.005	0.86	0.12	0.15
07/05/01			0.002	0.023	0.009	0.007	0.95	0.08	0.14
07/05/01			0.001	0.023	0.009	0.008	0.99	0.12	0.30
07/05/01			0.004	0.041	0.016	0.014	1.68	0.10	0.37
07/05/01			0.004	0.034	0.014	0.012	1.36	0.10	0.28
07/05/01			0	0.046	0.015	0.012	2.08	0.14	0.41
07/05/01			0.005	0.047	0.019	0.017	1.90	0.14	0.47
07/05/01			0.004	0.081	0.027	0.021	3.50	0.08	0.45
07/05/01			0	0.097	0.028	0.02	4.42	0.04	0.46

Competition Creek downstream of Sourdock Creek, Station 202. Sample size was 0.0025 m², extract volume was 0.01 liters.

Date	Fluorometer	chlor <i>a</i>					chlor <i>a</i>	chlor <i>b</i>	chlor <i>c</i>
Collected	Reading	mg/m ²	750	664	647	630	mg/m ²	mg/m ²	mg/m ²
07/07/02			0.003	0.021	0.007	0.005	0.83	0.00	0.00
07/07/02			0.002	0.149	0.042	0.031	6.71	0.00	0.65
07/07/02			0.002	0.105	0.029	0.02	4.71	0.00	0.26
07/07/02			0.003	0.087	0.025	0.018	3.84	0.00	0.24
07/07/02			0.005	0.15	0.045	0.034	6.62	0.00	0.66
07/07/02			0.005	0.116	0.035	0.026	5.07	0.00	0.41
07/07/02			0.003	0.056	0.018	0.012	2.42	0.01	0.07
07/07/02			0.002	0.139	0.04	0.029	6.25	0.00	0.58
07/07/02			0.003	0.091	0.028	0.02	4.01	0.01	0.32
07/07/02			0.001	0.084	0.024	0.017	3.79	0.00	0.32

July 8, 2000. Competition Creek downstream of Sourdock Creek, Station 202.

	Vol. Water through net, m3		48.9		55.1		67.3		78		34.4	
	Proportion of sample		0.25		1		1		0.25		0.25	
	Sample Number (Net) =		1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	11		29		7		11		5	
	Heptageniidae	<i>Cinygmula</i>			1							
Plecoptera	Capniidae	<i>Capnia</i>	61		365		428		104		116	
	Nemouridae	<i>Nemoura</i>	5		47		30		10		11	
Diptera	Chironomidae larvae		107		666		551		146		163	
	Chironomidae pupae		6		45		38		8		10	
	Empididae	<i>Clinocera</i>					1					
	Tabanidae						1					
	Tipulidae	<i>Tipula</i>			4		1					
	Simuliidae	<i>Simulium</i>	66		276		164		35			
Coleoptera	Carabidae					1						
	Staphylinidae					1		1				
Collembola	Hypogasturidae		3		7		7		5		2	
	Isotomidae	<i>Axelsonia</i>	4		6		15		3		21	
	Sminthuridae	<i>Sminthurus</i>			1				1			
Acari			5		27		26		10		8	
Oligochaeta					4				1			
Ostracoda			3		1				1		1	
Misc. Terrestrial Diptera				24		75		115		11		35
Thysanoptera				3		5		1		1		1
Arachnida								1				
Homoptera	Aphididae			1		5		1				
	Cicadellidae			1		5						1

July 5, 2001. Competition Creek downstream of Sourdock Creek, Station 202.

	Water Volume (m3) =		99.39		110.1		83.95		81.96		77.68	
	Proportion of sample =		0.2		0.2		0.2		0.4		0.2	
	Sample Number (Net) =		1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Heptageniidae	<i>Cinygmula</i>	1						1			
Plecoptera	Capniidae	<i>Capnia</i>	395		179		172		353		253	
	Nemouridae	<i>Nemoura</i>	12		4		1		4		7	
Diptera	Chironomidae	larvae	128		46		24		141		82	
	Chironomidae	pupae	4		2		2				1	
	Empididae	<i>Chelifera</i>	5		6				3		2	
	Tipulidae	<i>Tipula</i>			1						2	
	Simuliidae	<i>Simulium</i>	17		6		6		12		7	
Coleoptera	Carabidae		1									
Collembola	Isotomidae	<i>Axelsonia</i>	7				1		11		19	
	Neelidae	<i>Neelus</i>										
	Onychiuridae	<i>Lophognathella</i>	1		1				2			
	Onychiuridae	<i>Onychiurus</i>							1			
	Sminthuridae	<i>Sminthurus</i>	1								1	
Acari	Acarina		81		33		21		67		54	
Oligochaeta					1				1		2	
Copepoda	Cyclopoida								1		1	
Misc. Terrestrial Diptera				7		2		5		9		18
Hymenoptera				1		1						
Misc. Terrestrial Inverts.				4						6		9

July 8, 2002. Competition Creek downstream of Sourdock Creek, Station 202.

	Water Volume (m3) =		59.64		73.4		76.46		76.46		89.45	
	Proportion of sample =		1		0.5		0.5		1		1	
Taxon	Sample Number (Net) =		1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	33		74		49		66		27	
Plecoptera	Capniidae	<i>Capnia</i>	5		87		41		13		8	
	Nemouridae	<i>Nemoura</i>	7		13		5		3		4	
Diptera	Chironomidae	larvae	23		465		165		38		7	
	Chironomidae	pupae	5		14		6		7			
	Simuliidae	<i>Simulium</i>	62		490		252		51		27	
Collembola	Isotomidae	<i>Axelsonia</i>	3		8		6		16		51	
	Onychiuridae	<i>Lophognathella</i>	4		6		3		12		57	
		<i>Onychiurus</i>					1				1	
	Sminthuridae	<i>Sminthurus</i>	2		5		1		9		6	
Acari	Acarina		8		39		17		10		10	
Oligochaeta					3							
Ostracoda			1									
Copepoda	Cyclopoida								2		1	
Misc. Terrestrial Diptera				8		57		19		13		28
Hymenoptera				4		2		5		1		1
Misc. Terrestrial Inverts.				3		4		1		2		3

Summary of invertebrate data. Competition Creek downstream of Sourdock Creek,
Station 202.

Year	2000	2001	2002
Total aquatic taxa	17	16	14
Tot. Ephemeroptera	29	1.5	74.4
Tot. Plecoptera	419.6	1201.5	66.4
Tot. Trichop.	0	0	0
Total Aq. Diptera	829.4	419	600.8
Misc.Aq.sp	73.6	266.5	74.2
% Ephemeroptera	2%	0%	9%
% Plecoptera	31%	64%	8%
% Trichoptera	0%	0%	0%
% Aq. Diptera	61%	22%	74%
% other	5%	14%	9%
% EPT	33%	64%	17%
% Chironomidae	45%	19%	34%
% Dominant Aquatic Taxon	43%	62%	41%
Volume of water (m3)	284	453	375
average water/net	57	91	75
StDev of water volume	17	14	11
Estimated total inverts/m3 water	26	21	12
Estimated aquatic inverts/m3 water	24	21	11
average inv/m3	26	21	11
Stdev of aq. Inv. Den.	12	9	13
Total aquatic invertebrates	6756	9443	4079
Total. terrestrial invertebrates	523	273	239
Total invertebrates	7279	9715	4318
% Sample aquatic	93%	97%	94%
% Sample terrestrial	7%	3%	6%
Average # aquatic inverts / net	1351	1889	816
stdev aq inv/net	193	856	972
Average # terr. inverts / net	105	55	48
Average # inverts / net	1456	1943	864
stdev inv/net	203	880	1017
Total Larval Fish/site	0	0	0

Lower Competition Creek Station 202, Ten Minnow traps per event for Dolly Varden

7/9/00	7/29/00	7/6/01	8/4/01	7/9/02	8/3/02
FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)
80	87	111	74	70	100
76	89		79		91
76			80		101
140			81		108
			82		100
			87		109
			112		99
			116		90
			118		86
			120		104
			130		115
					96
					103
					95
					102
					106
					105
					92
					64
					119
					81
					90
					100
					92
					104
					98
					90
					59
					96
					99
					90
					112
					89

Lower Competition Creek Station 202, Fyke Net (GR - Arctic grayling, DV - Dolly Varden)

7/9/00	7/10/00	7/11/00	7/29/00	7/30/00	7/31/00	8/1/00
FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)
DV 142	DV 135	DV 173	DV 84	GR 172	DV 101	DV 86
DV 132	DV 95	DV 73	DV 81	GR 223	DV 87	DV 60
DV 82	DV 120	DV 84	GR 203	GR 225	DV 211	DV 133
DV 118	DV 120	DV 123		GR 185		DV 96
DV 118	DV 110	DV 77		GR 204		GR 215
DV 82	DV 75	DV 81		GR 195		
DV 79	DV 140	DV 105				
DV 68	DV 80	DV 75				
DV 82	DV 65	DV 80				
DV 77	DV 85	DV 77				
DV 80	DV 75	DV 73				
DV 76	DV 65	DV 72				
DV 80	DV 70	DV 86				
DV 72	DV 75	DV 74				
DV 84	DV 80	DV 80				
DV 75	GR 222	DV 78				
DV 65	GR 210	DV 75				
DV 73		DV 80				
		GR 214				
7/9/00, two DVs (142, 132 mm) silvery, smolts						

DV = Dolly Varden, AG = Arctic Grayling

Appendix 14. Station 204

Water quality and biological data for Sourdock Creek.

				Alk										
Date	Lab	Ag	Al	mg/L	As	Ca	Cd	Cl	Cond	Cr	Cu	Fe	Hg	K
		µg/L	µg/L	CaCO3	µg/L	mg/L	µg/L	mg/L	µS/cm	µg/L	µg/L	µg/L	µg/L	mg/L
									Field					
6/4/00	CTE&E		54.6	11.3	1	6.8	0.1	0.9	15.4		< 5	250		1.1
6/14/00														
6/21/00	CTE&E	< 2	< 50	47.4			< 0.2		228	< 5	< 10	165	< 0.2	
7/19/00	CTE&E		< 75	48.2	< 10	45.4	< 1	1.1	166		< 7.5	< 250		< 2.5
8/15/00	CTE&E	< 2	569	23.4	< 10	51	< 1	0.6	221	< 12.5	20.5	558		< 2.5
8/31/00	CTE&E	< 2	132	47.7	< 10	46.7	< 1	< 5	222	< 12.5	< 7.5	659		< 2.5
9/10/00	CTE&E	< 2	138	44	< 10	39.5	< 1	< 5	182	< 12.5	< 7.5	629		< 2.5
9/23/00	CTE&E	< 2	< 75	62.3	< 10	46.1	< 1	< 5	199	< 12.5	< 7.5	< 250		< 2.5
10/5/00	CTE&E	< 2	< 75	67.8	< 10	59.1	< 1	< 5	238	< 12.5	< 7.5	< 250		< 2.5
6/2/01	CAS								25.9					
6/24/01	CAS		45.2	34		33.5	0.3	0.5	150		1.5	266		< 2
7/13/01	CTE&E		20.5	58		58.9	0.2	< 5			1.7	56		< 0.5
7/26/01	CAS		60.9	56		55	0.3	0.5	226		2.9	280		< 2
8/4/01	CTE&E		49.9	50.2		18.6	< 0.1	< 2.5	171		2.6	645		< 0.5
8/19/01	CAS		122	44		41.4	0.5	0.4	160		3.9	701		< 2
9/13/01	CAS								205					
9/22/01	CAS		156	56		54.6	0.7	0.6	205		3.6	852		< 2

Sourdock Creek, Station 204

			Alk							
Date	Lab	Al	mg/L	Ca	Cd	Cl	Cond	Cu	Fe	K
		µg/L	CaCO3	mg/L	µg/L	mg/L	µS/cm	µg/L	µg/L	mg/L
							Field			
5/26/02	CTE	76.4	8.5	3.7	< 0.1	< 1		< 1	372	0.5
6/15/02	CTE	47.6	32	21.9	0.1	0.5	107	1.4	129	< 0.5
6/27/02	CAS	41.4	41	36.5	0.1	0.4	196	< 1	173	< 2
7/15/02	CTE	26.6	46	36.3	< 0.1	< 1	186	1.1	43.8	< 0.5
7/28/02	Field						303			
8/7/02	Field						344			
8/23/02	CAS	< 20	72	62.7	0.2	0.8	293	< 1	< 20	< 2
9/10/02	CTE	142	41	29.7	0.3	0.8	167	3.9	685	< 0.5
9/22/02	CAS	102	45	41.7	0.5	0.7	177	2.6	417	< 2
10/6/02	CAS						191			

Sourdock Creek, Station 204

											Analyzed	Summation
Date	Lab	Mg	Mn	Na	Ni	NO ₂ +NO ₃	Pb	pH	Se	SO ₄	TDS	TDS
		mg/L	µg/L	mg/L	µg/L	mg/L	µg/L	Field	µg/L	mg/L	mg/L	mg/L
									CAS			Field
6/4/00	CTE&E	2.1	198	0.5	6.7	0.5	< 1	6.7	< 2.5	13.5		39
6/14/00												
6/21/00	CTE&E		< 10		21.9	0.6	< 2	7.4	< 5	179	270	236
7/19/00	CTE&E	13.6	< 10	2.1	< 50	1.2	< 2	7.5	3	155	246	275
8/15/00	CTE&E	13.2	914	< 2	107	< 0.5	3.2	6.5	5	195	292	289
8/31/00	CTE&E	12.9	159	2.4	< 50	< 5	< 2	7	3	129	248	249
9/10/00	CTE&E	10.4	159	2.3	< 50	< 5	< 2	6.9	5	116	196	222
9/23/00	CTE&E	15.4	78.4	2	< 50	< 5	< 2	7.4	2	134	230	272
10/5/00	CTE&E	15.8	40	2.3	< 50	< 5	< 2	6.9	4	174	300	333
6/2/01	CAS							6.3	< 1			
6/24/01	CAS	8.7	91.6	1.2	30.3	< 0.2	0.06	7.2	3.4	78.2	149	163
7/13/01	CTE&E	16.3	8.7	2.4	25.1	< 5	< 0.4		3.7	164	239	311
7/26/01	CAS	15	71.6	2.1	31.6	< 0.2	< 0.04	7.6	2.7	140	285	280
8/4/01	CTE&E	11	329	2.9	18.7	< 2.5	< 0.4	7.3	2.5	97.9	133	192
8/19/01	CAS	10.7	150	1.8	39.4	< 0.2	0.06	7	2.8	89.9	198	198
9/13/01	CAS							7.7	3.2			
9/22/01	CAS	14.2	181	2.2	44.2	0.2	0.2	7.2	2.5	131	270	271

Sourdock Creek, Station 204

												Analyzed
Date	Lab	Mg	Mn	Na	Ni	NO ₂	NO ₂ +NO ₃	Pb	pH	Se	SO ₄	TDS
		mg/L	µg/L	mg/L	µg/L	mg/L	mg/L	µg/L	Field	µg/L	mg/L	mg/L
										CAS		
5/26/02	CTE	1	64.1	< 0.5	< 5		< 1	0.9		< 1	6.9	< 50
6/15/02	CTE	6.4	21.2	1.1	15.5		0.2	< 0.4	7	1.8	53.7	120
6/27/02	CAS	11	7.3	1.7	11.8		< 0.2	0.2	6.6	1.4	96	199
7/15/02	CTE	10.4	5.3	1.6	12.6		< 1	< 0.4	7.5	1.9	92.1	174
7/28/02	Field								6.8			
8/7/02	Field								7.7			
8/23/02	CAS	18.9	2	2.6	14.4		< 0.2	< 0.4	7.6	3	167	296
9/10/02	CTE	7.9	146	1.3	29.5		0.3	< 0.4	6.9		74.8	163
9/22/02	CAS	11.4	154	1.9	38.6		< 0.2	0.06	7.1	1.7	100	196
10/6/02	CAS								7.1	1.4		

Sourdock Creek, Station 204

								Hardness				
Date	Lab	Temp	TOC	Tot P		TSS	Zn	mg/L	Anions	Cations	Charge	Flow
		°C	mg/L	mg/L		mg/L	µg/L	CaCO3			Balance	cfs
6/4/00	CTE&E	0.7	7.9	< 0.2		6.4	26.5	26	0.5	0.6	4.5	31.3
6/14/00												3.1
6/21/00	CTE&E	4.5	1.4	< 0.2			45.8	194	4.7	0.0		1
7/19/00	CTE&E	4.9					< 100	169	4.2	3.5	-9.7	
8/15/00	CTE&E	4	1.1	< 0.2			315	182	4.5	3.7	-10.3	17.9
8/31/00	CTE&E	4.4	1.4	< 0.2			140	170	3.6	3.5	-1.4	3.3
9/10/00	CTE&E	1.3	1.1	< 0.2			138	142	3.3	3.0	-5.2	4.9
9/23/00	CTE&E	0.2	1.4	< 0.2			118	179	4.0	3.7	-4.9	2.2
10/5/00	CTE&E	0.3	1.1	< 0.2			136	213	5.0	4.4	-6.7	4
6/2/01	CAS	0.4										
6/24/01	CAS	3.9	1.1		<	< 5.0	71.3	120	2.3	2.5	2.8	12
7/13/01	CTE&E	7.4	0.9		<	< 0.4	55.5	214	4.6	4.4	-2.1	7
7/26/01	CAS		1.1		<	< 5.0	96.7	199	4.0	4.1	0.5	
8/4/01	CTE&E	3.2	1.4			1.4	21.1	92	3.0	2.0	-20.5	
8/19/01	CAS	2.7	1.1		<	< 5.0	119	148	2.8	3.1	5.2	
9/13/01	CAS	3.3										
9/22/01	CAS	0.5	1.2		<	5	160	195	3.9	4.0	2.3	

Sourdock Creek, Station 204

Date	Lab	Temp	TI	TOC	TSS	Zn
		°C	µg/L	mg/L	mg/L	µg/L
5/26/02	CTE			4.7	5.4	16.4
6/15/02	CTE	3.4		2.3	2.2	41.8
6/27/02	CAS	6.3		1.3	< 5	33.3
7/15/02	CTE	5.4		1.9	0.4	34.9
7/28/02	Field	7.2				
8/7/02	Field	7.5				
8/23/02	CAS	2.9		0.8	< 5	42.8
9/10/02	CTE	2.2	< 0.3	2.3	2.4	86.3
9/22/02	CAS	0	< 0.04	1.5	< 5	128
10/6/02	CAS	0.6				

Sourdock Creek, Station 204.

Samples were not acidified in 2000. Sample size was 0.0025 m², extract volume was 0.01 liters.

			Fluor.	Spect.				Spect.	Spect.	Spect.
	Date	Fluor.	chlor <i>a</i>	Readings				chlor <i>a</i>	chlor <i>b</i>	chlor <i>c</i>
Project	Collected	Reading	mg/m ²	750	664	647	630	mg/m ²	mg/m ²	mg/m ²
Baseline	07/08/00	13.5	3.367	0.002	0.187	0.079	0.052	8.28	2.03	1.45
Baseline	07/08/00	18.8	4.76408	0.002	0.134	0.067	0.033	5.85	2.37	0.30
Baseline	07/08/00	14	3.4988	0.002	0.091	0.041	0.024	3.97	1.22	0.50
Baseline	07/08/00	13	3.2352	0	0.079	0.039	0.021	3.50	1.34	0.35
Baseline	07/08/00	15.1	3.78876	0.002	0.248	0.105	0.065	11.01	2.75	1.53
Baseline	07/08/00	12.5	3.1034	0.002	0.06	0.029	0.015	2.58	0.98	0.19
Baseline	07/08/00	19.5	4.9486	0	0.147	0.075	0.035	6.49	2.74	0.17
Baseline	07/08/00	7.6	1.81176	0	0.034	0.014	0.008	1.52	0.35	0.13
Baseline	07/08/00	19	4.8168	0.001	0.207	0.104	0.054	9.11	3.68	0.75
Baseline	07/08/00	11	2.708	0.002	0.235	0.094	0.066	10.46	2.10	2.05

Fluorometer not used in 2001 or 2002. Sample size was 0.0025 m², extract volume was 0.01 liters.

								Spect.	Spect.	Spect.
	Date	Spectrophotometer						chlor <i>a</i>	chlor <i>b</i>	chlor <i>c</i>
Project	Collected	750	664	647	630	665-b	750-b	mg/m ²	mg/m ²	mg/m ²
Baseline	07/05/01	0.003	0.078	0.031	0.025	0.047	0.002	3.38	0.49	0.81
Baseline	07/05/01	0.001	0.021	0.008	0.006	0.014	0.002	0.90	0.10	0.14
Baseline	07/05/01	0.001	0.046	0.019	0.013	0.029	0.001	2.02	0.41	0.33
Baseline	07/05/01	0.003	0.121	0.038	0.029	0.075	0.003	5.37	0.10	0.70
Baseline	07/05/01	0.001	0.013	0.007	0.005			0.53	0.20	0.13
Baseline	07/05/01	0.003	0.13	0.055	0.033			5.69	1.30	0.51
Baseline	07/05/01	0.004	0.369	0.167	0.093	0.226	0.004	16.27	4.84	1.34
Baseline	07/05/01	0.003	0.071	0.029	0.021			3.06	0.52	0.52
Baseline	07/05/01	0.003	0.046	0.017	0.014			1.95	0.13	0.37
Baseline	07/05/01	0.002	0.026	0.013	0.009			1.07	0.33	0.19
Baseline	07/08/02	0.004	0.08	0.025	0.017	0.049	0.003	3.47	0.00	0.13
Baseline	07/08/02	0.004	0.19	0.057	0.041	0.114	0.004	8.48	0.02	0.78
Baseline	07/08/02	0.003	0.335	0.095	0.069	0.19	0.004	15.15	0.00	1.46
Baseline	07/08/02	0.002	0.102	0.03	0.02	0.06	0.002	4.56	0.00	0.25
Baseline	07/08/02	0.004	0.335	0.094	0.069	0.198	0.004	15.11	0.00	1.43
Baseline	07/08/02	0.003	0.372	0.105	0.082	0.218	0.004	16.84	0.00	2.18
Baseline	07/08/02	0.003	0.433	0.121	0.092	0.26	0.004	19.63	0.00	2.27
Baseline	07/08/02	0.003	0.15	0.043	0.03	0.09	0.003	6.71	0.00	0.45
Baseline	07/08/02	0.004	0.37	0.105	0.071	0.218	0.004	16.70	0.00	1.06
Baseline	07/08/02	0.004	0.394	0.12	0.085	0.2334	0.003	17.75	0.43	1.81

July 8, 2000. Sourdock Creek, Station 204.

	July 8, 2000											
	Water Volume (m3) =		44.3		100.9		44		37.3		25.3	
	Proportion of sample =		0.5		0.5		0.5		0.5		0.5	
	Sample Number (Net)=		1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>									1	
Plecoptera	Capniidae	<i>Capnia</i>	43		26		17		13		35	
	Nemouridae	<i>Nemoura</i>	109		185		63		95		42	
Diptera	Chironomidae	larvae	128		143		118		31		180	
	Chironomidae	pupae	6		2		14		1		8	
	Simuliidae	<i>Simulium</i>	5		2						1	
Coleoptera	Carabidae		1									
Collembola	Hypogasturidae		1		1							
	Isotomidae	<i>Axelsonia</i>	15		20				1		3	
	Sminthuridae	<i>Sminthurus</i>	1									
Lepidoptera	Pyralidae				1							
Acari			16		18		1		4		5	
Oligochaeta							1				1	
Miscellaneous terrestrial Diptera				24		28		1		2		3
Thysanoptera						1						
Arachnida			2									1

July 5, 2001. Sourdock Creek, Station 204.

	Water Volume (m3) =		250.47		53.82		49.54		38.69		74.93	
	Proportion of sample =		0.6		0.6		0.8		0.8		0.4	
	Net No.		1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
	Baetidae	<i>Baetis</i>										
Ephemeroptera	Heptageniidae	<i>Cinygmula</i>			2		2		1			
Plecoptera	Capniidae	<i>Capnia</i>	99		85		108		101		40	
	Nemouridae	<i>Nemoura</i>	158		132		53		92		47	
Trichoptera	Brachycentridae	<i>Brachycentrus</i>									1	
Diptera	Chironomidae	larvae	99		59		142		61		32	
	Chironomidae	pupae	2						1			
	Empididae	<i>Chelifera</i>	1		4		2		2			
	Tipulidae	<i>Tipula</i>			1						1	
	Simuliidae	<i>Simulium</i>	5		4		4		5		7	
Coleoptera	Staphylinidae						1		2		1	
	Isotomidae	<i>Axelsonia</i>	33		26		2		18		32	
	Onychiuridae	<i>Lophognathella</i>	2		6		5		5		3	
	Onychiuridae	<i>Onychiurus</i>							1			
	Sminthuridae	<i>Sminthurus</i>	1									
Acari			43		52		26		37		38	
Oligochaeta			3		7		2		6			
Ostracoda			5				2					
Copepoda	Cyclopoida		5		2						1	
	Harpacticoida		1									
Miscellaneous terrestrial Diptera				51		27		3		17		26
Hymenoptera				4		2						3
Misc Terrestrial				10		6		2		2		3

July 8, 2002. Sourdock Creek, Station 204.

	Water Volume (m3) =		30.58		45.87		41.29		64.22		55.05	
	Proportion of sample =		1		1		1		1		1	
Taxon	Sample Number (Net)=		1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>			1		1					
Plecoptera	Capniidae	<i>Capnia</i>	13		9		7		17		7	
	Nemouridae	<i>Nemoura</i>	16		8		14		52		45	
Diptera	Chironomidae	larvae	59		42		56		52		83	
	Chironomidae	pupae	10		10		11		10		11	
	Empididae	<i>Chelifera</i>	1									
	Tipulidae	<i>Tipula</i>							1			
	Simuliidae	<i>Simulium</i>			2		1					
Coleoptera	Carabidae		1									
Collembola	Isotomidae	<i>Axelsonia</i>	3		8		5		15		12	
	Onychiuridae	<i>Lophognathella</i>	2		3		3		13		7	
		<i>Onychiurus</i>					1		1		3	
	Sminthuridae	<i>Sminthurus</i>	2		3		5		1		6	
Lepidoptera	Pyalidae		1									
Acari			8		7		5		17		23	
Oligochaeta			1		1		2				1	
Ostracoda											1	
Copepoda	Cyclopoida							1				
Misc. Terrestrial Diptera				13		29		47		101		
Hymenoptera						2		2		12		1
Misc Terrestrial				3				4		8		4

Summary of invertebrate data. Sourdock Creek, Station 204.

Year	2000	2001	2002
Total aquatic taxa	13	19	17
Tot. Ephemeroptera	0	1	0
Tot. Plecoptera	251.2	290	37.6
Tot. Trichop.	0	0.5	0
Total Aq. Diptera	256	133	70
Misc.Aq.sp	36	126	32
% Ephemeroptera	0%	0%	0%
% Plecoptera	46%	53%	27%
% Trichoptera	0%	0%	0%
% Aq. Diptera	47%	24%	50%
% other	7%	23%	23%
% EPT	46%	53%	27%
% Chironomidae	46%	22%	49%
% Dominant Aquatic Taxon	52%	33%	42%
Volume of water (m3)	252	467	237
average water/net	50	93	47
StDev of water volume	29.3	88.7	12.9
Estimated total inverts/m3 water	11.3	6.5	3.9
Estimated aquatic inverts/m3 water	10.8	5.9	3.0
average inv/m3	12.4	8.2	3.0
Stdev of aq. Inv. Den.	6.0	3.5	0.7
Total aquatic invertebrates	2716	2753.75	700
Total. terrestrial invertebrates	120	276.6667	227
Total invertebrates	2836	3030.417	927
% Sample aquatic	96%	91%	76%
% Sample terrestrial	4%	9%	24%
Average # aquatic inverts / net	543	551	140
stdev aq inv/net	195	146	46
Average # terr. inverts / net	24	55	45
Average # inverts / net	567	606	185
stdev inv/net	220	182	71
Total Larval Fish/site	0	0	0

Sourdock Creek, Ten Minnow traps, Dolly Varden Juveniles

7/9/00	7/28/00	7/7/01	8/4/01	7/9/02	8/3/02
FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)
98	92	94	85	130	81
110	86	98	95		119
95	88	98	105		134
111	98	102	106		
110	96	102	111		
92	95	103	112		
120	87	104	113		
109	95	104	121		
93	98	105			
87	107	105			
90	88	107			
90	93	108			
95	85	109			
100	94	110			
91	101	112			
82	85	112			
102	87	113			
109	87	114			
80	90	114			
90	86	115			
83		115			
89		115			
82		116			
90		117			
105		118			
84		122			
122					
110					
76					
93					
87					

7/9/00	7/28/00	7/7/01	8/4/01	7/9/02	8/3/02
FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)
80					
84					
74					
90					
78					
88					
102					
82					
118					
89					
81					
75					
81					
90					
75					
87					
75					
82					
87					
82					
79					

Appendix 15. Station 213

Water quality and biological data for Ferric Creek.

					Alk											
Date	Lab	Acid	Ag	Al	mg/L	As	Ca	Cd	Cl	Cond	Cr	Cu	Fe	Hg	K	Mg
		mg/L	µg/L	µg/L	CaCO3	µg/L	mg/L	µg/L	mg/L	µS/cm	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L
6/5/00	CTE&E			33	32.7	1	11.4	0.1	0.8			< 5	328		0.7	1.9
6/5/00	CAS	< 2	< 0.5	44	22			0.06		32.2	0.6	< 1	145	< 0.2		
6/13/00																
6/20/00	CTE&E		< 0.1	492	116			0.1		178	< 2.5	< 5	3010	< 0.2		
7/19/00	CTE&E			77.8	139	< 10	59.7	< 1	1.2	276		< 7.5	1100		< 2.5	9.9
8/25/00	CTE&E		< 2	267	147	< 10	65.8	< 1	< 5	260	< 12.5	< 7.5	3270		< 2.5	11.9
9/10/00	CTE&E		< 2	182	137	< 10	57.1	< 1	< 5	210	< 12.5	< 7.5	2270		< 2.5	9.7
9/23/00	CTE&E		< 2	222	144	< 10	57.8	< 1	< 5	206	24.3	< 7.5	2360		< 2.5	11.1
10/6/00	CTE&E		< 2	188	161	< 10	72.4	< 1	< 5	50.2	< 12.5	< 7.5	2800		< 2.5	11
6/3/01	CTE&E			307	38		16.9	< 0.1	< 5	63.9		< 0.8	3420		0.8	2.5
6/24/01	CAS			104	111		51	0.07	0.6	218		1.1	1000		< 2	8
7/14/01	CTE&E			170	54		72	< 0.1	< 5	323		1.2	1660		< 0.5	10.9
7/26/01	CAS			194	152		67.5	< 0.1	0.7	258		< 2	1400		< 2	10.8
8/5/01	CTE&E			80.1	144		64.2	< 0.1	< 2.5	221		< 0.8	853		< 0.5	9.7
8/19/01	CAS			129	134		62.7	< 0.1	0.6	224		1.2	1830		< 2	9.7
9/13/01	CAS									240						
9/22/01	CAS			219	156		71.2	0.2	0.7	258		1.5	2120		< 2	11.4
5/26/02																
10/6/02	Field									224						
10/24/02	CAS			432	162		81.4	0.2	0.9	240		1.1	3,150		< 2	13.3

Ferric Creek, Station 213.

											Analyzed	Summation				
Date	Lab	Mn	Na	Ni	NO ₂ +NO ₃	P	pH	Pb	Se	SO ₄	TDS	TDS	Temp	Tl (µg/L)	TOC	Tot P
		µg/L	mg/L	µg/L	mg/L	µg/L	SU	µg/L	µg/L	mg/L	mg/L	mg/L	°C		mg/L	mg/L
6/5/00	CTE&E	18.6	0.6	5	< 0.5			1	2.5	6.5		61			5.8	< 0.2
6/5/00	CAS	17		1	< 0.2	30	7.1	0.4	1	6.3		33	0.4		5.1	
6/13/00																
6/20/00	CTE&E	81.8		5.2	0.6		7.5	1	2.5	58.6	200	201	2.5		1.1	< 0.2
7/19/00	CTE&E	34.3	2.5	< 50	1.2		7.5	2	3	83.1	208	324	5.6			
8/25/00	CTE&E	55.1	2.4	< 50	< 5		7.5	2	4	74.7	250	335	4.9		1	< 0.2
9/10/00	CTE&E	46.3	2.7	< 50	< 5		7.6	2	4	60.6	214	297	3.1		0.5	< 0.2
9/23/00	CTE&E	32.3	2.3	< 50	< 5		7.6	2	2	69.3	232	316	0.2		0.8	< 0.2
10/6/00	CTE&E	63.4	2.6	< 50	< 5		7.4	2	4	98.2	282	380	0.3		0.8	< 0.2
6/3/01	CTE&E	47.7	0.9	3.2	< 5		7.4	0.9	1	12.5	< 50	83	1		4.3	
6/24/01	CAS	21.3	1.4	3.3	< 0.2		7.7	0.02	2.8	45.4	178	241	7.7		0.5	
7/14/01	CTE&E	33.9	2.5	3.5	< 5		7.9	0.4	2.7	78.7	335	231	9.5		0.5	
7/26/01	CAS	33.5	2.2	3.8	< 0.2		8	0.04	2	67.7	250	333	6.1		0.6	
8/5/01	CTE&E	19	2	3	< 2.5		7.9	0.4	1.4	52.5	186	302	4		0.7	
8/19/01	CAS	59.6	2	3.6	< 0.2		7.7	0.06	3.2	49.9	215	288	4		0.8	
9/13/01	CAS						7.8		2.3				4.3			
9/22/01	CAS	46.2	2.6	1.6	< 0.2		8.1	0.04	1.9	69.8	238	345	3.5		0.6	
5/26/02							6.6						0.5			
10/6/02	Field						7.7						0.7			
10/24/02	CAS	66.6	3.2	5.4	< 0.2		7	< 0.04	1.5	86	344		0.2	2.6	0.7	

Ferric Creek, Station 213.

				Hardness				
Date	Lab	TSS	Zn	mg/L	Anions	Cations	Charge	Flow
		mg/L	µg/L	CaCO3			Balance	cfs
6/5/00	CTE&E	1.2	< 10	36	0.8	0.8	-1.5	
6/5/00	CAS	61	3	36.1	0.6	0.0		71.9
6/13/00								37.7
6/20/00	CTE&E		13.6	152	3.5	0.2		10.3
7/19/00	CTE&E		100	190	4.5	4.0	-6.8	
8/25/00	CTE&E		100	213	4.5	4.5	0.6	
9/10/00	CTE&E		100	183	4.0	3.9	-1.4	43.1
9/23/00	CTE&E		100	190	4.3	4.0	-3.5	29.7
10/6/00	CTE&E		100	226	5.3	4.8	-4.8	
6/3/01	CTE&E	20	4.9	53	1.0	1.3	11.9	
6/24/01	CAS	< 5	4.5	160	3.2	3.3	2.1	
7/14/01	CTE&E	3.6	9.1	225	2.7	4.7	26.6	12.3
7/26/01	CAS	< 5	9.4	213	4.5	4.4	-0.4	
8/5/01	CTE&E	2	3.8	200	4.0	4.1	2.0	
8/19/01	CAS	< 5	8.6	197	3.7	4.1	4.9	
9/13/01	CAS							
9/22/01	CAS	< 5	12.5	225	4.6	4.7	1.4	
5/26/02								
10/6/02	Field							
10/24/02	CAS	6	15.9					

Ferric Creek, Station 213. Sample size was 0.0025 m², extract volume was 0.01 liters.

Date					Acidified	Acidified			
Collected	750	664	647	630	665	750	chlor <i>a</i>	chlor <i>b</i>	chlor <i>c</i>
							mg/m ²	mg/m ²	mg/m ²
07/08/01	0.002	0.228	0.069	0.052	0.142	0.003	10.28	0.20	1.36
07/08/01	0.005	0.19	0.059	0.044	0.125	0.003	8.42	0.11	0.95
07/08/01	0.005	0.293	0.087	0.069	0.189	0.005	13.13	0.00	1.86
07/08/01	0.005	0.192	0.06	0.052	0.123	0.002	8.51	0.06	1.69
07/08/01	0.005	0.154	0.049	0.037	0.101	0.004	6.78	0.12	0.81
07/08/01	0.003	0.085	0.029	0.021	0.054	0.003	3.72	0.21	0.43
07/08/01	0.001	0.071	0.023	0.017	0.047	0.002	3.18	0.16	0.43
07/08/01	0.003	0.11	0.038	0.028	0.07	0.004	4.85	0.35	0.67
07/08/01	0.005	0.115	0.039	0.031	0.076	0.006	5.00	0.19	0.78
07/08/01	0.004	0.091	0.03	0.021	0.057	0.004	3.96	0.12	0.30
07/30/02	0.004	0.192	0.065	0.045	0.121	0.003	8.52	0.61	0.91
07/30/02	0.001	0.275	0.083	0.067	0.185	0.004	12.46	0.24	2.15
07/30/02	0.003	0.198	0.057	0.04	0.118	0.003	8.90	0.00	0.68
07/30/02	0.002	0.1	0.031	0.02	0.062	0.003	4.46	0.12	0.23
07/30/02	0.006	0.3	0.095	0.075	0.191	0.006	13.37	0.37	2.10
07/30/02	0.002	0.077	0.022	0.015	0.048	0.002	3.43	0.00	0.17
07/30/02	0.003	0.241	0.068	0.063	0.141	0.003	10.86	0.00	2.32
07/30/02	0.004	0.178	0.053	0.035	0.109	0.004	7.94	0.01	0.39
07/30/02	0.002	0.283	0.086	0.059	0.175	0.004	12.78	0.36	1.16
07/30/02	0.005	0.331	0.097	0.077	0.206	0.006	14.86	0.00	2.09

July 8, 2001. Ferric Creek, Station 213.

	Water Volume (m3)			241.75		356.59		189		158.57	
	Proportion of sample			0.4		0.2		0.2		0.2	
	Net No.		Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>				1		1			
	Heptageniidae	<i>Cinygmula</i>		6		12		9		9	
Plecoptera	Capniidae	<i>Capnia</i>		2		3		1		6	
	Nemouridae	<i>Nemoura</i>						1			
Diptera	Chironomidae	larvae		410		750		1559		1196	
	Chironomidae	pupae		6		40		25		24	
	Empididae	<i>Chelifera</i>		1				6		6	
	Tipulidae	<i>Tipula</i>						1			
	Simuliidae	<i>Simulium</i>		5		7		3		9	
Coleoptera	Curculionidae									2	
	Staphylinidae									1	
Collembola	Isotomidae	<i>Axelsonia</i>		2		13		6		43	
	Onychiuridae	<i>Lophognathella</i>		3		9		6		9	
		<i>Onychiurus</i>								1	
	Sminthuridae	<i>Sminthurus</i>		1		3		2		4	
Lepidoptera	Pyralidae			1				1		2	
Acari	Acarina			5		4		7		9	
Oligochaeta								2		1	
Ostracoda				1		3		2		2	
Copepoda				1		2		1		1	
Miscellaneous terrestrial Diptera			42		42		157		53		197
Hymenoptera			1		3		9		2		12
Misc Terrestrial			1		5		3		9		7
Fish larvae		<i>Salvelinus malma</i>						4		2	

July 31, 2002. Ferric Creek, Station 213.

	Water Volume (m3) =		76.46		96.33		53.52		68.81		64.22	
	Proportion of sample =		1		0.5		1		1		1	
Taxon	Sample Number (Net)=		1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	22		11		2		11		7	
	Heptageniidae	<i>Cinygmula</i>	1		1		1		4		3	
Plecoptera	Capniidae	<i>Capnia</i>	1						2	1		
	Nemouridae	<i>Nemoura</i>	1									
Diptera	Chironomidae	larvae	98		47		63		157		103	
	Chironomidae	pupae	426		382		140		202		102	
	Empididae	<i>Chelifera</i>					1					
	Simuliidae	<i>Simulium</i>	6		4		6		18		13	
Coleoptera	Staphylinidae			1			1			1		
Collembola	Isotomidae	<i>Axelsonia</i>	27		16		6		10		3	
	Onychiuridae	<i>Lophognathella</i>	51		32		8		11		3	
	Sminthuridae	<i>Sminthurus</i>	144		48		16		23		14	
Acari	Acarina		73		38		18		47		15	
Oligochaeta					1				1			
Ostracoda			1									
Copepoda	Cyclopoida										1	
	Calanoida						1					
Misc. Terrestrial Diptera				303		331		77		57		11
Hymenoptera				79		39		19		16		12
Misc Terrestrial				34		37		6		13		6

Summary of invertebrate data. Ferric Creek, Station 213.

	2001	2002
Total aquatic taxa	21	17
Tot. Ephemeroptera	45	15
Tot. Plecoptera	13	0.8
Tot. Trichop.	0	0
Total Aq. Diptera	4448	440.2
Misc.Aq.sp	149	149.2
% Ephemeroptera	1%	2%
% Plecoptera	0%	0%
% Trichoptera	0%	0%
% Aq. Diptera	96%	73%
% other	3%	25%
% EPT	1%	3%
% Chironomidae	94%	71%
% Dominant Aquatic Taxon	92%	54%
Volume of water (m3)	1137.7	359.3
average water/net	227.5	71.9
StDev of water volume	78.1	16.0
Estimated total inverts/m3 water	22.7	12.5
Estimated aquatic inverts/m3 water	20.5	8.4
average inv/m3	23.6	7.9
Stdev of aq. Inv. Den.	17.8	3.6
Total aquatic invertebrates	23275	3024
Total. terrestrial invertebrates	2590	1450
Total invertebrates	25865	4474
% Sample aquatic	90%	68%
% Sample terrestrial	10%	32%
Average # aquatic inverts / net	4655	604.8
stdev aq inv/net	2794.6	392.4
Average # terr. inverts / net	518	290
Average # inverts / net	5173	894.8
stdev inv/net	3008	716
Total Larval Fish/site	6	0

Ferric Creek Sta 213, Ten Minnow traps
(DV - Dolly Varden, GR - Arctic grayling, CN - slimy sculpin)

8/12/99	7/9/01	8/4/01		7/31/02
FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)
DV 123	DV 77	DV 87	not sampled	DV 81
DV 125				DV 119
DV 149				DV 78
DV 141				DV 95
DV 123				DV 68
DV 141				DV 110
DV 115				DV 89
DV 116				DV 99
DV 107				DV 92
DV 88				DV 111
DV 57				DV 110
DV 67				DV 111
DV 69				DV 96
DV 70				DV 80
CN 88				DV 95
CN 93				DV 95
GR 122				DV 104
				DV 108
				DV 102
				DV 85
				DV 104
				DV 98
				DV 70
				DV 96

8/12/99 sample reach located immediately upstream of mineral seep

2001 and 2002 sample reach located below mineral seep

Mineral seep located about 1 km upstream of mouth of Ferric Creek

7/8/01 six age-0 Dolly Varden in drift net samples

Appendix 16. Station 214

Water quality and biological data for Square Creek.

Date	Lab	Al	mg/L	Ca	Cd	Cl	Cond	Cu	Fe	K	Mg	Mn	Na
		µg/L	CaCO3	mg/L	µg/L	mg/L	µS/cm	µg/L	µg/L	mg/L	mg/L	µg/L	mg/L
							Field						
6/1/2001	CTE&E	91.4	95.8	24.8	0.1	< 5	89.7	< 0.8	320	1.3	3	13.7	1.7
6/24/2001	CAS	< 10	124	61.4	< 0.05	0.6	250	< 1	22.8	< 2	8.4	1	3
7/13/2001	CTE&E	< 20	71.5	90.3	< 0.1		392	1.3	< 50	0.5	11.5	< 3	4.6
7/26/2001	CAS	< 10	178	95.6	< 0.1	0.6	346	< 2	36.2	< 2	12.9	1.8	4.8
8/5/2001	CTE&E	< 20	171	88.7	< 0.1	< 2.5	220	< 0.8	< 50	< 0.5	11.8	< 3	4.1
8/19/2001	CAS	< 10	173	94.8	< 0.1	0.6	327	< 1	57.7	< 2	12.9	5.3	3.9
9/13/2001	CAS						335						
9/22/2001	CAS	< 20	196	97	0.1	0.7	347	< 1	76.2	< 2	13.4	5.8	4.3
10/9/01	CTE	< 20	215	113	< 0.1	< 5	350	< 0.8	< 50	< 0.5	15.9	< 3	4.8
5/26/02	CTE	169	32	11.4	< 0.1	< 1	86.1	< 1	584	0.6	1.1	25.9	< 0.5
6/15/02	CTE	113	110	47	< 0.1	0.5	197	< 1	281	< 0.5	6.7	8.9	2.2
6/27/02	CAS	< 20	140	68.8	< 0.1	0.6	297	< 1	26.3	< 2	9.5	0.8	3.3
7/16/02	CTE	< 20	164	76.2	< 0.1	< 2	348	< 1	< 40	< 0.5	10	5	3.7
7/29/02	Field						261						
8/23/02	CAS	< 20	196	107	< 0.1	0.7	421	< 1	< 20	< 2	14	0.5	5.7
9/11/02	CTE	< 20	148	70.4	< 0.1	0.7	283	< 1	68.2	< 0.5	10	8.3	2.9
9/22/02	CAS	< 20	172	90	< 0.1	0.9	283	< 1	109	< 2	13.1	6.4	4.1
10/6/02	Field						301						
10/24/02	CAS	< 20	210	112	< 0.1	0.8	312	< 1	< 20	< 2	15.8	0.4	5.3

Square Creek, Station 214.

Date	Lab	Ni	NO ₂ NO ₃	pH	Pb	Se	SO ₄	TDS	TDS	Temp	TOC	TSS	Zn
		µg/L	mg/L	SU	µg/L	µg/L	mg/L	mg/L	mg/L	°C	mg/L	mg/L	µg/L
						CAS				Field			
6/1/2001	CTE&E	< 2	< 5	7.5	0.9	1.0	21.4	< 50	167	0.6	4.8	8.4	5.4
6/24/2001	CAS	2.7	< 0.2	7.9	0.02	2.1	48.5	203	271	5.9	0.5	< 5	4.1
7/13/2001	CTE&E	3.1		7.9	0.4	2.6	113	278	306	9.2	0.5	0.8	4.7
7/26/2001	CAS	2.6	< 0.2	8	0.04	1	107	312	435	10	0.6	< 5	4.7
8/5/2001	CTE&E	3.2	< 2.5	8	0.4	1.3	94.5	253	404	6.2	0.8	0.4	5.2
8/19/2001	CAS	3.2	< 0.2	7.9	0.04	1.8	99.3	346	419	5.4	0.8	< 5	8.5
9/13/2001	CAS			8.2		1.6				5.5			
9/22/2001	CAS	< 1	< 0.2	8.2	0.07	1.2	127	352	478	3.7	0.7	< 5	8.2
10/9/01	Field			7.9						0.5			
10/9/01	CAS					< 1							
10/9/01	CTE	3	< 5		< 0.4		142	419			0.7	< 0.4	11.5
5/26/02	CTE		1	6.7	0.7	< 1	6.9	< 50		0.4	3.8	24.6	2.5
6/15/02	CTE		0.2	7	0.4	1.2	47.9	199		4.4	1.7	8.2	11.1
6/15/02	Field	< 5	<										
6/27/02	CAS		0.2	7.8	< 0.04	< 1	76	254		6.4	0.7	< 5	2.7
7/16/02	CTE		2	7.5	< 0.4	< 1	84.1	286		10.7	1	0.6	2
7/29/02	Field	< 5		7.7						14.4			
8/23/02	CAS		0.2	7.9	< 0.04	< 1	126	384		7	0.5	< 5	16.8
9/11/02	CTE		0.2	8.1	< 0.4	2.2	78.1	260		2.5	1.4	1.2	7.4
9/22/02	CAS	1.4	< 0.2	7.9	0.05	1	102	326		1.2	1.1	< 5	9.2
10/6/02	Field	< 10	<	7.8		< 1				1.1			
10/24/02	CAS		0.2	7.5	< 0.04	1.1	132	420		0.2	0.8	< 5	4.9

Square Creek, Station 214.

Date	Lab	mg/L	Anions	Cations	Charge	Flow
		CaCO3			Balance	cfs
6/1/2001	CTE&E	74	2.4	1.6	-18.9	
6/24/2001	CAS	188	3.5	3.9	5.2	76
7/13/2001	CTE&E	273	3.8	5.7	19.9	
7/26/2001	CAS	292	5.8	6.0	2.0	
8/5/2001	CTE&E	270	5.4	5.6	1.7	
8/19/2001	CAS	290	5.5	6.0	3.7	
9/13/2001	CAS					
9/22/2001	CAS	298	6.6	6.1	-3.5	

Square Creek, Station 214. Sample size was 0.0025 m², extract volume was 0.01 liters.

Date					acidified	acidified	chlor <i>a</i>	chlor <i>b</i>	chlor <i>c</i>
Collected	750	664	647	630	665	750	mg/m ²	mg/m ²	mg/m ²
7/7/01	0.001	0.036	0.012	0.009	0.022	0.001	1.59	0.08	0.22
7/7/01	0.001	0.036	0.012	0.008	0.023	0.001	1.59	0.09	0.12
7/7/01	0.002	0.047	0.016	0.012	0.031	0.002	2.04	0.09	0.25
7/7/01	0.003	0.015	0.008	0.007			0.54	0.12	0.16
7/7/01	0.002	0.013	0.006	0.005			0.50	0.07	0.10
7/7/01	0.004	0.039	0.02	0.014	0.027	0.005	1.56	0.48	0.26
7/7/01	0.001	0.018	0.008	0.006			0.76	0.17	0.16
7/7/01	0.001	0.011	0.005	0.004			0.45	0.09	0.11
7/7/01	0.002	0.045	0.016	0.013	0.029	0.002	1.95	0.13	0.37
7/7/01	0.003	0.039	0.016	0.013	0.026	0.003	1.62	0.21	0.35
7/9/02	0.005	0.071	0.022	0.016	0.041	0.008	3.02	0.00	0.12
7/9/02	0.003	0.004	0.004	0.004			0.04	0.05	0.06
7/9/02	0.005	0.064	0.022	0.017	0.037	0.003	2.69	0.02	0.27
7/9/02	0.002	0.054	0.017	0.012	0.032	0.001	2.37	0.03	0.18
7/9/02	0.004	0.053	0.018	0.013	0.031	0.002	2.23	0.02	0.13
7/9/02	0.005	0.057	0.02	0.015	0.032	0.003	2.37	0.03	0.18
7/9/02	0.003	0.061	0.021	0.015	0.036	0.002	2.63	0.13	0.24
7/9/02	0.004	0.049	0.016	0.012	0.028	0.003	2.06	0.00	0.12
7/9/02	0.003	0.051	0.018	0.013	0.031	0.003	2.18	0.11	0.20
7/9/02	0.003	0.067	0.021	0.016	0.041	0.003	2.92	0.00	0.30

July 7, 2001. Square Creek, Station 214

	Water Volume (m3)		53.95		95.65		52.85		115.45		198.66	
	Proportion of sample		1		0.2		0.4		0.26		1	
	Net No.		1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	67		18		23		26		43	
	Heptageniidae	<i>Cinygmula</i>	22		11		9		15		30	
Plecoptera	Capniidae	<i>Capnia</i>	38		15		3		14		33	
	Chloroperlidae	<i>Suwallia</i>							1			
	Nemouridae	<i>Nemoura</i>	18		7		2		2		11	
	Perlodidae	<i>Alloperla</i>			1							
Trichoptera	Brachycentridae	<i>Brachycentrus</i>			1		1		2			
Diptera	Chironomidae	larvae	1308		507		403		382		684	
	Chironomidae	pupae	26		2		3		9		13	
	Empididae	<i>Chelifera</i>	3									
	Tipulidae	<i>Tipula</i>			1						1	
	Simuliidae	<i>Simulium</i>	164		51		66		119		358	
Coleoptera	Carabidae		1				1					
	Staphylinidae		3									
Collembola	Isotomidae	<i>Axelsonia</i>	53		5		1		6			
	Onychiuridae	<i>Lophognathella</i>	6									
	Onychiuridae	<i>Onychiurus</i>	3									
	Sminthuridae	<i>Dicyrtoma</i>	5									
Lepidoptera	Pyralidae		1									
Acari			20		2		5		6		12	
Oligochaeta			2		1							
Miscellaneous terrestrial Diptera				242		16		2		32		18
Hymenoptera				10		2				1		
Misc Terrestrial				4						2		
Fish Larvae	<i>Salvelinus malma</i>		1						1			

Square Creek, Station 214.

July 9, 2002

	Water Volume (m3)		64.22		48.93		48.17		38.99		52.75	
	Proportion of sample		1		1		1		1		1	
Taxon	Net no.		1**	Adult	2**	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	81		81		85		215		253	
	Heptageniidae	<i>Cinygmula</i>	2		2		7		4		10	
Plecoptera	Capniidae	<i>Capnia</i>	3		3		3		13		24	
	Nemouridae	<i>Nemoura</i>	1		1		2					
Diptera	Chironomidae	larvae	33		33		95		156		206	
	Chironomidae	pupae	27		27		18		21		36	
	Empididae	<i>Chelifera</i>	1		1		1				1	
	Simuliidae	<i>Simulium</i>	21		21		52		49		44	
Coleoptera	Carabidae		1		1				1			
	Staphylinidae			1		1						
Collembola	Isotomidae	<i>Axelsonia</i>	8		8		16		8		13	
	Onychiuridae	<i>Lophognathella</i>	9		9		8		11		3	
	Onychiuridae	<i>Onychiurus</i>	1		1		4		4			
	Sminthuridae	<i>Sminthurus</i>	13		13		61		15		65	
Acari			4		4		22		5		14	
Oligochaeta											1	
Ostracoda			9		9		20		10		28	
Copepoda	Cyclopoida						3				4	
Misc. Terrestrial Diptera				15		15		47		37		33
Hymenoptera				1		1		1				3
Misc Terrestrial				2		2		5		6		1

**Nets 1 and 2 were accidentally combined. The numbers in each entry represent the average value for the two samples.

Square Creek, Station 214.
Summary of invertebrate data

	2001	2002
Total aquatic taxa	21	18
Tot. Ephemeroptera	109	148
Tot. Plecoptera	59	10
Tot. Trichop.	3	0
Total Aq. Diptera	1701	169
Misc.Aq.sp	42	82
% Ephemeroptera	6%	36%
% Plecoptera	3%	2%
% Trichoptera	0%	0%
% Aq. Diptera	89%	41%
% other	2%	20%
% EPT	9%	39%
% Chironomidae	74%	32%
% Dominant Aquatic Taxon	73%	36%
Volume of water (m3)	517	253
average water/net	103	51
StDev of water volume	60	9
Estimated total inverts/m3 water	19	9
Estimated aquatic inverts/m3 water	19	8
average inv/m3	23	8
Stdev of aq. Inv. Den.	11	5
Total aquatic invertebrates	9566	2039
Total. terrestrial invertebrates	504	171
Total invertebrates	10070	2210
% Sample aquatic	95%	92%
% Sample terrestrial	5%	8%
Average # aquatic inverts / net	1913.2	407.8
stdev aq inv/net	788.0	207.8
Average # terr. inverts / net	100.7	34.2
Average # inverts / net	2013.9	442.0
stdev inv/net	822.6	217.0
Total Larval Fish/site	2	0

Square Creek Station 214, ten minnow traps per event for Dolly Varden

7/9/01	8/4/01	7/10/02	8/3/02
FL (mm)	FL (mm)	FL (mm)	FL (mm)
105	89	98	93
	95	118	137
	98	128	95
	98		105
	101		102
	101		87
			91
			90
			92
			90

7/8/01 two age-0 Dolly Varden in drift net samples

Appendix 17. Station 215

Water quality and biological data for Sunday Creek.

Date	Lab	Al µg/L	Alkalinity CaCO ₃ mg/L	Ca mg/L	Cd µg/L	Cl mg/L	Cond µS/cm	Cu µg/L	Fe µg/L	K mg/L	Mg mg/L	Mn µg/L	Na mg/L	Ni µg/L
			mg/L											
6/1/2001	CTE&E	45.7	53.8	26.9	0.2	< 5	94.1	1.4	300	0.8	3.6	55.6	1.6	8.2
6/24/2001	CAS	19.1	88	41.2	< 0.05	0.5	156	2.2	99.1	< 2	5.9	8.3	1.2	3.7
7/14/2001	CTE&E	< 20	128	69.3	< 0.1	< 5	302	< 0.8	< 50	< 0.5	9.6	< 3	2.8	2.8
7/26/2001	CAS	< 10	136	71.6	< 0.1	0.6	300	< 2	22.2	< 2	10.7	3	2.5	3.3
8/5/2001	CTE&E	< 20	132	77.3	< 0.1	18.4	279	1.5	51.7	< 0.5	11.1	9.7	2.4	5.1
8/19/2001	CAS	17.3	130	86.4	< 0.1	0.6	301	< 1	101	< 2	12.3	16.8	2.5	6
9/13/2001	CAS						283							
9/22/2001	CAS	< 20	146	89	0.1	0.6	318	< 1	142	< 2	13.1	15.7	2.9	2.6
10/9/01	Field						319							
10/9/01	CTE	< 20	160	102	< 0.1	< 5		< 0.8	< 50	< 0.5	14.6	< 3	3.1	3.7
5/26/02	CTE	173	39	14.5	< 0.1	< 1		3.4	824	< 0.5	1.8	59.3	< 0.5	6.5
6/15/02	CTE	36	80	35.9	< 0.1	0.4	136	1.1	114	< 0.5	5.6	16	1.3	6.1
6/27/02	CAS	< 20	99	50.5	< 0.1	0.4	210	< 1	< 20	< 2	7.8	0.8	1.9	1.9
7/15/02	CTE	< 20	122	60.7	< 0.1	< 1	262	< 1	< 40	< 0.5	10	5	2.5	< 5
7/28/02	Field						388							
8/7/02	Field						393							
8/23/02	CAS	< 20	147	79.3	< 0.1	0.7	339	< 1	< 20	< 2	12.6	0.8	3.5	5.7
9/10/02	CTE	32.2	119	64	< 0.1	0.7	259	1.8	163	< 0.5	9.4	45.6	1.5	9.5
9/22/02	CAS	< 20	136	82.8	< 0.1	0.7	263	< 1	128	< 2	12.6	14.5	2.6	5.9
10/6/02	Field						263							
10/24/02	CAS	< 20	164	106	< 0.1	0.8	296	< 1	< 20	< 2	16.2	0.8	3.7	4.2

Sunday Creek, Station 215.

Date	Lab	NO ₂ +NO ₃	pH	Pb	Se	SO ₄	TDS	TDS	Temp	Tl (µg/L)	TOC	TSS	Zn
		mg/L		µg/L	µg/L	mg/L	mg/L	mg/L	°C		mg/L	mg/L	µg/L
6/1/2001	CTE&E	< 5	7.5	0.6	1	29.6	68.8	127	0.6		3.3	1	14.4
6/24/2001	CAS	< 0.2	8.1	0.02	1	35.5	123	190	5		< 0.5	< 5	3.4
7/14/2001	CTE&E	< 5	8	0.4	1	81.6	359	317	11.3		< 0.5	< 0.4	3.3
7/26/2001	CAS	< 0.2	8	0.04	1	100	302	349	8.4		< 0.5	< 5	2.5
8/5/2001	CTE&E	< 2.5	8.1	0.4	1	101	219	369	5.8		0.5	< 0.4	5.4
8/19/2001	CAS	< 0.2	7.8	0.04	1	108	306	366	5.7		0.5	< 5	7.6
9/13/2001	CAS		8.2		1				5.3				
9/22/2001	CAS	< 0.2	8.1	0.04	1	137	340	418	4.1		< 0.5	< 5	7.5
10/9/01	CTE	< 5	7.8	< 0.4	< 1	162	411		0.7		0.5	< 0.4	< 2
5/26/02	CTE	< 1	6.8	0.5	< 1	12.9	55				2.8	15.8	15.8
6/15/02	Field		7.9										
6/15/02	CTE	0.2		0.4	< 1	38.4	163		4.7		0.7	1.6	13.2
6/27/02	CAS	< 0.2	6.4	< 0.04	< 1	60	253		5.6		< 0.5	< 5	2.5
7/15/02	CTE	1.1	7.4	< 0.4	< 1	76.3	255		8.6		0.7	1	< 2
7/28/02	Field		8						12.5				
8/7/02	Field		8.1						10				
8/23/02	CAS	< 0.2	8.1	< 0.04	< 1	101	304		7		< 0.5	< 5	5
9/10/02	CTE	0.3	7.3	< 0.4		88.9	243		3.6	< 0.3	1.1	0.8	4.1
9/22/02	CAS	< 0.2	7.8	< 0.04	< 1	112	302		1.6	0.1	0.8	< 5	7.9
10/6/02	CAS		7.9		< 1				0.8				
10/24/02	CAS	< 0.2	7.7	< 0.04	< 1	157	404		0.2	0.05	0.6	< 5	3.8

Sunday Creek, Station 215.

Date	Lab	mg/L	Anions	Cations	Charge
		CaCO₃			Balance
6/1/2001	CTE&E	82	1.7	1.7	1.6
6/24/2001	CAS	127	2.5	2.6	1.7
7/14/2001	CTE&E	213	4.3	4.4	1.3
7/26/2001	CAS	223	4.8	4.6	-2.7
8/5/2001	CTE&E	239	5.3	4.9	-3.8
8/19/2001	CAS	267	4.9	5.4	5.6
9/13/2001	CAS				
9/22/2001	CAS	276	5.8	5.7	-1.2
10/9/01	Field				
10/9/01	CAS				
10/9/01	CTE				

Sunday Creek, Station 215. Sample size was 0.0025 mg/m², extract volume was 0.01 liters.

Date					acidified	acidified	chlor <i>a</i>	chlor <i>b</i>	chlor <i>c</i>
Collected	750	664	647	630	665	750	mg/m ²	mg/m ²	mg/m ²
7/7/01	0.003	0.03	0.013	0.011			1.22	0.17	0.30
7/7/01	0.003	0.006	0.006	0.006			0.12	0.16	0.18
7/7/01	0.004	0.01	0.008	0.007			0.26	0.17	0.13
7/7/01	0.002	0.008	0.005	0.005			0.26	0.09	0.16
7/7/01	0.003	0.008	0.006	0.006			0.22	0.11	0.17
7/7/01	0.002	0.018	0.007	0.006			0.73	0.03	0.13
7/7/01	0.002	0.009	0.006	0.005			0.31	0.15	0.13
7/7/01	0.002	0.01	0.005	0.004			0.36	0.06	0.05
7/7/01	0.002	0.026	0.01	0.007			1.09	0.10	0.09
7/7/01	0.001	0.006	0.004	0.003			0.22	0.12	0.07
7/9/02	0.003	0.04	0.014	0.01	0.024	0.004	1.68	0.05	0.11
7/9/02	0.004	0.041	0.015	0.011	0.024	0.004	1.68	0.05	0.11
7/9/02	0.004	0.043	0.015	0.01			1.78	0.01	0.00
7/9/02	0.004	0.016	0.008	0.007			0.54	0.04	0.09
7/9/02	0.005	0.062	0.021	0.015	0.037	0.004	2.60	0.00	0.11
7/9/02	0.006	0.052	0.019	0.015	0.03	0.004	2.10	0.00	0.18
7/9/02	0.004	0.027	0.011	0.009			1.05	0.04	0.12
7/9/02	0.005	0.039	0.015	0.012			1.55	0.03	0.16
7/9/02	0.002	0.031	0.011	0.008			1.32	0.06	0.12
7/9/02	0.006	0.034	0.015	0.012			1.27	0.09	0.13

July 7, 2001. Sunday Creek, Station 215.

	Water Volume (m3)		137.0		62.6		178.1		143.9		134.9	
	Proportion of sample		1		1		1		1		1	
	Net No.		1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	3		8		3		10		4	
	Heptageniidae	<i>Cinygmula</i>	33		26		66		28		73	
		<i>Epeorus</i>	2		2		4		2		2	
Plecoptera	Capniidae	<i>Capnia</i>	104		81		87		156		160	
	Nemouridae	<i>Nemoura</i>	1		2		2		2		2	
		<i>Podmosta</i>	1						1		4	
Trichoptera	Limnephilidae										1	
Diptera	Chironomidae	larvae	73		112		123		168		146	
	Chironomidae	pupae	34				42		25		22	
	Empididae	<i>Chelifera</i>			2				3		1	
		<i>Rhamphomyia</i>			1							
	Tipulidae	<i>Tipula</i>			1						1	
	Simuliidae	<i>Simulium</i>	13		20		17		15		18	
Coleoptera	Carabidae						2		1			
	Hydrophilidae larvae		1									
	Staphylinidae		5				4		2		7	
Collembola	Isotomidae	<i>Axelsonia</i>	3		4		6		3		19	
	Onychiuridae	<i>Lophognathella</i>	16		3		4		8		24	
	Onychiuridae	<i>Onychiurus</i>	1									
	Sminthuridae	<i>Sminthurus</i>	1						4		3	
Lepidoptera	Pyrilidae								1		2	
Acari			29		43		26		76		48	
Copepoda	Cyclopoida		4		8				9		11	
Miscellaneous terrestrial Diptera				286		19		250		153		372
Hymenoptera				31				30		28		21
Misc Terrestrial				12		3		12		24		23
Fish larvae	<i>Salvelinus malma</i>						2					

July 9, 2002. Sunday Creek, Station 215.

	Water Volume (m3) =		64.22		84.1		110.1		160.56		139.15	
	Proportion of sample =		1		1		1		1		0.5	
Taxon	Sample Number (Net)=		1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>	15		8		8		1		15	
	Heptageniidae	<i>Cinygmula</i>	14		33		15		28		14	
		<i>Epeorus</i>	12		15		20		3		10	
Plecoptera	Capniidae	<i>Capnia</i>	45		69		46		37		58	
	Nemouridae	<i>Nemoura</i>	4		6		3		6		2	
Diptera	Chironomidae	larvae	77		59		78		43		44	
	Chironomidae	pupae	8		14		16		19		12	
	Empididae	<i>Chelifera</i>									2	
	Tipulidae	<i>Tipula</i>			1						2	
	Simuliidae	<i>Simulium</i>	14		12		11		6		6	
Coleoptera	Carabidae						1			1		
	Dytiscidae						1					
	Staphylinidae					1						
Collembola	Isotomidae	<i>Axelsonia</i>	6		32		25		52		1	
	Onychiuridae	<i>Lophognathella</i>	38		32		100		69		24	
	Onychiuridae	<i>Onychiurus</i>	1				3		1			
	Sminthuridae	<i>Sminthurus</i>	63		10		41		7		36	
Acari			28		34		27		19		48	
Oligochaeta			2		1						1	
Gastropoda	Valvatidae								1			
Ostracoda					1		5				5	
Copepoda	Cyclopoida		5		2						2	
	Harpacticoida						1				1	
Misc. Terrestrial Diptera				52		57		91		148		41
Hymenoptera				4		1		2		5		2
Misc Terrestrial				4		2		6		5		5

Summary of invertebrate data. Sunday Creek, Station 215.

Year	2001	2002
Total aquatic taxa	23	22
Tot. Ephemeroptera	53	50
Tot. Plecoptera	121	67
Tot. Trichop.	0	0
Total Aq. Diptera	167	98
Misc.Aq.sp	75.6	169
% Ephemeroptera	13%	13%
% Plecoptera	29%	17%
% Trichoptera	0%	0%
% Aq. Diptera	40%	26%
% other	18%	44%
% EPT	42%	31%
% Chironomidae	36%	22%
% Dominant Aquatic Taxon	32%	22%
Volume of water (m3)	656	558
average water/net	131	112
StDev of water volume	42	39
Estimated total inverts/m3 water	5	4
Estimated aquatic inverts/m3 water	3	3
average inv/m3	3	4
Stdev of aq. Inv. Den.	1	1
Total aquatic invertebrates	2085	1920
Total. terrestrial invertebrates	1264	475
Total invertebrates	3349	2395
% Sample aquatic	62%	80%
% Sample terrestrial	38%	20%
Average # aquatic inverts / net	417	384
stdev aq inv/net	108	109
Average # terr. inverts / net	253	95
Average # inverts / net	670	479
stdev inv/net	224	112
Total Larval Fish/site	2	0

Sunday Creek Sta 215, Ten Minnow traps Dolly Varden

7/8/01	8/4/01	7/10/02	8/3/02	8/3/02
FL (mm)	FL (mm)	FL (mm)	FL (mm)	FL (mm)
				<i>Continued</i>
67	50	98	104	105
67	53	104	85	127
70	75	57	113	70
72	78	92	77	56
73	81	87	132	90
74	82	98	111	84
75	86	118	76	88
75	88		86	95
78	89		87	59
80	93		85	96
98	100		70	90
102	112		53	105
103	116		113	98
105	120		82	116
162	121		85	61
	123		95	55
			62	92
			83	107
			55	93
			107	70
			119	78
			90	76
			56	55
			105	82
			78	83
			78	95
			91	115
			82	75
			129	82
			83	101
			77	111
			78	
			117	
			111	
			96	
			109	

7/7/01 two age-0 Dolly Varden in drift net samples

Appendix 18. Station 216

Water quality and biological data for Oak Creek.

Date	Lab	Al	mg/L	Ca	Cd	Cl	Cond	Cu	Fe	K	Mg	Mn	Na	Ni
		µg/L	CaCO3	mg/L	µg/L	mg/L	µS/cm	µg/L	µg/L	mg/L	mg/L	µg/L	mg/L	µg/L
6/2/2001	CTE&E	74.7	51	32.1	0.1	< 5	108	2.2	1130	0.6	3.3	103	1.1	15.6
6/24/2001	CAS	31.6	67	39.9	0.1	0.4	139	1.5	975	< 2	4.3	91.4	0.5	19.7
7/14/2001	CTE&E	< 20	98	67.5	< 0.1	< 5	291	1.2	1080	< 0.5	7.6	87.3	1.2	23.7
7/26/2001	CAS	24.6	108	77.3	0.1	0.5	292	1.1	1290	< 2	9.6	120	1.2	30.4
8/5/2001	CTE&E	42.5	117	77.5	0.1	< 2.5	259	2.1	1380	< 0.5	9.2	144	1.3	35.3
8/19/2001	CAS	84	120	91.5	0.2	0.5	307	2.7	1910	< 2	10.7	187	1.5	45.7
9/13/2001	CAS						276							
9/22/2001	CAS	55.2	135	101	0.2	0.6	326	2.6	1690	< 2	12.8	169	1.7	42.4
5/26/02	CTE	273	38	15.5	< 0.1	< 1		4.2	2,610	< 0.5	1.2	110	< 0.5	13.3
6/15/02	CTE	27	77	38.5	< 0.1	0.3	141	1.6	141	< 0.5	3.9	22.2	0.5	10.8
6/27/02	CAS	< 20	84	53.1	< 0.1	0.4	179	< 1	68.6	< 2	5.1	13.1	0.7	7.8
7/15/02	CTE	< 20	99	55.5	< 0.1	< 1	239	< 1	269	< 0.5	6.5	43.3	0.9	14.3
7/28/02	Field						373							
8/7/02	Field						420							
8/23/02	CAS	24.3	118	91.2	0.1	0.7	363	< 1	1,030	< 2	11.6	74.6	1.4	29.8
9/10/02	CTE	69.8	106	68.3	0.2	0.7	272	3	1,540	< 0.5	7.9	158	1	39.5
9/22/02	CAS	188	123	89.6	0.4	0.7	268	4.9	4,750	< 2	11.2	147	1.5	45.5
10/6/02	CAS						283							
10/24/02	CAS	< 20	172	148	0.2	1	383	< 1	183	< 2	17.1	30.7	2	43

Oak Creek, Station 216

Date	Lab	NO ₂ +NO ₃ mg/L	pH SU	Pb µg/L	Se µg/L	Si mg/L	SO ₄ mg/L	TDS mg/L	TDS mg/L	Temp °C	Tl (µg/L)	TOC mg/L	TSS mg/L	Zn µg/L
6/2/2001	CTE&E	< 5	7.2	1.8	1		42.6	109	142	0.4		2.5	9.2	37.8
6/24/2001	CAS	< 0.2	7.8	0.07	1		41.7	122	168	3.6		< 0.5	6	31.4
7/14/2001	CTE&E	< 5	8.1	0.4	1		99.4	311	294	10.3		< 0.5	2.6	40.6
7/26/2001	CAS	< 0.2	7.9	0.04	1		130	304	350	6.8		< 0.5	< 5	50.9
8/5/2001	CTE&E	< 2.5	7.9	0.7	2.1		107	206	337	4.4		0.7	3	61.8
8/19/2001	CAS	< 0.2	7.5	0.04	2.6		148	338	398	4.8		0.7	< 5	85.1
9/13/2001	CAS		8.1		2.2					4.3				
9/22/2001	CAS	< 0.2	8	0.04	1.6		170	396	450	2.8		0.6	< 5	87.7
5/26/02	CTE	1	6.9	1.6	< 1		10	63.8		0.5		2.9	24.4	67
6/15/02	CTE	0.2	7.6	1.4	< 1		42.6	160		5.2		0.6	5.4	18.4
6/27/02	CAS	< 0.2	7.6	< 0.04	< 1		54	175		6.6		< 0.5	< 5	10.9
7/15/02	CTE	1.1	7.7	< 0.4	1.5		68.4	206		10.5		0.8	1.6	19.8
7/28/02	Field		8.1							14.7				
8/7/02	Field		8.1							10.8				
8/23/02	CAS	< 0.2	8.1	< 0.04	1.6		151	340		6.9		< 0.5	< 5	46.7
9/10/02	CTE	0.3		< 0.4			113	256		3.5	< 0.3	1.2	3.6	65.1
9/22/02	CAS	< 0.2	7.6	0.06	1.4		146	290		0	< 0.04	1.1	10	138
10/6/02	CAS		7.8		< 1					0.7				
10/24/02	CAS	< 0.2	7.4	< 0.04	1.7		258	550		0.2	< 0.04	1	< 5	82.1

Oak Creek, Station 216

Date	Lab	mg/L	Anions	Cations	Charge	Flow
		CaCO3			Balance	cfs
6/2/2001	CTE&E	94	1.9	2.0	2.4	
6/24/2001	CAS	117	2.2	2.4	4.4	23.2
7/14/2001	CTE&E	200	4.0	4.1	1.0	4.8
7/26/2001	CAS	233	4.9	4.8	-1.1	
8/5/2001	CTE&E	232	4.6	4.8	2.1	
8/19/2001	CAS	273	5.5	5.6	1.2	
9/13/2001	CAS					
9/22/2001	CAS	305	6.3	6.3	0.1	

Oak Creek, Station 216. Sample size was 0.0025 m², extract volume was 0.01 liters.

					Acidified	Acidified	chlor <i>a</i>	chlor <i>b</i>	chlor <i>c</i>
Date	750	664	647	630	665	750	mg/m ²	mg/m ²	mg/m ²
Collected									
7/7/01	0	0	0	0			0	0	0
7/7/01	0	0	0	0			0	0	0
7/7/01	0	0.003	0.001	0			0.13604	0.01896	0
7/7/01	0	0	0	0			0	0	0
7/7/01	0	0	0	0			0	0	0
7/7/01	0	0	0	0			0	0	0
7/7/01	0	0	0	0			0	0	0
7/7/01	0.001	0	0	0			0	0	0
7/7/01	0	0	0	0			0	0	0
7/7/01	0	0	0	0			0	0	0
7/10/02	0.004	0.105	0.032	0.025	0.061	0.004	4.61	0.00	0.53
7/10/02	0.005	0.069	0.023	0.018	0.042	0.005	2.92	0.00	0.30
7/10/02	0.001	0.094	0.037	0.03			4.18	0.70	1.13
7/10/02	0.006	0.074	0.025	0.02	0.042	0.004	3.10	0.00	0.34
7/10/02	0.005	0.109	0.034	0.026	0.064	0.004	4.74	0.00	0.48
7/10/02	0.003	0.078	0.025	0.019	0.048	0.004	3.41	0.05	0.40
7/10/02	0.003	0.089	0.027	0.021	0.05	0.003	3.92	0.00	0.46
7/10/02	0.003	0.102	0.032	0.025	0.06	0.002	4.51	0.06	0.61
7/10/02	0.005	0.06	0.022	0.018	0.035	0.005	2.50	0.10	0.39
7/10/02	0.003	0.108	0.032	0.024	0.064	0.003	4.79	0.00	0.48

Oak Creek, Station 216

July 7, 2001

	Water Volume (m3)		50.52		88.08		79.51		70.46		55.23	
	Proportion of sample		1		0.2		1		1		0.6	
	Net No.		1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Heptageniidae	<i>Cinygmula</i>	28		25		21		23		19	
Plecoptera	Capniidae	<i>Capnia</i>	13		36		23		46		22	
	Nemouridae	<i>Nemoura</i>	2		2		2		1			
		<i>Podmosta</i>					1					
Diptera	Chironomidae	larvae	132		110		109		121		53	
	Chironomidae	pupae	3		8		3				13	
	Empididae	<i>Chelifera</i>	5		6		6		11		2	
		<i>Rhamphomyia</i>			1							
	Tipulidae	<i>Tipula</i>	1				1		1			
	Simuliidae	<i>Simulium</i>	1		1		2				1	
Coleoptera	Carabidae				2							
	Curculionidae		1		2							
	Hydrosaphidae				1							
	Staphylinidae				5		1		2		7	
Collembola	Isotomidae	<i>Axelsonia</i>	6		9		8		8		15	
	Onychiuridae	<i>Lophognathella</i>	2		2		2		3		5	
	Sminthuridae	<i>Sminthurus</i>	2		1				2		8	
Lepidoptera	Pyalidae				2						1	
Acari			11		8		14		17		18	
Oligochaeta			1		1		1		1		1	
Ostracoda			2				1		1			
Copepoda	Cyclopoida						2				3	
Miscellaneous terrestrial Diptera				128		208		93		133		318
Hymenoptera				35		52		21		20		71
Misc Terrestrial				22		25		9		23		36

Oak Creek, Station 216

July 10, 2002

	Water Volume (m3)			50.46		34.4		64.22		100.92		29.44	
	Prop. Of sample			1		1		1		1		1	
Taxon	Net			1	Adult	2	Adult	3	Adult	4	Adult	5	Adult
Ephemeroptera	Baetidae	<i>Baetis</i>		5		2				8		4	
	Heptageniidae	<i>Cinygmula</i>				1							
Plecoptera	Capniidae	<i>Capnia</i>		8		4		2				5	
	Nemouridae	<i>Nemoura</i>			1			2				1	
Diptera	Chironomidae	larvae		102		33		30		11		17	
	Chironomidae	pupae		17		6		2		10		5	
	Empididae	<i>Chelifera</i>				1							
	Tipulidae	<i>Tipula</i>						2					
	Simuliidae	<i>Simulium</i>		1		2		2				1	
Coleoptera	Carabidae				1								
	Staphylinidae								1				
Collembola	Isotomidae	<i>Axelsonia</i>		12		3		4		3			
	Onychiuridae	<i>Lophognathella</i>		7		3		11		7		2	
	Onychiuridae	<i>Onychiurus</i>						3					
	Sminthuridae	<i>Sminthurus</i>		6		1				4		1	
Acari				21		6		9		16		8	
Oligochaeta												2	
Ostracoda				1		1				1			
Misc. Terrestrial Diptera					113		62		44		22		29
Hymenoptera					13		3		3		4		3
Misc Terrestrial					8		8				2		5

Summary of Aquatic Invertebrate Data

	2001	2002
Total aquatic taxa	22	18
Tot. Ephemeroptera	45.7	4.0
Tot. Plecoptera	62.9	4.4
Tot. Trichop.	0	0
Total Aq. Diptera	228.2	48.4
Misc.Aq.sp	69.9	26.6
% Ephemeroptera	11%	5%
% Plecoptera	15%	5%
% Trichoptera	0%	0%
% Aq. Diptera	56%	58%
% other	17%	32%
% EPT	27%	10%
% Chironomidae	53%	56%
% Dominant Aquatic Taxon	49%	48%
Volume of water (m3)	344	279
average water/net	69	56
StDev of water volume	16	29
Estimated total inverts/m3 water	14	3
Estimated aquatic inverts/m3 water	6	1
average inv/m3	6	2
Stdev of aq. Inv. Den.	4	1
Total aquatic invertebrates	2034	416
Total. terrestrial invertebrates	2617	322
Total invertebrates	4651	738
% Sample aquatic	0	1
% Sample terrestrial	1	0
Average # aquatic inverts / net	407	83
stdev aq inv/net	394	55
Average # terr. inverts / net	523	64
Average # inverts / net	930	148
stdev inv/net	936	97
Total Larval Fish/site	0	0

Oak Creek Station 216, Ten Minnow traps per event for Dolly Varden

7/9/01	8/4/01	7/11/02	8/3/02
FL (mm)	FL (mm)	FL (mm)	FL (mm)
90	110	102	80
100	118	67	102
120		68	90
130		98	110
		74	
		73	