

Chadwick Ecological Consultants, Inc., 2005

Red River aquatic biological monitoring

2004

Appendices A – D

Prepared for Molycorp, Inc.

APPENDIX A

Fish Data

MOLYCORP
09/20/2004
UPSTREAM OF TOWN

SPECIES	PASS	LENGTH (mm)	WEIGHT (g)	K	Ws	Wr
BRK	1	186	69	1.07	66.2	104.2
BRK	1	123	18	0.97		
BRK	1	78	5.0	1.05		
BRK	1	75	3.7	0.88		
BRK	1	72	3.7	0.99		
BRK	1	72	3.2	0.86		
BRK	1	69	3.0	0.91		
BRK	1	69	2.8	0.85		
BRK	1	68	3.0	0.95		
BRK	1	67	2.9	0.96		
BRK	1	67	2.6	0.86		
BRN	1	303	263	0.95	298.6	88.1
BRN	1	287	238	1.01	254.2	93.6
BRN	1	264	194	1.05	198.5	97.7
BRN	1	257	165	0.97	183.3	90.0
BRN	1	256	138	0.82	181.2	76.2
BRN	1	254	152	0.93	177.1	85.8
BRN	1	253	148	0.91	175.0	84.6
BRN	1	242	134	0.95	153.4	87.3
BRN	1	240	148	1.07	149.7	98.9
BRN	1	226	118	1.02	125.3	94.2
BRN	1	220	103	0.97	115.7	89.0
BRN	1	213	93	0.96	105.1	88.5
BRN	1	209	83	0.91	99.4	83.5
BRN	1	194	66	0.90	79.7	82.8
BRN	1	187	63	0.96	71.5	88.1
BRN	1	183	54	0.88	67.0	80.5
BRN	1	173	52	1.00	56.8	91.6
BRN	1	169	44	0.91	53.0	83.1
BRN	1	164	42	0.95	48.5	86.7
BRN	1	134	23	0.96		
BRN	1	69	3.0	0.91		
BRN	1	59	2.2	1.07		
BRN	1	58	2.1	1.08		
BRN	1	58	2.0	1.03		
BRN	1	58	1.8	0.92		
BRN	1	56	1.6	0.91		
BRN	1	56	1.5	0.85		
BRN	1	56	1.3	0.74		
BRN	1	56	1.3	0.74		
BRN	1	54	1.6	1.02		
BRN	1	53	1.3	0.87		
BRN	1	45	0.6	0.66		
HYB	1	207	104	1.17	97.3	106.9
RBT	1	370	670	1.32	553.7	121.0

MOLYCORP

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RBT	1	339	470	1.21	424.9	110.6
RBT	1	338	415	1.07	421.2	98.5
RBT	1	335	415	1.10	410.0	101.2
RBT	1	333	365	0.99	402.6	90.7
RBT	1	327	325	0.93	381.1	85.3
RBT	1	323	325	0.96	367.1	88.5
RBT	1	301	249	0.91	296.6	83.9
RBT	1	298	259	0.98	287.8	90.0
RBT	1	295	238	0.93	279.1	85.3
RBT	1	287	255	1.08	256.8	99.3
RBT	1	286	270	1.15	254.1	106.2
RBT	1	283	252	1.11	246.2	102.4
RBT	1	280	252	1.15	238.3	105.7
RBT	1	280	208	0.95	238.3	87.3
RBT	1	279	244	1.12	235.8	103.5
RBT	1	279	242	1.11	235.8	102.6
RBT	1	276	254	1.21	228.2	111.3
RBT	1	276	211	1.00	228.2	92.5
RBT	1	272	244	1.21	218.3	111.8
RBT	1	272	213	1.06	218.3	97.6
RBT	1	267	208	1.09	206.4	100.8
RBT	1	266	194	1.03	204.1	95.1
RBT	1	266	178	0.95	204.1	87.2
RBT	1	264	206	1.12	199.5	103.3
RBT	1	261	179	1.01	192.7	92.9
RBT	1	256	161	0.96	181.8	88.6
RBT	1	254	190	1.16	177.5	107.0
RBT	1	254	183	1.12	177.5	103.1
RBT	1	254	156	0.95	177.5	87.9
RBT	1	253	167	1.03	175.4	95.2
RBT	1	253	164	1.01	175.4	93.5
RBT	1	248	166	1.09	165.1	100.5
RBT	1	248	163	1.07	165.1	98.7
RBT	1	248	142	0.93	165.1	86.0
RBT	1	246	131	0.88	161.1	81.3
RBT	1	245	168	1.14	159.2	105.6
RBT	1	245	150	1.02	159.2	94.2
RBT	1	244	164	1.13	157.2	104.3
RBT	1	243	158	1.10	155.3	101.8
RBT	1	243	154	1.07	155.3	99.2
RBT	1	242	134	0.95	153.3	87.4
RBT	1	240	133	0.96	149.5	88.9
RBT	1	239	146	1.07	147.7	98.9
RBT	1	239	138	1.01	147.7	93.5
RBT	1	238	119	0.88	145.8	81.6
RBT	1	237	132	0.99	144.0	91.7
RBT	1	237	129	0.97	144.0	89.6

MOLYCORP

09/20/2004

UPSTREAM OF TOWN

RBT	1	230	126	1.04	131.5	95.8
RBT	1	230	126	1.04	131.5	95.8
RBT	1	226	134	1.16	124.7	107.5
RBT	1	217	89	0.87	110.3	80.7
RBT	1	216	106	1.05	108.7	97.5
RBT	1	216	95	0.94	108.7	87.4
RBT	1	209	86	0.94	98.4	87.4
RBT	1	208	93	1.03	97.0	95.9
BRK	2	187	66	1.01	67.3	98.0
BRK	2	165	38	0.85	46.0	82.6
BRK	2	93	7.4	0.92		
BRK	2	74	3.7	0.91		
BRK	2	62	2.5	1.05		
BRN	2	295	284	1.11	275.8	103.0
BRN	2	265	205	1.10	200.7	102.1
BRN	2	244	137	0.94	157.2	87.2
BRN	2	230	129	1.06	132.0	97.8
BRN	2	228	112	0.94	128.6	87.1
BRN	2	197	76	0.99	83.4	91.1
BRN	2	192	60	0.85	77.3	77.6
BRN	2	156	34	0.90	41.8	81.4
BRN	2	62	2.3	0.97		
BRN	2	59	2.2	1.07		
RBT	2	258	190	1.11	186.1	102.1
RBT	2	251	168	1.06	171.2	98.1
RBT	2	243	175	1.22	155.3	112.7
RBT	2	240	167	1.21	149.5	111.7
RBT	2	239	130	0.95	147.7	88.0
RBT	2	210	92	0.99	99.9	92.1

SUMMARY

BRK		LENGTH	WEIGHT	K	Wr
	N:	16	16	16	3
	MIN:	62	2.5	0.85	82.6
	MAX:	187	69	1.07	104.2
	MEAN:	95.4	14.7	0.94	94.9

BRN		LENGTH	WEIGHT	K	Wr
	N:	42	42	42	27
	MIN:	45	0.6	0.66	76.2
	MAX:	303	284	1.11	103.0
	MEAN:	167.5	80.5	0.95	88.8

MOLYCORP
09/20/2004
UPSTREAM OF TOWN

HYB	LENGTH	WEIGHT	K	Wr
N:	1	1	1	1
MIN:	207	104	1.17	106.9
MAX:	207	104	1.17	106.9
MEAN:	207.0	104.0	1.17	106.9

RBT	LENGTH	WEIGHT	K	Wr
N:	62	62	62	62
MIN:	208	86	0.87	80.7
MAX:	370	670	1.32	121.0
MEAN:	262.1	201.1	1.05	96.5

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (acre)	Density (#/acre)	95% CI	Biomass (lbs/acre)
BRK	11	5	17	± 5.2	0.197	86	± 26.4	2.79
BRN	32	10	45	± 6.8	0.197	228	± 34.5	40.46
HYB	1	0	1	± 0.0	0.197	5	± 0.0	1.15
RBT	56	6	62	± 1.7	0.197	315	± 8.6	139.65

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (ha)	Density (#/ha)	95% CI	Biomass (kg/ha)
BRK	11	5	17	± 5.2	0.080	213	± 65.0	3.13
BRN	32	10	45	± 6.8	0.080	563	± 85.0	45.32
HYB	1	0	1	± 0.0	0.080	13	± 0.0	1.35
RBT	56	6	62	± 1.7	0.080	775	± 21.3	155.85

	1st Pass	2nd Pass	Pop Est	95% CI	Site Length (mile)	Density (#/mile)	95% CI	Biomass (lbs/mile)
BRK	11	5	17	± 5.2	0.086	198	± 60.5	6.42
BRN	32	10	45	± 6.8	0.086	523	± 79.1	92.82
HYB	1	0	1	± 0.0	0.086	12	± 0.0	2.75
RBT	56	6	62	± 1.7	0.086	721	± 19.8	319.65

MOLYCORP
09/23/04
JUNE BUG

SPECIES	PASS	LENGTH (mm)	WEIGHT (g)	K	Ws	Wr
BRN	1	223	118	1.06	120.4	98.0
BRN	1	208	86	0.96	98.0	87.8
BRN	1	205	86	1.00	93.8	91.6
BRN	1	204	84	0.99	92.5	90.8
BRN	1	185	60	0.95	69.2	86.7
BRN	1	167	44	0.94	51.1	86.1
BRN	1	151	36	1.05	37.9	94.9
RBT	1	282	256	1.14	243.5	105.1
RBT	1	268	194	1.01	208.8	92.9
RBT	1	266	164	0.87	204.1	80.4
RBT	1	259	198	1.14	188.3	105.2
RBT	1	248	148	0.97	165.1	89.6
RBT	1	243	166	1.16	155.3	106.9
RBT	1	243	150	1.05	155.3	96.6
RBT	1	238	140	1.04	145.8	96.0
RBT	1	238	128	0.95	145.8	87.8
RBT	1	237	140	1.05	144.0	97.2
RBT	1	235	142	1.09	140.3	101.2
RBT	1	233	124	0.98	136.7	90.7
RBT	1	227	114	0.97	126.4	90.2
RBT	1	226	112	0.97	124.7	89.8
RBT	1	218	110	1.06	111.8	98.4
RBT	1	218	100	0.97	111.8	89.4
RBT	1	218	96	0.93	111.8	85.9
RBT	1	217	100	0.98	110.3	90.7
RBT	1	208	94	1.04	97.0	96.9
RBT	1	208	92	1.02	97.0	94.8
RBT	1	207	74	0.83	95.6	77.4
RBT	1	197	66	0.86		
BRN	2	166	46	1.01	50.2	91.6
RBT	2	212	104	1.09	102.8	101.2

SUMMARY

BRN	LENGTH	WEIGHT	K	Wr
N:	8	8	8	8
MIN:	151	36	0.94	86.1
MAX:	223	118	1.06	98.0
MEAN:	188.6	70.0	0.99	90.9

RBT	LENGTH	WEIGHT	K	Wr
N:	23	23	23	22
MIN:	197	66	0.83	77.4
MAX:	282	256	1.16	106.9
MEAN:	232.4	131.0	1.01	93.8

MOLYCORP
09/23/04
JUNE BUG

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (acre)	Density (#/acre)	95% CI	Biomass (lbs/acre)
BRN	7	1	8	± 0.9	0.126	63	± 7.1	9.72
RBT	22	1	23	± 0.5	0.126	183	± 4.0	52.85

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (ha)	Density (#/ha)	95% CI	Biomass (kg/ha)
BRN	7	1	8	± 0.9	0.051	157	± 17.6	10.99
RBT	22	1	23	± 0.5	0.051	451	± 9.8	59.08

	1st Pass	2nd Pass	Pop Est	95% CI	Site Length (mile)	Density (#/mile)	95% CI	Biomass (lbs/mile)
BRN	7	1	8	± 0.9	0.063	127	± 14.3	19.60
RBT	22	1	23	± 0.5	0.063	365	± 7.9	105.41

MOLYCORP
09/23/04
ELEPHANT ROCK

SPECIES	PASS	LENGTH (mm)	WEIGHT (g)	K	Ws	Wr
BRN	1	273	224	1.10	219.2	102.2
BRN	1	248	140	0.92	165.0	84.9
BRN	1	205	84	0.98	93.8	89.5
BRN	1	202	82	0.99	89.8	91.3
BRN	1	95	9.2	1.07		
BRN	1	93	8.4	1.04		
BRN	1	83	6.2	1.08		
BRN	1	75	4.6	1.09		
BRN	1	57	2.6	1.40		
RBT	1	287	256	1.08	256.8	99.7
RBT	1	240	130	0.94	149.5	86.9
RBT	1	211	96	1.02	101.3	94.8
RBT	1	174	58	1.10		
BRN	2	244	152	1.05	157.2	96.7
BRN	2	104	13	1.16		
BRN	2	99	9.5	0.98		

SUMMARY

BRN	LENGTH	WEIGHT	K	Wr
N:	12	12	12	5
MIN:	57	2.6	0.92	84.9
MAX:	273	224	1.40	102.2
MEAN:	148.2	61.3	1.07	92.9

RBT	LENGTH	WEIGHT	K	Wr
N:	4	4	4	3
MIN:	174	58	0.94	86.9
MAX:	287	256	1.10	99.7
MEAN:	228.0	135.0	1.04	93.8

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (acre)	Density (#/acre)	95% CI	Biomass (lbs/acre)
BRN	9	3	12	± 2.3	0.108	111	± 21.3	15.00
RBT	4	0	4	± 0.0	0.108	37	± 0.0	11.01

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (ha)	Density (#/ha)	95% CI	Biomass (kg/ha)
BRN	9	3	12	± 2.3	0.044	273	± 52.3	16.73
RBT	4	0	4	± 0.0	0.044	91	± 0.0	12.29

MOLYCORP
09/23/04
ELEPHANT ROCK

	1st Pass	2nd Pass	Pop Est	95% CI	Site Length (mile)	Density (#/mile)	95% CI	Biomass (lbs/mile)
BRN	9	3	12	± 2.3	0.056	214	± 41.1	28.92
RBT	4	0	4	± 0.0	0.056	71	± 0.0	21.13

MOLYCORP

09/29/04

DOWNSTREAM OF HANSEN

SPECIES	PASS	LENGTH (mm)	WEIGHT (g)	K	Ws	Wr	
RBT	1	275	242	1.16	225.7	107.2	
RBT	1	265	182	0.98	201.8	90.2	
RBT	1	264	185	1.01	199.5	92.7	
RBT	1	256	180	1.07	181.8	99.0	
RBT	1	256	164	0.98	181.8	90.2	
	2	---- NO FISH -----					

SUMMARY

RBT	N:	LENGTH	WEIGHT	K	Wr
	5	5	5	5	5
	MIN:	256	164	0.98	90.2
	MAX:	275	242	1.16	107.2
	MEAN:	263.2	190.6	1.04	95.9

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (acre)	Density (#/acre)	95% CI	Biomass (lbs/acre)
RBT	5	0	5	± 0.0	0.150	33	± 0.0	13.87

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (ha)	Density (#/ha)	95% CI	Biomass (kg/ha)
RBT	5	0	5	± 0.0	0.061	82	± 0.0	15.63

	1st Pass	2nd Pass	Pop Est	95% CI	Site Length (mile)	Density (#/mile)	95% CI	Biomass (lbs/mile)
RBT	5	0	5	± 0.0	0.081	62	± 0.0	26.05

MOLYCORP
09/29/04
UPSTREAM OF MILL

SPECIES	PASS	LENGTH (mm)	WEIGHT (g)	K	Ws	Wr	
RBT	1	276	254	1.21	228.2	111.3	
RBT	1	276	243	1.16	228.2	106.5	
RBT	1	276	235	1.12	228.2	103.0	
RBT	1	270	222	1.13	213.5	104.0	
RBT	1	249	157	1.02	167.2	93.9	
RBT	1	242	171	1.21	153.3	111.5	
RBT	1	225	120	1.05	123.0	97.5	
RBT	1	220	108	1.01	114.9	94.0	
RBT	1	206	92	1.05	94.2	97.6	
	2	----- NO FISH -----					

SUMMARY

RBT	LENGTH	WEIGHT	K	Wr
N:	9	9	9	9
MIN:	206	92	1.01	93.9
MAX:	276	254	1.21	111.5
MEAN:	248.9	178.0	1.11	102.1

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (acre)	Density (#/acre)	95% CI	Biomass (lbs/acre)
RBT	9	0	9	± 0.0	0.137	66	± 0.0	25.90

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (ha)	Density (#/ha)	95% CI	Biomass (kg/ha)
RBT	9	0	9	± 0.0	0.055	164	± 0.0	29.19

	1st Pass	2nd Pass	Pop Est	95% CI	Site Length (mile)	Density (#/mile)	95% CI	Biomass (lbs/mile)
RBT	9	0	9	± 0.0	0.077	117	± 0.0	45.91

MOLYCORP

09/29/04

UPSTREAM OF COLUMBINE

SPECIES	PASS	LENGTH (mm)	WEIGHT (g)	K	Ws	Wr
----- NO FISH -----						

MOLYCORP

09/27/04

DOWNSTREAM OF CABIN SPRINGS

SPECIES	PASS	LENGTH (mm)	WEIGHT (g)	K	Ws	Wr
BRN	1	269	181	0.93	209.9	86.2
BRN	1	264	174	0.95	198.5	87.7
BRN	1	247	140	0.93	163.0	85.9
BRN	1	246	130	0.87	161.0	80.7
BRN	1	231	124	1.01	133.7	92.8
BRN	1	221	98	0.91	117.2	83.6
BRN	1	217	100	0.98	111.1	90.0
BRN	1	201	72	0.89	88.5	81.3
BRN	1	167	48	1.03	51.1	93.9
BRN	1	165	45	1.00	49.3	91.2
BRN	1	162	44	1.03	46.7	94.2
BRN	1	143	27	0.92	32.3	83.6
BRN	1	81	5.2	0.98		
RBT	1	257	180	1.06	183.9	97.9
RBT	1	245	153	1.04	159.2	96.1
RBT	1	244	156	1.07	157.2	99.2
RBT	1	235	118	0.91	140.3	84.1
RBT	1	232	114	0.91	135.0	84.5
RBT	1	229	122	1.02	129.8	94.0
RBT	1	225	120	1.05	123.0	97.5
RBT	1	224	118	1.05	121.4	97.2
RBT	1	210	108	1.17	99.9	108.2
BRN	2	229	117	0.97	130.3	89.8

SUMMARY

BRN	LENGTH	WEIGHT	K	Wr
N:	14	14	14	13
MIN:	81	5.2	0.87	80.7
MAX:	269	181	1.03	94.2
MEAN:	203.1	93.2	0.96	87.8

RBT	LENGTH	WEIGHT	K	Wr
N:	9	9	9	9
MIN:	210	108	0.91	84.1
MAX:	257	180	1.17	108.2
MEAN:	233.4	132.1	1.03	95.4

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (acre)	Density (#/acre)	95% CI	Biomass (lbs/acre)
BRN	13	1	14	± 0.6	0.139	101	± 4.3	20.75
RBT	9	0	9	± 0.0	0.139	65	± 0.0	18.93

MOLYCORP

09/27/04

DOWNSTREAM OF CABIN SPRINGS

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (ha)	Density (#/ha)	95% CI	Biomass (kg/ha)
BRN	13	1	14	± 0.6	0.056	250	± 10.7	23.30
RBT	9	0	9	± 0.0	0.056	161	± 0.0	21.27

	1st Pass	2nd Pass	Pop Est	95% CI	Site Length (mile)	Density (#/mile)	95% CI	Biomass (lbs/mile)
BRN	13	1	14	± 0.6	0.085	165	± 7.1	33.90
RBT	9	0	9	± 0.0	0.085	106	± 0.0	30.87

MOLYCORP
09/21/04
GOATHILL

SPECIES	PASS	LENGTH (mm)	WEIGHT (g)	K	Ws	Wr
BRN	1	182	60	1.00	66.0	91.0
BRN	1	171	48	0.96	54.8	87.5
BRN	1	100	8.9	0.89		
BRN	1	94	8.0	0.96		
BRN	1	77	4.4	0.96		
BRN	1	73	4.0	1.03		
RBT	1	255	149	0.90	179.6	82.9
RBT	1	251	146	0.92	171.2	85.3
RBT	1	238	126	0.93	145.8	86.4
RBT	1	224	118	1.05	121.4	97.2
RBT	1	204	74	0.87	91.5	80.9
BRN	2	103	12	1.10		
RBT	2	262	180	1.00	195.0	92.3
RBT	2	251	169	1.07	171.2	98.7

SUMMARY

BRN	LENGTH	WEIGHT	K	Wr
N:	7	7	7	2
MIN:	73	4	0.89	87.5
MAX:	182	60	1.10	91.0
MEAN:	114.3	20.8	0.99	89.2

RBT	LENGTH	WEIGHT	K	Wr
N:	7	7	7	7
MIN:	204	74	0.87	80.9
MAX:	262	180	1.07	98.7
MEAN:	240.7	137.4	0.96	89.1

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (acre)	Density (#/acre)	95% CI	Biomass (lbs/acre)
BRN	6	1	7	± 1.0	0.175	40	± 5.7	1.83
RBT	5	2	7	± 2.3	0.175	40	± 13.1	12.12

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (ha)	Density (#/ha)	95% CI	Biomass (kg/ha)
BRN	6	1	7	± 1.0	0.071	99	± 14.1	2.06
RBT	5	2	7	± 2.3	0.071	99	± 32.4	13.60

	1st Pass	2nd Pass	Pop Est	95% CI	Site Length (mile)	Density (#/mile)	95% CI	Biomass (lbs/mile)
BRN	6	1	7	± 1.0	0.075	93	± 13.3	4.26
RBT	5	2	7	± 2.3	0.075	93	± 30.7	28.17

MOLYCORP

09/21/04

QUESTA RANGER STATION

SPECIES	PASS	LENGTH (mm)	WEIGHT (g)	K	Ws	Wr
BRN	1	299	268	1.00	287.0	93.4
BRN	1	250	166	1.06	168.9	98.3
BRN	1	172	51	1.00	55.8	91.4
BRN	1	100	9.9	0.99		
BRN	1	90	7.9	1.08		
BRN	1	71	4.8	1.34		
RBT	1	253	171	1.06	175.4	97.5
RBT	1	216	80	0.79	108.7	73.6
RBT	1	201	75	0.92	87.5	85.7
BRN	2	85	6.1	0.99		
RBT	2	237	125	0.94	144.0	86.8

SUMMARY

BRN	LENGTH	WEIGHT	K	Wr
N:	7	7	7	3
MIN:	71	4.8	0.99	91.4
MAX:	299	268	1.34	98.3
MEAN:	152.4	73.4	1.07	94.3

RBT	LENGTH	WEIGHT	K	Wr
N:	4	4	4	4
MIN:	201	75	0.79	73.6
MAX:	253	171	1.06	97.5
MEAN:	226.8	112.8	0.93	85.9

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (acre)	Density (#/acre)	95% CI	Biomass (lbs/acre)
BRN	6	1	7	± 1.0	0.203	34	± 4.9	5.50
RBT	3	1	4	± 1.9	0.203	20	± 9.4	4.97

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (ha)	Density (#/ha)	95% CI	Biomass (kg/ha)
BRN	6	1	7	± 1.0	0.082	85	± 12.2	6.24
RBT	3	1	4	± 1.9	0.082	49	± 23.2	5.53

	1st Pass	2nd Pass	Pop Est	95% CI	Site Length (mile)	Density (#/mile)	95% CI	Biomass (lbs/mile)
BRN	6	1	7	± 1.0	0.082	85	± 12.2	13.75
RBT	3	1	4	± 1.9	0.082	49	± 23.2	12.19

MOLYCORP

09/24/04

UPSTREAM OF HIGHWAY 522

SPECIES	PASS	LENGTH (mm)	WEIGH T (g)	K	Ws	Wr
BRN	1	333	270	0.73	394.9	68.4
BRN	1	275	216	1.04	224.0	96.4
BRN	1	275	188	0.90	224.0	83.9
BRN	1	258	178	1.04	185.4	96.0
BRN	1	250	136	0.87	168.9	80.5
BRN	1	241	144	1.03	151.5	95.0
BRN	1	228	130	1.10	128.6	101.1
BRN	1	200	78	0.98	87.2	89.4
BRN	1	197	76	0.99	83.4	91.1
BRN	1	195	70	0.94	80.9	86.5
BRN	1	185	64	1.01	69.2	92.4
BRN	1	185	62	0.98	69.2	89.5
BRN	1	180	60	1.03	63.8	94.0
RBT	1	302	278	1.01	299.6	92.8
RBT	1	273	242	1.19	220.8	109.6
RBT	1	267	164	0.86	206.4	79.4
RBT	1	264	142	0.77	199.5	71.2
RBT	1	254	152	0.93	177.5	85.6
RBT	1	252	124	0.77	173.3	71.5
RBT	1	248	156	1.02	165.1	94.5
RBT	1	248	136	0.89	165.1	82.4
RBT	1	242	118	0.83	153.3	77.0
RBT	1	240	126	0.91	149.5	84.3
RBT	1	238	126	0.93	145.8	86.4
RBT	1	235	128	0.99	140.3	91.2
RBT	1	234	130	1.01	138.5	93.9
RBT	1	233	110	0.87	136.7	80.4
RBT	1	230	118	0.97	131.5	89.7
RBT	1	227	122	1.04	126.4	96.5
RBT	1	224	122	1.09	121.4	100.5
RBT	1	223	114	1.03	119.7	95.2
RBT	1	203	86	1.03	90.1	95.4
RBT	1	188	68	1.02		
BRN	2	187	60	0.92	71.5	83.9
BRN	2	163	46	1.06	47.6	96.7
BRN	2	108	12	0.95		
BRN	2	100	11	1.10		
RBT	2	237	124	0.93	144.0	86.1

MOLYCORP
09/24/04
UPSTREAM OF HIGHWAY 522

SUMMARY

BRN	LENGTH	WEIGHT	K	Wr
N:	17	17	17	15
MIN:	100	11	0.73	68.4
MAX:	333	270	1.10	101.1
MEAN:	209.4	105.9	0.98	89.7

RBT	LENGTH	WEIGHT	K	Wr
N:	21	21	21	20
MIN:	188	68	0.77	71.2
MAX:	302	278	1.19	109.6
MEAN:	241.0	137.4	0.96	88.2

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (acre)	Density (#/acre)	95% CI	Biomass (lbs/acre)
BRN	13	4	17	± 2.5	0.255	67	± 9.8	15.64
RBT	20	1	21	± 0.5	0.255	82	± 2.0	24.84

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (ha)	Density (#/ha)	95% CI	Biomass (kg/ha)
BRN	13	4	17	± 2.5	0.103	165	± 24.3	17.47
RBT	20	1	21	± 0.5	0.103	204	± 4.9	28.03

	1st Pass	2nd Pass	Pop Est	95% CI	Site Length (mile)	Density (#/mile)	95% CI	Biomass (lbs/mile)
BRN	13	4	17	± 2.5	0.097	175	± 25.8	40.86
RBT	20	1	21	± 0.5	0.097	216	± 5.2	65.43

MOLYCORP

09/28/04

DOWNSTREAM OF HIGHWAY 522

SPECIES	PASS	LENGTH (mm)	WEIGHT (g)	K	Ws	Wr
BRN	1	305	298	1.05	304.4	97.9
BRN	1	271	192	0.96	214.5	89.5
BRN	1	246	150	1.01	161.0	93.1
BRN	1	236	136	1.03	142.4	95.5
BRN	1	233	127	1.00	137.1	92.6
BRN	1	232	120	0.96	135.4	88.6
BRN	1	212	96	1.01	103.7	92.6
BRN	1	199	76	0.96	85.9	88.4
BRN	1	198	73	0.94	84.7	86.2
BRN	1	195	70	0.94	80.9	86.5
BRN	1	195	66	0.89	80.9	81.6
BRN	1	190	63	0.92	74.9	84.1
BRN	1	186	70	1.09	70.4	99.5
BRN	1	186	66	1.03	70.4	93.8
BRN	1	184	58	0.93	68.1	85.1
BRN	1	170	55	1.12	53.9	102.0
BRN	1	164	57	1.29	48.5	117.6
BRN	1	113	13	0.90		
BRN	1	103	11	1.01		
BRN	1	101	11	1.07		
BRN	1	98	9.9	1.05		
BRN	1	98	9.8	1.04		
BRN	1	98	9.2	0.98		
BRN	1	98	8.4	0.89		
BRN	1	97	8.3	0.91		
BRN	1	95	7.4	0.86		
BRN	1	93	7.6	0.94		
BRN	1	91	6.3	0.84		
BRN	1	90	6.7	0.92		
RBT	1	277	180	0.85	230.7	78.0
RBT	1	265	170	0.91	201.8	84.2
RBT	1	259	168	0.97	188.3	89.2
RBT	1	253	138	0.85	175.4	78.7
RBT	1	244	158	1.09	157.2	100.5
RBT	1	238	96	0.71	145.8	65.8
RBT	1	228	118	1.00	128.1	92.1
RBT	1	227	116	0.99	126.4	91.8
RBT	1	226	104	0.90	124.7	83.4
RBT	1	222	108	0.99	118.1	91.4
RBT	1	219	172	1.64	113.4	151.7
RBT	1	217	96	0.94	110.3	87.1
RBT	1	208	97	1.08	97.0	100.0
RBT	1	206	76	0.87	94.2	80.7
WS	1	158	41	1.04	45.5	90.1
BRN	2	297	232	0.89	281.4	82.4

MOLYCORP

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DOWNSTREAM OF HIGHWAY 522

BRN	2	180	51	0.87	63.8	79.9
BRN	2	109	12	0.93		
BRN	2	108	12.5	0.99		
BRN	2	98	8.7	0.92		
BRN	2	92	6.7	0.86		
BRN	2	88	5.9	0.87		
RBT	2	200	73	0.91		

SUMMARY

BRN		LENGTH	WEIGHT	K	Wr
	N:	36	36	36	19
	MIN:	88	5.9	0.84	79.9
	MAX:	305	298	1.29	117.6
	MEAN:	159.7	61.4	0.97	91.4

RBT		LENGTH	WEIGHT	K	Wr
	N:	15	15	15	14
	MIN:	200	73	0.71	65.8
	MAX:	277	180	1.64	151.7
	MEAN:	232.6	124.7	0.98	91.1

WS		LENGTH	WEIGHT	K	Wr
	N:	1	1	1	1
	MIN:	158	41	1.04	90.1
	MAX:	158	41	1.04	90.1
	MEAN:	158.0	41.0	1.04	90.1

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (acre)	Density (#/acre)	95% CI	Biomass (lbs/acre)
BRN	29	7	37	± 3.7	0.151	245	± 24.5	33.16
RBT	14	1	15	± 0.6	0.151	99	± 4.0	27.22
WS	1	0	1	± 0.0	0.151	7	± 0.0	0.63

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (ha)	Density (#/ha)	95% CI	Biomass (kg/ha)
BRN	29	7	37	± 3.7	0.061	607	± 60.7	37.27
RBT	14	1	15	± 0.6	0.061	246	± 9.8	30.68
WS	1	0	1	± 0.0	0.061	16	± 0.0	0.66

	1st Pass	2nd Pass	Pop Est	95% CI	Site Length (mile)	Density (#/mile)	95% CI	Biomass (lbs/mile)
BRN	29	7	37	± 3.7	0.071	521	± 52.1	70.52
RBT	14	1	15	± 0.6	0.071	211	± 8.5	58.01
WS	1	0	1	± 0.0	0.071	14	± 0.0	1.27

MOLYCORP

09/28/2004

DOWNSTREAM OF OUTFALL 002

SPECIES	PASS	LENGTH (mm)	WEIGHT (g)	K	Ws	Wr
BRN	1	340	365	0.93	420.0	86.9
BRN	1	322	340	1.02	357.5	95.1
BRN	1	295	240	0.93	275.8	87.0
BRN	1	282	176	0.78	241.3	72.9
BRN	1	270	202	1.03	212.2	95.2
BRN	1	264	174	0.95	198.5	87.7
BRN	1	263	90	0.49	196.3	45.8
BRN	1	249	168	1.09	166.9	100.6
BRN	1	249	160	1.04	166.9	95.8
BRN	1	243	156	1.09	155.3	100.5
BRN	1	242	134	0.95	153.4	87.3
BRN	1	233	138	1.09	137.1	100.6
BRN	1	216	94	0.93	109.6	85.8
BRN	1	207	82	0.92	96.6	84.9
BRN	1	206	90	1.03	95.2	94.5
BRN	1	206	86	0.98	95.2	90.3
BRN	1	206	84	0.96	95.2	88.2
BRN	1	203	86	1.03	91.2	94.3
BRN	1	200	82	1.03	87.2	94.0
BRN	1	200	78	0.98	87.2	89.4
BRN	1	199	70	0.89	85.9	81.5
BRN	1	196	72	0.96	82.2	87.6
BRN	1	193	68	0.95	78.5	86.6
BRN	1	188	60	0.90	72.6	82.6
BRN	1	186	58	0.90	70.4	82.4
BRN	1	186	58	0.90	70.4	82.4
BRN	1	183	56	0.91	67.0	83.5
BRN	1	182	54	0.90	66.0	81.9
BRN	1	177	49	0.88	60.7	80.7
BRN	1	174	48	0.91	57.7	83.1
BRN	1	172	48	0.94	55.8	86.0
BRN	1	172	46	0.90	55.8	82.4
BRN	1	170	46	0.94	53.9	85.3
BRN	1	164	42	0.95	48.5	86.7
BRN	1	118	16	0.97		
BRN	1	113	14.5	1.00		
BRN	1	112	15	1.07		
BRN	1	112	14	1.00		
BRN	1	109	13.5	1.04		
BRN	1	108	12.5	0.99		
BRN	1	106	13	1.09		
BRN	1	105	13	1.12		
BRN	1	104	11	0.98		
BRN	1	102	11.5	1.08		
BRN	1	101	9.5	0.92		

MOLYCORP

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DOWNSTREAM OF OUTFALL 002

BRN	1	99	9.5	0.98		
BRN	1	98	7.4	0.79		
BRN	1	95	8.7	1.01		
BRN	1	93	8.3	1.03		
BRN	1	90	7.8	1.07		
BRN	1	90	7.7	1.06		
BRN	1	89	7.8	1.11		
BRN	1	86	6.4	1.01		
BRN	1	85	6.7	1.09		
BRN	1	79	5.3	1.07		
RBT	1	290	248	1.02	265.0	93.6
RBT	1	290	210	0.86	265.0	79.2
RBT	1	281	188	0.85	240.9	78.0
RBT	1	276	218	1.04	228.2	95.5
RBT	1	275	198	0.95	225.7	87.7
RBT	1	273	192	0.94	220.8	87.0
RBT	1	273	158	0.78	220.8	71.6
RBT	1	265	188	1.01	201.8	93.2
RBT	1	261	158	0.89	192.7	82.0
RBT	1	259	192	1.11	188.3	102.0
RBT	1	257	148	0.87	183.9	80.5
RBT	1	256	132	0.79	181.8	72.6
RBT	1	253	182	1.12	175.4	103.8
RBT	1	240	144	1.04	149.5	96.3
RBT	1	238	122	0.90	145.8	83.7
RBT	1	238	116	0.86	145.8	79.6
RBT	1	236	128	0.97	142.1	90.1
RBT	1	236	124	0.94	142.1	87.2
RBT	1	234	138	1.08	138.5	99.6
RBT	1	227	98	0.84	126.4	77.6
RBT	1	214	88	0.90	105.7	83.2
BRN	2	297	216	0.82	281.4	76.8
BRN	2	254	162	0.99	177.1	91.5
BRN	2	214	99	1.01	106.6	92.9
BRN	2	198	78	1.00	84.7	92.1
BRN	2	198	74	0.95	84.7	87.4
BRN	2	187	64	0.98	71.5	89.5
BRN	2	184	58	0.93	68.1	85.1
BRN	2	178	52	0.92	61.8	84.2
BRN	2	177	53	0.96	60.7	87.3
BRN	2	172	47	0.92	55.8	84.2
BRN	2	166	47	1.03	50.2	93.6
BRN	2	110	13	0.98		
BRN	2	108	13	1.03		
BRN	2	106	13	1.09		
BRN	2	106	11	0.92		
BRN	2	102	11	1.04		

MOLYCORP

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DOWNSTREAM OF OUTFALL 002

BRN	2	100	10	1.00		
BRN	2	98	8.6	0.91		
BRN	2	94	8.4	1.01		
BRN	2	89	7.3	1.04		
BRN	2	80	4.8	0.94		
BRN	2	77	4.5	0.99		
BRN	2	73	3.6	0.93		
RBT	2	265	224	1.20	201.8	111.0
RBT	2	251	129	0.82	171.2	75.3
RBT	2	243	122	0.85	155.3	78.6
RBT	2	235	123	0.95	140.3	87.7
RBT	2	232	105	0.84	135.0	77.8
RBT	2	222	96	0.88	118.1	81.3
RBT	2	219	100	0.95	113.4	88.2

SUMMARY

BRN	LENGTH	WEIGHT	K	Wr
N:	78	78	78	45
MIN:	73	3.6	0.49	45.8
MAX:	340	365	1.12	100.6
MEAN:	165.4	65.1	0.97	87.0

RBT	LENGTH	WEIGHT	K	Wr
N:	28	28	28	28
MIN:	214	88	0.78	71.6
MAX:	290	248	1.20	111.0
MEAN:	251.4	152.5	0.90	86.6

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (acre)	Density (#/acre)	95% CI	Biomass (lbs/acre)
BRN	55	23	92	± 18.9	0.177	520	± 106.8	74.63
RBT	21	7	30	± 5.9	0.177	169	± 33.3	56.82

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (ha)	Density (#/ha)	95% CI	Biomass (kg/ha)
BRN	55	23	92	± 18.9	0.072	1278	± 262.5	83.20
RBT	21	7	30	± 5.9	0.072	417	± 81.9	63.59

	1st Pass	2nd Pass	Pop Est	95% CI	Site Length (mile)	Density (#/mile)	95% CI	Biomass (lbs/mile)
BRN	55	23	92	± 18.9	0.080	1150	± 236.3	165.05
RBT	21	7	30	± 5.9	0.080	375	± 73.8	126.08

MOLYCORP

09/23/04

UPSTREAM OF HATCHERY

SPECIES	PASS	LENGTH (mm)	WEIGHT (g)	K	Ws	Wr
BRN	1	255	154	0.93	179.1	86.0
BRN	1	243	144	1.00	155.3	92.7
BRN	1	239	130	0.95	147.8	87.9
BRN	1	235	134	1.03	140.6	95.3
BRN	1	231	124	1.01	133.7	92.8
BRN	1	220	104	0.98	115.7	89.9
BRN	1	215	102	1.03	108.1	94.4
BRN	1	213	96	0.99	105.1	91.3
BRN	1	205	130	1.51	93.8	138.5
BRN	1	205	88	1.02	93.8	93.8
BRN	1	200	74	0.93	87.2	84.8
BRN	1	194	70	0.96	79.7	87.8
BRN	1	185	66	1.04	69.2	95.3
BRN	1	182	60	1.00	66.0	91.0
BRN	1	180	60	1.03	63.8	94.0
BRN	1	180	50	0.86	63.8	78.3
BRN	1	178	56	0.99	61.8	90.7
BRN	1	175	54	1.01	58.7	91.9
BRN	1	174	68	1.29	57.7	117.8
BRN	1	170	53	1.08	53.9	98.3
BRN	1	170	47	0.96	53.9	87.2
BRN	1	165	45	1.00	49.3	91.2
BRN	1	163	45	1.04	47.6	94.6
BRN	1	158	44	1.12	43.4	101.4
BRN	1	154	38	1.04	40.2	94.5
BRN	1	126	20	1.00		
BRN	1	125	20	1.02		
BRN	1	125	20	1.02		
BRN	1	121	19	1.07		
BRN	1	120	18	1.04		
BRN	1	120	17	0.98		
BRN	1	118	20	1.22		
BRN	1	118	18	1.10		
BRN	1	118	17	1.03		
BRN	1	118	13	0.79		
BRN	1	117	16	1.00		
BRN	1	115	14	0.92		
BRN	1	113	15	1.04		
BRN	1	113	15	1.04		
BRN	1	111	15	1.10		
BRN	1	110	16	1.20		
BRN	1	110	16	1.20		
BRN	1	110	14	1.05		
BRN	1	110	14	1.05		
BRN	1	110	13	0.98		

MOLYCORP

09/23/04

UPSTREAM OF HATCHERY

BRN	1	108	13	1.03		
BRN	1	108	13	1.03		
BRN	1	105	13	1.12		
BRN	1	105	13	1.12		
BRN	1	104	13	1.16		
BRN	1	102	12	1.13		
BRN	1	102	12	1.13		
BRN	1	100	11	1.10		
BRN	1	99	11.0	1.13		
BRN	1	98	10.5	1.12		
BRN	1	98	10.5	1.12		
BRN	1	96	10	1.13		
BRN	1	96	10.0	1.13		
BRN	1	95	9.5	1.11		
BRN	1	95	9.5	1.11		
BRN	1	91	9.4	1.25		
BRN	1	90	9.2	1.26		
BRN	1	90	8.2	1.12		
BRN	1	89	8.5	1.21		
BRN	1	89	7.6	1.08		
BRN	1	87	8.4	1.28		
BRN	1	86	7.6	1.19		
BRN	1	86	7.2	1.13		
BRN	1	86	6.8	1.07		
BRN	1	85	7.4	1.20		
BRN	1	85	6.4	1.04		
BRN	1	82	7.6	1.38		
BRN	1	82	6.4	1.16		
BRN	1	81	5.6	1.05		
BRN	1	80	6.0	1.17		
BRN	1	80	5.8	1.13		
BRN	1	78	5.2	1.10		
BRN	1	77	5.6	1.23		
BRN	1	76	5.4	1.23		
BRN	1	74	4.4	1.09		
BRN	1	73	5.6	1.44		
BRN	1	73	5.4	1.39		
BRN	1	72	4.4	1.18		
BRN	1	69	4.2	1.28		
BRN	1	68	3.8	1.21		
RBT	1	444	950	1.09	960.9	98.9
RBT	1	424	960	1.26	835.9	114.8
RBT	1	404	850	1.29	722.3	117.7
RBT	1	404	760	1.15	722.3	105.2
RBT	1	402	900	1.39	711.5	126.5
RBT	1	401	750	1.16	706.2	106.2
RBT	1	390	640	1.08	649.2	98.6

MOLYCORP

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UPSTREAM OF HATCHERY

RBT	1	385	660	1.16	624.4	105.7
RBT	1	281	202	0.91	240.9	83.8
RBT	1	266	208	1.11	204.1	101.9
RBT	1	260	194	1.10	190.5	101.8
RBT	1	250	174	1.11	169.2	102.8
RBT	1	241	154	1.10	151.4	101.7
RBT	1	235	162	1.25	140.3	115.5
RBT	1	223	90	0.81	119.7	75.2
RBT	1	214	104	1.06	105.7	98.4
RBT	1	197	76	0.99		
BRN	2	194	72	0.99	79.7	90.3
BRN	2	182	56	0.93	66.0	84.9
BRN	2	176	58	1.06	59.7	97.1
BRN	2	166	44	0.96	50.2	87.6
BRN	2	165	54	1.20	49.3	109.4
BRN	2	156	39	1.03	41.8	93.3
BRN	2	135	27	1.10		
BRN	2	130	24	1.09		
BRN	2	122	19	1.05		
BRN	2	115	18	1.18		
BRN	2	114	15	1.01		
BRN	2	112	14	1.00		
BRN	2	110	14	1.05		
BRN	2	105	13	1.12		
BRN	2	105	12	1.04		
BRN	2	104	12	1.07		
BRN	2	101	11	1.07		
BRN	2	99	10	1.03		
BRN	2	97	10	1.10		
BRN	2	94	9.0	1.08		
BRN	2	94	9.0	1.08		
BRN	2	90	8.4	1.15		
BRN	2	90	8.4	1.15		
BRN	2	90	8.2	1.12		
BRN	2	87	8.4	1.28		
BRN	2	87	7.4	1.12		
BRN	2	86	7.4	1.16		
BRN	2	80	7.6	1.48		
BRN	2	73	5.4	1.39		
RBT	2	380	600	1.09	600.2	100.0
RBT	2	223	106	0.96	119.7	88.5
BRN	3	194	74	1.01	79.7	92.8
BRN	3	155	42	1.13	41.0	102.4
BRN	3	155	39	1.05	41.0	95.1
BRN	3	149	33	1.00	36.5	90.5
BRN	3	120	19	1.10		
BRN	3	112	14	1.00		

MOLYCORP

09/23/04

UPSTREAM OF HATCHERY

BRN	3	110	14	1.05		
BRN	3	105	12	1.04		
BRN	3	103	12	1.10		
BRN	3	96	9.4	1.06		
BRN	3	89	8.2	1.16		
BRN	3	73	5.3	1.36		
RBT	3	284	246	1.07	248.8	98.9
RBT	3	218	98	0.95	111.8	87.6
RBT	3	187	58	0.89		

SUMMARY

BRN		LENGTH	WEIGHT	K	Wr
	N:	126	126	126	35
	MIN:	68	3.8	0.79	78.3
	MAX:	255	154	1.51	138.5
	MEAN:	123.6	28.4	1.10	94.4

RBT		LENGTH	WEIGHT	K	Wr
	N:	22	22	22	20
	MIN:	187	58	0.81	75.2
	MAX:	444	960	1.39	126.5
	MEAN:	305.1	406.5	1.09	101.5

	1st Pass	2nd Pass	3rd Pass	Pop Est	95% CI	Site Area (acre)	Density (#/acre)	95% CI	Biomass (lbs/acre)
BRN	85	29	12	131	± 6.9	0.172	762	± 40.1	47.71
RBT	17	2	3	22	± 1.7	0.172	128	± 9.9	114.71

	1st Pass	2nd Pass	3rd Pass	Pop Est	95% CI	Site Area (ha)	Density (#/ha)	95% CI	Biomass (kg/ha)
BRN	85	29	12	131	± 6.9	0.070	1871	± 98.6	53.14
RBT	17	2	3	22	± 1.7	0.070	314	± 24.3	127.64

	1st Pass	2nd Pass	3rd Pass	Pop Est	95% CI	Site Length (mile)	Density (#/mile)	95% CI	Biomass (lbs/mile)
BRN	85	29	12	131	± 6.9	0.065	2015	± 106.2	126.16
RBT	17	2	3	22	± 1.7	0.065	338	± 26.2	302.91

MOLYCORP

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DOWNSTREAM OF HATCHERY

SPECIES	PASS	LENGTH (mm)	WEIGHT (g)	K	Ws	Wr
BRN	1	327	310	0.89	374.2	82.8
BRN	1	312	320	1.05	325.6	98.3
BRN	1	300	278	1.03	289.9	95.9
BRN	1	300	264	0.98	289.9	91.1
BRN	1	294	242	0.95	273.1	88.6
BRN	1	283	246	1.09	243.9	100.9
BRN	1	281	204	0.92	238.8	85.4
BRN	1	277	226	1.06	228.9	98.7
BRN	1	275	192	0.92	224.0	85.7
BRN	1	275	190	0.91	224.0	84.8
BRN	1	273	198	0.97	219.2	90.3
BRN	1	272	232	1.15	216.9	107.0
BRN	1	272	200	0.99	216.9	92.2
BRN	1	268	210	1.09	207.6	101.2
BRN	1	267	198	1.04	205.3	96.5
BRN	1	267	194	1.02	205.3	94.5
BRN	1	263	176	0.97	196.3	89.7
BRN	1	261	186	1.05	191.9	96.9
BRN	1	257	162	0.95	183.3	88.4
BRN	1	257	158	0.93	183.3	86.2
BRN	1	252	162	1.01	173.0	93.7
BRN	1	252	160	1.00	173.0	92.5
BRN	1	252	156	0.97	173.0	90.2
BRN	1	251	158	1.00	170.9	92.4
BRN	1	240	156	1.13	149.7	104.2
BRN	1	238	136	1.01	146.0	93.1
BRN	1	237	134	1.01	144.2	92.9
BRN	1	234	124	0.97	138.9	89.3
BRN	1	231	142	1.15	133.7	106.2
BRN	1	229	120	1.00	130.3	92.1
BRN	1	228	114	0.96	128.6	88.7
BRN	1	228	108	0.91	128.6	84.0
BRN	1	227	116	0.99	126.9	91.4
BRN	1	226	130	1.13	125.3	103.8
BRN	1	220	100	0.94	115.7	86.4
BRN	1	219	108	1.03	114.1	94.6
BRN	1	217	100	0.98	111.1	90.0
BRN	1	217	94	0.92	111.1	84.6
BRN	1	215	102	1.03	108.1	94.4
BRN	1	215	96	0.97	108.1	88.8
BRN	1	214	100	1.02	106.6	93.8
BRN	1	214	92	0.94	106.6	86.3
BRN	1	211	104	1.11	102.2	101.7
BRN	1	210	94	1.02	100.8	93.3
BRN	1	209	98	1.07	99.4	98.6

MOLYCORP

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DOWNSTREAM OF HATCHERY

BRN	1	209	84	0.92	99.4	84.5
BRN	1	209	82	0.90	99.4	82.5
BRN	1	206	86	0.98	95.2	90.3
BRN	1	205	86	1.00	93.8	91.6
BRN	1	203	78	0.93	91.2	85.6
BRN	1	202	84	1.02	89.8	93.5
BRN	1	192	74	1.05	77.3	95.7
BRN	1	154	45.5	1.25	40.2	113.1
BRN	1	147	33.5	1.05	35.0	95.6
BRN	1	143	23.5	0.80	32.3	72.8
BRN	1	142	31	1.08	31.6	98.0
BRN	1	136	29.5	1.17		
BRN	1	135	27.5	1.12		
BRN	1	133	24.5	1.04		
BRN	1	132	27.5	1.20		
BRN	1	131	26	1.16		
BRN	1	131	24.5	1.09		
BRN	1	130	25.5	1.16		
BRN	1	130	25	1.14		
BRN	1	130	21.5	0.98		
BRN	1	129	23.5	1.09		
BRN	1	129	23	1.07		
BRN	1	129	23	1.07		
BRN	1	129	21	0.98		
BRN	1	127	22.5	1.10		
BRN	1	126	21	1.05		
BRN	1	125	20.5	1.05		
BRN	1	124	23	1.21		
BRN	1	124	21.5	1.13		
BRN	1	124	21.5	1.13		
BRN	1	123	20.5	1.10		
BRN	1	123	20	1.07		
BRN	1	123	19.5	1.05		
BRN	1	122	20	1.10		
BRN	1	122	19.9	1.10		
BRN	1	122	19.5	1.07		
BRN	1	121	20.5	1.16		
BRN	1	121	19	1.07		
BRN	1	120	19	1.10		
BRN	1	119	18	1.07		
BRN	1	119	16.5	0.98		
BRN	1	118	17.5	1.07		
BRN	1	118	17.5	1.07		
BRN	1	118	17	1.03		
BRN	1	117	18	1.12		
BRN	1	117	17.5	1.09		
BRN	1	117	17	1.06		

MOLYCORP

09/21/04

DOWNSTREAM OF HATCHERY

BRN	1	116	14	0.90
BRN	1	114	16	1.08
BRN	1	113	15.5	1.07
BRN	1	113	14.5	1.00
BRN	1	112	14.5	1.03
BRN	1	112	14.5	1.03
BRN	1	111	14.5	1.06
BRN	1	111	13.5	0.99
BRN	1	109	14	1.08
BRN	1	108	14	1.11
BRN	1	108	13.5	1.07
BRN	1	108	13	1.03
BRN	1	108	8.9	0.71
BRN	1	106	14.5	1.22
BRN	1	106	13	1.09
BRN	1	105	13	1.12
BRN	1	105	12.0	1.04
BRN	1	104	13	1.16
BRN	1	104	12.5	1.11
BRN	1	104	11.5	1.02
BRN	1	103	9.6	0.88
BRN	1	102	12	1.13
BRN	1	102	11	1.04
BRN	1	100	11.5	1.15
BRN	1	100	10.5	1.05
BRN	1	100	10.5	1.05
BRN	1	100	9.6	0.96
BRN	1	99	10.5	1.08
BRN	1	99	9.8	1.01
BRN	1	99	9.2	0.95
BRN	1	98	11.5	1.22
BRN	1	98	10.5	1.12
BRN	1	97	10	1.10
BRN	1	97	9.8	1.07
BRN	1	96	10.5	1.19
BRN	1	95	9.6	1.12
BRN	1	94	9.6	1.16
BRN	1	94	8.4	1.01
BRN	1	94	7.8	0.94
BRN	1	93	9.5	1.18
BRN	1	93	8.8	1.09
BRN	1	91	7.4	0.98
BRN	1	90	11	1.51
BRN	1	89	7.2	1.02
BRN	1	89	6.4	0.91
BRN	1	88	7.0	1.03
BRN	1	88	6.4	0.94

MOLYCORP

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DOWNSTREAM OF HATCHERY

BRN	1	87	6.0	0.91		
BRN	1	85	8.0	1.30		
BRN	1	85	7.4	1.20		
BRN	1	80	5.2	1.02		
BRN	1	78	5	1.05		
BRN	1	76	4.8	1.09		
RBT	1	480	770	0.70	1216.4	63.3
RBT	1	400	700	1.09	700.9	99.9
RBT	1	385	550	0.96	624.4	88.1
RBT	1	271	208	1.05	215.9	96.3
RBT	1	271	168	0.84	215.9	77.8
RBT	1	266	208	1.11	204.1	101.9
RBT	1	231	124	1.01	133.2	93.1
RBT	1	223	102	0.92	119.7	85.2
RBT	1	197	57	0.75		
BRN	2	355	430	0.96	477.3	90.1
BRN	2	275	238	1.14	224.0	106.2
BRN	2	256	178	1.06	181.2	98.2
BRN	2	255	152	0.92	179.1	84.9
BRN	2	251	164	1.04	170.9	95.9
BRN	2	249	158	1.02	166.9	94.6
BRN	2	235	136	1.05	140.6	96.7
BRN	2	225	112	0.98	123.6	90.6
BRN	2	212	84	0.88	103.7	81.0
BRN	2	212	74	0.78	103.7	71.4
BRN	2	207	90	1.01	96.6	93.2
BRN	2	202	76	0.92	89.8	84.6
BRN	2	198	90	1.16	84.7	106.3
BRN	2	190	84	1.22	74.9	112.1
BRN	2	183	58	0.95	67.0	86.5
BRN	2	151	38	1.10	37.9	100.2
BRN	2	149	35	1.06	36.5	96.0
BRN	2	144	32	1.07	33.0	97.1
BRN	2	143	29	0.99	32.3	89.8
BRN	2	134	28	1.16		
BRN	2	132	27.5	1.20		
BRN	2	131	26	1.16		
BRN	2	130	25.5	1.16		
BRN	2	130	23	1.05		
BRN	2	128	23.4	1.12		
BRN	2	128	23	1.10		
BRN	2	127	24.5	1.20		
BRN	2	125	21	1.08		
BRN	2	124	17	0.89		
BRN	2	120	20.5	1.19		
BRN	2	120	18.5	1.07		

MOLYCORP

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DOWNSTREAM OF HATCHERY

BRN	2	119	19.5	1.16
BRN	2	117	17.5	1.09
BRN	2	117	17.5	1.09
BRN	2	116	19.5	1.25
BRN	2	116	17	1.09
BRN	2	115	17	1.12
BRN	2	112	14	1.00
BRN	2	112	11.5	0.82
BRN	2	103	11.5	1.05
BRN	2	100	10.5	1.05
BRN	2	100	10.5	1.05
BRN	2	97	10	1.10
BRN	2	97	9.8	1.07
BRN	2	90	8.2	1.12

SUMMARY

BRN	LENGTH	WEIGHT	K	Wr
N:	190	190	190	75
MIN:	76	4.8	0.71	71.4
MAX:	355	430	1.51	113.1
MEAN:	158.7	64.0	1.05	92.8

RBT	LENGTH	WEIGHT	K	Wr
N:	9	9	9	8
MIN:	197	57	0.70	63.3
MAX:	480	770	1.11	101.9
MEAN:	302.7	320.8	0.90	88.2

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (acre)	Density (#/acre)	95% CI	Biomass (lbs/acre)
BRN	145	45	208	± 6.5	0.207	1005	± 31.4	141.80
RBT	9	0	9	± 0.0	0.207	43	± 0.0	30.41

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (ha)	Density (#/ha)	95% CI	Biomass (kg/ha)
BRN	145	45	208	± 6.5	0.084	2476	± 77.4	158.46
RBT	9	0	9	± 0.0	0.084	107	± 0.0	34.33

	1st Pass	2nd Pass	Pop Est	95% CI	Site Length (mile)	Density (#/mile)	95% CI	Biomass (lbs/mile)
BRN	145	45	208	± 6.5	0.067	3104	± 97.0	437.96
RBT	9	0	9	± 0.0	0.067	134	± 0.0	94.77

MOLYCORP
09/22/04
CABRESTO CREEK

SPECIES	PASS	LENGTH	WEIGHT	K	Ws	Wr
BRK	1	195	74	1.00	76.5	96.8
BRN	1	245	124	0.84	159.1	77.9
BRN	1	235	124	0.96	140.6	88.2
BRN	1	217	90	0.88	111.1	81.0
BRN	1	215	102	1.03	108.1	94.4
BRN	1	202	80	0.97	89.8	89.1
BRN	1	142	30	1.05	31.6	94.9
BRN	1	140	29	1.06		
BRN	1	135	25	1.02		
BRN	1	134	24	1.00		
BRN	1	129	20	0.93		
BRN	1	120	18	1.04		
BRN	1	85	7.2	1.17		
BRN	1	84	5.6	0.94		
BRN	1	76	5.4	1.23		
BRN	1	75	5.4	1.28		
BRN	1	73	5.0	1.29		
BRN	1	72	4.2	1.13		
BRN	1	62	2.8	1.17		
BRN	1	55	2.4	1.44		
BRN	1	55	2.0	1.20		
HYB	1	264	170	0.92	206.8	82.2
HYB	1	232	112	0.90	138.6	80.8
HYB	1	205	72	0.84	94.4	76.2
HYB	1	204	88	1.04	93.0	94.6
HYB	1	204	74	0.87	93.0	79.6
HYB	1	191	56	0.80	75.8	73.8
HYB	1	186	58	0.90	69.9	83.0
HYB	1	181	46	0.78	64.2	71.6
HYB	1	179	45	0.78	62.0	72.5
HYB	1	176	52	0.95	58.9	88.3
HYB	1	176	51	0.94	58.9	86.6
HYB	1	175	42	0.78	57.8	72.6
HYB	1	174	44	0.84	56.8	77.4
HYB	1	171	54	1.08	53.8	100.3
HYB	1	171	40	0.80	53.8	74.3
HYB	1	170	38	0.77	52.9	71.9
HYB	1	169	40	0.83	51.9	77.1
HYB	1	167	46	0.99	50.0	92.0
HYB	1	166	40	0.87	49.1	81.5
HYB	1	162	32	0.75	45.5	70.3
HYB	1	159	32	0.80	43.0	74.5
HYB	1	156	36	0.95	40.5	88.9
HYB	1	155	36	0.97	39.7	90.7
HYB	1	155	34	0.91	39.7	85.6
HYB	1	152	31	0.88	37.4	83.0

MOLYCORP
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CABRESTO CREEK

HYB	1	150	24	0.71	35.9	66.9
HYB	1	150	24	0.71	35.9	66.9
HYB	1	149	31	0.94	35.1	88.2
HYB	1	143	30	1.03	30.9	97.0
HYB	1	139	21	0.78	28.3	74.1
HYB	1	135	20	0.81	25.9	77.3
HYB	1	135	18	0.73	25.9	69.6
HYB	1	131	16	0.71	23.6	67.9
HYB	1	127	16	0.78		
HYB	1	126	25	1.25		
HYB	1	126	18	0.90		
HYB	1	107	6.0	0.49		
HYB	1	97	10	1.10		
HYB	1	61	2.5	1.10		
HYB	1	61	2.4	1.06		
HYB	1	60	2.6	1.20		
HYB	1	57	3.6	1.94		
HYB	1	54	2.0	1.27		
HYB	1	53	1.7	1.14		
HYB	1	52	1.6	1.14		
HYB	1	51	1.6	1.21		
HYB	1	50	1.6	1.28		
HYB	1	48	1.6	1.45		
HYB	1	48	1.0	0.90		
HYB	1	45	1.0	1.10		
RBT	1	272	196	0.97	218.3	89.8
RBT	1	266	158	0.84	204.1	77.4
RBT	1	263	186	1.02	197.2	94.3
RBT	1	262	180	1.00	195.0	92.3
RBT	1	259	143	0.82	188.3	75.9
RBT	1	256	190	1.13	181.8	104.5
RBT	1	253	148	0.91	175.4	84.4
RBT	1	245	126	0.86	159.2	79.2
RBT	1	243	140	0.98	155.3	90.2
RBT	1	239	110	0.81	147.7	74.5
RBT	1	236	126	0.96	142.1	88.7
RBT	1	235	124	0.96	140.3	88.4
RBT	1	235	110	0.85	140.3	78.4
RBT	1	234	110	0.86	138.5	79.4
RBT	1	233	120	0.95	136.7	87.8
RBT	1	233	100	0.79	136.7	73.1
RBT	1	232	141	1.13	135.0	104.5
RBT	1	230	117	0.96	131.5	89.0
RBT	1	230	111	0.91	131.5	84.4
RBT	1	225	94	0.83	123.0	76.4
RBT	1	219	92	0.88	113.4	81.1
RBT	1	218	94	0.91	111.8	84.1

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RBT	1	210	80	0.86	99.9	80.1
RBT	1	209	92	1.01	98.4	93.5
RBT	1	185	54	0.85		
BRN	2	197	84	1.10	83.4	100.7
BRN	2	185	52	0.82	69.2	75.1
BRN	2	170	42	0.85	53.9	77.9
BRN	2	140	20	0.73		
BRN	2	126	14	0.70		
BRN	2	74	4.2	1.04		
BRN	2	70	4.2	1.22		
HYB	2	172	48	0.94	54.8	87.6
HYB	2	165	40	0.89	48.2	83.0
HYB	2	163	32	0.74	46.4	69.0
HYB	2	154	24	0.66	38.9	61.7
HYB	2	148	19	0.59	34.4	55.2
HYB	2	145	22	0.72	32.3	68.1
HYB	2	143	23	0.79	30.9	74.4
HYB	2	135	21	0.85	25.9	81.2
HYB	2	131	21	0.93	23.6	89.1
HYB	2	111	12	0.88		
HYB	2	102	8.3	0.78		
HYB	2	63	3.4	1.36		
HYB	2	62	2.6	1.09		
HYB	2	61	2.4	1.06		
HYB	2	58	2.4	1.23		
HYB	2	55	2.0	1.20		
HYB	2	55	1.8	1.08		
HYB	2	54	1.6	1.02		
HYB	2	52	2.0	1.42		
HYB	2	45	1.2	1.32		
HYB	2	45	0.8	0.88		
HYB	2	42	1.0	1.35		
RBT	2	290	232	0.95	265.0	87.5
RBT	2	217	86	0.84	110.3	78.0
RBT	2	183	54	0.88		
RBT	2	180	47	0.81		

SUMMARY

BRK	LENGTH	WEIGHT	K	Wr
N:	1	1	1	1
MIN:	195	74	1.00	96.8
MAX:	195	74	1.00	96.8
MEAN:	195.0	74.0	1.00	96.8

MOLYCORP
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BRN	LENGTH	WEIGHT	K	Wr
N:	27	27	27	9
MIN:	55	2	0.70	75.1
MAX:	245	124	1.44	100.7
MEAN:	130.1	34.3	1.00	86.6

HYB	LENGTH	WEIGHT	K	Wr
N:	72	72	72	42
MIN:	42	0.8	0.49	55.2
MAX:	264	170	1.94	100.3
MEAN:	125.2	27.0	0.96	78.7

RBT	LENGTH	WEIGHT	K	Wr
N:	29	29	29	26
MIN:	180	47	0.79	73.1
MAX:	290	232	1.13	104.5
MEAN:	234.2	122.8	0.91	85.3

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (acre)	Density (#/acre)	95% CI	Biomass (lbs/acre)
BRK	1	0	1	± 0.0	0.082	12	± 0.0	1.96
BRN	20	7	29	± 6.1	0.082	354	± 74.4	26.77
HYB	50	22	86	± 19.8	0.082	1049	± 241.5	62.44
RBT	25	4	29	± 1.7	0.082	354	± 20.7	95.84

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (ha)	Density (#/ha)	95% CI	Biomass (kg/ha)
BRK	1	0	1	± 0.0	0.033	30	± 0.0	2.22
BRN	20	7	29	± 6.1	0.033	879	± 184.8	30.15
HYB	50	22	86	± 19.8	0.033	2606	± 600.0	70.36
RBT	25	4	29	± 1.7	0.033	879	± 51.5	107.94

	1st Pass	2nd Pass	Pop Est	95% CI	Site Length (mile)	Density (#/mile)	95% CI	Biomass (lbs/mile)
BRK	1	0	1	± 0.0	0.062	16	± 0.0	2.61
BRN	20	7	29	± 6.1	0.062	468	± 98.4	35.39
HYB	50	22	86	± 19.8	0.062	1387	± 319.4	82.56
RBT	25	4	29	± 1.7	0.062	468	± 27.4	126.70

MOLYCORP

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CABRESTO CREEK - BENNY GALLEGOS' PROPERTY

SPECIES	PASS	LENGTH	WEIGHT	K	Ws	Wr
BRN	1	276	178	0.85	226.5	78.6
BRN	1	183	54	0.88	67.0	80.5
BRN	1	178	50	0.89	61.8	81.0
BRN	1	130	19	0.86		
BRN	1	98	9.5	1.01		
BRN	1	92	7.0	0.90		
BRN	1	90	6.4	0.88		
BRN	1	90	6.1	0.84		
BRN	1	87	6.4	0.97		
BRN	1	87	6.3	0.96		
BRN	1	87	6.3	0.96		
BRN	1	85	5.5	0.90		
BRN	1	85	4.6	0.75		
BRN	1	84	5.2	0.88		
BRN	1	82	5.0	0.91		
BRN	1	81	5.8	1.09		
BRN	1	80	5.3	1.04		
BRN	1	80	4.8	0.94		
BRN	1	80	4.5	0.88		
BRN	1	77	4.4	0.96		
BRN	1	74	4.2	1.04		
BRN	1	74	3.6	0.89		
BRN	1	72	4.2	1.13		
BRN	1	70	3.5	1.02		
BRN	1	68	3.4	1.08		
RBT	1	291	232	0.94	267.8	86.6
RBT	1	222	82	0.75	118.1	69.4
BRN	2	268	182	0.95	207.6	87.7
BRN	2	180	46	0.79	63.8	72.1
BRN	2	144	27.5	0.92	33.0	83.4
BRN	2	92	7.0	0.90		
BRN	2	88	6.5	0.95		
BRN	2	84	5.3	0.89		
BRN	2	78	4.3	0.91		

SUMMARY

BRN	LENGTH	WEIGHT	K	Wr
N:	32	32	32	6
MIN:	68	3.4	0.75	72.1
MAX:	276	182	1.13	87.7
MEAN:	107.0	21.6	0.93	80.5

MOLYCORP

09/28/04

CABRESTO CREEK - BENNY GALLEGOS' PROPERTY

RBT	LENGTH	WEIGHT	K	Wr
N:	2	2	2	2
MIN:	222	82	0.75	69.4
MAX:	291	232	0.94	86.6
MEAN:	256.5	157.0	0.85	78.0

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (acre)	Density (#/acre)	95% CI	Biomass (lbs/acre)
BRN	25	7	33	± 4.1	0.041	805	± 100.0	38.33
RBT	2	0	2	± 0.0	0.041	49	± 0.0	16.96

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (ha)	Density (#/ha)	95% CI	Biomass (kg/ha)
BRN	25	7	33	± 4.1	0.017	1941	± 241.2	41.93
RBT	2	0	2	± 0.0	0.017	118	± 0.0	18.53

	1st Pass	2nd Pass	Pop Est	95% CI	Site Length (mile)	Density (#/mile)	95% CI	Biomass (lbs/mile)
BRN	25	7	33	± 4.1	0.068	485	± 60.3	23.10
RBT	2	0	2	± 0.0	0.068	29	± 0.0	10.04

MOLYCORP

09/29/04

CABRESTO CREEK - RAEL RANCH

SPECIES	PASS	LENGTH	WEIGHT	K	Ws	Wr
BRK	1	105	11	0.95		
BRK	1	100	8.3	0.83		
BRK	1	95	8.7	1.01		
BRK	1	90	6.5	0.89		
BRK	1	88	5.4	0.79		
BRK	1	84	4.7	0.79		
BRK	1	80	4.4	0.86		
BRK	1	71	3.2	0.89		
BRN	1	320	425	1.30	351.0	121.1
BRN	1	248	157	1.03	165.0	95.2
BRN	1	215	88	0.89	108.1	81.4
BRN	1	213	89	0.92	105.1	84.7
BRN	1	209	79	0.87	99.4	79.5
BRN	1	196	75	1.00	82.2	91.3
BRN	1	184	56	0.90	68.1	82.2
BRN	1	64	2.3	0.88		
BRN	1	63	2.3	0.92		
BRN	1	62	2.2	0.92		
BRN	1	60	2.2	1.02		
BRN	1	52	1	0.71		
BRN	1	52	0.6	0.43		
BRN	1	50	0.8	0.64		
BRN	1	48	1	0.90		
HYB	1	255	202	1.22	185.7	108.8
HYB	1	194	59	0.81	79.6	74.1
BRK	2	218	72	0.69	107.4	67.1
BRN	2	110	12.5	0.94		

SUMMARY

BRK	LENGTH	WEIGHT	K	Wr
N:	9	9	9	1
MIN:	71	3.2	0.69	67.1
MAX:	218	72	1.01	67.1
MEAN:	103.4	13.8	0.90	67.1

BRN	LENGTH	WEIGHT	K	Wr
N:	16	16	16	7
MIN:	48	0.6	0.43	79.5
MAX:	320	425	1.30	121.1
MEAN:	134.1	62.1	0.89	90.8

MOLYCORN

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CABRESTO CREEK - RAEL RANCH

HYB	LENGTH	WEIGHT	K	Wr
N:	2	2	2	2
MIN:	194	59	0.81	74.1
MAX:	255	202	1.22	108.8
MEAN:	224.5	130.5	1.01	91.4

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (acre)	Density (#/acre)	95% CI	Biomass (lbs/acre)
BRK	8	1	9	± 0.9	0.048	188	± 18.8	5.72
BRN	15	1	16	± 0.6	0.048	333	± 12.5	45.59
HYB	2	0	2	± 0.0	0.048	42	± 0.0	12.08

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (ha)	Density (#/ha)	95% CI	Biomass (kg/ha)
BRK	8	1	9	± 0.9	0.019	474	± 47.4	6.54
BRN	15	1	16	± 0.6	0.019	842	± 31.6	52.29
HYB	2	0	2	± 0.0	0.019	105	± 0.0	13.70

	1st Pass	2nd Pass	Pop Est	95% CI	Site Length (mile)	Density (#/mile)	95% CI	Biomass (lbs/mile)
BRK	8	1	9	± 0.9	0.061	148	± 14.8	4.50
BRN	15	1	16	± 0.6	0.061	262	± 9.8	35.87
HYB	2	0	2	± 0.0	0.061	33	± 0.0	9.49

MOLYCORP

09/29/04

CABRESTO CREEK - US FOREST SERVICE

SPECIES	PASS	LENGTH	WEIGHT	K	Ws	Wr
BRN	1	257	147	0.87	183.3	80.2
BRN	1	253	149	0.92	175.0	85.1
BRN	1	241	120	0.86	151.5	79.2
BRN	1	232	117	0.94	135.4	86.4
BRN	1	231	116	0.94	133.7	86.8
BRN	1	215	88	0.89	108.1	81.4
BRN	1	194	69	0.95	79.7	86.6
BRN	1	187	56	0.86	71.5	78.3
BRN	1	186	58	0.90	70.4	82.4
BRN	1	183	49	0.80	67.0	73.1
BRN	1	177	50	0.90	60.7	82.3
BRN	1	172	45	0.88	55.8	80.6
BRN	1	152	33	0.94	38.7	85.3
BRN	1	145	27	0.89	33.6	80.2
BRN	1	126	18	0.90		
BRN	2	256	162	0.97	181.2	89.4
BRN	2	163	40	0.92	47.6	84.1
BRN	2	132	23	1.00		
BRN	2	74	4.3	1.06		
BRN	2	70	3.6	1.05		
BRN	2	59	1.6	0.78		
BRN	2	54	1.5	0.95		

SUMMARY

BRN	N:	LENGTH	WEIGHT	K	Wr
	22	22	22	16	
	MIN:	54	1.5	0.78	73.1
	MAX:	257	162	1.06	89.4
	MEAN:	170.9	62.6	0.92	82.6

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (acre)	Density (#/acre)	95% CI	Biomass (lbs/acre)
BRN	15	7	25	± 9.0	0.032	781	± 281.3	107.78

	1st Pass	2nd Pass	Pop Est	95% CI	Site Area (ha)	Density (#/ha)	95% CI	Biomass (kg/ha)
BRN	15	7	25	± 9.0	0.013	1923	± 692.3	120.38

	1st Pass	2nd Pass	Pop Est	95% CI	Site Length (mile)	Density (#/mile)	95% CI	Biomass (lbs/mile)
BRN	15	7	25	± 9.0	0.043	581	± 209.3	80.18

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COLUMBINE CREEK

SPECIES	PASS	LENGTH (mm)	WEIGHT (g)	K	Ws	Wr
BRN	1	234	128	1.00	138.9	92.2
BRN	1	223	102	0.92	120.4	84.7
BRN	1	223	88	0.79	120.4	73.1
BRN	1	201	74	0.91	88.5	83.6
BRN	1	200	70	0.88	87.2	80.3
BRN	1	187	58	0.89	71.5	81.1
BRN	1	176	57	1.05	59.7	95.4
BRN	1	172	47	0.92	55.8	84.2
BRN	1	168	51	1.08	52.0	98.0
BRN	1	161	38	0.91	45.9	82.8
BRN	1	160	42	1.03	45.0	93.2
BRN	1	160	36	0.88	45.0	79.9
BRN	1	157	43	1.11	42.6	101.0
BRN	1	156	37	0.97	41.8	88.5
BRN	1	154	32	0.88	40.2	79.6
BRN	1	152	37	1.05	38.7	95.6
BRN	1	148	31	0.96	35.8	86.7
BRN	1	146	27	0.87	34.3	78.6
BRN	1	145	28	0.92	33.6	83.2
BRN	1	144	32	1.07	33.0	97.1
BRN	1	143	29	0.99	32.3	89.8
BRN	1	137	21	0.82		
BRN	1	136	21	0.83		
BRN	1	134	20	0.83		
BRN	1	120	14	0.81		
BRN	1	103	10.5	0.96		
BRN	1	100	10.5	1.05		
BRN	1	99	10	1.03		
BRN	1	96	8.6	0.97		
BRN	1	96	8.2	0.93		
BRN	1	96	7.4	0.84		
BRN	1	94	9.0	1.08		
BRN	1	92	6.8	0.87		
BRN	1	91	7.4	0.98		
BRN	1	90	7.2	0.99		
BRN	1	90	6.2	0.85		
BRN	1	89	7.2	1.02		
BRN	1	42	1.6	2.16		
BRN	1	42	1.2	1.62		
BRN	2	241	138	0.99	151.5	91.1
BRN	2	225	125	1.10	123.6	101.1
BRN	2	221	108	1.00	117.2	92.1
BRN	2	202	71	0.86	89.8	79.0
BRN	2	195	61	0.82	80.9	75.4
BRN	2	164	41	0.93	48.5	84.6

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COLUMBINE CREEK

BRN	2	156	39	1.03	41.8	93.3
BRN	2	150	29	0.86	37.2	77.9
BRN	2	142	26.5	0.93	31.6	83.8
BRN	2	138	25	0.95		
BRN	2	136	23.5	0.93		
BRN	2	134	25	1.04		
BRN	2	114	14.5	0.98		
BRN	2	99	9.0	0.93		
BRN	3	164	42	0.95	48.5	86.7
BRN	3	158	44	1.12	43.4	101.4
BRN	3	155	35.5	0.95	41.0	86.6
BRN	3	150	31.5	0.93	37.2	84.7
BRN	3	145	32.5	1.07	33.6	96.6
BRN	3	109	12.5	0.97		
BRN	3	104	11	0.98		

SUMMARY

BRN	LENGTH	WEIGHT	K	Wr
N:	60	60	60	35
MIN:	42	1.2	0.79	73.1
MAX:	241	138	2.16	101.4
MEAN:	144.3	36.8	0.98	87.5

	1st Pass	2nd Pass	3rd Pass	Pop Est	95% CI	Site Area (acre)	Density (#/acre)	95% CI	Biomass (lbs/acre)
BRN	39	14	7	63	± 5.8	0.120	525	± 48.3	42.59

	1st Pass	2nd Pass	3rd Pass	Pop Est	95% CI	Site Area (ha)	Density (#/ha)	95% CI	Biomass (kg/ha)
BRN	39	14	7	63	± 5.8	0.049	1286	± 118.4	47.32

	1st Pass	2nd Pass	3rd Pass	Pop Est	95% CI	Site Length (mile)	Density (#/mile)	95% CI	Biomass (lbs/mile)
BRN	39	14	7	63	± 5.8	0.074	851	± 78.4	69.04

APPENDIX B

Fish Length-Frequency Histograms

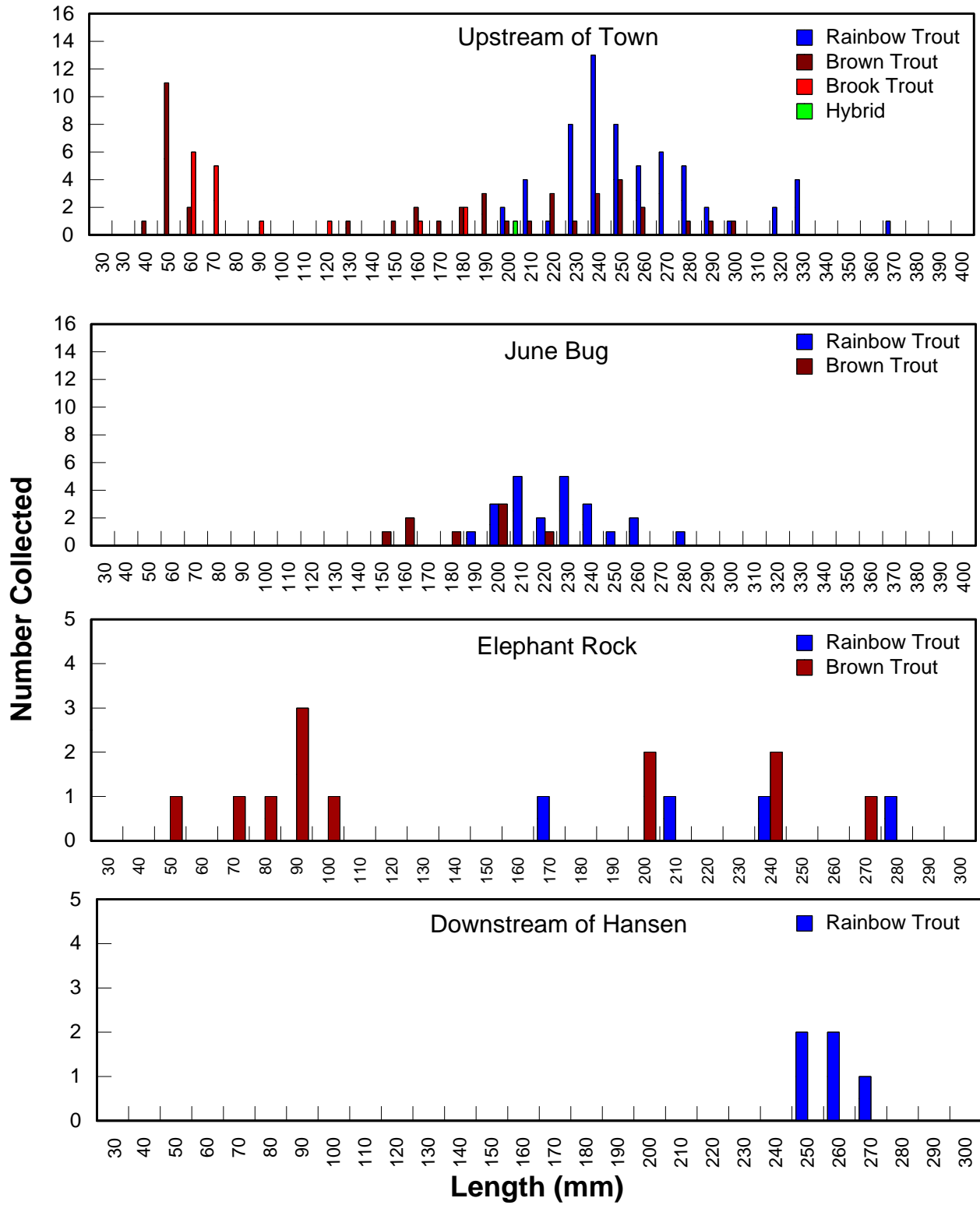


FIGURE B-1a: Length frequency histograms of trout collected in the Red River and tributaries in fall 2004.

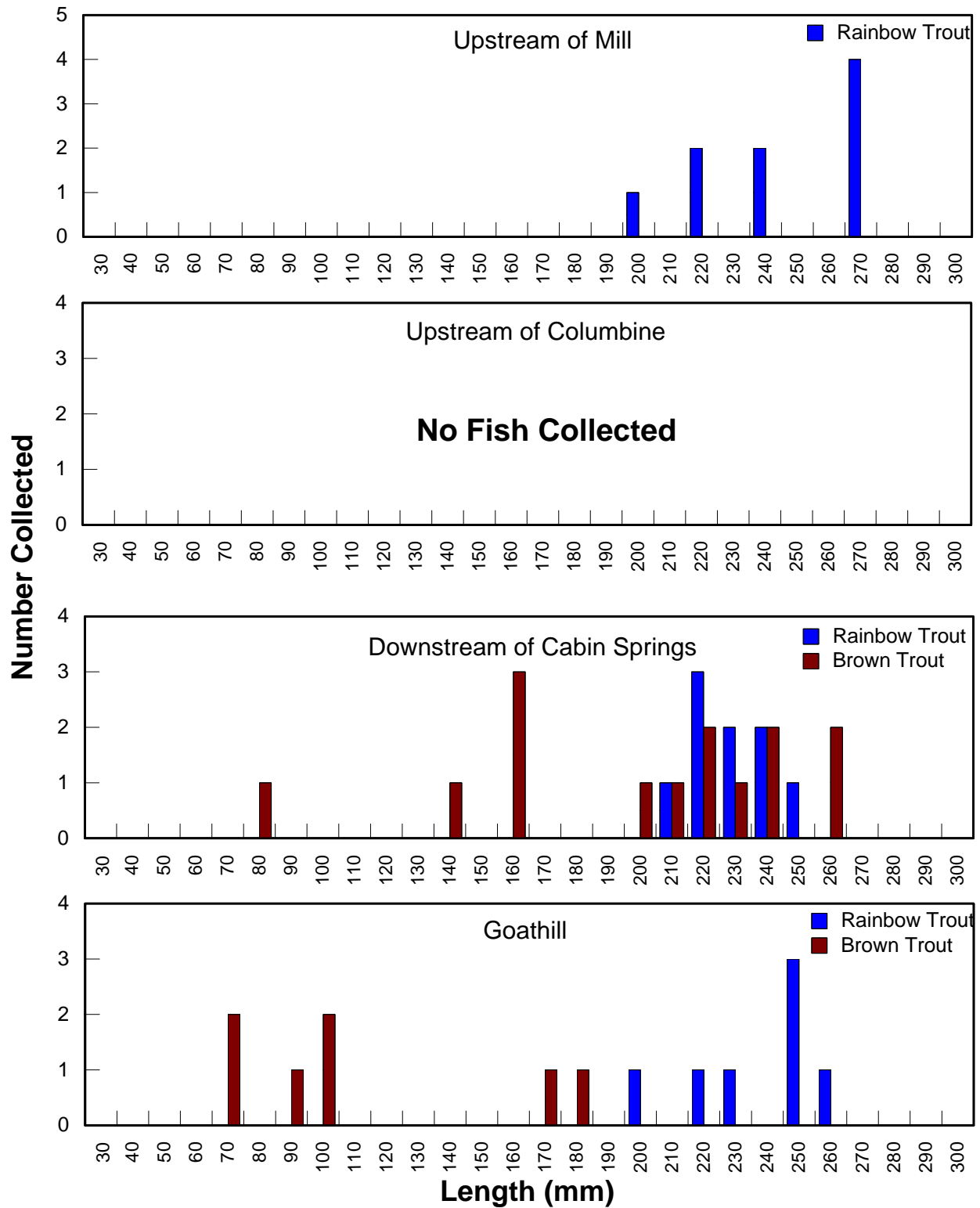


FIGURE B-1b: Length frequency histograms of trout collected in the Red River and tributaries in fall 2004.

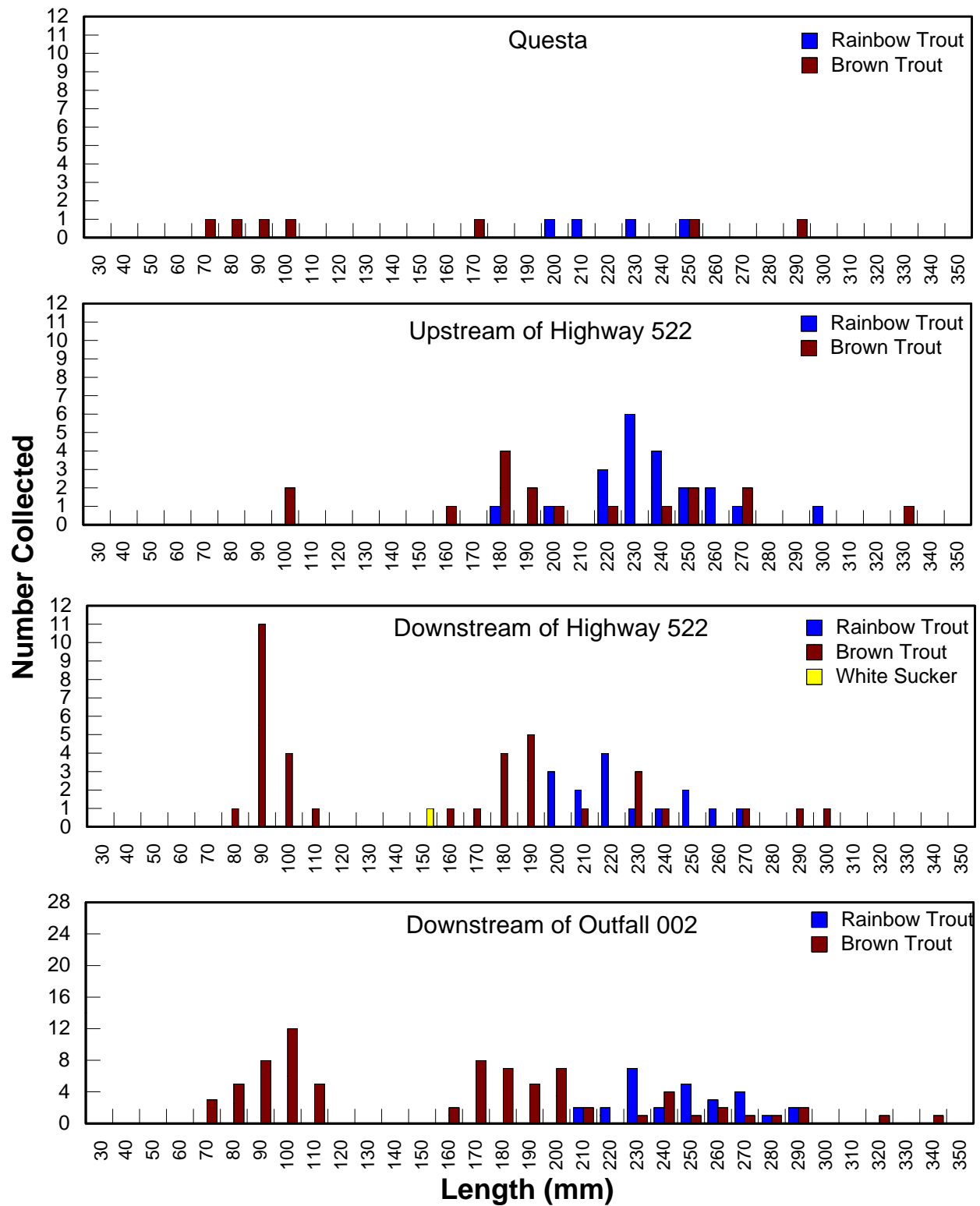


FIGURE B-1c: Length frequency histograms of trout collected in the Red River and tributaries in fall 2004.

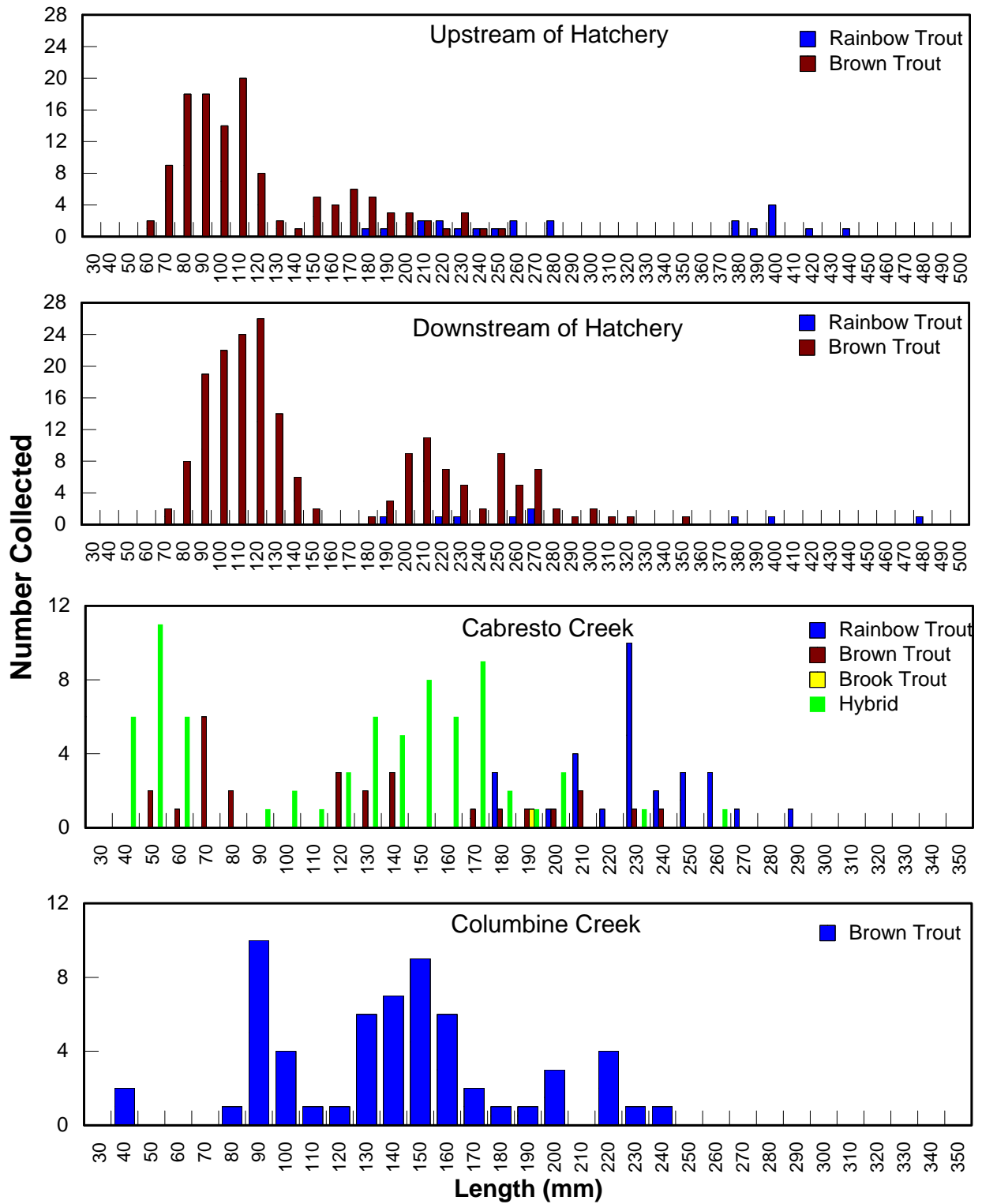


FIGURE B-1d: Length frequency histograms of trout collected in the Red River and tributaries in fall 2004.

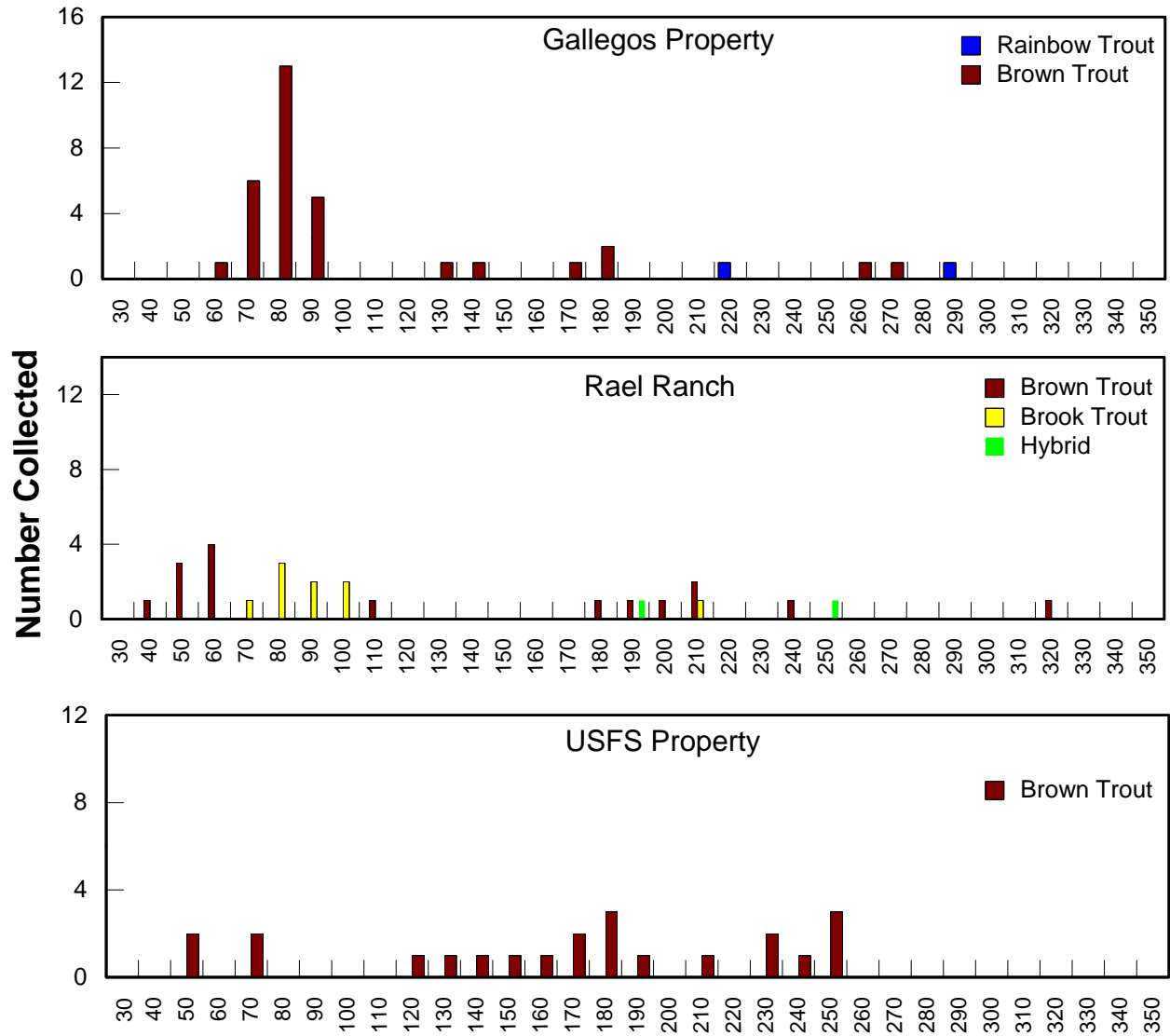


FIGURE B-1e: Length frequency histograms of trout collected in the Red River and tributaries in fall 2004.

APPENDIX C

Macroinvertebrate Data

MACROINVERTEBRATE DENSITY
MOLYCORP
SITE: CABRESTO CREEK
SAMPLED: 03/30/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	815	1140	606	628	616	760
Baetis bicaudatus	81	128	12	35	35	58
Baetis tricaudatus	454	651	302	302	267	395
Cinygmula sp.			12		35	9
Drunella doddsi		12		12		5
Epeorus longimanus	105	128	163	186	244	165
Ephemerella infrequens	163	221	47	81	35	109
Fallceon quilleri	12		70	12		19
PLECOPTERA	24	129	35	36	35	51
Cultus sp.		47		12	23	16
Hesperoperla pacifica		35	35			14
Prostoia besametsa	12	35		12	12	14
Sweltsa sp.				12		2
Zapada cinctipes	12	12				5
COLEOPTERA	408	210	186	245	257	260
Cleptelmis sp.			105	12		23
Heterolimnius corpulentus	361	163		209	198	186
Narpus concolor			23	12	12	9
Optioservus quadrimaculatus	47	47	58	12	47	42
TRICHOPTERA	2606	4398	1384	1490	1628	2299
Arctopsyche grandis		81	23	47	23	35
Brachycentrus americanus	267	582	151	198	163	272
Hydropsyche sp.	1082	2373	291	395	326	893
Lepidostoma sp. A	454	151	198	47	93	189
Limnephilidae		12				2
Micrasema bactro	116	314	81	116	47	135
Oligophlebodes minutus	663	814	535	547	872	686
Philopotamidae		12		12	23	9
Rhyacophila brunnea gr.	12	47	12	81		30
Rhyacophila coloradensis gr.			12			2
Rhyacophila sibirica gr.	12	12	81	35	81	44
Rhyacophila sp.				12		2
DIPTERA	1698	1327	674	746	952	1078
Antocha sp.	302	198	116	116	116	170
Ceratopogoninae	35	81	58	47	12	47
Chelifera sp.	47	35	12		23	23
Dicranota sp.	12	35		12		12
Eukiefferiella sp.		128	23	12	23	37
Euryhapsis sp.	81					16
Micropsectra sp.		23	23	12	81	28
Orthocladius/Cricotopus gr.	768	582	209	372	395	465
Unid. Orthocladiinae	35			35		14
Pagastia sp.			12			2
Parametriocnemus sp.					12	2
Pericoma sp.	151	47	116	93	209	123
Prosimulium sp.		12		35		9
Psectrocladius sp.	81	35	23	12		30
Rheocricotopus sp.	35					7
Rheotanytarsus sp.	151	151	70		81	91
Thienemanniella sp.			12			2

MACROINVERTEBRATE DENSITY
 CLIENT: MOLYCORP
 SITE: CABRESTO CREEK
 SAMPLED: 03/30/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
HYDRACARINA	93	12	12		47	33
Lebertia sp.	81		12		35	26
Protzia sp.	12					2
Sperchon/Sperchonopsis		12			12	5
TURBELLARIA		35	70			21
Polycelis coronata		35	70			21
NEMATODA					12	2
Unid. Nematoda					12	2
ANNELIDA						
OLIGOCHAETA	12	70	59			27
Eiseniella tetraedra			12			2
Enchytraeidae	12	58	47			23
Nais sp.		12				2
MOLLUSCA						
PELECYPODA			12		47	12
Sphaerium sp.			12		47	12
TOTAL (#/sq. meter)	5656	7321	3038	3145	3594	4543
NUMBER OF TAXA	30	36	35	33	31	54
SHANNON-WEAVER (H')						4.12
TOTAL EPT TAXA	14	19	16	19	15	24
EPT INDEX (% of Total Taxa)	47	53	46	58	48	44
EPHEMEROPTERA ABUNDANCE (% of Total Density)	14	16	20	20	17	17

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: COLUMBINE CREEK
SAMPLED: 03/31/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	3222	2931	944	2977	3187	2653
Ameletus sp.			12			2
Baetis bicaudatus	81	116	23		163	77
Baetis tricaudatus	430	616	233	1256	768	661
Cinygmula sp.	896	1349	349	861	1314	954
Drunella doddsi	23	70	12	58	35	40
Epeorus longimanus	1617	628	233	500	744	744
Ephemerella infrequens	105	105	70	267	151	140
Rhithrogena hageni	70	47	12	35	12	35
PLECOPTERA	350	326	59	582	384	339
Amphinemura sp.	105	35	23	128	81	74
Cultus sp.				35	12	9
Hesperoperla pacifica	47			93	35	35
Isoperla sp.	35		12		12	12
Paraleuctra sp.		12		12		5
Prostoia besametsa	12	35	12	70	81	42
Sweltsa sp.	151	244	12	209	151	153
Taenionema sp.				35	12	9
COLEOPTERA	570	395	395	221	349	386
Heterimnius corpulentus	570	395	395	221	349	386
TRICHOPTERA	316	140	186	1014	536	437
Arctopsyche grandis	47	23		12		16
Brachycentrus americanus	47	35	35	593	302	202
Glossosoma sp.					12	2
Hydropsyche sp.		12		12		5
Lepidostoma sp. B	128		58	35		44
Micrasema bactro	35			35	35	21
Neothremma sp.		35		47	12	19
Oligophlebodes minutus	35		23		12	14
Rhyacophila brunnea gr.	12		23	47	35	23
Rhyacophila sibirica gr.		35	35	221	81	74
Rhyacophila sp.	12		12	12	47	17
DIPTERA	328	223	163	364	210	256
Brillia sp.	35			12	35	16
Ceratopogoninae	12			35		9
Corynoneura sp.	93		23			23
Dicranota sp.		12	23	93	105	47
Eukiefferiella sp.	70	93	12	12		37
Heleniella sp.	12					2
Hexatoma sp.				12		2
Micropsectra sp.	47		81	35	35	40
Oreogeton sp.	12			12		5
Orthocladius (Sympos.) sp.			12			2
Orthocladius/Cricotopus gr.	35	12		12		12
Unid. Orthocladiinae		12		12		5
Parametricnemus sp.	12	12		35	35	19
Pericoma sp.		12		47		12
Rheotanytarsus sp.		35				7
Simulium sp.				35		7
Stempellinella sp.			12			2
Tanytarsus sp.		35		12		9

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: COLUMBINE CREEK
SAMPLED: 03/31/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
HYDRACARINA	12		23	12	35	16
Lebertia sp.	12		23	12	35	16
ANNELIDA						
OLIGOCHAETA	1151	1280	476	860	1314	1016
Eiseniella tetraedra	1093	779	372	651	698	719
Enchytraeidae	35	256	81	93	407	174
Nais sp.	23	233	23	116	209	121
Rhynchelmis sp.		12				2
TOTAL (#/sq. meter)	5961	5295	2258	6030	6027	5110
NUMBER OF TAXA	34	29	30	40	32	52
SHANNON-WEAVER (H')						3.92
TOTAL EPT TAXA	19	16	18	22	22	27
EPT INDEX (% of Total Taxa)	56	55	60	55	69	52
EPHEMEROPTERA ABUNDANCE (% of Total Density)	54	55	42	49	53	52

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: UPSTREAM OF TOWN RED RIVER
SAMPLED: 04/01/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	1279	1791	3454	3501	1094	2224
Baetis bicaudatus		23	233	198	35	98
Baetis tricaudatus	163	582	779	500	198	444
Cinygmula sp.	116	116	198	198	70	140
Drunella doddsi			81	35		23
Drunella grandis					35	7
Epeorus longimanus	395	419	896	814	221	549
Ephemerella infrequens	279	372	616	663	302	446
Fallceon quilleri	47	23	151	81	12	63
Paraleptophlebia sp.	23		35			12
Rhithrogena hageni	256	256	465	1012	221	442
PLECOPTERA	500	1045	1536	745	466	858
Cultus sp.				35		7
Megarcys signata		23	12			7
Paraleuctra sp.	186	395	849	198	198	365
Prostoia besametsa	93	209	35	384	221	188
Pteronarcella badia		23	93	12		26
Sweltsa sp.	221	395	547	81	47	258
Zapada oregonensis gr				35		7
COLEOPTERA	1000	814	1710	849	1070	1089
Heterolimnius corpulentus	977	814	1710	849	1058	1082
Optioservus sp.	23				12	7
TRICHOPTERA	3303	5466	5396	6630	1560	4472
Arctopsyche grandis		23		12	12	9
Brachycentrus americanus	116	512	430	384	81	305
Glossosoma sp.			547	349	12	182
Hydropsyche sp.	23		35		12	14
Lepidostoma sp. A		47	35	35		23
Lepidostoma sp. B	70	23			35	26
Limnephilidae					12	2
Oligophlebodes minutus	2884	4536	3722	5548	1035	3545
Rhyacophila brunnea gr.	47	93	116	151	233	128
Rhyacophila coloradensis gr		23	81	35		28
Rhyacophila sibirica gr.	163	186	430	116	128	205
Rhyacophila sp.		23				5
DIPTERA	1443	1515	2213	1433	612	1306
Antocha sp.	140	47	81	81	12	72
Ceratopogoninae			35	81		23
Chelifera sp.	47	47		116	12	44
Dicranota sp.			81	35	12	26
Eukiefferiella sp.	81	140	209	35	186	130
Hexatoma sp.	47	47	35		47	35
Micropsectra sp.		23	105	454	128	142
Orthocladius (Sympos.) sp.			47			9
Orthocladius/Cricotopus gr.		81	47	81		42
Unid. Orthocladiinae		58	47			
Pagastia sp.	81	58		35	105	56
Parametrioctenus sp.		23		81		

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: UPSTREAM OF TOWN RED RIVER
SAMPLED: 04/01/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
DIPTERA (cont.)						
Pericoma sp.	419	419	430	314	81	333
Prosimulium sp.		47	35	35		23
Rheocricotopus sp.	105	23	209	81	12	
Rheotanytarsus sp.	23	58	47			26
Tanytarsus sp.	454	442	802			340
Thienemanniella sp.	23					
Thienemannimyia gr.	23					5
HYDRACARINA						
Lebertia sp.	93	116	81	81	35	81
Protzia sp.	23					5
Sperchon/Sperchonopsis				35		7
Testudacarus/Torrenticola		23				5
TURBELLARIA						
Polycelis coronata	116	302	267	233		184
ANNELIDA						
OLIGOCHAETA						
Eiseniella tetraedra				81		16
Enchytraeidae				81		16
Nais sp.	1128	942	2919	965	640	1319
TOTAL (#/sq. meter)	8885	12012	17573	14630	5472	11582
NUMBER OF TAXA	33	40	40	41	34	58
SHANNON-WEAVER (H')						3.90
TOTAL EPT TAXA	16	21	22	22	20	29
EPT INDEX (% of Total Taxa)	48	53	55	54	59	50
EPHEMEROPTERA ABUNDANCE (% of Total Density)	14	15	20	24	20	19

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: JUNE BUG CAMPGROUND
SAMPLED: 04/01/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	372	395	256	337	187	309
Baetis tricaudatus	116	128	58	58	23	77
Drunella doddsi			12			2
Drunella grandis	35	23	23	93	12	37
Ephemerella infrequens	12			12	12	7
Rhithrogena hageni	209	244	163	174	140	186
PLECOPTERA	58	116	59	82	24	68
Capniidae		12		23		7
Paraleuctra sp.			12		12	5
Pteronarcella badia		23		12		7
Sweltsa sp.	58	81	47	47	12	49
COLEOPTERA	59		35		23	23
Heterolimnius corpulentus	35		35			14
Narpus concolor	12					2
Optioservus sp.	12				23	7
TRICHOPTERA	314	117	93	152	105	156
Arctopsyche grandis	12	47	23			16
Brachycentrus americanus	267	12	58	128	93	112
Hydropsyche sp.	12	23	12	12	12	14
Oligophlebodes minutus	23	12				7
Rhyacophila sibirica gr.		23		12		7
DIPTERA	36	71	12	139	71	63
Atherix pachypus			12	23	12	9
Chelifera sp.	12	23		93	47	35
Dicranota sp.	12					2
Hesperoconopa sp.		12				2
Muscidae		12				2
Orthocladius/Cricotopus gr.	12			23	12	9
Rhabdomastix sp.		12				2
Thienemannimyia gr.		12				2
HYDRACARINA	12	12	23	12	12	14
Lebertia sp.	12	12	23	12	12	14
ANNELIDA						
OLIGOCHAETA				58		12
Rhynchelmis sp.				58		12
TOTAL (#/sq. meter)	851	711	478	780	422	645
NUMBER OF TAXA	16	17	12	15	13	27
SHANNON-WEAVER (H')						3.49
TOTAL EPT TAXA	9	11	9	10	8	14
EPT INDEX (% of Total Taxa)	56	65	75	67	62	52
EPHEMEROPTERA ABUNDANCE (% of Total Density)	44	56	54	43	44	48

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: DOWNSTREAM OF ELEPHANT ROCK CAMPGROUND,
UPSTREAM FROM HANSEN CREEK
SAMPLED: 03/31/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	535	454	768	1129	303	638
Baetis tricaudatus	500	361	721	1105	279	593
Drunella grandis	23	58		12	12	21
Rhithrogena hageni	12	35	47	12	12	24
PLECOPTERA	35	35	70	12		30
Capniidae	23	23	58			21
Cultus sp.	12	12		12		7
Sweltsa sp.			12			2
COLEOPTERA	23	47			12	17
Heterolimnius corpulentus		12			12	5
Optioservus sp.	23	35				12
TRICHOPTERA	501	1303	768	570	105	649
Brachycentrus americanus	442	1291	756	558	105	630
Hydropsyche sp.	47	12	12	12		17
Lepidostoma sp. A	12					2
DIPTERA	1596	582	897	571	233	774
Antocha sp.				12		2
Atherix pachypus			12			2
Ceratopogoninae	12		23	198	58	58
Chelifera sp.	198	58	140	174	12	116
Dicranota sp.	12	23	35			14
Eukiefferiella sp.				12		2
Gonomyia sp.	12		12			5
Hesperoconopa sp.	12		23			7
Hexatoma sp.	12	23				7
Orthocladius/Cricotopus gr.	791	337	477	105	58	354
Unid. Orthoclaadiinae	93	12	35	12		30
Pagastia sp.	267	47	35	58	105	102
Parametricnemus sp.	47		58			21
Pericoma sp.		12				2
Pseudodiamesa sp.		23				5
Rhabdomastix sp.			12			2
Rheocricotopus sp.	128	47	23			40
Tipula sp.	12		12			5
HYDRACARINA	47		35			16
Lebertia sp.	47		35			16
NEMATODA				12		2
Unid. Nematoda				12		2

MACROINVERTEBRATE DENSITY
 CLIENT: MOLYCORP
 SITE: DOWNSTREAM OF ELEPHANT ROCK CAMPGROUND,
 UPSTREAM FROM HANSEN CREEK
 SAMPLED: 03/31/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
ANNELIDA						
OLIGOCHAETA	3885	895	2465	372	93	1542
Enchytraeidae	1105	58	174	105	58	300
Lumbriculidae			12			2
Nais bretscheri	140					28
Nais sp.	2640	837	2279	267	35	1212
TOTAL (#/sq. meter)	6622	3316	5003	2666	746	3668
NUMBER OF TAXA	25	20	23	16	11	35
SHANNON-WEAVER (H')						3.05
TOTAL EPT TAXA	8	7	6	6	4	9
EPT INDEX (% of Total Taxa)	32	35	26	38	36	26
EPHEMEROPTERA ABUNDANCE (% of Total Density)	8	14	15	42	41	17

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: DOWNSTREAM OF HANSEN CREEK,
UPSTREAM OF MILL
SAMPLED: 03/31/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	769	733	745	652	361	651
Baetis bicaudatus	12			12	12	7
Baetis tricaudatus	454	372	419	593	174	402
Drunella grandis	12	12	23	12	35	19
Fallceon quilleri			12			2
Rhithrogena hageni	291	349	291	35	140	221
PLECOPTERA	94	186	349	12	12	131
Capniidae	47	81	58	12		40
Prostoia besametsa		12				2
Pteronarcella badia	47	70	291			82
Sweltsa sp.		23			12	7
COLEOPTERA		58	23	12		19
Heterlimnius corpulentus		35				7
Optioservus quadrimaculatus		23	23	12		12
TRICHOPTERA	954	2618	1245	1338	198	1270
Arctopsyche grandis	12		12		12	7
Brachycentrus americanus	849	2559	1186	1279	186	1212
Hydropsyche sp.	93	47	35	47		44
Lepidostoma sp. A		12				2
Rhyacophila coloradensis gr			12	12		5
DIPTERA	105	118	70	118	36	87
Antocha sp.					12	2
Atherix pachypus	70	23	23	12		26
Chelifera sp.	12					2
Corynoneura sp.		12				2
Diamesa sp.				23	12	7
Dicranota sp.			35	12		9
Eukiefferiella sp.		12	12			5
Hesperoconopa sp.		12				2
Orthocladius/Cricotopus gr.	23	47		47		23
Polypedilum sp.				12	12	5
Rheocricotopus sp.		12				2
Unid. Orthoclaadiinae				12		2
HYDRACARINA	12			12		5
Lebertia sp.	12			12		5
ANNELIDA						
OLIGOCHAETA	93		12	12		24
Enchytraeidae	81			12		19
Nais sp.	12		12			5

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: DOWNSTREAM OF HANSEN CREEK,
UPSTREAM OF MILL
SAMPLED: 03/31/04

TOTAL (#/sq. meter)	2027	3713	2444	2156	607	2187
NUMBER OF TAXA	15	18	15	17	10	31
SHANNON-WEAVER (H')						2.30
TOTAL EPT TAXA	9	10	10	8	7	14
EPT INDEX (% of Total Taxa)	60	56	67	47	70	45
EPHEMEROPTERA ABUNDANCE (% of Total Density)	38	20	30	30	59	30

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: DOWNSTREAM OF MINE SITE BOUNDARY,
UPSTREAM OF MILL
SAMPLED: 03/31/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	756	477	2012	1651	686	1116
Baetis bicaudatus		12				2
Baetis tricaudatus	663	349	1710	1372	512	921
Drunella grandis			35	23		12
Rhithrogena hageni	93	116	267	256	174	181
PLECOPTERA	47	12	23	12		18
Isocapnia sp.	35	12				9
Pteronarcella badia			23	12		7
Sweltsa sp.	12					2
COLEOPTERA	12		35		12	12
Heterimnius corpulentus			35			7
Optioservus sp.	12				12	5
TRICHOPTERA	674	337	1838	582	686	824
Arctopsyche grandis			35	23		12
Brachycentrus americanus	616	314	1686	500	663	756
Hydropsyche sp.	58	23	105	47	23	51
Rhyacophila coloradensis gr			12	12		5
DIPTERA	70	93	24	46	59	57
Atherix pachypus		23	12	23	23	16
Chelifera sp.	35	23	12			14
Diamesa sp.		35			12	9
Eukiefferiella sp.	35			23	12	14
Unid. Orthoclaadiinae					12	2
Limonia sp.		12				2
HYDRACARINA				12		2
Lebertia sp.				12		2
ANNELIDA						
OLIGOCHAETA	36		24	23		15
Enchytraeidae	12			23		7
Ilyodrilus/Tubifex			12			2
Lumbriculidae	12					2
Nais sp.			12			2
Rhynchelmis sp.	12					2
TOTAL (#/sq. meter)	1595	919	3956	2326	1443	2044
NUMBER OF TAXA	12	10	13	12	9	25
SHANNON-WEAVER (H')						2.01
TOTAL EPT TAXA	6	6	8	8	4	11
EPT INDEX (% of Total Taxa)	50	60	62	67	44	44
EPHEMEROPTERA ABUNDANCE (% of Total Density)	47	52	51	71	48	55

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: DOWNSTREAM OF MILL,
UPSTREAM OF COLUMBINE CREEK
SAMPLED: 03/31/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	639	59	605	1140	757	640
Baetis bicaudatus	58	12			35	21
Baetis tricaudatus	488	35	570	733	384	442
Cinygmula sp.	47	12	23			16
Drunella grandis	23			35		12
Epeorus longimanus					12	2
Rhithrogena hageni	23		12	372	326	147
PLECOPTERA	12			12	12	6
Capniidae					12	2
Sweltsa sp.	12					2
Zapada cinctipes				12		2
COLEOPTERA	12		36	24	12	17
Heterlimnius corpulentus	12		12			5
Narpus concolor			12	12		5
Optioservus sp.			12	12	12	7
TRICHOPTERA	733	82	372	594	419	440
Arctopsyche grandis	12					2
Brachycentrus americanus	198	35	128	198	186	149
Hydropsyche sp.	488	35	244	384	233	277
Rhyacophila coloradensis gr.	35	12		12		12
DIPTERA	128	71	70	141	140	109
Atherix pachypus	35	47	23	12	70	37
Brillia sp.				12		2
Ceratopogoninae					12	2
Chelifera sp.	58	12	12	35	58	35
Diamesa sp.		12		47		12
Hexatoma sp.			12	23		7
Orthocladius/Cricotopus gr.	35		23	12		14
HYDRACARINA			12		12	4
Lebertia sp.					12	2
Sperchon/Sperchonopsis			12			2
ANNELIDA						
OLIGOCHAETA	105		12			23
Enchytraeidae	93		12			21
Lumbriculidae	12					2

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: DOWNSTREAM OF MILL,
UPSTREAM OF COLUMBINE CREEK
SAMPLED: 03/31/04

TOTAL (#/sq. meter)	1629	212	1107	1911	1352	1239
NUMBER OF TAXA	16	9	14	15	12	27
SHANNON-WEAVER (H')						2.88
TOTAL EPT TAXA	10	6	5	7	7	13
EPT INDEX (% of Total Taxa)	63	67	36	47	58	48
EPHEMEROPTERA ABUNDANCE (% of Total Density)	39	28	55	60	56	52

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: DOWNSTREAM OF CABIN SPRINGS AND
COLUMBINE WELL FIELD
SAMPLED: 03/31/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	454	930	883	1616	1163	1009
Baetis bicaudatus	93	70	23	70	35	58
Baetis tricaudatus	326	558	651	1058	1058	730
Drunella doddsi		35	23			12
Drunella grandis		23		23		9
Rhithrogena hageni	35	244	186	465	70	200
PLECOPTERA		12	47	151	24	46
Amphinemura sp.				12		2
Capniidae			23			5
Doddsia occidentalis					12	2
Prostoia besametsa			12			2
Pteronarcella badia			12	116	12	28
Sweltsa sp.		12		23		7
COLEOPTERA	24	70	105	82		56
Heterolimnius corpulentus			12	23		7
Narpus concolor	12	47	81	12		30
Optioservus sp.	12	23	12	47		19
TRICHOPTERA	232	419	489	1280	965	677
Arctopsyche grandis		12	12	12		7
Brachycentrus americanus	151	174	151	919	593	398
Hydropsyche sp.	81	233	326	314	372	265
Lepidostoma sp. A				35		7
DIPTERA	82	82	187	246	82	133
Atherix pachypus		23	58	93	70	49
Brillia sp.			12			2
Ceratopogoninae				12		2
Chelifera sp.	12	23	12	70		23
Diamesa sp.		12				2
Dicranota sp.				12		2
Eukiefferiella sp.			23			5
Hesperoconopa sp.		12				2
Micropsectra sp.			12	12		5
Orthocladius/Cricotopus gr.	58	12	12	35		23
Unid. Orthocladiinae					12	2
Prosimulium sp.				12		2
Rheocricotopus sp.			58			12
Simulium sp.	12					2
HYDRACARINA	12	12		12		7
Lebertia sp.	12	12		12		7

MACROINVERTEBRATE DENSITY
 CLIENT: MOLYCORP
 SITE: DOWNSTREAM OF CABIN SPRINGS AND
 COLUMBIE WELL FIELD
 SAMPLED: 03/31/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
ANNELIDA						
OLIGOCHAETA		35	12	36	47	26
Enchytraeidae		12		12		5
Nais sp.				12	12	5
Rhynchelmis sp.		23	12	12	35	16
TOTAL (#/sq. meter)	804	1560	1723	3423	2281	1954
NUMBER OF TAXA	11	19	21	25	11	36
SHANNON-WEAVER (H')						2.95
TOTAL EPT TAXA	5	9	10	11	7	15
EPT INDEX (% of Total Taxa)	45	47	48	44	64	42
EPHEMEROPTERA ABUNDANCE (% of Total Density)	56	60	51	47	51	52

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: GOATHILL CAMPGROUND
SAMPLED: 03/31/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	117		116	187	58	95
Baetis tricaudatus	12			35	35	16
Drunella grandis	58		23	47	23	30
Rhithrogena hageni	47		93	105		49
PLECOPTERA			24	349		74
Pteronarcella badia			12	349		72
Sweltsa sp.			12			2
COLEOPTERA	12	12	36	174	12	49
Heterlimnius corpulentus			12	35		9
Narpus concolor	12	12	12	58		19
Optioservus quadrimaculatus			12	81	12	21
TRICHOPTERA	326	663	570	2327	268	830
Arctopsyche grandis				12		2
Brachycentrus americanus	314	651	512	2198	256	786
Hydropsyche sp.	12	12	58	105	12	40
Lepidostoma sp. A				12		2
DIPTERA	407	186	174	1152	291	440
Atherix pachypus	128	93	70	593	58	188
Chelifera sp.			23	151		35
Orthocladius/Cricotopus gr.	279	81	81	349	221	202
Unid. Orthocladiinae				12		2
Parorthocladius sp.				47		9
Rheocricotopus sp.		12				2
Stempellinella sp.					12	2
HYDRACARINA		23	35	12	12	16
Lebertia sp.		23	35	12	12	16
ANNELIDA						
OLIGOCHAETA	12		12	36		12
Enchytraeidae	12			12		5
Nais sp.			12	12		5
Unid. Immature Tubificidae w/ Capilliform Chaetae				12		2
TOTAL (#/sq. meter)	874	884	967	4237	641	1516
NUMBER OF TAXA	9	7	14	20	9	23
SHANNON-WEAVER (H')						2.52
TOTAL EPT TAXA	5	2	6	8	4	9
EPT INDEX (% of Total Taxa)	56	29	43	40	44	39
EPHEMEROPTERA ABUNDANCE (% of Total Density)	13	0	12	4	9	6

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: UPSTREAM OF QUESTA RANGER STATION
SAMPLED: 03/31/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	12	47	12	12		16
<i>Baetis bicaudatus</i>		23				5
<i>Baetis tricaudatus</i>	12	12	12			7
<i>Fallceon quilleri</i>				12		2
<i>Rhithrogena hageni</i>		12				2
PLECOPTERA					24	4
Capniidae					12	2
<i>Pteronarcella badia</i>					12	2
COLEOPTERA	12	12	23	117		33
<i>Heterolimnius corpulentus</i>	12	12		12		7
<i>Narpus concolor</i>			23	105		26
TRICHOPTERA	106	24	12	23	35	39
<i>Arctopsyche grandis</i>	12					2
<i>Brachycentrus americanus</i>	12	12		23	35	16
<i>Hydropsyche</i> sp.	70	12	12			19
<i>Rhyacophila sibirica</i> gr.	12					2
DIPTERA	35	24	12	12	23	20
<i>Antocha</i> sp.	23	12				7
Ceratopogoninae		12				2
<i>Dicranota</i> sp.					23	5
<i>Eukiefferiella</i> sp.	12					2
<i>Pagastia</i> sp.			12			2
<i>Polypedilum</i> sp.				12		2
TURBELLARIA	12					2
<i>Polycelis coronata</i>	12					2
TOTAL (#/sq. meter)	177	107	59	164	82	114
NUMBER OF TAXA	9	8	4	5	4	19
SHANNON-WEAVER (H')						3.50
TOTAL EPT TAXA	5	5	2	2	3	10
EPT INDEX (% of Total Taxa)	56	63	50	40	75	53
EPHEMEROPTERA ABUNDANCE (% of Total Density)	7	44	20	7	0	14

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: UPSTREAM OF HIGHWAY 522
SAMPLED: 03/30/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	350	454	221	582	372	395
<i>Baetis bicaudatus</i>	12	23	12	35		16
<i>Baetis tricaudatus</i>	291	419	174	465	302	330
<i>Drunella grandis</i>	35	12	12	47	70	35
<i>Fallceon quilleri</i>	12					2
<i>Rhithrogena hageni</i>			23	35		12
PLECOPTERA					58	12
<i>Pteronarcella badia</i>					58	12
COLEOPTERA	256	82	93	23	197	130
<i>Narpus concolor</i>		12	35		23	14
<i>Optioservus quadrimaculatus</i>	256	70	58	23	174	116
TRICHOPTERA	477	524	302	628	616	509
<i>Brachycentrus americanus</i>	326	361	186	454	523	370
<i>Hydropsyche</i> sp.	151	151	116	174	93	137
<i>Rhyacophila coloradensis</i> gr.		12				2
DIPTERA	477	152	59	106	139	186
<i>Antocha</i> sp.	12					2
Ceratopogoninae	23	12	12	12		12
<i>Chelifera</i> sp.	198	35	35	47	81	79
<i>Orthocladius/Cricotopus</i> gr.	244	105	12	47	58	93
HYDRACARINA	24	12		12		9
<i>Lebertia</i> sp.	12	12		12		7
<i>Sperchon/Sperchonopsis</i>	12					2
TOTAL (#/sq. meter)	1584	1224	675	1351	1382	1241
NUMBER OF TAXA	13	12	11	11	9	17
SHANNON-WEAVER (H')						2.82
TOTAL EPT TAXA	6	6	6	6	5	9
EPT INDEX (% of Total Taxa)	46	50	55	55	56	53
EPHEMEROPTERA ABUNDANCE (% of Total Density)	22	37	33	43	27	32

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: DOWNSTREAM OF HIGHWAY 522 AND QUESTA WWT
SAMPLED: 03/31/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	593	361	838	547	478	564
Baetis bicaudatus		47	35	47	12	28
Baetis tricaudatus	535	267	698	430	349	456
Drunella grandis		12			12	5
Rhithrogena hageni	58	35	105	70	105	75
PLECOPTERA	116	35	384	35	82	131
Pteronarcella badia	116		326		47	98
Sweltsa sp.		35	58	35	35	33
COLEOPTERA	430	35	581	337	117	300
Narpus concolor	93	35	81	35	35	56
Optioservus divergens	174		267	151	47	128
Optioservus quadrimaculatus	163		233	151	35	116
TRICHOPTERA	547	244	1431	419	117	551
Arctopsyche grandis	12			12	12	7
Brachycentrus americanus	302	116	1210	267	58	391
Culoptila sp.	12					2
Hydropsyche sp.	221	128	186	140	47	144
Lepidostoma sp. A			35			7
DIPTERA	35	141	59	82	82	79
Ceratopogoninae		47			12	12
Chelifera sp.		47	12	35	23	23
Dicranota sp.			12			2
Hexatoma sp.	23	35	23	35	47	33
Muscidae			12			2
Orthocladius/Cricotopus gr.	12	12		12		7
HYDRACARINA	12	23	58	23	23	28
Lebertia sp.	12	23	58	23	23	28
NEMATODA					12	2
Unid. Nematoda					12	2
TOTAL (#/sq. meter)	1733	839	3351	1443	911	1655
NUMBER OF TAXA	13	13	16	14	17	22
SHANNON-WEAVER (H')						3.21
TOTAL EPT TAXA	7	7	8	7	9	11
EPT INDEX (% of Total Taxa)	54	54	50	50	53	50
EPHEMEROPTERA ABUNDANCE (% of Total Density)	34	43	25	38	52	34

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: DOWNSTREAM OF NPDES OUTFALL 002
SAMPLED: 03/30/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	1268	1372	384	1547	1512	1216
Baetis bicaudatus		35			47	16
Baetis tricaudatus	1198	1279	337	1396	1349	1112
Drunella grandis	35	58	35	151	93	74
Rhithrogena hageni	35		12		23	14
PLECOPTERA		35			23	12
Isoperla sp.					23	5
Sweltsa sp.		35				7
COLEOPTERA	930	500	407	640	698	635
Narpus concolor		35	23		23	16
Optioservus divergens			128			26
Optioservus quadrimaculatus	930	465	256	640	675	593
TRICHOPTERA	3757	9199	3629	3139	5117	4967
Brachycentrus americanus	3175	8001	3222	2407	4512	4263
Culoptila sp.		58			23	16
Hydropsyche sp.	582	1140	372	616	582	658
Hydroptila sp.				35		7
Lepidostoma sp. A			35			7
Oecetis avara/disjuncta				81		16
DIPTERA	5141	2279	606	9733	1606	3873
Ceratopogoninae	267		35	81	47	86
Chelifera sp.		58	35	35	47	35
Diamesa sp.	140			616		151
Dicranota sp.	35	35				14
Eukiefferiella sp.	454	605	105	616	349	426
Hexatoma sp.	267	174	163	233	186	205
Orthocladius/Cricotopus gr.	3001	1349	209	7443	954	2591
Unid. Orthoclaadiinae			12			2
Pagastia sp.	605		47	314		193
Parametrioctenemus sp.	302					60
Parorthocladius sp.				314		63
Rheocricotopus sp.		58				12
Simulium sp.	35					7
Tipula sp.	35			81	23	28
HYDRACARINA		35	12			9
Lebertia sp.			12			2
Sperchon/Sperchonopsis		35				7
CRUSTACEA						
AMPHIPODA	35		23	35	23	23
Hyaella azteca	35		23	35	23	23

MACROINVERTEBRATE DENSITY
 CLIENT: MOLYCORP
 SITE: DOWNSTREAM OF NPDES OUTFALL 002
 SAMPLED: 03/30/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
TURBELLARIA	779		12	233		205
Girardia sp.	779		12	233		205
NEMATODA				35		7
Unid. Nematoda				35		7
ANNELIDA						
OLIGOCHAETA	104	35	12	383	23	111
Enchytraeidae		35				7
Limnodrilus sp.	81		12	81	23	39
Ophidonais serpentina				35		7
Unid. Immature Tubificidae w/o Capilliform Chaetae	23			267		58
MOLLUSCA						
GASTROPODA				35		7
Physa/Physella				35		7
TOTAL (#/sq. meter)	12014	13455	5085	15780	9002	11065
NUMBER OF TAXA	20	17	20	23	18	39
SHANNON-WEAVER (H')						2.90
TOTAL EPT TAXA	5	7	6	6	8	12
EPT INDEX (% of Total Taxa)	25	41	30	26	44	31
EPHEMEROPTERA ABUNDANCE (% of Total Density)	11	10	8	10	17	11

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: UPSTREAM OF HATCHERY DIVERSION
SAMPLED: 03/30/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	2339	3047	2606	1861	2175	2404
Baetis bicaudatus	105	267		70	209	130
Baetis tricaudatus	2140	2710	2559	1768	1954	2226
Drunella grandis			47	23	12	16
Epeorus longimanus	12	35				9
Fallceon quilleri	12					2
Paraleptophlebia sp.	70	35				21
PLECOPTERA	163	419	186	198	128	219
Isoperla sp.	163	326	186	198	128	200
Pteronarcella badia		93				19
COLEOPTERA	500	1396	2815	1767	884	1473
Cleptelmis sp.			23			5
Optioservus divergens		70	1396	872		468
Optioservus quadrimaculatus	500	1210	1396	872	826	961
Zaitzevia parvula		116		23	58	39
TRICHOPTERA	965	2675	4070	2489	2384	2518
Brachycentrus americanus	488	1570	1396	721	558	947
Culoptila sp.				93	35	26
Hydropsyche sp.	442	1047	2628	1675	1791	1517
Lepidostoma sp. A	23	58	23			21
Rhyacophila coloradensis gr	12		23			7
DIPTERA	304	3034	1746	1233	976	1458
Atherix pachypus	47	209	582	128	570	307
Ceratopogoninae		58	47		23	26
Chelifera sp.			23	70	23	23
Eukiefferiella sp.	140	1605	849	233	267	619
Hexatoma sp.	12	58	47	163	23	61
Orthocladus/Cricotopus gr.	23	721	140	395	58	267
Unid. Orthocladiinae		81		58		28
Pagastia sp.		81	35	174	12	60
Parametrioctenus sp.	12					2
Rheocricotopus sp.	35	186				44
Simulium sp.	35	35	23			19
Tipula sp.				12		2
HYDRACARINA		70	23	23		23
Lebertia sp.		35				7
Sperchon/Sperchonopsis		35	23	23		16
TURBELLARIA	12	35	47	70		33
Girardia sp.	12	35	47	70		33

MACROINVERTEBRATE DENSITY
 CLIENT: MOLYCORP
 SITE: UPSTREAM OF HATCHERY DIVERSION
 SAMPLED: 03/30/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
NEMATODA	12	35	47			19
Unid. Nematoda	12	35	47			19
ANNELIDA						
OLIGOCHAETA	59	35		47		27
Enchytraeidae				47		9
Ilyodrilus/Tubifex	12					2
Limnodrilus sp.	12					2
Unid. Immature Tubificidae w/o Capilliform Chaetae	35	35				14
TOTAL (#/sq. meter)	4354	10746	11540	7688	6547	8174
NUMBER OF TAXA	23	26	21	21	16	37
SHANNON-WEAVER (H')						3.30
TOTAL EPT TAXA	10	9	7	7	7	13
EPT INDEX (% of Total Taxa)	43	35	33	33	44	35
EPHEMEROPTERA ABUNDANCE (% of Total Density)	54	28	23	24	33	29

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: DOWNSTREAM OF HATCHERY
SAMPLED: 03/31/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	1943	1012	1524	1093	1117	1338
Baetis bicaudatus				23	12	7
Baetis tricaudatus	1931	1000	1512	1058	1082	1317
Drunella grandis		12				2
Epeorus longimanus	12				23	7
Paraleptophlebia sp.			12	12		5
PLECOPTERA	151	116	198	116	105	137
Isoperla sp.	151	116	198	116	105	137
COLEOPTERA	1628	384	12	768	279	614
Narpus concolor	12		12	12		7
Optioservus divergens	500	93				119
Optioservus quadrimaculatus	1116	291		756	279	488
LEPIDOPTERA			12			2
Petrophila sp.			12			2
TRICHOPTERA	722	1524	2944	803	1152	1428
Brachycentrus americanus	384	1000	1617	361	663	805
Culoptila sp.	70	81	47	35	58	58
Dolophilodes sp.		12				2
Hydropsyche sp.	186	419	1268	395	407	535
Lepidostoma sp. A			12			2
Oecetis avara/disjuncta	47				12	12
Rhyacophila coloradensis gr	35	12		12	12	14
DIPTERA	246	211	397	303	187	265
Atherix pachypus		12				2
Caloparyphus sp.	12		12	35	23	16
Ceratopogoninae					12	2
Chelifera sp.			12			2
Diamesa sp.			35			7
Dicranota sp.	105	12	47	81	47	58
Eukiefferiella sp.		23	93			23
Euparyphus sp.	12					2
Hexatoma sp.					12	2
Orthocladus/Cricotopus gr.	35	128	116	35	35	70
Pagastia sp.	23	12	35	58	23	30
Polypedilum sp.		12		35		9
Prosimulium sp.		12				2
Simulium sp.	12		47	47	12	24
Tipula sp.	47			12	23	16
TURBELLARIA	93	105	47	151	105	100
Girardia sp.	93	105	47	151	105	100

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: DOWNSTREAM OF HATCHERY
SAMPLED: 03/31/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
NEMATODA	35			12		9
Unid. Nematoda	35			12		9
ANNELIDA						
OLIGOCHAETA	47	36		94	12	37
Eiseniella tetraedra	12			12	12	7
Limnodrilus sp.		12		12		5
Nais sp.		12				2
Unid. Immature Tubificidae w/o Capilliform Chaetae	35	12		70		23
MOLLUSCA						
GASTROPODA					12	2
Physa/Physella					12	2
TOTAL (#/sq. meter)	4865	3388	5134	3340	2969	3932
NUMBER OF TAXA	22	21	18	22	21	39
SHANNON-WEAVER (H')						3.01
TOTAL EPT TAXA	8	8	7	8	9	13
EPT INDEX (% of Total Taxa)	36	38	39	36	43	33
EPHEMEROPTERA ABUNDANCE (% of Total Density)	40	30	30	33	38	34

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: CABRESTO CREEK
SAMPLED: 09/22/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	989	1256	2257	1441	709	1328
Ameletus sp.		12				2
Baetis bicaudatus	163	244	535	465	163	314
Baetis tricaudatus	267	477	756	593	209	460
Cinygmula sp.	35	23				12
Drunella doddsi	116	267	326	151	47	181
Drunella grandis	12	47		23	23	21
Epeorus sp.		12				2
Ephemerella dorothea	384	174	628	209	267	332
Paraleptophlebia sp.			12			2
Rhithrogena hageni	12					2
PLECOPTERA	163	151	791	82	222	281
Capniidae					12	2
Cultus sp.	12	81	35	12	12	30
Hesperoperla pacifica	70	35	70	47	12	47
Isoperla sp.			58		12	14
Megarcys signata			12			2
Sweltsa sp.	81	23	151		93	70
Zapada cinctipes		12	465	23	81	116
COLEOPTERA	256	186	337	70	303	230
Cleptelmis sp.					12	2
Heterolimnius corpulentus	221	151	302	58	279	202
Optioservus quadrimaculatus	35	35	35	12	12	26
TRICHOPTERA	326	708	1537	350	896	763
Arctopsyche grandis		23	151	35	35	49
Brachycentrus americanus	23	70	361	35	209	140
Dolophilodes sp.	12		384	12		82
Glossosoma sp.			12			2
Hydropsyche sp.	93	395	233	186	140	209
Lepidostoma sp. A	12	23	163		81	56
Micrasema bactro	58	81	58	47	128	74
Oligophlebodes minutus	81	58	93	35	233	100
Rhyacophila brunnea gr.		35	35		70	28
Rhyacophila sibirica gr.	47	23	47			23
DIPTERA	362	606	723	1268	1723	934
Antocha sp.	23	174	35	314	198	149
Ceratopogoninae	23	12	35	12	105	37
Corynoneura sp.	12					2
Cricotopus (N.) nostocicola		233	58	419	256	193
Dicranota sp.	12		58	12	12	19
Eukiefferiella sp.	12		105	174	128	84
Heleniella sp.					93	19
Micropsectra sp.	12		35			9
Neoplasta sp.		35		47	70	30
Unid. Orthocladiinae			12			2
Orthocladius (Euorthocladius) sp.		12				2
Orthocladius/Cricotopus sp.	81	35	12	174	465	153
Pagastia sp.	35	70	35	58	221	84
Parametricnemus sp.					35	7
Pericoma sp.	128	23	151	35	47	77
Psilometricnemus sp.	12					2
Rheotanytarsus sp.			12			2
Simulium sp.		12	93	23		26
Thienemanniella sp.	12		47		93	30
Tvetenia sp.			35			7

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: CABRESTO CREEK
SAMPLED: 09/22/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
HYDRACARINA	24	35	59	23	71	42
Hygrobates sp.					12	2
Lebertia sp.	12	35	12	23	47	26
Sperchon/Sperchonopsis	12		12		12	7
Testudacarus/Torrenticola			35			7
TURBELLARIA	12		12			4
Girardia sp.			12			2
Polycelis coronata	12					2
ANNELIDA						
OLIGOCHAETA		12		23	82	23
Enchytraeidae		12		23	70	21
Nais sp.					12	2
MOLLUSCA						
PELECYPODA	23					5
Sphaerium sp.	23					5
TOTAL (#/sq. meter)	2155	2954	5716	3257	4006	3610
NUMBER OF TAXA	34	33	41	28	38	59
SHANNON-WEAVER (H')						4.68
TOTAL EPT TAXA	17	20	21	14	18	27
EPT INDEX (% of Total Taxa)	50	61	51	50	47	46
EPHEMEROPTERA ABUNDANCE (% of Total Density)	46	43	39	44	18	37

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: COLUMBINE CREEK
SAMPLED: 09/22/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	849	1023	896	1768	1965	1300
Ameletus sp.			12	12		5
Baetis bicaudatus	151	244	233	465	616	342
Baetis tricaudatus	116	267	174	372	267	239
Cinygmula sp.	221	163	174	593	291	288
Drunella coloradensis	35		23			12
Drunella doddsi	12	47	12	81	58	42
Epeorus longimanus	23	23	23	12		16
Ephemerella dorothea	12	128	128	93	47	82
Paraleptophlebia sp.			12			2
Rhithrogena hageni	279	151	105	140	686	272
PLECOPTERA	478	431	430	372	733	489
Capniidae	35	12	23	35	70	35
Hesperoperla pacifica	70	12	58	70	93	61
Isoperla sp.	47	70	35	35	93	56
Sweltsa sp.	233	209	174	151	186	191
Taenionema sp.					12	2
Zapada cinctipes	93	105	128	81	267	135
Zapada oregonensis gr		23	12		12	9
COLEOPTERA	814	721	477	640	500	630
Heterlimnius corpulentus	802	721	454	640	500	623
Optioservus quadrimaculatus	12		23			7
TRICHOPTERA	257	315	281	140	548	310
Arctopsyche grandis	128	128	151	70	267	149
Brachycentrus americanus	35	47	47	12	93	47
Glossosoma sp.	47	23	12		12	19
Hydropsyche sp.	12	12				5
Lepidostoma sp.	12	35	12	12	12	17
Micrasema bacro					12	2
Neothremma sp.		35	12		12	12
Oligophlebodes minutus			23			5
Rhyacophila brunnea gr.	23	12	12	23	70	28
Rhyacophila sibirica gr.		23		23	58	21
Rhyacophila sp.			12		12	5
DIPTERA	59	71	47	35	175	77
Ceratopogoninae			12	23		7
Dicranota sp.	12	12		12		7
Eukiefferiella sp.		12			12	5
Hexatoma sp.					35	7
Orthocladius (Euorthocladius) sp.	12					2
Pagastia sp.			23			5
Rhabdomastix sp.	12	12	12			7
Simulium sp.	23	23			128	35
Tvetenia sp.		12				2
TURBELLARIA				12		2
Girardia sp.				12		2

MACROINVERTEBRATE DENSITY
 CLIENT: MOLYCORP
 SITE: COLUMBINE CREEK
 SAMPLED: 09/22/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
ANNELIDA						
OLIGOCHAETA	1198	489	140	291	1279	680
Eiseniella tetraedra	1186	477		291	989	589
Enchytraeidae					174	35
Lumbriculidae		12	140		116	54
Unid. Immature Tubificidae w/o Capilliform Chaetae	12					2
TOTAL (#/sq. meter)	3655	3050	2271	3258	5200	3488
NUMBER OF TAXA	27	29	30	23	29	44
SHANNON-WEAVER (H')						3.95
TOTAL EPT TAXA	19	21	24	18	22	28
EPT INDEX (% of Total Taxa)	70	72	80	78	76	64
EPHEMEROPTERA ABUNDANCE (% of Total Density)	23	34	39	54	38	37

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: UPSTREAM OF TOWN RED RIVER
SAMPLED: 09/20/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPEHEMEROPTERA	280	710	501	360	466	463
Baetis bicaudatus	128	279	174	151	186	184
Baetis tricaudatus	140	361	291	174	233	240
Drunella doddsi	12	47	12	35		21
Epeorus longimanus			12			2
Ephemerella dorothea			12		35	9
Rhithrogena hageni		23			12	7
PLECOPTERA	35	326	58	81	93	118
Capniidae		12				2
Leuctridae	12				12	5
Sweltsa sp.	23	314	58	81	81	111
COLEOPTERA	93	256	93	35	128	121
Heterlimnius corpulentus	81	233	93	35	128	114
Optioservus quadrimaculatus	12	23				7
TRICHOPTERA	47	94	71	70	175	90
Arctopsyche grandis				12		2
Brachycentrus americanus	12	70	47	58	163	70
Lepidostoma sp.	12		12		12	7
Rhyacophila sibirica gr.	23	12	12			9
Rhyacophila sp.		12				2
DIPTERA	419	2187	1025	1745	2212	1519
Ceratopogoninae	23	23		35	12	19
Conchapelopia/Thienemannimyia gr.		12			12	5
Cricotopus sp.	35		47		81	33
Dicranota sp.		23			12	7
Eukiefferiella sp.	23	163	35	70	58	70
Limnophila sp.		12		12	12	7
Micropsectra sp.		128	12		163	61
Neoplasta sp.				23		5
Orthocladius (Euorthocladius) sp.			12			2
Orthocladius/Cricotopus sp.		23	47	12	47	26
Pagastia sp.					12	2
Pericoma sp.	47	779	151	395	279	330
Phaenopsectra sp.	23	12			58	19
Polypedilum sp.					12	2
Psilometriocnemus sp.	35					7
Simulium sp.	233	1012	721	1140	1442	910
Tvetenia sp.				58	12	14
HYDRACARINA	23	81	58	47	117	64
Hygrobates sp.					12	2
Lebertia sp.	23	81	58	47	93	60
Sperchon/Sperchonopsis					12	2
TURBELLARIA		47			35	16
Polycelis coronata		47			35	16

MACROINVERTEBRATE DENSITY
 CLIENT: MOLYCORP
 SITE: UPSTREAM OF TOWN RED RIVER
 SAMPLED: 09/20/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
NEMATODA						12
Unid. Nematoda						12
ANNELIDA						
OLIGOCHAETA	303	302	47	396	209	252
Eiseniella tetraedra				12		2
Enchytraeidae	12				12	5
Nais bretscheri	12	35				81
Nais sp.	279	267	47	384	116	219
TOTAL (#/sq. meter)	1200	4003	1853	2734	3447	2645
NUMBER OF TAXA	21	25	19	18	31	42
SHANNON-WEAVER (H')						3.50
TOTAL EPT TAXA	8	9	9	6	8	14
EPT INDEX (% of Total Taxa)	38	36	47	33	26	33
EPHEMEROPTERA ABUNDANCE (% of Total Density)	23	18	27	13	14	18

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: JUNE BUG CAMPGROUND
SAMPLED: 09/23/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	906	1232	1233	395	1558	1065
<i>Baetis bicaudatus</i>	93	314	361	58	570	279
<i>Baetis tricaudatus</i>	244	430	454	116	616	372
<i>Drunella doddsi</i>	23					5
<i>Drunella grandis</i>	267	314	302	221	279	277
<i>Rhithrogena hageni</i>	279	174	116		93	132
PLECOPTERA	140	58	59	47	221	104
Capniidae			12			2
<i>Pteronarcella badia</i>	12					2
<i>Sweltsa</i> sp.	128	58	47	47	221	100
COLEOPTERA	23		23	58	93	39
<i>Heterolimnius corpulentus</i>	23		23	58	81	37
<i>Narpus concolor</i>					12	2
TRICHOPTERA	373	292	292	349	1280	516
<i>Arctopsyche grandis</i>	105	58	47	12	70	58
<i>Brachycentrus americanus</i>	256	198	221	302	1186	433
<i>Glossosoma</i> sp.			12			2
<i>Hydropsyche</i> sp.	12				12	5
<i>Lepidostoma</i> sp.		12		12	12	7
<i>Rhyacophila coloradensis</i> gr			12	23		7
<i>Rhyacophila sibirica</i> gr.		12				2
<i>Rhyacophila</i> sp.		12				2
DIPTERA	943	791	640	338	559	654
<i>Brillia</i> sp.	47					9
Ceratopogoninae			12		12	5
<i>Dicranota</i> sp.	23	12	23		23	16
<i>Eukiefferiella</i> sp.	23		35			12
<i>Hexatoma</i> sp.	23				12	7
<i>Micropsectra</i> sp.					23	5
<i>Neoplasta</i> sp.			12			2
Unid. Orthocladiinae			12	12		5
<i>Orthocladius/Cricotopus</i> sp.	12	12		35	35	19
<i>Pagastia</i> sp.	47	128	81	70	70	79
<i>Psilometriocnemus</i> sp.		23		116	58	39
<i>Simulium</i> sp.	768	616	442	105	326	451
<i>Tvetenia</i> sp.			23			5
HYDRACARINA	23	58	47	82		41
<i>Hygrobates</i> sp.				12		2
<i>Lebertia</i> sp.	23	58	47	58		37
<i>Sperchon/Sperchonopsis</i>				12		2
TOTAL (#/sq. meter)	2408	2431	2294	1269	3711	2419
NUMBER OF TAXA	19	16	20	17	19	34
SHANNON-WEAVER (H')						3.44
TOTAL EPT TAXA	10	10	10	8	9	16
EPT INDEX (% of Total Taxa)	53	63	50	47	47	47
EPHEMEROPTERA ABUNDANCE (% of Total Density)	38	51	54	31	42	44

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: DOWNSTREAM OF ELEPHANT ROCK
ROCK CAMPGROUND, UPSTREAM
FROM HANSEN CREEK
SAMPLED: 09/23/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPEHEMEROPTERA	931	1432	733	1732	419	1049
Baetis bicaudatus	81	12	47	93	12	49
Baetis tricaudatus	756	1198	628	1314	302	840
Drunella doddsi	12					2
Drunella grandis	47	140	58	267	105	123
Ephemera dorothea		12				2
Rhithrogena hageni	35	70		58		33
PLECOPTERA	116	35	35	174		72
Pteronarcella badia		12				2
Sweltsa sp.	116	23	35	174		70
COLEOPTERA	47	24	12		59	27
Heterolimnius corpulentus	12					2
Narpus concolor					12	2
Optioservus quadrimaculatus	35	12	12		47	21
Zaitzevia parvula		12				2
TRICHOPTERA	687	919	1384	1861	326	1036
Arctopsyche grandis	58	81	35	93	12	56
Brachycentrus americanus	605	814	1337	1663	314	947
Hydropsyche sp.		12	12	35		12
Lepidostoma sp.	12	12		35		12
Rhyacophila coloradensis gr	12			35		9
DIPTERA	2048	1709	2306	3511	743	2064
Antocha sp.				35	12	9
Atherix pachypus	93	81	12	58	81	65
Ceratopogoninae	12	35	35	267		70
Cricotopus sp.			12	81		19
Dicranota sp.	12				12	5
Eukiefferiella sp.	140	128	140	81		98
Micropsectra sp.	163	93	81	70	58	93
Neoplasta sp.	93	81	35	174	23	81
Unid. Orthocladiinae			12			2
Orthocladius (Euorthocladius) sp.	93	163	140	465	35	179
Orthocladius/Cricotopus sp.	47	93	58	314	58	114
Pagastia sp.	128	128	140	81		95
Parametriochnemus sp.	81	81		233	23	84
Polypedilum sp.	23					5
Psilometriochnemus sp.	93	198	12	768	23	219
Simulium sp.	1070	535	1570	675	395	849
Synorthocladius sp.		93	12	81		37
Tvetenia sp.			47	128	23	40
HYDRACARINA	163	140	82	174	12	114
Lebertia sp.	128	140	70	174	12	105
Sperchon/Sperchonopsis	35		12			9

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: DOWNSTREAM OF ELEPHANT ROCK
ROCK CAMPGROUND, UPSTREAM
FROM HANSEN CREEK
SAMPLED: 09/23/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE	
NEMATODA						35	7
Unid. Nematoda						35	7
ANNELIDA							
OLIGOCHAETA	931	1035	280	3990	82		1264
Enchytraeidae	47		12		12		14
Nais bretscheri			12	140	12		33
Nais sp.	884	1035	256	3850	58		1217
MOLLUSCA							
GASTROPODA	93	35		35	23		37
Fossaria sp.	70	12		35			23
Gyraulus sp.	23	23			23		14
TOTAL (#/sq. meter)	5016	5329	4832	11477	1699		5670
NUMBER OF TAXA	31	29	27	29	24		43
SHANNON-WEAVER (H')							3.69
TOTAL EPT TAXA	10	11	7	10	5		13
EPT INDEX (% of Total Taxa)	32	38	26	34	21		30
EPHEMEROPTERA ABUNDANCE (% of Total Density)	19	27	15	15	25		19

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: DOWNSTREAM OF HANSEN CREEK,
UPSTREAM OF MILL
SAMPLED: 09/29/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
Ephemeroptera	186	199	372	175	872	361
Baetis bicaudatus	58	47	174	70	209	112
Baetis tricaudatus	81	105	163	105	488	188
Drunella grandis	35	35	35		163	54
Rhithrogena hageni	12	12			12	7
Plecoptera				12	35	9
Leuctridae				12		2
Sweltsa sp.					35	7
Coleoptera	47		35		36	24
Heterolimnius corpulentus	12				12	5
Narpus concolor			12		12	5
Optioservus sp.	35		23		12	14
Trichoptera	408	478	268	640	2664	892
Arctopsyche grandis	12	12				5
Brachycentrus americanus	291	454	233	570	2582	826
Hydropsyche sp.	58	12	23	47	70	42
Rhyacophila coloradensis gr	47		12	23	12	19
Diptera	59	47	432	384	386	258
Atherix pachypus	12		12	128	70	44
Diamesa sp.					12	2
Dicranota sp.			12			2
Hesperoconopa sp.		12				2
Neoplasta sp.		12	35		35	16
Unid. Orthoclaadiinae					12	2
Orthocladius (Symposiocladius) sp.			12			2
Pagastia sp.			12		12	5
Pericoma sp.					12	2
Psilometriocnemus sp.	47	23	337	256	221	177
Rhabdomastix sp.					12	2
Simulium sp.			12			2
Hydracarina	12	12	12	23	152	42
Lebertia sp.	12	12	12	23	140	40
Sperchon/Sperchonopsis					12	2
CRUSTACEA						
Amphipoda	12					2
Hyalella azteca	12					2

MACROINVERTEBRATE DENSITY
 CLIENT: MOLYCORP
 SITE: DOWNSTREAM OF HANSEN CREEK,
 UPSTREAM OF MILL
 SAMPLED: 09/29/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
ANNELEIDA						
OLIGOCHAETA			12		23	7
Enchytraeidae			12			2
Nais bretscheri					23	5
TOTAL (#/sq. meter)	724	736	1131	1234	4168	1595
NUMBER OF TAXA	14	11	17	9	22	30
SHANNON-WEAVER (H')						2.60
TOTAL EPT TAXA	8	7	6	6	8	10
EPT INDEX (% of Total Taxa)	57	64	35	67	36	33
EPHEMEROPTERA ABUNDANCE (% of Total Density)	26	27	33	14	21	23

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: DOWNSTREAM OF MINE SITE
BOUNDARY, UPSTREAM OF MILL
SAMPLED: 09/29/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	396	303	128	338	511	336
Baetis bicaudatus	140	70	23	105	128	93
Baetis tricaudatus	186	81	58	151	267	149
Drunella grandis	70	105	47	70	116	82
Rhithrogena hageni		47		12		12
PLECOPTERA		12	12		12	7
Paraleuctra sp.					12	2
Sweltsa sp.		12	12			5
COLEOPTERA	47	36	24		12	23
Heterolimnius corpulentus	12	12	12			7
Narpus concolor	23	12			12	9
Optioservus sp.	12	12	12			7
TRICHOPTERA	640	430	163	383	792	481
Arctopsyche grandis	23	81		23	47	35
Brachycentrus americanus	512	326	128	244	407	323
Hydropsyche sp.	105	23	35	116	326	121
Rhyacophila sp.					12	2
DIPTERA	210	244	70	117	443	215
Antocha sp.			12			2
Atherix pachypus	58	23		47	23	30
Dicranota sp.	12				23	7
Eukiefferiella sp.					12	2
Limnophila sp.	12					2
Micropsectra sp.					12	2
Neoplasta sp.	35	23		12	12	16
Pagastia sp.			23			5
Parametricnemus sp.					12	2
Psilometricnemus sp.	93	198	35	58	349	147
HYDRACARINA	82	12	35		23	31
Lebertia sp.	70		35		23	26
Sperchon/Sperchonopsis	12	12				5
ANNELIDA						
OLIGOCHAETA	35	47	12	12	23	25
Enchytraeidae	12		12			5
Nais bretscheri		12				2
Nais sp.		12				2
Rhynchelmis sp.	23	23		12	23	16
TOTAL (#/sq. meter)	1410	1084	444	850	1816	1118
NUMBER OF TAXA	18	18	13	11	18	29
SHANNON-WEAVER (H')						3.36
TOTAL EPT TAXA	6	8	6	7	8	10
EPT INDEX (% of Total Taxa)	33	44	46	64	44	34
EPHEMEROPTERA ABUNDANCE (% of Total Density)	28	28	29	40	28	30

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: DOWNSTREAM OF MILL,
UPSTREAM OF COLUMBINE CREEK
SAMPLED: 09/29/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	803	790	606	896	1093	837
Baetis bicaudatus	47	116	47	174	395	156
Baetis tricaudatus	500	488	477	547	570	516
Drunella doddsi			12			2
Drunella grandis	140	151	47	140	81	112
Rhithrogena hageni	116	35	23	35	47	51
PLECOPTERA	12		12			4
Leuctridae	12					2
Sweltsa sp.			12			2
COLEOPTERA		23	12	23	152	42
Narpus concolor					12	2
Optioservus sp.		23	12	23	140	40
TRICHOPTERA	267	489	395	314	418	377
Arctopsyche grandis		12				2
Brachycentrus americanus	174	384	302	209	267	267
Hydropsyche sp.	58	35	58	93	116	72
Rhyacophila coloradensis gr	35	35	23		35	26
Rhyacophila sibirica gr.			12	12		5
Rhyacophila sp.		23				5
DIPTERA	363	536	396	337	419	408
Atherix pachypus	47	47	70	93	267	105
Diamesa sp.	12					2
Dicranota sp.	12					2
Eukiefferiella sp.			23	12	35	14
Hexatoma sp.			12			2
Micropsectra sp.	12					2
Neoplasta sp.	12	23	35	58	35	33
Pagastia sp.					12	2
Polypedilum sp.			12			2
Psilometriocnemus sp.	256	454	221	174	70	235
Rheocricotopus sp.		12				2
Simulium sp.	12					2
Unid. Orthocladiinae			23			5
HYDRACARINA	12	23	35	12	105	37
Lebertia sp.	12	23	35	12	105	37
NEMATODA	12		35	23		14
Unid. Nematoda	12		35	23		14

MACROINVERTEBRATE DENSITY
 CLIENT: MOLYCORP
 SITE: DOWNSTREAM OF MILL,
 UPSTREAM OF COLUMBINE CREEK
 SAMPLED: 09/29/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
ANNELEIDA						
OLIGOCHAETA	35	70		23	12	28
Enchytraeidae	12	47		23	12	19
Nais sp.	23	23				9
TOTAL (#/sq. meter)	1504	1931	1491	1628	2199	1747
NUMBER OF TAXA	19	17	20	15	16	32
SHANNON-WEAVER (H')						3.35
TOTAL EPT TAXA	8	9	10	7	7	13
EPT INDEX (% of Total Taxa)	42	53	50	47	44	41
EPHEMEROPTERA ABUNDANCE (% of Total Density)	53	41	41	55	50	48

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: DOWNSTREAM OF CABIN SPRINGS
AND COLUMBINE WELL FIELD
SAMPLED: 09/27/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	860	663	397	570	1325	763
Baetis bicaudatus	314	221	70	116	384	221
Baetis tricaudatus	372	395	256	302	558	377
Drunella doddsi	23	12	12	12	23	16
Drunella grandis	93	23	12	93	209	86
Rhithrogena hageni	58	12	47	47	151	63
PLECOPTERA	47	12	70	12	81	45
Capniidae					23	5
Pteronarcella badia					23	5
Sweltsa sp.	47	12	70	12	35	35
COLEOPTERA	116	23	81	35	209	93
Narpus concolor	58		23	12	35	26
Optioservus quadrimaculatus	58	23	58	23	174	67
TRICHOPTERA	268	198	140	362	1942	582
Arctopsyche grandis	47	47			81	35
Brachycentrus americanus	116	70	70	291	1186	347
Hydropsyche sp.	93	58	70	47	582	170
Rhyacophila coloradensis gr.				12	58	14
Rhyacophila sibirica gr.				12		2
Rhyacophila sp.	12	23			35	14
DIPTERA	861	267	640	211	2058	807
Atherix pachypus	105	70	58	35	140	82
Dicranota sp.			12			2
Eukiefferiella sp.					23	5
Hexatoma sp.			12			2
Micropsectra sp.	12		12	12		7
Neoplasta sp.	23	23	35			16
Unid. Orthocladiinae					23	5
Orthocladius/Cricotopus sp.				12		2
Pagastia sp.					35	7
Psilometriocnemus sp.	256	58	395	140	151	200
Simulium sp.	465	116	116	12	1686	479
HYDRACARINA	12	12		35	58	24
Lebertia sp.		12		23	58	19
Sperchon/Sperchonopsis	12			12		5
NEMATODA			12			2
Unid. Nematoda			12			2

MACROINVERTEBRATE DENSITY
 CLIENT: MOLYCORP
 SITE: DOWNSTREAM OF CABIN SPRINGS
 AND COLUMBINE WELL FIELD
 SAMPLED: 09/27/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
ANNELIDA						
OLIGOCHAETA	152	23	187	35	23	85
Enchytraeidae	12		12			5
Lumbriculidae				23		5
Nais sp.	105	23	105			47
Rhynchelmis sp.	35		70	12	23	28
TOTAL (#/sq. meter)	2316	1198	1527	1260	5696	2401
NUMBER OF TAXA	21	17	21	21	23	34
SHANNON-WEAVER (H')						3.69
TOTAL EPT TAXA	10	10	8	10	13	14
EPT INDEX (% of Total Taxa)	48	59	38	48	57	41
EPHEMEROPTERA ABUNDANCE (% of Total Density)	37	55	26	45	23	32

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: GOATHILL CAMPGROUND
SAMPLED: 09/21/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	384	1046	616	837	909	758
Baetis bicaudatus	12	244	128	209	47	128
Baetis tricaudatus	209	547	267	523	582	426
Drunella grandis	12	174	198	105	233	144
Rhithrogena hageni	151	81	23		47	60
PLECOPTERA		12				2
Pteronarcella badia		12				2
COLEOPTERA	58	24	94	58	47	57
Narpus concolor	23				12	7
Optioservus divergens	12	12	47	35	12	24
Optioservus quadrimaculatus	23	12	47	23	23	26
TRICHOPTERA	616	710	1372	1011	838	909
Arctopsyche grandis	23			23		9
Brachycentrus americanus	512	663	1198	837	791	800
Hydropsyche sp.	81	47	174	151	47	100
DIPTERA	304	525	292	257	385	349
Antocha sp.			12			2
Atherix pachypus	233	267	93	81	233	181
Ceratopogoninae	12	12		12		7
Cricotopus sp.		12				2
Eukiefferiella sp.		12	23	35	12	16
Hesperoconopa sp.			12			2
Micropsectra sp.				35		7
Neoplasta sp.	12	70	12		23	23
Odontomesa sp.			12			2
Orthocladius (Euorthocladius) sp.		12				2
Orthocladius/Cricotopus sp.		70	23	12	35	28
Pagastia sp.	23	35	81		35	35
Parametricnemus sp.				12		2
Psilometricnemus sp.	12			35	35	16
Simulium sp.	12	35	12	23	12	19
Tvetenia sp.			12	12		5
HYDRACARINA	12	12		35		12
Lebertia sp.	12	12		35		12
ANNELIDA						
OLIGOCHAETA		12		23		7
Enchytraeidae		12				2
Nais sp.				23		5
TOTAL (#/sq. meter)	1374	2341	2374	2221	2179	2094
NUMBER OF TAXA	17	20	18	19	16	30
SHANNON-WEAVER (H')						3.02
TOTAL EPT TAXA	7	7	6	6	6	8
EPT INDEX (% of Total Taxa)	41	35	33	32	38	27
EPHEMEROPTERA ABUNDANCE (% of Total Density)	28	45	26	38	42	36

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: UPSTREAM OF QUESTA RANGER STATION
SAMPLED: 09/21/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	164	326	151	152	361	231
Baetis bicaudatus	12	23	35	35	58	33
Baetis tricaudatus	140	279	116	105	256	179
Drunella grandis		12				2
Rhithrogena hageni	12	12		12	47	17
PLECOPTERA			12	12	24	9
Capniidae					12	2
Leuctridae			12	12		5
Pteronarcella badia					12	2
COLEOPTERA	24	23	12	12	70	28
Heterlimnius corpulentus			12			2
Narpus concolor	12			12	12	7
Optioservus quadrimaculatus	12	23			58	19
TRICHOPTERA	186	163	82	35	732	240
Arctopsyche grandis	23				58	16
Brachycentrus americanus	151	140	35	35	593	191
Hydropsyche sp.	12	23	47		81	33
DIPTERA	23	36	24	106	23	41
Atherix pachypus				12		2
Caloparyphus sp.	23			12		7
Eukiefferiella sp.		12		12		5
Hexatoma sp.				12		2
Orthocladius/Cricotopus sp.		12				2
Psilometriocnemus sp.		12		58	23	19
Simulium sp.			12			2
Tvetenia sp.			12			2
HYDRACARINA	12					2
Lebertia sp.	12					2
TOTAL (#/sq. meter)	409	548	281	317	1210	551
NUMBER OF TAXA	10	10	8	11	11	22
SHANNON-WEAVER (H')						2.76
TOTAL EPT TAXA	6	6	5	5	8	10
EPT INDEX (% of Total Taxa)	60	60	63	45	73	45
EPHEMEROPTERA ABUNDANCE (% of Total Density)	40	59	54	48	30	42

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: UPSTREAM OF HIGHWAY 522
SAMPLED: 09/24/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	616	535	837	629	547	634
Baetis bicaudatus	23	12	35	47	23	28
Baetis tricaudatus	174	128	279	198	349	226
Drunella grandis	186	372	314	93	128	219
Rhithrogena hageni	233	23	209	291	47	161
PLECOPTERA	23	12	81	163	12	58
Pteronarcella badia	23	12	81	116	12	49
Sweltsa sp.				47		9
COLEOPTERA		70	93	35	24	44
Narpus concolor		35	35		12	16
Optioservus divergens		23	35	12		14
Optioservus quadrimaculatus		12	23	23	12	14
TRICHOPTERA	488	675	1140	1349	221	774
Arctopsyche grandis	12		12	12		7
Brachycentrus americanus	302	314	616	535	163	386
Hydropsyche sp.	174	361	512	802	58	381
DIPTERA	315	548	582	815	340	519
Atherix pachypus	58	81	47	12	12	42
Brillia sp.				23		5
Ceratopogoninae			23	23	12	12
Cricotopus sp.					12	2
Dicranota sp.				12		2
Eukiefferiella sp.	70	23	81	81		51
Hexatoma sp.	23	12	47	12	12	21
Limnophyes sp.			12			2
Micropsectra sp.		12	12	105	12	28
Neoplasta sp.	12	58	35	58	35	40
Odontomesa sp.		12				2
Unid. Orthoclaadiinae		35				7
Orthocladus/Cricotopus sp.	12	70	81	140	81	77
Pagastia sp.	93	198	151	163	140	149
Parametricnemus sp.					12	2
Protanyderus margarita	12	12	23	12	12	14
Psilometricnemus sp.				58		12
Simulium sp.	35	35	58	81		42
Tvetenia sp.			12	35		9
HYDRACARINA		24			24	10
Lebertia sp.		12			12	5
Sperchon/Sperchonopsis		12			12	5
ANNELIDA						
OLIGOCHAETA			35	47		16
Enchytraeidae			12			2
Nais sp.			23	47		14

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: UPSTREAM OF HIGHWAY 522
SAMPLED: 09/24/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
MOLLUSCA						
GASTROPODA			12			2
Fossaria sp.			12			2
TOTAL (#/sq. meter)	1442	1864	2780	3038	1168	2057
NUMBER OF TAXA	16	23	26	26	21	36
SHANNON-WEAVER (H')						3.77
TOTAL EPT TAXA	8	7	8	9	7	9
EPT INDEX (% of Total Taxa)	50	30	31	35	33	25
EPHEMEROPTERA ABUNDANCE (% of Total Density)	43	29	30	21	47	31

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: DOWNSTREAM OF HIGHWAY
522 AND QUESTA WWTP
SAMPLED: 09/28/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	1315	1441	709	1210	1350	1205
Baetis bicaudatus	35	81	70	47	70	61
Baetis tricaudatus	454	663	430	454	675	535
Drunella grandis	628	616	151	709	593	539
Rhithrogena hageni	198	81	58		12	70
PLECOPTERA	198	164	93	93	70	124
Capniidae	35	12				9
Pteronarcella badia	151	105	81	58	58	91
Sweltsa sp.	12	47	12	35	12	24
COLEOPTERA	314	187	59	326	326	242
Narpus concolor	47	47	12	105	58	54
Optioservus divergens					12	2
Optioservus quadrimaculatus	267	140	47	209	256	184
Oreodytes sp.				12		2
TRICHOPTERA	3222	1547	628	1860	1198	1690
Arctopsyche grandis	70	12	12	23		23
Brachycentrus americanus	1640	849	302	1651	1058	1100
Culoptila sp.			12			2
Glossosoma sp.				23		5
Hydropsyche sp.	1500	686	302	151	93	546
Lepidostoma sp.	12			12	47	14
DIPTERA	817	351	280	583	712	548
Ceratopogoninae	47			35	47	26
Conchapelopia/Thienemannimyia gr.	12				12	5
Dicranota sp.					12	2
Diplocladius sp.				12		2
Eukiefferiella sp.	233	47	116	198	186	156
Hexatoma sp.	35	12	35	23	47	30
Micropsectra sp.	58				70	26
Neoplasta sp.	47	35	23	35	23	33
Unid. Orthocladiinae	12			140		30
Orthocladius (Euorthocladius) sp.		12	12			5
Orthocladius/Cricotopus sp.	186	93	70	81	116	109
Pagastia sp.	93	58	12	47	128	68
Parametrioconemus sp.	12	12			12	7
Protanyderus sp.	12			12		5
Psilometrioconemus sp.		12			47	12
Simulium sp.	70	58	12		12	30
Tvetenia sp.		12				2
HYDRACARINA	12	58	12	46	12	28
Lebertia sp.	12	35		23	12	16
Sperchon/Sperchonopsis		23	12	23		12

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: DOWNSTREAM OF HIGHWAY
522 AND QUESTA WWTP
SAMPLED: 09/28/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
ANNELEIDA						
OLIGOCHAETA	47	58	35	105	221	93
Nais sp.	47	58	35	105	221	93
MOLLUSCA						
GASTROPODA		23	47	93	12	35
Fossaria sp.		23	35	93	12	33
Gyraulus sp.			12			2
TOTAL (#/sq. meter)	5925	3829	1863	4316	3901	3965
NUMBER OF TAXA	27	26	23	26	27	39
SHANNON-WEAVER (H')						3.54
TOTAL EPT TAXA	11	10	10	10	9	13
EPT INDEX (% of Total Taxa)	41	38	43	38	33	33
EPHEMEROPTERA ABUNDANCE (% of Total Density)	22	38	38	28	35	30

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: DOWNSTREAM OF NPDES
OUTFALL 002
SAMPLED: 09/28/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	1210	1745	1628	1570	1466	1524
Ameletus sp.					35	7
Baetis tricaudatus	698	1047	930	791	675	828
Drunella grandis	512	698	698	698	698	661
Paraleptophlebia sp.				81		16
Rhithrogena hageni					58	12
PLECOPTERA	47	233		244	174	139
Pteronarcella badia				93	174	53
Sweltsa sp.	47	233		151		86
COLEOPTERA	744	1512	872	162	709	801
Heterolimnius corpulentus				81		16
Narpus concolor	23					5
Optioservus divergens	698	1279	698	81	372	626
Optioservus quadrimaculatus		233	174		337	149
Zaitzevia parvula	23					5
TRICHOPTERA	7676	27912	14130	18235	10572	15706
Arctopsyche grandis	81	233	58	93	93	112
Brachycentrus americanus	3617	14421	5757	9071	5117	7597
Culoptila sp.	47					9
Hydropsyche sp.	3931	13258	8257	9071	5327	7969
Lepidostoma sp.			58		35	19
DIPTERA	1746	9537	4593	6385	1305	4713
Ceratopogoninae	105	349	174	233	35	179
Conchapelopia/Thienemannimyia gr				198		40
Dicranota sp.	23					5
Eukiefferiella sp.	930	4303	2942	3059	582	2363
Hexatoma sp.	47	116	58	244	35	100
Micropsectra sp.	47			186		47
Neoplasta sp.		233		81	70	77
Unid. Orthocladiinae					47	9
Orthocladius/Cricotopus sp.	93	1442	826	965	81	681
Pagastia sp.		279		198	47	105
Parametrioctenus sp.		279			47	65
Psilometrioctenus sp.				186		37
Rheotanytarsus sp.					47	9
Simulium sp.	128	233	174	81		123
Synorthocladius sp.	47			186		47
Tvetenia sp.	326	2303	419	768	314	826
HYDRACARINA		581	58	81	35	151
Lebertia sp.		465		81	35	116
Sperchon/Sperchonopsis		116	58			35
TURBELLARIA	128	116			116	72
Girardia sp.	128	116			116	72

MACROINVERTEBRATE DENSITY
 CLIENT: MOLYCORP
 SITE: DOWNSTREAM OF NPDES
 OUTFALL 002
 SAMPLED: 09/28/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
NEMATODA	23					5
Unid. Nematoda	23					5
ANNELIDA						
OLIGOCHAETA	151	116		233		100
Nais sp.	151	116		233		100
MOLLUSCA						
GASTROPODA		116			35	30
Fossaria sp.		116			35	30
TOTAL (#/sq. meter)	11725	41868	21281	26910	14412	23241
NUMBER OF TAXA	22	22	15	24	24	39
SHANNON-WEAVER (H')						2.77
TOTAL EPT TAXA	7	6	6	8	9	12
EPT INDEX (% of Total Taxa)	32	27	40	33	38	31
EPHEMEROPTERA ABUNDANCE (% of Total Density)	10	4	8	6	10	7

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: UPSTREAM OF HATCHERY DIVERSION
SAMPLED: 09/23/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
EPHEMEROPTERA	1954	2000	1384	1418	1058	1563
Baetis bicaudatus	58	35	23	93	70	56
Baetis tricaudatus	1047	1221	919	1023	733	989
Cinygmula sp.		35	256			58
Drunella doddsi				35		7
Drunella grandis	698	407	186	174	174	328
Paraleptophlebia sp.	93	35		58		37
Rhithrogena hageni	58	267		35	81	88
PLECOPTERA	186	174	23	81	47	103
Isoperla sp.				23		5
Pteronarcella badia	151	116	23	23	47	72
Sweltsa sp.	35	58		35		26
COLEOPTERA	4094	2395	1023	1465	699	1935
Narpus concolor	35				12	9
Optioservus divergens	1058	430	500	535	140	533
Optioservus quadrimaculatus	3001	1849	500	872	547	1354
Zaitzevia parvula		116	23	58		39
TRICHOPTERA	500	1233	966	547	966	842
Brachycentrus americanus	233	500	337	198	314	316
Culoptila sp.			58		12	14
Hydropsyche sp.	174	698	547	349	605	475
Lepidostoma sp.	93	35			12	28
Neothremma sp.			12			2
Rhyacophila coloradensis gr			12		23	7
DIPTERA	2757	6199	2373	2166	2072	3111
Atherix pachypus	384	989	826	291	477	593
Ceratopogoninae	58					12
Cricotopus sp.	70					14
Eukiefferiella sp.	942	2070	500	989	256	951
Hexatoma sp.	93	58	23		12	37
Micropsectra sp.	209	372		140	12	147
Neoplasta sp.	35		12			9
Odontomesa sp.				47		9
Unid. Orthocladiinae				47		9
Orthocladus/Cricotopus sp.	209	605	35			170
Pagastia sp.	140				12	30
Parametricnemus sp.				47		9
Polypedilum sp.			23		12	7
Rheocricotopus sp.	70					14
Rheotanytarsus sp.	70					14
Simulium sp.	93	1628	942	465	1221	870
Stempellinella sp.	70					14
Synorthocladus sp.	70					14
Thienemanniella sp.				47		9
Tipula sp.	35		12			9
Tvetenia sp.	209	477		93	70	170

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: UPSTREAM OF HATCHERY DIVERSION
SAMPLED: 09/23/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
HYDRACARINA	58					12
Sperchon/Sperchonopsis	58					12
CRUSTACEA						
AMPHIPODA	35					7
Hyalella azteca	35					7
TURBELLARIA		58		23	12	19
Girardia sp.		58		23	12	19
NEMATODA	35			23		12
Unid. Nematoda	35			23		12
ANNELIDA						
OLIGOCHAETA			12			2
Nais sp.			12			2
TOTAL (#/sq. meter)	9619	12059	5781	5723	4866	7608
NUMBER OF TAXA	32	22	22	25	23	46
SHANNON-WEAVER (H')						3.85
TOTAL EPT TAXA	10	11	10	11	10	16
EPT INDEX (% of Total Taxa)	31	50	45	44	43	35
EPHEMEROPTERA ABUNDANCE (% of Total Density)	20	17	24	25	22	21

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: DOWNSTREAM OF HATCHERY
SAMPLED: 09/21/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
INSECTA						
Ephemeroptera	1164	2093	1500	2244	1186	1638
Baetis bicaudatus		233	151	233	151	154
Baetis tricaudatus	1070	1779	1314	1779	907	1370
Drunella grandis	47	81		151	81	72
Rhithrogena hageni	47			81	47	35
Tricorythodes minutus			35			7
Plecoptera	47				47	19
Isoperla sp.	47				47	19
Coleoptera	2512	2791	2559	4501	1290	2731
Heterimnius corpulentus		81				16
Narpus concolor					23	5
Optioservus divergens	1663	919	1698	3012	837	1626
Optioservus quadrimaculatus	849	1791	861	1489	430	1084
Trichoptera	7211	4734	10850	12247	8698	8748
Brachycentrus americanus	3675	2291	5582	5350	5373	4454
Culoptila sp.	93	198	116	1082	81	314
Hydropsyche sp.	3396	2210	5117	5734	3070	3905
Hydroptilidae					128	26
Lepidostoma sp. A					23	5
Oecetis avara/disjuncta				81		16
Rhyacophila coloradensis gr	47	35	35		23	28
Diptera	4933	2604	1315	4584	918	2872
Atherix pachypus	47			12	23	16
Caloparyphus sp.	233	81	81		128	105
Cricotopus sp.					23	5
Cricotopus trifascia				140		28
Dicranota sp.	47	35	35			23
Eukiefferiella sp.	3780	1093	605	2931	361	1754
Micropsectra sp.		58				12
Unid. Orthoclaadiinae			35			7
Orthoclaadius/Cricotopus sp.	291	116			23	86
Pagastia sp.			35	279	23	67
Parametricnemus sp.		58				12
Pericoma sp.					23	5
Polypedilum sp.	116	314	140	279	35	177
Rheocricotopus sp.				140		28
Simulium sp.	279	663	349	384	256	386
Tvetenia sp.	140	186	35	419	23	161
Hydracarina	94			81		35
Hygrobates sp.	47					9
Sperchon/Sperchonopsis	47			81		26
CRUSTACEA						
Amphipoda	47			12	23	16
Hyalella azteca	47			12	23	16

MACROINVERTEBRATE DENSITY
CLIENT: MOLYCORP
SITE: DOWNSTREAM OF HATCHERY
SAMPLED: 09/21/04

TAXA	REP 1	REP 2	REP 3	REP 4	REP 5	COMPOSITE
TURBELLARIA	93	35	616	1314	256	463
Girardia sp.	93	35	616	1314	256	463
MOLLUSCA						
GASTROPODA	47			12	23	16
Physa/Physella	47			12	23	16
TOTAL (#/sq. meter)	16148	12257	16840	24995	12441	16538
NUMBER OF TAXA	23	20	18	22	27	38
SHANNON-WEAVER (H')						3.17
TOTAL EPT TAXA	8	7	7	8	11	13
EPT INDEX (% of Total Taxa)	35	35	39	36	41	34
EPHEMEROPTERA ABUNDANCE (% of Total Density)	7	17	9	9	10	10

APPENDIX D

Benthic Invertebrate Data for Transect Study

TABLE D-1: Total number of invertebrate/ sample collected in samples along the north bank in transects from just upstream of Columbine Creek (TR-20) to the Questa Ranger Station (TR-1) and between the sites downstream of Hansen Creek (TR-104) to upstream of the mill (TR-101).

	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	104	103	102	101
INSECTA																								
EPHEMEROPTERA	273	343	501	520	961	262	166	350	442	413	416	564	608	1266	923	1338	282	251	242	112	312	1139	891	407
<i>Baetis bicaudatus</i>	52	56	59	136	238	82	38	112	97	130	70	143	118	238	323	216	39	45	14	47	43	363	74	141
<i>Baetis tricaudatus</i>	212	251	400	344	640	173	100	193	287	248	232	366	421	990	561	1117	225	192	210	52	220	560	669	224
<i>Drunella doddsi</i>	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Drunella grandis</i>	9	29	34	25	51	6	13	34	50	23	91	42	67	29	14	2	7	7	16	5	48	212	147	41
<i>Rhithrogena hageni</i>	0	6	8	15	31	1	15	11	8	12	23	13	2	9	25	3	11	7	2	8	1	4	1	1
PLECOPTERA	0	4	5	10	0	0	0	11	14	4	30	11	5	8	36	6	1	7	31	11	2	9	4	2
<i>Capniidae</i>	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Isoperla</i> sp.	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Megarocys signata</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Pteronarcella badia</i>	0	1	3	8	0	0	0	0	12	1	30	11	5	8	33	6	1	7	30	11	0	0	0	0
<i>Sweltsa</i> sp.	0	1	2	2	0	0	0	1	2	3	0	0	0	0	3	0	0	0	0	0	2	9	4	2
<i>Zapada cinctipes</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
TRICHOPTERA	32	60	47	208	67	19	13	21	209	26	176	116	225	37	72	9	50	86	57	114	325	3987	1988	294
<i>Arctopsyche grandis</i>	1	4	1	4	4	0	3	0	1	0	7	5	4	2	17	0	4	7	13	13	1	4	3	2
<i>Brachycentrus americanus</i>	28	32	43	188	49	15	8	17	206	23	147	55	197	26	48	9	43	73	42	87	318	3943	1957	275
<i>Glossosoma</i> sp.	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Hydropsyche</i> sp.	2	15	3	14	7	4	2	4	1	2	16	33	22	7	4	0	3	6	1	14	5	22	20	17
<i>Lepidostoma</i> sp.	0	0	0	1	0	0	0	0	1	1	0	0	1	0	0	0	0	0	1	0	0	2	0	0
<i>Rhyacophila coloradensis</i> gr.	0	9	0	1	5	0	0	0	0	0	6	23	1	0	3	0	0	0	0	0	0	11	0	0
<i>Rhyacophila sibirica</i> gr.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	3	0
<i>Rhyacophila</i> sp.	1	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	5	0
OTHER	39	91	145	203	394	60	244	208	174	63	173	145	335	112	166	34	15	66	46	19	88	265	617	51

TABLE D-1: Continued.

	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	104	103	102	101
TOTAL (#/1 min. kick)	344	498	698	941	1422	341	423	590	839	506	795	836	1173	1423	1197	1387	348	410	376	256	727	5400	3500	754
TOTAL EPT TAXA	7	13	9	11	11	6	7	8	10	9	9	9	10	9	10	6	8	8	10	8	9	11	10	8
% EPT (% of Total Density)	89	82	79	78	72	82	42	65	79	88	78	83	71	92	86	98	96	84	88	93	88	95	82	93
% EPHEMEROPTERA (% of Total Density)	79	69	72	55	68	77	39	59	53	82	52	67	52	89	77	96	81	61	64	44	43	21	25	54
% HEPTAGENIIDAE (% of Total Density)	0	1	1	2	2	<1	4	2	1	2	3	2	<1	1	2	<1	3	2	1	3	<1	<1	<1	<1

TABLE D-2: Total number of invertebrate/ sample collected in samples along the stream center in transects from just upstream of Columbine Creek (TR-20) to the Questa Ranger Station (TR-1) and between the sites downstream of Hansen Creek (TR-104) to upstream of the mill (TR-101).

	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	104	103	102	101
INSECTA																								
EPHEMEROPTERA	208	62	246	171	356	143	709	240	309	172	546	649	548	622	633	979	275	357	209	108	77	103	603	64
<i>Baetis bicaudatus</i>	27	6	72	52	59	38	241	59	48	67	123	167	48	160	77	102	28	69	13	16	23	32	144	16
<i>Baetis tricaudatus</i>	168	44	133	89	273	81	415	90	201	82	322	417	461	406	529	851	235	272	179	83	39	60	394	32
<i>Drunella doddsi</i>	0	1	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
<i>Drunella grandis</i>	7	4	13	10	16	10	49	19	35	9	88	50	9	30	11	4	1	10	3	1	14	9	65	8
<i>Rhithrogena hageni</i>	6	7	21	19	8	14	4	72	25	14	13	15	30	26	16	22	11	6	14	7	1	2	0	8
PLECOPTERA	4	0	1	5	0	0	3	2	0	2	13	5	1	12	3	1	8	7	5	3	1	2	0	3
<i>Capniidae</i>	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Leuctridae</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Pteronarcella badia</i>	2	0	0	0	0	0	2	0	0	2	13	4	1	12	3	1	8	7	5	3	0	0	0	0
<i>Sweltsa</i> sp.	2	0	1	5	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	1	2	0	2
TRICHOPTERA	113	46	63	12	43	71	424	9	115	7	167	160	41	100	37	17	30	87	28	34	31	38	786	19
<i>Arctopsyche grandis</i>	4	1	0	0	2	0	0	0	1	1	1	1	5	10	10	6	11	6	5	1	3	1	2	1
<i>Brachycentrus americanus</i>	104	43	47	7	38	66	402	4	111	5	155	143	25	62	26	10	18	71	18	33	28	33	778	16
<i>Hydropsyche</i> sp.	5	1	14	5	2	4	20	5	2	0	9	11	11	25	0	1	1	9	5	0	0	2	5	2
<i>Lepidostoma</i> sp.	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
<i>Rhyacophila coloradensis</i> gr.	0	0	0	0	1	1	0	0	0	0	0	5	0	3	1	0	0	0	0	0	0	0	0	0
<i>Rhyacophila sibirica</i> gr.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
<i>Rhyacophila</i> sp.	0	1	2	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	1	1	0
OTHER	41	29	135	100	104	84	402	110	230	37	203	169	134	286	35	14	29	41	5	13	29	38	154	34

TABLE D-2: Continued.

	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	104	103	102	101
TOTAL (#/1 min. kick)	366	137	445	288	503	298	1538	361	654	218	929	983	724	1020	708	1011	342	492	247	158	138	181	154	120
TOTAL EPT TAXA	9	9	9	8	8	7	9	8	8	8	9	10	8	9	8	8	8	9	8	8	7	10	7	9
% EPT (% of Total Density)	89	79	70	65	79	72	74	70	65	83	78	83	81	72	95	99	92	92	98	92	79	79	90	72
EPHEMEROPTERA (of Total Density)	57	45	55	59	71	48	46	66	47	79	59	66	76	61	89	97	80	73	85	68	56	57	39	53
HEPTAGENIIDAE (of Total Density)	2	5	5	7	2	<1	<1	20	4	6	1	2	4	3	2	2	3	1	6	4	1	1	0	7

TABLE D-3: Total number of invertebrate/ sample collected in samples along the south bank in transects from just upstream of Columbine Creek (TR-20) to the Questa Ranger Station (TR-1) and between the sites downstream of Hansen Creek (TR-104) to upstream of the mill (TR-101).

	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	104	103	102	101
INSECTA																								
EPHEMEROPTERA	307	584	752	400	608	661	934	1138	393	335	512	731	466	353	926	1274	218	433	237	64	278	188	105	343
<i>Baetis bicaudatus</i>	42	144	155	130	143	249	243	356	74	80	145	237	96	57	165	170	29	66	49	13	64	98	15	82
<i>Baetis tricaudatus</i>	245	390	540	241	377	347	533	466	268	198	259	404	340	269	733	1088	179	351	178	49	99	69	82	203
<i>Drunella doddsi</i>	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Drunella grandis</i>	16	31	47	14	86	58	147	205	37	49	92	62	18	14	13	8		15	5	2	114	21	7	50
<i>Ephemerella dorothea</i>	0	1	1	0	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Paraleptophlebia</i> sp.	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Rhithrogena hageni</i>	4	17	8	14	0	7	10	110	14	8	16	28	12	13	15	8	10	1	5	0	1	0	1	8
PLECOPTERA	1	10	11	3	0	3	2	4	2	7	15	5	5	11	14	3	7	21	10	6	2	0	1	1
<i>Capniidae</i>	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
<i>Pteronarcella badia</i>	0	2	1	0	0	1	2	0	2	7	15	4	5	10	14	2	6	21	10	6	0	0	0	0
<i>Sweltsa</i> sp.	1	8	10	3	0	2	0	2	0	0	0	0	0	1	0	0	0	0	0	0	2	0	1	1
<i>Zapada cinctipes</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
TRICHOPTERA	176	223	279	43	1211	81	1088	361	123	72	188	232	73	60	69	31	37	64	48	74	2972	261	72	414
<i>Arctopsyche grandis</i>	5	2	2	1	0	0	2	6	2	0	0	2	5	4	7	4	9	4	8	0	3	2	5	5
<i>Brachycentrus americanus</i>	151	198	263	38	1189	73	1031	325	118	71	170	181	59	49	60	27	24	55	28	69	2955	244	63	375
<i>Hydropsyche</i> sp.	18	22	12	3	18	6	50	25	2	1	16	37	8	5	2	0	4	5	11	5	8	8	4	33
<i>Lepidostoma</i> sp.	0	0	0	0	0	1	1	4	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
<i>Oligophlebodes minutus</i>	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Rhyacophila coloradensis</i> gr.	0	0	0	0	4	0	0	0	1	0	0	12	1	1	0	0	0	0	0	0	1	7	0	0
<i>Rhyacophila</i> sp.	2	1	2	1	0	1	4	0	0	0	2	0	0	0	0	0	0	0	1	0	5	0	0	1
OTHER	223	123	109	116	396	131	958	1141	207	71	200	121	84	100	120	94	18	41	37	144	238	30	34	92

TABLE D-3: Continued.

	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	104	103	102	101
TOTAL (#/1 min. kick)	707	940	1151	562	2215	876	2982	2644	725	485	915	1089	628	524	1129	1402	280	559	333	288	3490	479	212	850
TOTAL EPT TAXA	9	12	12	10	7	10	11	12	9	7	8	10	9	11	8	8	8	8	9	6	10	7	8	9
% EPT (% of Total Density)	68	87	91	79	82	85	68	57	71	85	78	89	87	81	89	93	94	93	89	50	93	94	84	89
EPHEMEROPTERA (of Total Density)	43	62	65	71	27	75	31	43	54	69	56	67	74	67	82	91	78	77	71	22	8	39	50	40
HEPTAGENIIDAE (of Total Density)	1	2	1	2	0	1	<1	4	2	2	2	3	2	2	1	1	4	<1	2	0	<1	0	<1	1