Appendix B

Bioassessment Laboratory Results and Original Field Data Sheets

SQUAW CREEK BIOASSESSMENT 2012	Upper Meadow					Middle Meadow					Lower Meadow				
	BIO-SC1					BIO-SC2					BIO-SC3				
Replicate	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
LAB FINAL ID															
NON-INSECT TAXA															
undetermined oligochaete spp.	104	119	125	47	150	24	48	13	32	41	62	10	20	33	33
Dugesia tigrina					1										
Hydra						2				4	1				
undetermined ostracod spp.	4	7	10	1		1	5		2		2	1	1	3	
Ferrissia sp.															
Fossaria sp.		1													
Gyraulus sp.					1										
Physa sp.				1							1				
undetermined hydrobiid genus-species															
Pisidium sp.															
Atractides sp.					25	3	2	2	7	6	7	9	18	11	1
Hygrobates sp.		2	2		2		2		1	1				4	3
Albaxona sp.		1													
Aturus sp.						1			1		1				
Feltria sp.					1				5	7	1		1	1	
Frontipoda sp.															
Lebertia sp.		2			3	6	3	3		1	6		5	4	3
Protzia sp.												1		1	
Sperchon sp.						1					1			1	1
Testudacarus sp.															
Torrenticola sp.							1	2	2	2	3	1	2	3	3
Wandesia sp.															
Stygothrombium sp.															
Hydrozetes sp.															
Trimalaconothrus sp.			3		4	1	3	2	12	7		8	21	2	2
Epidamaeus sp.															
undetermined mite sp.															
INSECT TAXA															
Ophiogomphus sp.															
Cordulegaster dorsalis															
Coenagrion-Enallagma sp.															
Baetis sp.					15	3		3	3	1		5	2	2	
Acentrella sp.					1			1	1		1				
Callibaetis sp.															
Centroptilum sp.		5	1				1					1			
Diphetor hageni						4		2		3		2	5	2	
Ameletus sp.		2	2		1		1	4	1	4	5	6	1	7	
Siphlonurus sp.	1	1	4		1										
Tricorythodes sp.															
Paraleptophlebia sp.	5	14	23	1	3	48	22	9	53	21	54	51	35	38	2
Paraleptophlebia bicornuta															
Serratella spp. (teresa, tibialis, levis)					5	11	7	7	8	1	13	6	21	14	8
Attenella delantala							2								
Attenella soquele															
Caudatella hystrix															
Drunella doddsi									1				1		
Drunella flavilinea-coloradensis					4	1	1	1	1			1	3	1	
Drunella grandis					4	20	6	2	6	6	5	2	14	9	3
Drunella spinifera															
Ephemerella (aurivillii)															
Timpanoga hecuba														1	
Cinygma sp.															
Cinygmula sp.					11	14		9	11	9		12	7	6	
Ecdyonurus sp.						3	1	1	2	3	2	1	3	7	
Epeorus sp.															
Ironodes sp.															
Leucrocuta sp.															
Rhithrogena sp.					8	13		1	26	19	3	7	4	6	
Malenka sp.						8		4	2	6	9	4	15	5	1
Prostoia besametsa													1		

Visoka cataractae															
Zapada sp.					32	131	7	53	95	30	164	73	148	53	9
Capnia /Paracapnia +mixed spp.	1	4	3	1	18	9	35		4	2	10	5	4	8	4
Eucapnopsis brevicauda									2						
Despaxia augusta															
Sweltsa sp.		1			30	4	2	21	23	11	7	16	5	10	1
Suwallia sp.			1				1	2							
Haploperla sp.															
Yoraperla sp.															
Cultus sp.															
Frisonia picticeps								1							
Isoperla sp.			1					4				1	1		
Megarcys sp.															
Kogotus/Rickera sp.					5	3	1	2	1	2		1	4		
Oroperla barbara															
Perlinodes aureus															
Skwala sp.					6	6	4	11	11	6		8	9	2	
Pteronarcys sp.															
Pteronarcella sp.															
Calineuria californica															
Doroneuria baumanni								1	2	1		2			
Hesperoperla pacifica															
Rhyacophila acropedes/brunnea grp.															
Rhyacophila alberta grp.															
Rhyacophila angelita grp.													1		
Rhyacophila arnaudi grp.															
Rhyacophila betteni grp.						1									
Rhyacophila hyalinata grp.															
Rhyacophila nevadensis grp.															
Rhyacophila sibirica grp.															
Rhyacophila rotunda grp.															
Rhyacophila vagrita grp.															
Rhyacophila verrula grp.															
Yphria californica															
Agraylea sp.															
Hydroptila sp.		1		3	1	4	5	2	7	1	8	2	3	3	4
Ochrotrichia sp.		1													
Amiocentrus sp.								1				1	2		
Brachycentrus americanus															
Micrasema sp.															
Agapetus sp.															
Anagapetus sp.														1	
Glossosoma sp.									2		1		1		
Arctopsyche grandis															
Parapsyche elsis															
Ceratopsyche spp.					8	6		24	28	29	12	4	23	10	2
Cheumatopsyche								1			1				
Lepidostoma sp.							4	2	6	7	9	2	1	2	3
Cryptochia sp.															
Desmona sp.															
Dicosmoecus sp.	1					1				1	1		1		
Ecclisomyia sp.															
Homophylax sp.															
Onocosmoecus sp.	1	1	2	1	1	1	1		1	1		1		1	1
Psychoglypha sp.															
Gumaga sp.															
Polycentropus sp.															
Dolophilodes sp.															
Wormaldia sp.						1			2	2					
Apatania sp.		3	1		2	1	2	1	5	1	1	7		4	2
Neophylax sp.															
Sialis sp.			1	1											
Orohermes crepusculus															
Sigara washingtonensis															
Gerris sp.															
Eubrianax edwardsi															

Haliplus sp.															
Cleptelmis addenda															
Heterlimnius sp.															
Lara avara															
Narpus concolor															
Optioservus quadrimaculatus					3				4				2		
Zaitzevia parvula															
Hydraena sp.															
Ametor scabrosus															
Hydrobius sp.															
Laccobius sp.															
Agabus sp.						1									
Hydroporus sp.															
Oreodytes picturatus															
Oreodytes rivalis obesus															
Oreodytes scitulus scitulus	2	1					2		3						2
Stictotarsus striatellus			5												1
undetermined sp.															
Cryptolabis sp.															
Hexatoma sp.															
Hesperoconopa sp.															
Rhabdomastix sp.															
Antocha monticola															
Dicranota sp.											1				
Limonia sp.															
Limnophila sp.															
Molophilus sp.															
Pedicia sp.															
Culex sp.															
Thaumalea sp.															
Pericoma sp.															
Glutops sp.															
Caloparyphus sp.															
Chrysops sp.															
Silvius sp.		1													
Tabanus sp.															
Simulium spp.					67	3		16	9	4	1	1	1		1
Prosimulium sp.															
Dixa sp.															
Meringodixa sp.															
Bezzia-Palpomyia sp.						2	3		6	25	2		1	1	4
Ceratopogon sp.															
Culicoides sp.															
Dasyhelea sp.										4					
Stilobezzia sp.										1					
Limnophora sp.				1	1	1		1	2		1				
undetermined sp.								2							
Chelifera/Metachela sp.															
Clinocera (Hydrodromia) sp.															
Neoplasta sp.															
Oreogeton sp.															
Wiedemannia sp.															
Scatella sp.															
Diamesa sp.									1						
Pagastia sp.					1	3			2	1			2	1	
Potthastia gaedii grp.			1								4				2
Pseudodiamesa sp.															
Parochlus kiefferi															
Monodiamesa			1												
Ablabesmyia sp.															
Apsectrotanypus sp.															
Conchapelopia sp.			1	6	3		13	1	5		8		1	5	18
Larsia sp.														1	
Nilotanypus sp.															
Paramerina sp.															
Pentaneura sp.			1	1	11	26	7	9	32	12	26	22	19	13	5

Psectrotanypus		1													
Rheopelopia						1			1	1	1			1	
Thienemannimyia grp.	20	21	24	29											
Trissopelopia sp.															
Zavrelimyia sp.	5	1		1											
Brillia sp.															
Cardiocladius sp.															
Chaetocladius sp.															
Cricotopus-Orthocladius spp.		14	16	65	75	47	47	8	45	38	21	7	13	18	121
Cricotopus (Nostococladius) sp.															
Corynoneura		6	4	1	12	3	2	1	4	2	4				1
Corynoneura cf. scutellata															
Eukiefferiella brehmi grp.															
Eukiefferiella gracei grp.															
Eukiefferiella claripennis grp.					10	1		2		1	2				
Eukiefferiella pseudomontana grp.															
Eukiefferiella devonica grp.									1						
Eukiefferiella similis grp.															
Euryhapsis sp.															
Heleniella sp.															
Heterotrissocladius marcidus grp.	3	3	8	1	1										6
Hydrobaenus sp.															
Krenosmittia sp.															
Limnophyes sp.															1
Lopescladius sp.															
Metriocnemus sp.															2
Nanocladius balticus grp.															
Nanocladius parvulus grp.						1			3				1		
Parakiefferiella sp.				1											14
Parametriocnemus sp.					4		8	1	8	1	7		1		4
Paraphaenocladius sp.															
Parorthocladius sp.															
Psectrocladius psilopterus grp.	33	8	5	11	3	2	9	1	5	2				1	4
Psectrocladius sordidellus grp.															
Pseudosmittia sp.															
Rheocricotopus sp.			1	3	3	4	9		13	2	3	1	1	1	
Symposiocladius sp.															
Synorthocladius sp.							1				1				
Thienemanniella cf. xena					1	1	1		1	2	1				
Thienemanniella fusca															
Tvetenia bavarica grp.					21			12	16	16	7		8	1	9
Apedilum sp.															
Chironomus sp.															
Cladotanytarsus vanderwulpi grp.							1							1	1
Constempellina sp.															
Cryptochironomus sp.															
Demicryptochironomus sp.															
Dicrotendipes sp.															
Micropsectra sp.	6	23	68	46	27	46	68	14	79	27	29	30	42	51	62
Microtendipes pedellus grp.	3	1	1	3			2		3	3	5		1	5	5
Microtendipes rydalensis grp.															
Paracladopelma doris grp.				1											
Paratanytarsus sp.															
Paratendipes sp.															
Phaenopsectra sp.	4	1		1										1	
Polypedilum aviceps															
Polypedilum cf. convictum					3			1	5	5		4	6	2	
Polypedilum cf. laetum															
Polypedilum scalaenum															
Polypedilum cf. tritum														1	
Pseudochironomus sp.		1		2	3				1		1			1	4
Rheotanytarsus sp.			1		2	4		4	12	4	4	1	9		11
Stempellinella sp.															
Stictochironomus	75	105	73	35				1						1	2
Tanytarsus sp.	2	2	4			3	4		1		4	4	4	3	4
TOTAL	***162***	***222***	***253***	***215***	***407***	***442***	***280***	***244***	***566***	***318***	***439***	***291***	***427***	***301***	***324***

MARTIS CREEK BIOASSESSMENT 2012	BIO-MC1	BIO-MC1	BIO-MC2	BIO-MC2	BIO-MC3	BIO-MC3	BIO-MC4	BIO-MC4	BIO-MC5	BIO-MC5	BIO-MC6	BIO-MC6
Sample Type	**TRC**	**RWB**	**TRC**	**RWB**	**TRC**	**RWB**	**TRC**	**RWB**	**TRC**	**RWB**	**TRC**	**RWB**
LAB FINAL ID												
NON-INSECT TAXA												
Turbellaria	41	20	16	3	31	30	71	88			2	
Oligochaeta	11	24	7	10	33	22	115	83	39	68	39	65
Helobdella stagnalis										3		
Candona sp.	5	4		6	4	1	1	6		13		1
Herpetocypris sp.								4				
Hyalella sp.											117	113
Pacifastacus leniusculus				1					1	1	1	1
Protzia sp.	29	22	3		12	5			4			
Wandesia sp.	1	2						1				
uid species	1	1										
Hygrobates sp.								3		3		
Lebertia sp.	2	6	10	6		1	13	10	4	9		
Sperchon sp. A			1				3	4				
Sperchon sp. B	2											
Testudacarus sp.								2				
Pisidium casertanum	1	3		2	6	2	13	25		2	2	2
INSECT TAXA												
Ameletus validus									2	1		
Ameletus sp.		3			3	6	1					
Baetis tricaudatus	64	51	31	16	15	5	37	15	3	1	13	6
Diphetor hageni		1		2	1	3			3	1	13	9
Pseudocloeon sp.												4
Caudatella heterocaudata	8	1										
Drunella doddsi	37	25	2	1								
D. flavilinea	2	4										
D. grandis	6	27			6	2	1				1	1
Ephemerella dorothea			8	6					152	63	2	
Serratella teresa			1									
Serratella tibialis	1	1	2	2	1	1					1	
Cinygma sp.					3	8			1		7	9
Cinygmula sp.	32	50	3	2	26	15	5	9	3	1	13	13
Ecdyonurus criddlei										2		
Epeorus grandis		1										
Ironodes californica	19	4	1		32	20					8	10
Paraleptophlebia bicornuta										1		
P. debilis										10	16	18
P. memorialis/temporalis	11	6	6	8	13	31	4	2	38	38	73	102
uid species										6		
Paraperla sp.		1			1							
Sweltsa sp.	11	20	76	54	40	78	21	15	36	21		
Suwallia sp.		2										
Moselia sp.					1	2						
uid species	2	5			1	3	3	2				
Malenka sp.		1		1	6	10		3	9	3	14	19
Soyedina sp.					1							
Visoka cataractae	1	2				6						
Zapada cinctipes	9	2	7	1	32	20	23	22	13	3	23	19
Zapada sp. A	3	3			1	1						
Yoraperla nigrisoma	95	90	2	1	10	7	1				4	1
Calineuria californica				1	9			1				
Doroneuria baumanni	15	7			7	8						

Isoperla pinta		9					3	3				
Perlinodes aurea			1									
Skwala americana			9	18					28	16	2	1
uid species					3							
Pteronarcys princeps	5	2			3	4						
Sialis occidens				1			1					1
Apatania sp.		2				1						
Brachycentrus americanus	1	4	1				39	10				
Micrasema sp.		2	35	16			23	37				
Anagapetus sp.	6	2			12	11	1	1				
Glossosoma sp.			1									
Ceratopsyche oslari			17	3		1	1		23	1	10	4
Parapsyche almota	11	10							1			
Hydroptila sp.									1	2	2	
Lepidostoma sp.									2			
Cryptochia sp.					1							
Dicosmoecus sp.									1			
Ecclisomyia sp.		8			1							
Dolophilodes sp.	3	1										
Rhyacophila arnaudi	1	2				2						
R. vaccua	11	6	3	2	18	9	5	2			1	
Rhyacophila sp. (brunnea grp)	3	3	1	1	4	2		1				
Neophylax rickerri		2	1	1								
Amphizoa sp.		1										
Agabus sp.							1					
Ochthebius sp. A			1					2				
Eubrianax edwardsii										2	2	3
Cleptelmis addenda							36	15			22	13
Heterlimnius corpulentus	29	48			107	90	1	1				
Lara avara	6	3			8	9						
Narpus sp.					4	9						
Optioservus quadrimaculatus			64	45			34	3	50	54		1
Rhizelmis nigra					1							
Zaitzevia parvula			14	6			25	8	5	1	1	
Atrichopogon sp.	1											
Bezzia sp.			1	1		1	1	2		2		1
Boreochlus sp.					1							
Tanypus sp.				2								
Conchapelopia sp				17	1				2	33	1	1
Paramerina sp.											1	
Pentaneura sp.				1								1
Reomyia sp.		1										
Zavrelimyia sp.								1				
Diamesa sp.			3								1	
Pagastia sp.			2	1					2	1		
Potthastia sp. (gaedii grp)			2	3						3		
Monodiamesa sp.				2								
Odontomesa sp.				2								
Brillia sp.	1	2		1	1	1	1					
Cardiocladius sp.												1
Chaetocladius sp.					8	8		1				
Corynoneura sp.					2			1				
Cricotopus annulator									7	12	2	7
Cricotopus. (bicinctus grp)			9	12			6	16				1
C. (tremulus grp)			19	24		1			12	4	3	
C. (Isocladius) sp. A									1			
Cricotopus (Nostococladius)			2	1					1		1	1
Eukiefferiella (claripennis)								1				1
Eukiefferiells (devonica)			1		1				5		8	2

Eukiefferiella (gracei)			2	1					7		9	1
Georthocladius sp.					1	1						
Heterotrissocladius sp.		1										
Krenosmittia sp.						1						
Nanocladius sp.				18						4		
Orthocladius cf. dorenus								4	4			
Orthocladius cf. obumbratus			1									
Orthocladius sp. B			3									
O. (Euorthocladius) sp. B								1				
Parametriocnemus sp.	2	1				1	1	1	1			
Rheocricotopus sp.		1		13	2	3	2	23		1		
Synorthocladius sp.							1		1	2		
Thienemanniella sp.												5
Tvetenia sp. A	5	2	39	22	1	3	6	5	18	1	29	23
Tvetenia sp. B								1				
Apedilum sp.				1								
Cryptochironomus sp.				1								
Endochironomus sp.				4								
Microtendipes sp.				3	1				1	11		
Polypedilum sp.				15								
Pseudochironomus richardsoni				7	1				1	1		
Micropsectra sp. A	15	7	66	89	2		2	4	41	18	49	36
Micropsectra sp. B		2		20				1		40	1	
Paratanytarsus sp.			1									
Rheotanytarsus sp.			2						5			
Stempellina sp. A		8										
Stempellinella sp.				2								
Dixa sp.								1				3
Prosimulium sp.	1											
Simulium arcticum	4	2			2	1	6	5			6	5
S. aureum			2	4				8	2	2	16	28
S. piperi							39	29	2		11	17
S. tuberosum			12				2		10		4	
Pericoma sp. A	2	8	36	17	2		2	2	13	11		
Pericoma sp. C					1							
Antocha monticola		2	20	19	1				6	2		1
Cryptolabis sp.			1									
Dicranota sp. A			4	3		1	3		1	2	1	
Dicranota sp. B						3	1		2		2	
Hexatoma sp. A	1	4	1	1								
Hexatoma sp. B			2	1		2	1	4		1		
Tipula sp.	1				1	2		1	1	1		
Neoplasta sp.	2			4				2			1	
Triclinocera sp.				1								
Glutops sp.	3	11	1	2	2	2						
Chrysops sp.				1						3		1
uid tabanid species										1		
TOTAL	*525*	*554*	*556*	*532*	*489*	*460*	*560*	*498*	*569*	*488*	*536*	*552*

STREAM: SQUAW CREEK SITE: UPPER MEADOW DATE: 7-25-2001 1200

RIFFLE SERIES: / 31-39 / 83-100 / / 139-143 / / /

RUN 0-15 / 39 / / 100-116 / / / / meters

POOL SERIES: 15-31 / 39-83 / / 116-139 / 143-150 meters

Transects at 10 meter intervals along 150 meter reach

T	Stream Width	Bank Cover L	Bank Cover R	Angle Left	Angle Right	Densio. Left	Densio. Up	Densio. Down	Densio. Right	Rndm No.
1	6.8	VgE	VgE	M	M	0	0	0	0	
2	4.9	VgE	VgE	M	M	0	0	0	0	35
3	6.7	ArE	VgE	M	M	0	0	0	0	88
4	4.1	ArE	O/GRVL BAR	M	S	0	0	0	0	92
5	6.5	VgE	VgE	S	M	0	0	0	0	139
6	8.2	VgE	O/SAND BAR/VgE	U	S/M	0	0	0	0	142
7	7.4	VgE	O/SAND/VgE	M	S/M	0	0	0	0	
8	8.3	VgE	VgE	M	M	0	0	0	0	
9	5.1	VgE	VgE	M	M	0	0	0	0	
10	2.0	VgE	O/GRVL BAR	M	S	0	0	0	0	
11	4.9	VgE	VgE/O	M	M/S	0	0	0	0	
12	3.7	VgE/O/GRV	VgE	M/S	U	0	0	0	0	
13	5.6	VgE	VgE	M	M	0	0	0	3	
14	4.4	O/GRVL BAR	ArgE	S	M	0	0	0	0	
15	5.7	VgE	ArgE	M	M	0	0	0	0	

GPS: 42 VgE VgE M U 0 0 0 0 ELEVATION:

Pic 580 RIP RAP

SLOPE(s):
stream length(s) upper level reading(s) 2.81 lower level reading(s) 2.79 @ SITE BACKWATERED

LINEAR DISTANCE ALONG 150 METER REACH LENGTH: 80.4 WATER CHEM. SAMPLED? @ 1200

pH 7.48 TEMPERATURE 17.54 pH _____ CONDUCTIVITY 153 D.O. 9.34 ALKALINITY _____

ORP -49.9 COND 179 DO% 97.7% TDS 0.116 SAL 0.08

112.1

Surrounding **RIPARIAN VEGETATION** Cover (w/in 2 m of channel)
[descriptions of species present if known and sparse/common/ or dense]
[Sparse=<25%, Common=50%, Dense=>75%; S-C=25-50%, C-D=50-75%]

Herbaceous Cover Dense

Woody Bushes SPARSE

Deciduous Trees —

Evergreen Trees Very SPARSE

ALGAE TYPE(s) Present:

- [x] Diatom Film (olive green)
- [x] Filamentous Form (green)
- [x] Mat / Slime (blue-green)

PHOTOS:

US	DS	
178	179	0
176	177	50
174	175	100
172	173	150

Pic 581 Algae

Riffle @ 139-143 VERY SANDY

SITE BACKWATERED FROM BEAVER DAM 70m D.S.

STREAM: Squaw Creek SITE: Upper Meadow DATE: 7-25-12 1200 2001

T	D-1	V-1	ST-1	D-2	V-2	ST-2	D-3	V-3	ST-3	D-4	V-4	ST-4	D-5	V-5	ST-5
1	14		>1 A V O	39		3 A O	50		12 A W	60		25 A O	20		>1 A X
2	10		>1 A V O	26		>1 A O V	48		23 A O	44		4 A	45		9 A O
3	56		9 A V O	99		20 A	75		3 A	26		1 A O	17		>1 A O
4	81		>1 A O V	99		9 A	87		6 A	60		3 A	19		1 A
5	19		>1 A O V	18		29 A O	15		31 A O	24		70 A	9		2 A O
6	28		>1 A O V	55		5 A O	59		11 A	52		1.5 A	29		1 A
7	42		>1 A O V	36		3 A O V	27		12 A	22		1.5 A	10		9 A
8	54		>1 A O V	54		1 A O	77		4 A	66		6 A	19		14 A
9	9		>1 A O	29		(Bd) A	45		50 A	44		12 A	10		16 A
10	4		6 A O	7		16 A	13		39 A V	15		12 A	8		3 A
11	7		>1 A O V	10		1 A O	15		2 A O	9		2 A O	7		39 A
12	10		35 A O	29		1 A	35		1.5 A	42		18 A	48		>1 A
13	16		>1 A O	47		1 A	46		600 A O	73		7 A	35		>1 A O
14	9		15 A	28		3 A	51		7 A	52		11 A	8		>1 A O V
15	3		20 A O	0		20	5		16 A	[illegible]		1050 A	15		5 A O
	12		1.5 A	50		17 A	53		21 A	74		15 A O	81		>1 A O

COBBLE EMBEDDEDNESS MEASURES (n=25)				
10				

Current Meter used and units:

STREAM: Squaw Creek **SITE:** Middle Meadow **DATE:** 7-24-12 ~~2001~~

RIFFLE SERIES: 0-4 / 19-25 / / / 152-158 / 125-132 / 145-150+ /
RUN 14-19 / 125-36 / 144-50 / 88-104 / 132-142 / meters
POOL SERIES: 4-14 / / / 36-44 / 50-52 / 68-88 / 104-125 / 142-145 / meters

Transects at 10 meter intervals along 150 meter reach

T	Stream Width	Bank Cover L	Bank Cover R	Angle Left	Angle Right	Densio. Left	Densio. Up	Densio. Down	Densio. Right	Rndm No.
1	2.6	0 GRVL BAR / VgS	0 GRVL BAR	S/M	S	0	0	0	0	
2	3.7	VgBE	0 GRVL BAR / VgE	M	S/M	0	0	0	3	2
3	3.8	VgE	0 GRVL BAR / VgE	M	S/M	0	0	0	0	22
4	4.2	VgBE	VgE	M	M	0	0	0	0	63
5	4.9	VgE	VgU	M	M	0	0	0	0	127
6	4.6	VgE	VgE	M	U	0	0	0	0	146
7	5.9	VgE	VgBE	M	U	0	0	0	0	
8	3.7	VgBE	VgE	M	M	3	0	0	0	
9	3.1	VgE	GRVL BAR / VgE	U	S/M	0	0	0	0	
10	5.5	VgE	VgE	M	U	0	0	0	0	
11	5.1	VgE	VgE	U	M	0	0	0	0	
12	5.3	VgBE	VgE	M	U	0	0	0	0	
13	4.7	VgE	VgE	M	U	0	0	0	0	
14	4.6	GB / VgE	VgE	S/M	U	0	0	0	0	
15	5.7	VgE	VgE	M	U	0	0	0	0	
16	11.3	VgE	VgE	M	U	0	0	0	0	

GPS: ELEVATION:

SLOPE(s):
stream length(s) 0.35% upper level reading(s) 2.12 m lower level reading(s) 2.65 m

LINEAR DISTANCE ALONG 150 METER REACH LENGTH: 137 m **WATER CHEM. SAMPLED?** @ 1200

780 **TEMPERATURE** 22.47 **pH** _____ **CONDUCTIVITY** 161 COND 169 **D.O.** 10.70 193% **ALKALINITY** _____
TDS 0.110 SAL 0.08

-66.9 Surrounding **RIPARIAN VEGETATION** Cover (w/in 2 m of channel)
[descriptions of species present if known and sparse/common/ or dense]
[Sparse=<25%, Common=50%, Dense=>75%; S-C=25-50%, C-D=50-75%]

127.3 Herbaceous Cover Dense
Woody Bushes SPARSE
Deciduous Trees —
Evergreen Trees —

ALGAE TYPE(s) Present:
☒ Diatom Film (olive green)
☒ Filamentous Form (green)
☒ Mat / Slime (blue-green)

PHOTOS: DS US
557, 558 @ 0
559 560 @ 50
561 562 100
563 564 150

PIC 565-566 Riffle @ 125-132
567-568 Prunella Gravois
SCATTERED CLUMPS RANUNCULUS
568-570 Algae Bed Rock Bed Ringoff

STREAM: Squaw Creek SITE: Middle Meadow DATE: 7-24-12 2001

T	D-1	V-1	ST-1	D-2	V-2	ST-2	D-3	V-3	ST-3	D-4	V-4	ST-4	D-5	V-5	ST-5
1	8		5 A O V	6		31 A O V	8		9 A O W	4		4 A	5		10 A
2	11		1 A O	29		71 A O	43		25 A O	32		21 A O V	15		4 A O
3	4		1 A	3		24 A O	5		31 A O	10		15 A O	16		>1 A
4	4		3 A O	9		>1 A O	15		16 A O	16		8 A	12		>1 A O W
5	11		>1 A O	12		1 A O	40		3 A O	54		>1 A O	20		>1 A O
6	26		>1 A O	31		3 A O	14		5 A O	29		20 A O	46		>1 A O
7	12		11 A O	4		36 A O	0		34	5		29 A O	16		1 A O
8	44		>1 A O	52		30 A	42		6 A	27		14 A	13		3 A O
9	45		Bed A	58		Bed A	52		13 A	31		20 A	15		1 A
10	31		>1 A O V	44		18 A O	15		6 A O	18		6 A O	21		>1 A O V W
11	46		1 A O V	50		3 A O V	38		>1 A O	37		25 A O	22		2 A O
12	18		>1 A O W	16		7 A O	35		15 A O	26		Bed A O	11		>1 A O
13	20		>1 A O	39		2 A	50		16 A	42		21 A O	35		38 A O
14	6		>1 A O V	5		37 A O	1		22 A O	2		10 A O V	5		28 A O
15	6		1 A O	9		4 A O	6		21 A	12		19 A	20		>1 A O
16	10		65 A O W	4		13 A O	0		3 -	0		5	4		>1 A O

COBBLE EMBEDDEDNESS MEASURES (n=25)				
35	50	60	15	25
5	25	30	10	15
50	30	5	20	0
15	10	25	30	10
80	70	15	60	45

Current Meter used and units:

STREAM: SQUAW CREEK SITE: LOWER MEADOW DATE: 7-23-2001 12:00

RIFFLE SERIES: 2-4 / 129-138 / / / / 106-111 / /

14-29 / 138-56 / / / / / meters

POOL SERIES: 0-2 / / / 1 / 63-82 / 89-106 / 111-131 meters

RUN 56-63 82-89 131-150+

Transects at 10 meter intervals along 150 meter reach

T	Stream Width	Bank Cover L	Bank Cover R	Angle Left	Angle Right	Densio. Left	Densio. Up	Densio. Down	Densio. Right	Rndm No.
1	3.3m	0 Gravel BAR	V_G E	S	M	0	0	0	8	
2	7.5m	0 GRAVEL BAR	V_G E	S	M	0	0	0	0	3
3	2.3	0 Gravel BAR	V_G E	S	M	0	0	0	0	29
4	4.8	V_G E	0 GRAVEL BAR	U	S	0	0	0	0	35
5	5.3	V_G E	V_{GB} E	U	M	0	0	0	0	38
6	4.9	V_G E	V_{GB} E	U	M	0	0	0	5	109
7	7.9	V_{GB} E	V_G E	M	M	0	0	0	0	
8	6.0	V_G E	0 Gravel BAR	U	S	0	0	0	0	
9	6.1	V_G E	0 GRAVEL BAR	M	S	0	0	0	0	
10	3.7	V_G E	0 Gravel BAR	U	S	0	0	0	0	
11	3.2	V_G E	0 Grvl	M	S	0	0	0	0	
12	10.3	0 GRAVEL BAR	V_G E	S	U	0	0	0	0	
13	4.2	V_G E	V_G E	M	M	0	0	0	0	
14	5.1	V_G E	V_{GB} E	M	M	0	0	0	0	
15	5.4	V_G E	V_{GB} E	U	M	0	0	0	0	
16	3.5	V_G E	0 Grvl BAR	M	S	0	0	0	0	
10	4.1	0 Grvl BAR	V_G E	S	U	0	0	0	0	

GPS: ELEVATION:

SLOPE(s): 0.2%

stream length(s) upper level reading(s) 2.71m lower level reading(s) 2.96m

LINEAR DISTANCE ALONG 150 METER REACH LENGTH: 123m WATER CHEM. SAMPLED? ✓

1200 TEMPERATURE 20.82 pH 8.03 72.2 ORP CONDUCTIVITY 158 CON 171 D.O. 4.30 42.8% ALKALINITY

TDS 0.111 SAL 0.08

Surrounding **RIPARIAN VEGETATION** Cover (w/in 2 m of channel)

[descriptions of species present if known and sparse/common/ or dense]

[Sparse=<25%, Common=50%, Dense=>75%; S-C=25-50%, C-D=50-75%]

PH 7.76 -64 81.4

Herbaceous Cover DENSE

Woody Bushes SPARSE

Deciduous Trees –

Evergreen Trees SPARSE - NONE

ALGAE TYPE(s) Present:

- ☑ Diatom Film (olive green)
- ☑ Filamentous Form (green)
- ☐ Mat / Slime (blue-green)

PHOTOS: ~~541, 542 USDS 150~~

543 544 USDS 100

45 46 USDS. 50

47 48 USDS 0

PIC 554-554 DG BAR @ 105 CORNER POOL

STREAM: SQUAW CREEK SITE: LOWER MEADOW DATE: 7-23-17 2001

T	D-1	V-1	ST-1	D-2	V-2	ST-2	D-3	V-3	ST-3	D-4	V-4	ST-4	D-5	V-5	ST-5
1	20		6 A D	70		8 A D	45		14 A D	27		>1 A W	15		>1 A D W
2	2		4 A D	14		1 A D	26		>1 A D	36		9 A D	29		19 A D
3	4		37 A D	6		12 A	6		21 A	10		31 A D	16		>1 A D
4	18		27 A D	22		24 A	21		11 A	13		7 A	6		4 A W
5	28		22 A	18		24 A	8		10 A	5		5 A D	29		3 W A D
6	53		>1 A D	66		1 A	56		3 A D	30		9 A D	5		7 A D
7	2		1 A D	0		1	4		4 A D	40		9 A D	8		>1 A D
8	32		1 A	59		4 A D	20		8 A D	59		10 A D	19		>1 A D
9	10		70 A D	50		>1 A D	59		26 A D	35		1 A	19		21 A D
10	15		22 A D	20		40 A D	20		23 A	15		2 A D	8		1 A D
11	29		>1 A D	22		46 A D	20		4 A D	15		34 A D	9		9 A
12	18		4 A D	38		13 A D	59		1 A D	50		>1 A D	68		>1 A D
13	70		>1 A	72		8 A	92		4 A	58		1 A D	25		>1 A D
14	70		50 A D	51		14 A	22		14 A D	9		4 A D	9		6 A D
15	40		>1 D A	54		14 D A	35		1 D A	25		3 D A	16		14 D A W
16	11		71 A D V	15		12 D A	19		52 A	18		25 A D	16		3 A D V

COBBLE EMBEDDEDNESS MEASURES (n=25)

5		35		0
	10		30	15
50		15		
	45		25	
35		10		

Current Meter used and units:

10	10		1 A D	20		6 A D	45		4 A D	55		>1 A D	45		>1 A D W V

SWAMP Stream Habitat Characterization Form FULL VERSION Revision Date: January 9th, 2012

REACH DOCUMENTATION

Standard Reach Length (wetted width ≤ 10 m) = 150 m Distance between transects = 15 m
Alternate Reach Length (wetted width >10 m) = 250 m Distance between transects = 25 m

Project Name: Truckee River WQ Mon. Prog	Date: 8 / 21 / 2012	Sample Collection Time: 1130	
Stream Name: Martis Cr. Schoffer Branch	Site Name/ Description: 1mm. Below Footbridge & Martin Camp Upper WQ site		
Site Code: MC-1	Crew Members: JOC / BJK		
Latitude (actual – decimal degrees): °N	datum: NAD83		
Longitude (actual – decimal degrees): °W	other:	GPS Device:	

AMBIENT WATER QUALITY MEASUREMENTS

*Turbidity, silica, oxygen saturation, and air temp are optional; calibration date required on page 24

Water Temp (Deg C)	pH	Alkalinity (mg/L)	Turbidity (ntu)*	Oxygen Sat. (%)*
9.23	7.03	0.019	41.6	94.8
Dissolved O2 (mg/L)	**Specific Conduct (uS/cm)**	**Salinity (ppt)**	**Silica (mg/L)***	**Air Temp (Deg C)***
10.92/94.8	121/84	0.06	87.8	23°C

@1100

Actual Reach Length (m) (see reach length guidelines at top of form): 150

Explanation:

DISCHARGE MEASUREMENTS

1st measurement = left bank (looking downstream)

check if discharge measurements not possible (explain in field notes section) ☐

VELOCITY AREA METHOD (preferred)

cal. date:

Transect Width (m): 1.8

	Distance from Left Bank (cm)	Depth (cm)	Velocity (ft/sec)		Distance from Left Bank (cm)	Depth (cm)	Velocity (ft/sec)
1	84.5	2	60%	11	174.5	11	0.478
2	93.5	4	85	12	183.5	12	0.295
3	102.5	5	90%	13	192.5	12	0.353
4	111.5	5	90%	14	201.5	14	0.236
5	120.5	6	0.241	15	210.5	16	0.251
6	129.5	8	0.368	16	219.5	14	0.302
7	138.5	10	0.361	17	228.5	14	0.249
8	147.5	10	0.346	18	237.5	13	0.244
9	156.5	10	0.440	19	246.5	12	0.278
10	165.5	11	0.476	20	255.5	10	80%

BUOYANT OBJECT METHOD (use ONLY if velocity area method not possible)

	Float 1	Float 2	Float 3
Distance (m)			
Float Time (sec)			

Float Reach Cross Section

width (m) depth(cm)	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

NOTABLE FIELD CONDITIONS (check one box per topic)

Evidence of recent rainfall (enough to increase surface runoff)	NO		minimal		>10% flow increase	
Evidence of fires in reach or immediately upstream (<500 m)	NO		< 1 year		< 5 years	
Dominant landuse/ landcover in area surrounding reach	Agriculture		Forest		Rangeland	
	Urban/ Industrial		Suburb/Town		Other	

ADDITIONAL COBBLE EMBEDDEDNESS MEASURES

(carry over from transect forms if needed to attain target count of 25; measure in %)

1	2	3	4	5	6	7	8	9	10	11	12	13
14	15	16	17	18	19	20	21	22	23	24	25	

STREAM GAUGE STAFF PLATE 0.50

Site Code: MC-1 Date: 08/21/2012

SLOPE and BEARING FORM (transect based - for Full PHAB only)

AUTOLEVEL ☒
CLINOMETER ☐
HANDLEVEL ☐
OTHER ☐

Starting Transect	Main Segment (record percent of inter-transect distance in each segment if supplemental segments are used)						Supplemental Segment (record percent of inter-transect distance in each segment if supplemental segments are used)					
	Stadia rod measurements POS 1	POS 2	Slope (%) or Elevation Difference cm ☐ % ☐	Segment Length (m)	Bearing (0°-359°)	Percent of Total Length (%)	Stadia rod measurements		Slope or Elevation Difference cm ☐ % ☐	Segment Length (m)	Bearing (0°-359°)	Percent of Total Length (%)
K	3,255		POS 3									
J												
I (MID TRAIL TURN)	1,890	0,265										
H												
G												
F (CGW TURN)		2,428	1,035									
E												
D												
C												
B												
A			4,875									
additional calculation area												

ADDITIONAL HABITAT CHARACTERIZATION

High Gradient ☒ Low Gradient ☐

Parameter	Optimal	Suboptimal	Marginal	Poor
Epifaunal Substrate/ Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover (50% for low-gradient streams); mix of submerged logs, undercut banks, cobble, or other stable habitat	40-70% mix of stable habitat (30-50% for low-gradient streams); well-suited for full colonization potential	20-40% mix of stable habitat (10-30% in low-gradient streams); substrate frequently disturbed or removed	Less than 20% stable habitat (10% in low-gradient streams); lack of habitat is obvious; substrate unstable or lacking
Score:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition (<20% in low-gradient streams)	Some new increase in bar formation, mostly from gravel, sand, or fine sediment; 5-30% of the bottom affected (20-50% in low-gradient streams)	Moderate deposition of new gravel, sand, or fine sediment on bars; 30-50% of the bottom affected (50-80% in low-gradient streams)	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently (>80% in low-gradient streams)
Score:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern	Some channelization present, (e.g., bridge abutments); evidence of past channelization (> 20yrs) may be present but recent channelization not present	Channelization may be extensive; embankments or shoring structures present on both banks; 40 to 80% of stream reach disrupted	Banks shored with gabion or cement; Over 80% of the stream reach channelized and disrupted; Instream habitat greatly altered or removed entirely
Score:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Site Code: MC-1	Site Name:	Date: 09 / 21 / 2012
Wetted Width (m): 2.0	Bankfull Width (m): 3.12 / Bankfull Height (m): 42cm	**Transect A**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	1	>1		P A	0	P A D	P A D	P A D
Left Center	0.5	7	9		P A	1	P A D	P A D	P A D
Center	1.1	19	5		P A	0	P A D	P A D	P A D
Right Center	1.5	16	200	35	P A	1	P A D	P A D	P A D
Right Bank	2.0	15	>1		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed.

Riparian Vegetation (facing downstream)
0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity
0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17) *count covered dots*

Center Left	14
Center Upstream	17
Center Right	17
Center Downstream	16
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)
0 = Not Present
B = On Bank
C = Between Bank & 10m from Channel
P = >10m+<50m from Channel
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

TAKE PHOTOGRAPHS *(check box if taken & record photo code)*

Downstream (**optional**)	☐ 893
Upstream (**required**)	☐ 894

New tree fall upstream of A
Rec trash whole stretch

Inter-Transect: AB

Wetted Width (m): 2.3

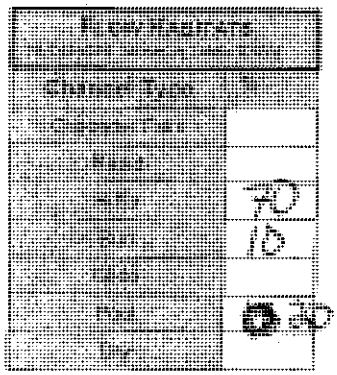
Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	9	71		P A	0	P A D	P A D	P A D
Left Center	0.6	8	17		P A	1	P A D	P A D	P A D
Center	1.2	10	15		P A	1	P A D	P A D	P A D
Right Center	1.7	12	125	30	P A	1	P A D	P A D	P A D
Right Bank	2.3	14	23		P A	1	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed



Site Code: MC-1	Site Name:	Date: 08 / 21 / 2012
Wetted Width (m): 2.00	Bankfull Width (m): 2.80 / Bankfull Height (m): 43cm	**Transect B**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0.0	8	27		P A	1	P A D	P A D	P A D
Left Center	0.8	13	129	10	P A	1	P A D	P A D	P A D
Center	1.0	11	24		P A	1	P A D	P A D	P A D
Right Center	1.8	10	99	5	P A	1	P A D	P A D	P A D
Right Bank	2.0	1	39		P A	1	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

MACRO Phytes ON cobble = moss

RIPARIAN VEGETATION (facing downstream)
0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

INSTREAM HABITAT COMPLEXITY
0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

DENSIOMETER READINGS (0-17)
count covered dots

Center Left	8
Center Upstream	6
Center Right	17
Center Downstream	17
Optional	
Left Bank	
Right Bank	

HUMAN INFLUENCE (circle only the closest to wetted channel)
0 = Not Present
B = On Bank
C = Between Bank & 10m from Channel
P = >10m-<50m from Channel
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad TRAIL	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

BANK STABILITY

Left Bank	stable	moderate	unstable
Right Bank	stable	moderate	unstable

Inter-Transect: BC

Wetted Width (m): 2.1

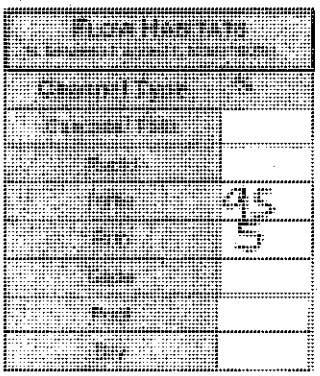
Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	10	121	10	P A	0	P A D	P A D	P A D
Left Center	0.5	18	165	0	P A	2	P A D	P A D	P A D
Center	1.1	14	161	0	P A	1	P A D	P A D	P A D
Right Center	1.6	Dry	250		P A	1	P A D	P A D	P A D moss
Right Bank	2.1	5	232		P A	1	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them; scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed.



Site Code: MC-1	Site Name:	Date: 8 / 21 / 2012
Wetted Width (m): 1.6	Bankfull Width (m): 2.9 / Bankfull Height (m): 45cm	**Transect C**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	2	129	50	P A	0	P A D	P A D	P A D
Left Center	0.4	13	10		P A	0	P A D	P A D	P A D
Center	0.8	17	18		P A	0	P A D	P A D	P A D
Right Center	1.2	13	23		P A	1	P A D	P A D	P A D
Right Bank	1.6	2	1		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present; substrate too small or covered with silt. (formerly Z code).
D = Dry, not assessed.

Riparian Vegetation (facing downstream)
0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity
0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)
count covered dots

Center Left	17
Center Upstream	16
Center Right	17
Center Downstream	17
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)
0 = Not Present
B = On Bank
C = Between Bank & 10m from Channel
P = >10m <50m from Channel
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad TRAIL	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

Left Bank	stable	vulnerable	stable
Right Bank	stable	vulnerable	stable

Inter-Transect: CD

Wetted Width (m): 1.5

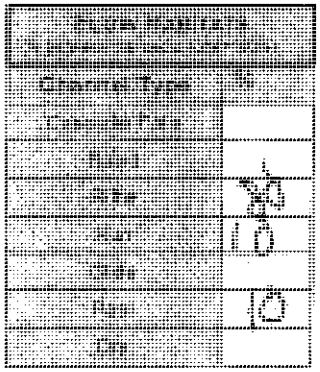
Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	8	11		P A	1	P A D	P A D	P A D
Left Center	0.3	12	18		P A	1	P A D	P A D	P A D
Center	0.6	15	37		P A	1	P A D	P A D	P A D
Right Center	0.9	10	12		P A	1	P A D	P A D	P A D
Right Bank	1.2	2	19		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed



SWAMP Stream Habitat Characterization Form *FULL VERSION* *Revision Date: January 9th, 2012*

Site Code: MC-1	Site Name:	Date: 8 / 21 / 2012
Wetted Width (m): 1.9	Bankfull Width (m): 3.1 / Bankfull Height (m): 4.1	**Transect D**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	2	24		P A	1	P A D	P A D	P A D
Left Center	0.5	3	12		P A	1	P A D	P A D	P A D
Center	1.0	8	26		P A	1	P A D	P A D	P A D
Right Center	1.4	13	18		P A	1	P A D	P A D	P A D
Right Bank	1.9	11	3		P A	1	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

RIPARIAN VEGETATION (facing downstream)
0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

INSTREAM HABITAT COMPLEXITY
0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

DENSIOMETER READINGS (0-17)
count covered dots

Center Left	14
Center Upstream	2
Center Right	16
Center Downstream	17
Optional	
Left Bank	
Right Bank	

HUMAN INFLUENCE (circle only the closest to wetted channel)
0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m <50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad RAIL	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

BANK STABILITY

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

Inter-Transect: DE

Wetted Width (m): 2.3

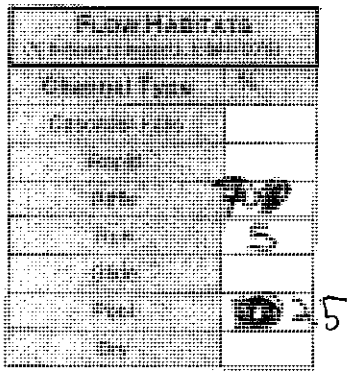
Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	16	71		P A	0	P A D	P A D	P A D
Left Center	0.6	8	11		P A	0	P A D	P A D	P A D
Center	1.2	4	1		P A	1	P A D	P A D	P A D
Right Center	1.7	14	56		P A	1	P A D	P A D	P A D
Right Bank	2.3	7	4		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed.



Site Code: MC-1	Site Name:	Date: 8 / 12 / 2012
Wetted Width (m): 1.5	Bankfull Width (m): 3.9 / Bankfull Height (m):	**Transect E**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	2	71		P A	0	P A D	P A D	P A D
Left Center	0.4	8	12		P A	0	P A D	P A D	P A D
Center	0.8	12	71	20	P A	2	P A D	P A D	P A D
Right Center	1.1	20	1		P A	2	P A D	P A D	P A D
Right Bank	1.5	29	60		P A	2	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed.

RIPARIAN VEGETATION (facing downstream)
0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

INSTREAM HABITAT COMPLEXITY
0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

DENSIOMETER READINGS (0-17)
count covered dots

Center Left	17
Center Upstream	16
Center Right	10
Center Downstream	11
Optional	
Left Bank	
Right Bank	

HUMAN INFLUENCE (circle only the closest to wetted channel)
0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m-<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad TRAIL	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

Left Bank	stable	vulnerable	unstable
Right Bank	stable	vulnerable	unstable

Inter-Transect: EF

Wetted Width (m): 1.85

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	3	1		P A	0	P A D	P A D	P A D
Left Center	0.5	10	41		P A	0	P A D	P A D	P A D
Center	0.9	12	149	20	P A	1	P A D	P A D	P A D
Right Center	1.4	22	18		P A	1	P A D	P A D	P A D
Right Bank	1.9	2	71		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes

0 = No microalgae present; Feels rough, not slimy;
1 = Present but not visible; Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code)
D = Dry, not assessed

Flow Rate Area	
Channel Type	
Channel Type	
Width	
Depth	30
Flow	5
Velocity	
Depth	5
Dry	

Site Code: MC-1	Site Name:	Date: 8 / 21 / 2012
Wetted Width (m): 1.5	Bankfull Width (m): 5.5	Bankfull Height (m): 45cm

Transect F

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	9	0.5		P A		P A D	P A D	P A D
Left Center	0.4	40	79	0	P A	2	P A D	P A D	P A D
Center	0.8	10	161	50	P A	2	P A D	P A D	P A D
Right Center	1.1	12	145	45	P A	1	P A D	P A D	P A D
Right Bank	1.5	2	59	1	P A		P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	17
Center Upstream	16
Center Right	10
Center Downstream	12
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m & <50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad TRAIL	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

TAKE PHOTOGRAPHS
(check box if taken & record photo code)

Downstream (**required**) ☐
896

Upstream (**required**) ☐
895

Inter-Transect: FG

Wetted Width (m): 1.5

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	27	1		P A	0	P A D	P A D	P A D
Left Center	0.4	20	16		P A	1	P A D	P A D	P A D
Center	0.8	20	300		P A	2	P A D	P A D	P A D
Right Center	1.1	10	46		P A	2	P A D	P A D	P A D
Right Bank	1.5	3	900		P A	2	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed.

Flow Habitats
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	90
Run	5
Glide	
Pool	5
Dry	

Site Code: MC-1	Site Name:	Date: 8 / 21 / 2012
Wetted Width (m): 1.9	Bankfull Width (m): 3.0	Bankfull Height (m): 49cm

Transect G

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	6	65		P A	1	P A D	P A D	P A D
Left Center	0.5	14	9		P A	1	P A D	P A D	P A D
Center	1.0	16	64		P A	1	P A D	P A D	P A D
Right Center	1.4	18	40		P A	1	P A D	P A D	P A D
Right Bank	1.9	1	4		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	16
Center Upstream	16
Center Right	16
Center Downstream	17
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present
B = On Bank
C = Between Bank & 10m from Channel;
P = >10m & <50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad TRAIL	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

Inter-Transect: GH

Wetted Width (m): 1.65

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	min/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	2	15		P A	0	P A D	P A D	P A D
Left Center	0.4	9	32		P A	0	P A D	P A D	P A D
Center	0.8	[illegible]	220	30	P A	2	P A D	P A D	P A D
Right Center	1.2	15	130	20	P A	2	P A D	P A D	P A D
Right Bank	1.7	5	8		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm; Rubbing finger's on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

Inter-Transects

Channel Type	%
[illegible]	
[illegible]	
[illegible]	65
[illegible]	[illegible]
[illegible]	
[illegible]	35
[illegible]	

Site Code: MC-1	Site Name:	Date: 8 / 21 / 2012
Wetted Width (m): 2.0	Bankfull Width (m): 2.9	Bankfull Height (m): 48 cm

Transect H

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	2	26		P A	1	P A D	P A D	P A D
Left Center	0.5	8	119	50	P A	1	P A D	P A D	P A D
Center	1.0	17	105	40	P A	1	P A D	P A D	P A D
Right Center	1.5	13	26		P A	2	P A D	P A D	P A D
Right Bank	2.0	10	91	15	P A	1	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed.

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	17
Center Upstream	17
Center Right	16
Center Downstream	17
Optional	
Left Bank	
Right Bank	

Human Influence

(circle only the closest to wetted channel)

0 = Not Present
B = On Bank
C = Between Bank & 10m from Channel
P = >10m+<50m from Channel
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

New tree fall Right @ transect

Inter-Transect: HI

Wetted Width (m): 1.6

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	12	18		P A	0	P A D	P A D	P A D
Left Center	0.4	10	81	0	P A	2	P A D	P A D	P A D
Center	0.8	9	23		P A	1	P A D	P A D	P A D
Right Center	1.2	2	132	0	P A	1	P A D	P A D	P A D
Right Bank	1.6	4	10		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

FLOW HABITATS (% between transects, total=100%)	
Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	80
Run	20
Glide	
Pool	
Dry	

Site Code: MC-1	Site Name:	Date: 8 / 21 / 2012
Wetted Width (m): 1.5	Bankfull Width (m): 3.35 / Bankfull Height (m): 46 cm	**Transect I**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	1	13		P A	0	P A D	P A D	P A D
Left Center	0.4	5	88	0	P A	1	P A D	P A D	P A D
Center	0.8	10	69	0	P A	1	P A D	P A D	P A D
Right Center	1.1	8	95	5	P A	2	P A D	P A D	P A D
Right Bank	1.5	2	5		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed.

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	17
Center Upstream	17
Center Right	17
Center Downstream	17
Optional	
Left Bank	
Right Bank	

Human Influence

(circle only the closest to wetted channel)

0 = Not Present
B = On Bank
C = Between Bank & 10m from Channel
P = >10m-<50m from Channel
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad TRAIL	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

Inter-Transect: IJ

Wetted Width (m): 1.85

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	3	1		P A	0	P A D	P A D	P A D
Left Center	0.5	9	410		P A	1	P A D	P A D	P A D
Center	0.9	10	200	45	P A	2	P A D	P A D	P A D
Right Center	1.4	6	20		P A	1	P A D	P A D	P A D
Right Bank	1.9	3	57		P A	1	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

FLOW HABITATS (% between transects, total=100%)	
Channel Type	**%**
Cascade/ Falls	
Rapid	
Riffle	100
Run	
Glide	
Pool	
Dry	

Site Code: MC1	Site Name:	Date: 8 / 21 / 2012
Wetted Width (m): 2.1	Bankfull Width (m): 3.05 / Bankfull Height (m): 40 cm	**Transect J**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	3	15		P A	0	P A D	P A D	P A D
Left Center	0.5	3	60		P A	2	P A D	P A D	P A D
Center	1.1	11	80	0	P A	2	P A D	P A D	P A D
Right Center	1.6	9	28		P A	1	P A D	P A D	P A D
Right Bank	2.1	8	16		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed.

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (≥75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	17
Center Upstream	16
Center Right	17
Center Downstream	17
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present
B = On Bank
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad TRAIL	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

Inter-Transect: JK

Wetted Width (m): 1.7

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	2	40		P A	1	P A D	P A D	P A D
Left Center	0.4	4	22		P A	2	P A D	P A D	P A D
Center	0.9	9	41		P A	1	P A D	P A D	P A D
Right Center	1.3	10	36		P A	1	P A D	P A D	P A D
Right Bank	1.7	7	11		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry; not assessed

Flow Habitats
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	95
Run	
Glide	
Pool	5
Dry	

Site Code: MC-1	Site Name:	Date: 8 / 21 / 2012
Wetted Width (m): 2.0	Bankfull Width (m): 3.5 / Bankfull Height (m): 30cm	**Transect K**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	1	11		P A	0	P A D	P A D	P A D
Left Center	0.5	10	55		P A	2	P A D	P A D	P A D
Center	1.0	11	86	0	P A	2	P A D	P A D	P A D
Right Center	1.5	11	105	20	P A	2	P A D	P A D	P A D
Right Bank	2.0	2	29		P A	1	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present; Feels rough, not slimy;
1 = Present but not visible; Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them; scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
U = Cannot determine if microalgae present; substrate too small or covered with silt (formerly Z code);
D = Dry; not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	17
Center Upstream	16
Center Right	17
Center Downstream	17
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+ <50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad TRAIL	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

TAKE PHOTOGRAPHS
(check box if taken & record photo code)

Downstream (**required**) ☐
897

Upstream (**optional**) ☐
898

REACH DOCUMENTATION

Standard Reach Length (wetted width ≤ 10 m) = 150 m Distance between transects = 15 m
Alternate Reach Length (wetted width >10 m) = 250 m Distance between transects = 25 m

Project Name: TRUCKEE RIVER WQ MONITORING	Date: 08 / 24 / 2012 Sample Collection Time: 1145
Stream Name: MARTIS CRK	Site Name/ Description: MARTIS CRK BELOW LAHONTAN BELOW DAM 7
Site Code: MC2	Crew Members: JAC / BJK
Latitude (actual – decimal degrees): °N	datum: NAD83 other: NAD27
Longitude (actual – decimal degrees): °W	GPS Device: GARMIN 62

AMBIENT WATER QUALITY MEASUREMENTS

* Turbidity, silica, oxygen saturation, and air temp are optional; calibration date required on page 24.

Water Temp (Deg C)	pH	Alkalinity (mg/L)	Turbidity (ntu)*	Oxygen Sat. (%)*
11.92	7.18	520 -47.7	0.092	106.9%
Dissolved O2 (mg/L)	**Specific Conduct (uS/cm)**	**Salinity (ppt)**	**Silica (mg/L)***	**Air Temp (Deg C)***
11.54	142/06	0.07	pH mV	26°C

Actual Reach Length (m) (see reach length guidelines at top of form): 150

Explanation:

773
-730
43.4

DISCHARGE MEASUREMENTS

1st measurement = left bank (looking downstream)

check if discharge measurements not possible (explain in field notes section) ☐

VELOCITY AREA METHOD (preferred)

cal. date

Transect Width (m): 1.6 m

CELLS = 8cm

	Distance from Left Bank (cm)	Depth (cm)	Velocity (ft/sec)		Distance from Left Bank (cm)	Depth (cm)	Velocity (ft/sec)
1	0.74	10	10%	11	1.54	26	0.427
2	0.82	19	40%	12	1.62	26	0.379
3	0.90	20	80%	13	1.70	26	0.372
4	0.98	22	0.251	14	1.78	25	0.351
5	1.06	24	0.374	15	1.86	24	0.373
6	1.14	26	0.353	16	1.94	24	0.368
7	1.22	28	0.404	17	2.02	24	0.390
8	1.30	28	0.389	18	2.10	23	0.266
9	1.38	28	0.405	19	2.18	22	0.148
10	1.46	28	0.418	20	2.26	18	60%

BUOYANT OBJECT METHOD (use ONLY if velocity area method not possible)

	Float 1	Float 2	Float 3
Distance (m)			
Float Time (sec)			

Float Reach Cross Section

width (m) depth(cm)	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

NOTABLE FIELD CONDITIONS (check one box per topic)

Evidence of recent rainfall (enough to increase surface runoff)	NO	minimal	>10% flow increase
Evidence of fires in reach or immediately upstream (<500 m)	NO	< 1 year	< 5 years
Dominant landuse/ landcover in area surrounding reach	Agriculture / Urban/ Industrial	Forest / Suburb/Town	Rangeland / Other

ADDITIONAL COBBLE EMBEDDEDNESS MEASURES

(carry over from transect forms if needed to attain target count of 25; measure in %)

1	2	3	4	5	6	7	8	9	10	11	12	13
5	10	0	15	25	0	35	0	5	15	10	0	

14	15	16	17	18	19	20	21	22	23	24	25

Site Code: MC-2 Date: 8 / 24 / 2012

SLOPE and BEARING FORM (transect based - for Full PHAB only)

AUTOLEVEL ☒ CLINOMETER ☐ HANDLEVEL ☐ OTHER ☐

Starting Transect	Main Segment (record percent of inter-transect distance in each segment if supplemental segments are used)					Supplemental Segment (record percent of inter-transect distance in each segment if supplemental segments are used)				
	Stadia rod measurements	Slope (%) or Elevation Difference cm ☐ % ☐	Segment Length (m)	Bearing (0°-359°)	Percent of Total Length (%)	Stadia rod measurements	Slope or Elevation Difference cm ☐ % ☐	Segment Length (m)	Bearing (0°-359°)	Percent of Total Length (%)
K	3,025 (1,720)									
J				118						
I				78	50				354	50
H	2,841 (1,550)			20	50				128	50
G				77						
F				130						
E				127						
D				126	50				81	50
C				75						
B				127						
A	2,655			129						
additional calculation area	925 cm → 0.61%					126m				

ADDITIONAL HABITAT CHARACTERIZATION

High Gradient ☐ Low Gradient ☒

Parameter	Optimal	Suboptimal	Marginal	Poor
Epifaunal Substrate/ Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover (50% for low-gradient streams); mix of submerged logs, undercut banks, cobble or other stable habitat	40-70% mix of stable habitat (30-50% for low-gradient streams); well suited for full colonization potential	20-40% mix of stable habitat (10-30% in low-gradient streams); substrate frequently disturbed or removed	Less than 20% stable habitat (10% in low-gradient streams); lack of habitat is obvious; substrate unstable or lacking
Score:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition (<20% in low-gradient streams)	Some new increase in bar formation, mostly from gravel, sand, or fine sediment; 5-30% of the bottom affected (20-50% in low-gradient streams)	Moderate deposition of new gravel, sand, or fine sediment on bars; 30-50% of the bottom affected (50-80% in low-gradient streams)	Heavy deposits of fine material, increased bar development, more than 50% of the bottom changing frequently (>80% in low-gradient streams)
Score:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern	Some channelization present, (e.g., bridge abutments); evidence of past channelization (> 20yrs) may be present but recent channelization not present	Channelization may be extensive; embankments or shoring structures present on both banks; 40 to 80% of stream reach disrupted	Banks shored with gabion or cement; Over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely
Score:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Site Code: MC-2	Site Name:	Date: 8 / 24 / 2012
Wetted Width (m): 2.0	Bankfull Width (m): 3.2	Bankfull Height (m): 34

Transect A

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	40	11		P A	1	P A D	P A D	P A D
Left Center	0.5	56	40		P A	0	P A D	P A D	P A D
Center	1.0	55	52		P A	0	P A D	P A D	P A D
Right Center	1.5	52	29		P A	0	P A D	P A D	P A D
Right Bank	2.0	42	>1		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed.

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots.

Center Left	17
Center Upstream	16
Center Right	10
Center Downstream	11
Optional	
Left Bank	
Right Bank	

Human Influence

(circle only the closest to wetted channel)

0 = Not Present
B = On Bank
C = Between Bank & 10m from Channel
P = >10m-<50m from Channel
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

TAKE PHOTOGRAPHS
(check box if taken & record photo code)

Downstream (**optional**) ☐
907

Upstream (**required**) ☐
905 906

TRAIL on LB

Inter-Transect: AB

Wetted Width (m): 1.65

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	11	40		P A	0	P A D	P A D	P A D
Left Center	0.4	25	31		P A	1	P A D	P A D	P A D
Center	0.8	24	48		P A	1	P A D	P A D	P A D
Right Center	1.2	20	12		P A	1	P A D	P A D	P A D
Right Bank	1.7	18	17		P A	1	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes

0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

Flow Habitats	
Habitat Type	%
Cascade	
Falls	
Pool	60
Run	30
Glide	10
Riffle	10
Step	

Site Code: MC-2	Site Name:	Date: 8 / 24 / 2012
Wetted Width (m): 1.5	Bankfull Width (m): 3.2	Bankfull Height (m): 42

Transect B

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	2	71		P A	0	P A D	P A D	P A D
Left Center	0.4	10	39		P A	3	P A D	P A D	P A D
Center	1.8	11	14		P A	1	P A D	P A D	P A D
Right Center	1.1	15	76	10	P A	3	P A D	P A D	P A D
Right Bank	1.5	11	27		P A	2	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed.

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	7
Center Upstream	0
Center Right	0
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m - <50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

Inter-Transect: BC

Wetted Width (m): 2.1

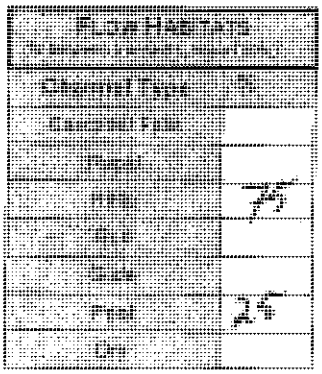
Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	5	71		P A	0	P A D	P A D	P A D
Left Center	0.5	14	12		P A	1	P A D	P A D	P A D
Center	1.1	19	71	5	P A	2	P A D	P A D	P A D
Right Center	1.6	20	14		P A	2	P A D	P A D	P A D
Right Bank	2.1	10	71		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed



SWAMP Stream Habitat Characterization Form *FULL VERSION* *Revision Date: January 9th, 2012*

Site Code: MC-2	Site Name:	Date: 8 / 24 / 2012
Wetted Width (m): 3.4	Bankfull Width (m): 4.7 / Bankfull Height (m): 44	**Transect C**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	8	71		P A	0	P A D	P A D	P A D
Left Center	0.9	58	71		P A	0	P A D	P A D	P A D
Center	1.7	76	50		P A	1	P A D	P A D	P A D
Right Center	2.6	39	71		P A	1	P A D	P A D	P A D
Right Bank	3.4	5	71		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed.

RIPARIAN VEGETATION (facing downstream)
0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

INSTREAM HABITAT COMPLEXITY
0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

DENSIOMETER READINGS (0-17)
count covered dots

Center Left	0
Center Upstream	0
Center Right	8
Center Downstream	2
Optional	
Left Bank	
Right Bank	

HUMAN INFLUENCE
(circle only the closest to wetted channel)
0 = Not Present.
B = On Bank.
C = Between Bank & 10m from Channel.
P = >10m+<60m from Channel.
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

BANK STABILITY

Left Bank	eroded	aggradation	stable
Right Bank	eroded	aggradation	stable

Inter-Transect: CD

Wetted Width (m): 1.9

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	10	17		P A	1	P A D	P A D	P A D
Left Center	0.5	14	13		P A	2	P A D	P A D	P A D
Center	1.0	5	29		P A	2	P A D	P A D	P A D
Right Center	1.4	6	33		P A	1	P A D	P A D	P A D
Right Bank	1.9	4	71		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

Flow Measurements	
Channel Type	
[illegible]	
[illegible]	
[illegible]	50
[illegible]	40
[illegible]	
[illegible]	10
[illegible]	

Site Code: MC-2	Site Name:	Date: 8/24/2012
Wetted Width (m): 2.1	Bankfull Width (m): 3.8 / Bankfull Height (m): 46	**Transect D**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	11	71		P A	0	P A D	P A D	P A D
Left Center	0.5	24	3		P A	0	P A D	P A D	P A D
Center	1.1	35	15		P A	0	P A D	P A D	P A D
Right Center	1.6	44	20		P A	2	P A D	P A D	P A D
Right Bank	2.1	12	71		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	0
Center Upstream	16
Center Right	17
Center Downstream	17
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present
B = On Bank
C = Between Bank & 10m from Channel
P = >10m+<50m from Channel
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

[illegible]

Left Bank	[illegible]	[illegible]	[illegible]
Right Bank	[illegible]	[illegible]	[illegible]

Inter-Transect: DE

Wetted Width (m): 2.25

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	8	71		P A	0	P A D	P A D	P A D
Left Center	0.6	16	18		P A	1	P A D	P A D	P A D
Center	1.1	21	22		P A	2	P A D	P A D	P A D
Right Center	1.7	20	82	0	P A	1	P A D	P A D	P A D
Right Bank	2.3	4	71		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

Flow Habitats	%
Cascade Pool	
Falls	
Riffle	15
Run	60
Glide	10
Pool	15
Dry	

Site Code: MC-2	Site Name:	Date: 8 / 24 / 2012
Wetted Width (m): 1.9	Bankfull Width (m): 4.2 / Bankfull Height (m): 49	**Transect E**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	4	11		P A	0	P A D	P A D	P A D
Left Center	0.5	10	41		P A	2	P A D	P A D	P A D
Center	1.0	11	48		P A	1	P A D	P A D	P A D
Right Center	1.4	10	39		P A	2	P A D	P A D	P A D
Right Bank	1.9	8	16		P A	1	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed.

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	0
Center Upstream	0
Center Right	10
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present
B = On Bank
C = Between Bank & 10m from Channel
P = >10m+<50m from Channel
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

Left Bank	Eroded	Alternate	Stable
Right Bank	Eroded	Alternate	Stable

Inter-Transect: EF

Wetted Width (m): 2.2

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	17	~~0~~ >1		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D
Left Center	0.6	38	30		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	1.1	32	30		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	1.7	25	71		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	2.2	15	71		(P) A		P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

Flow Habitats	
Channel Type	%
Cascade	
Chute	
Riffle	5
Run	40
Glide	50
Pool	5
Dry	

Site Code: MC-2	Site Name:	Date: 8_12_/2012
Wetted Width (m): 2.5	Bankfull Width (m): 3.1 / Bankfull Height (m): 50	**Transect F**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	2	Bed	CLAY	(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.6	9	Bed		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	1.3	25	45		(P) A	2	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	1.9	20	>1		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	2.5	10	>1		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (≥75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	(0) 1 2 3 4	(0) 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 (2) 3 4	0 1 ~~(2)~~ (3) 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 (1) 2 3 4	0 (1) 2 3 4
Herbs/ grasses	0 1 2 3 (4)	0 1 2 3 (4)
Barren, bare soil/ duff	0 (1) 2 3 4	0 (1) 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (≥75%)

Filamentous Algae	(0) 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 (1) 2 3 4
Boulders	(0) 1 2 3 4
Woody Debris >0.3 m	(0) 1 2 3 4
Woody Debris <0.3 m	(0) 1 2 3 4
Undercut Banks	0 (1) 2 3 4
Overhang. Vegetation	0 ~~(1)~~ (2) 3 4
Live Tree Roots	(0) 1 2 3 4
Artificial Structures	(0) 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	17
Center Upstream	15
Center Right	17
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present
B = On Bank
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel.
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B (0)	Y (N)	(0) B C P
Buildings	P C B (0)	Y (N)	(0) B C P
Pavement/ Cleared Lot	P C B (0)		(0) B C P
Road/ Railroad	P C B (0)	Y (N)	(0) B C P
Pipes (Inlet/ Outlet)	P C B (0)	Y (N)	(0) B C P
Landfill/ Trash	P C B (0)	Y (N)	(0) B C P
Park/ Lawn	P C B (0)		(0) B C P
Row Crop	P C B (0)		(0) B C P
Pasture/ Range	P C B (0)		(0) B C P
Logging Operations	P C B (0)		(0) B C P
Mining Activity	P C B (0)	Y (N)	(0) B C P
Vegetation Management	P C B (0)		(0) B C P
Bridges/ Abutments	P C B (0)	Y (N)	(0) B C P
Orchards/ Vineyards	P C B (0)		(0) B C P

Bank Stability

Left Bank	(Stable)	Moderate	Unstable
Right Bank	(Stable)	Moderate	Unstable

TAKE PHOTOGRAPHS
(check box if taken & record photo code)

Downstream (**required**) ☐
910

Upstream (**required**) ☐
908909

Inter-Transect: FG

Wetted Width (m): 1.75

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	8	71		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.4	14	22		P ~~A~~	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.9	14	bed		P ~~A~~		P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	1.3	6	bed		P ~~A~~		P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	1.8	8	71		P A	0	P ~~A~~ D	P ~~A~~ D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm
4 = 5-20mm
5 = >20mm
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code)
D = Dry, not assessed

Flow Habitats
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	70
Run	30
Glide	
Pool	
Dry	

Site Code: MC-2	Site Name:	Date: 8 / 24 / 2012
Wetted Width (m): 1.75	Bankfull Width (m): 5.2 / Bankfull Height (m): 50	**Transect G**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	9	71		P A	0	P A D	P A D	P A D
Left Center	0.4	10	22		P A	2	P A D	P A D	P A D
Center	0.9	11	44		P A	3	P A D	P A D	P A D
Right Center	1.3	10	30		P A	3	P A D	P A D	P A D
Right Bank	1.8	4	36		P A	2	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present; Feels rough, not slimy;
1 = Present but not visible; Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present; substrate too small or covered with silt (formerly Z code);
D = Dry; not assessed

Riparian Vegetation
(facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)
count covered dots

Center Left	0
Center Upstream	0
Center Right	0
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence
(circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability
(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

Inter-Transect: GH

Wetted Width (m): 1.7

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	1	14		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.4	8	13		P ~~A~~	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.9	18	40		P ~~A~~	2	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	1.3	25	11		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	1.7	2	6		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

Flow Habitats

Habitat Type	%
Cascade	
Pool	
Run	40
Riffle	30
Glide	
Flat	30
Other	

Site Code: MC-2	Site Name:	Date: 8 / 24 / 2012
Wetted Width (m): 3.1	Bankfull Width (m): 40 / Bankfull Height (m): 39	**Transect H**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	6	71		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D
Left Center	0.8	12	10		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	1.6	15	42		(P) A	2	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	2.3	16	6		P ~~A~~	1	P ~~A~~ D	P ~~A~~ D	~~P~~ A D
Right Bank	3.1	14	71		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	(0) 1 2 3 4	(0) 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 (2) 3 4	0 1 (2) 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	(0) 1 2 3 4	0 (1) 2 3 4
Herbs/ grasses	0 1 2 3 (4)	0 1 2 (3) 4
Barren, bare soil/ duff	0 1 (2) 3 4	0 1 (2) 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 (1) 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 ~~1~~ (2) 3 4
Boulders	(0) 1 2 3 4
Woody Debris >0.3 m	(0) 1 2 3 4
Woody Debris <0.3 m	(0) 1 2 3 4
Undercut Banks	0 (1) 2 3 4
Overhang. Vegetation	0 (1) 2 3 4
Live Tree Roots	(0) 1 2 3 4
Artificial Structures	(0) 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	~~8~~ 11
Center Upstream	7
Center Right	2
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+ <50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B (0)	Y (N)	(0) B C P
Buildings	P C B (0)	Y (N)	0 B C P
Pavement/ Cleared Lot	P C B (0)	(N)	0 B C P
Road/ Railroad	P C B (0)	Y (N)	0 B C P
Pipes (Inlet/ Outlet)	P C B (0)	Y (N)	0 B C P
Landfill/ Trash	P C B (0)	Y (N)	0 B C P
Park/ Lawn	P C B (0)		0 B C P
Row Crop	P C B (0)		0 B C P
Pasture/ Range	P C B (0)		0 B C P
Logging Operations	P C B (0)		0 B C P
Mining Activity	P C B (0)	Y (N)	0 B C P
Vegetation Management	P C B (0)		0 B C P
Bridges/ Abutments	P C B (0)	Y (N)	0 B C P
Orchards/ Vineyards	P C B (0)		(0) B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	(stable)
Right Bank	(eroded)	vulnerable	stable

Inter-Transect: HI

Wetted Width (m): 1.5

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	11	71		P ~~A~~	0	P ~~A~~ D	P ~~A~~ D	P A D
Left Center	0.4	16	60		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.8	31	60		P A	3	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	1.1	30	24		P ~~A~~	2	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	1.5	8	>1		P ~~A~~	0	P ~~A~~ D	P ~~A~~ D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

Flow Habitats
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	10
Run	50
Glide	
Pool	40
Dry	

Site Code: MC-2	Site Name:	Date: 8 / 24 / 2012
Wetted Width (m): 3.8	Bankfull Width (m): 4.9 / Bankfull Height (m): 40	**Transect I**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	10	71		P A	0	P A D	P A D	P A D
Left Center	1.0	21	15		P A	0	P A D	P A D	P A D
Center	1.9	38	58		P A	3	P A D	P A D	P A D
Right Center	2.9	30	40		P A	1	P A D	P A D	P A D
Right Bank	3.8	10	71		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm
4 = 5-20mm
5 = >20mm
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

Riparian Vegetation (facing downstream)
0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity
0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)
count covered dots

Center Left	0
Center Upstream	0
Center Right	0
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)
0 = Not Present
B = On Bank
C = Between Bank & 10m from Channel
P = >10m-<50m from Channel
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability
(score zone 5m upstream and 5m downstream of transect between bankfull wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

Inter-Transect: IJ

Wetted Width (m): 2.3

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	20	27		(P) A	1	P ~~A~~ D	P ~~A~~ D	(P) A D
Left Center	0.6	39	45		P ~~A~~	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	1.2	20	25		P ~~A~~	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	1.7	14	13		P ~~A~~	1	P A D	P ~~A~~ D	P ~~A~~ D
Right Bank	2.3	7	71		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D
	Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)								

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

FLOW HABITATS
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	65
Run	
Glide	
Pool	35
Dry	

Site Code: MC-2	Site Name:	Date: 8 / 24 / 2012
Wetted Width (m): 3.0	Bankfull Width (m): 6.5	Bankfull Height (m): 42

Transect J

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	39	1		P A	0	P ~~A~~ D	P ~~A~~ D	P A D
Left Center	0.5	72	37		P A	0	P ~~A~~ D	P ~~A~~ D	P A D
Center	1.5	80	84	0	P A	1	P ~~A~~ D	P ~~A~~ D	P A D
Right Center	2.3	72	55		P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	3.0	8	61		P ~~A~~	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed.

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	0
Center Upstream	0
Center Right	0
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence

(circle only the closest to wetted channel)

0 = Not Present
B = On Bank
C = Between Bank & 10m from Channel
P = >10m+ <50m from Channel
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

Inter-Transect: JK

Wetted Width (m): 2.5

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	10	71		P A	0	P ~~A~~ D	P ~~A~~ D	P A D
Left Center	0.6	25	20		P A	2	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	1.3	19	54		P A	3	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	1.9	16	15		P A	2	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	2.5	16	50		P A	1	P ~~A~~ D	P ~~A~~ D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

FLOW HABITATS (% between transects; total=100%)	
Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	45
Run	
Glide	
Pool	55
Dry	

Site Code: MC-2	Site Name:	Date: 8 / 24 / 2012
Wetted Width (m): 5.2	Bankfull Width (m): 5.3	Bankfull Height (m): 50

Transect K

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	20	71		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	1.3	21	34		P A	1	P ~~A~~ D	P ~~A~~ D	P A D
Center	2.6	42	33		P A	3	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	3.9	30	14		P A	0	P ~~A~~ D	P ~~A~~ D	P A D
Right Bank	5.2	8	71		P A		P ~~A~~ D	P ~~A~~ D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
U = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%); 1 = Sparse (<10%); 2 = Moderate (10-40%); 3 = Heavy (40-75%); 4 = Very Heavy (>75%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%); 1 = Sparse (<10%); 2 = Moderate (10-40%); 3 = Heavy (40-75%); 4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	8
Center Upstream	3
Center Right	4
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present; B = On Bank; C = Between Bank & 10m from Channel; P = >10m - <50m from Channel; Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

TAKE PHOTOGRAPHS (check box if taken & record photo code)

Downstream (**required**) ☐
912

Upstream (**optional**) ☐
911

SWAMP Stream Habitat Characterization Form — FULL VERSION — Revision Date: January 9th, 2012

REACH DOCUMENTATION

Standard Reach Length (wetted width ≤ 10 m) = 150 m Distance between transects = 15 m
Alternate Reach Length (wetted width >10 m) = 250 m Distance between transects = 25 m

Project Name: TRWQMP	Date: 9 / 6 / 2012	Sample Collection Time: 1200
Stream Name: UPPER W.B. MARTIN	Site Name/ Description: UPPER WEST BRANCH (ABOVE NSTAR RD)	
Site Code: MC-3	Crew Members: JAC, BJK	
Latitude (actual – decimal degrees): °N	datum: NAD83 other:	
Longitude (actual – decimal degrees): °W	GPS Device:	

AMBIENT WATER QUALITY MEASUREMENTS

* Turbidity, silica, oxygen saturation, and air temp are optional; calibration date required on page 24

Water Temp (Deg C)	pH	Alkalinity (mg/L)	Turbidity (ntu)*	Oxygen Sat. (%)*
11.43	7.64			95.7
Dissolved O^2 (mg/L)	**Specific Conduct (uS/cm)**	**Salinity (ppt)**	**Silica (mg/L)***	**Air Temp (Deg C)***
10.46	189/140	0.05		

Actual Reach Length (m) (see reach length guidelines at top of form)

Explanation:

DISCHARGE MEASUREMENTS

1st measurement = left bank (looking downstream)

check if discharge measurements not possible (explain in field notes section) ☐

VELOCITY AREA METHOD (preferred)

cal. date

Transect Width (m): 0.8

	Distance from Left Bank (cm)	Depth (cm)	Velocity (ft/sec)		Distance from Left Bank (cm)	Depth (cm)	Velocity (ft/sec)
1	0.22	24	0.149	11	62	28	0.374
2	.26	24	0.149	12	66	28	0.427
3	.30	32	0.178	13	70	28	0.390
4	34	34	0.178	14	74	27	0.407
5	38	34	0.171	15	78	28	0.272
6	42	32	0.148	16	82	28	0.302
7	46	32	0.159	17	86	26	0.241
8	50	30	0.163	18	90	26	0.217
9	54	30	0.247	19	94	22	0.207
10	58	28	0.287	20	98	22	0.200

BUOYANT OBJECT METHOD (use ONLY if velocity area method not possible)

	Float 1	Float 2	Float 3
Distance (m)			
Float Time (sec)			

Float Reach Cross Section

width (m) depth(cm)	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

NOTABLE FIELD CONDITIONS (check one box per topic)

Evidence of recent rainfall (enough to increase surface runoff)	NO	(minimal)	>10% flow increase
Evidence of fires in reach or immediately upstream (<500 m)	(NO)	< 1 year	< 5 years
Dominant landuse/ landcover in area surrounding reach	Agriculture	(Forest)	Rangeland
	Urban/ Industrial	(Suburb/Town)	Other

ADDITIONAL COBBLE EMBEDDEDNESS MEASURES

(carry over from transect forms if needed to attain target count of 25; measure in %)

1	2	3	4	5	6	7	8	9	10	11	12	13
14	15	16	17	18	19	20	21	22	23	24	25	

Site Code: MC-3 Date: 01 / 01 2012

SLOPE and BEARING FORM (transect based - for Full PHAB only)

AUTOLEVEL
CLINOMETER
HANDLEVEL
OTHER

Starting Transect	Main Segment (record percent of inter-transect distance in each segment if supplemental segments are used)						Supplemental Segment (record percent of inter-transect distance in each segment if supplemental segments are used)					
	Stadia rod measurements		Slope (%) or Elevation Difference cm ☐ % ☐	Segment Length (m)	Bearing (0°-359°)	Percent of Total Length (%)	Stadia rod measurements		Slope or Elevation Difference cm ☐ % ☐	Segment Length (m)	Bearing (0°-359°)	Percent of Total Length (%)
K			4.82									
J			5.20		324							
I			6.220		340							
H			6.900		336							
G		4.240	7.601		342							
F		5.020			4							
E		6.405			12							
D		7.085			4							
C	5.955	7.506			356							
B	6.715				348							
A	7.202 (8.715)		(12.19)		23							
additional calculation area	→ 7.285/150 → 4.86%											

ADDITIONAL HABITAT CHARACTERIZATION

High Gradient ☒ Low Gradient ☐

Parameter	Optimal	Suboptimal	Marginal	Poor
Epifaunal Substrate/ Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover (50% for low-gradient streams); mix of submerged logs, undercut banks, cobble or other stable habitat	40-70% mix of stable habitat (30-50% for low-gradient streams); well-suited for full colonization potential	20-40% mix of stable habitat (10-30% in low-gradient streams); substrate frequently disturbed or removed	Less than 20% stable habitat (10% in low-gradient streams); lack of habitat is obvious; substrate unstable or lacking
Score:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition (<20% in low-gradient streams)	Some new increase in bar formation, mostly from gravel, sand, or fine sediment; 5-30% of the bottom affected (20-50% in low-gradient streams)	Moderate deposition of new gravel, sand, or fine sediment on bars; 30-50% of the bottom affected (50 - 80% in low-gradient streams)	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently (>80% in low-gradient streams)
Score:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern	Some channelization present; (e.g., bridge abutments); evidence of past channelization (> 20yrs) may be present but recent channelization not present	Channelization may be extensive: embankments or shoring structures present on both banks; 40 to 80% of stream reach disrupted	Banks shored with gabian or cement; Over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely
Score:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Site Code: MC-3	Site Name:	Date: 9 / 6 / 2012
Wetted Width (m): 2.2	Bankfull Width (m): 3.05 / Bankfull Height (m): 3.4	**Transect A**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	1	24		P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.6	4	44		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	1.1	10	300		P A	2	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	1.7	16	20		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	2.2	10	3		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
- 0 = No microalgae present, Feels rough, not slimy;
- 1 = Present but not visible, Feels slimy;
- 2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
- 3 = 1-5mm;
- 4 = 5-20mm;
- 5 = >20mm;
- UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
- D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 1 = Sparse (<10%) 2 = Moderate (10-40%) 3 = Heavy (40-75%) 4 = Very Heavy (>75%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 (2) 3 4	0 (1) 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 (3) 4	0 1 (2) 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 (2) 3 4	0 (1) 2 3 4
Herbs/ grasses	0 1 2 (3) 4	0 1 2 (3) 4
Barren, bare soil/ duff	0 (1) 2 3 4	0 1 (2) 3 4

Instream Habitat Complexity

0 = Absent (0%) 1 = Sparse (<10%) 2 = Moderate (10-40%) 3 = Heavy (40-75%) 4 = Very Heavy (>75%)

Filamentous Algae	(0) 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	(0) ~~1~~ 2 3 4
Boulders	0 1 (2) 3 4
Woody Debris >0.3 m	(0) 1 2 3 4
Woody Debris <0.3 m	0 (1) 2 3 4
Undercut Banks	0 (1) 2 3 4
Overhang. Vegetation	0 1 2 (3) 4
Live Tree Roots	(0) 1 2 3 4
Artificial Structures	(0) 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	17
Center Upstream	16
Center Right	13
Center Downstream	14
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present; B = On Bank; C = Between Bank & 10m from Channel; P = >10m+<50m from Channel; Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B (0)	Y (N)	(0) B C P
Buildings	P C B (0)	Y (N)	(0) B C P
Pavement/ Cleared Lot	P C B (0)		(0) B C P
Road/ Railroad	P C B (0)	Y (N)	(0) B C P
Pipes (Inlet/ Outlet)	P C B (0)	Y (N)	(0) B C P
Landfill/ Trash	P C B (0)	Y (N)	(0) B C P
Park/ Lawn	P C B (0)		(0) B C P
Row Crop	P C B (0)		(0) B C P
Pasture/ Range	P C B (0)		(0) B C P
Logging Operations	P C B (0)		(0) B C (P) OLD
Mining Activity	P C B (0)	Y (N)	(0) B C P
Vegetation Management	P C B (0)		(0) B C P
Bridges/ Abutments	P C B (0)	Y (N)	(0) B C P
Orchards/ Vineyards	P C B (0)		(0) B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	(stable)
Right Bank	eroded	vulnerable	(stable)

TAKE PHOTOGRAPHS

(check box if taken & record photo code)

Downstream (**optional**) ☐ 929

Upstream (**required**) ☐ 930

Inter-Transect: AB

Wetted Width (m): 1.3

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	14	69	30	P A	1	P A D	P A D	P A D
Left Center	0.3	18	55		P A	1	P A D	P A D	P A D
Center	0.7	20	89	0	P A	1	P A D	P A D	P A D
Right Center	1.0	14	56		P A	1	P A D	P A D	P A D
Right Bank	1.3	1	5		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes

- **0** = No microalgae present, Feels rough, not slimy;
- **1** = Present but not visible, Feels slimy;
- **2** = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
- **3** = 1-5mm;
- **4** = 5-20mm;
- **5** = >20mm;
- **UD** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
- **D** = Dry, not assessed

FLOW HABITATS
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	5
Rapid	
Riffle	80
Run	5
Glide	
Pool	10
Dry	

Site Code: MC-3	Site Name:	Date: 9 / 6 / 2012
Wetted Width (m): 1.8	Bankfull Width (m): 3.3	Bankfull Height (m): 36

Transect B

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	6	>1		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.5	9	101	0	P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.9	15	68	0	P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	1.4	8	40		P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	1.8	1	14		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	15
Center Upstream	15
Center Right	17
Center Downstream	15
Optional	
Left Bank	
Right Bank	

Human Influence

(circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

Inter-Transect: BC

Wetted Width (m): 2.3

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	3	40		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.6	5	39		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	1.2	8	60		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	1.7	7	55		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	2.3	10	11		(P) A	0	P ~~A~~ D	P ~~A~~ D	~~P~~ ~~A~~ D
	Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)								

Microalgae Thickness Codes

0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

FLOW HABITATS
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	5
Rapid	
Riffle	40
Run	15
Glide	
Pool	40
Dry	

Site Code: MC-3	Site Name:	Date: 9 / 6 / 2012
Wetted Width (m): 1.8	Bankfull Width (m): 4.2 / Bankfull Height (m): .24	**Transect C**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	1	26		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.5	10	70	0	P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.9	11	77	0	P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	1.4	5	121	0	P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	1.8	2	49	0	P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
- 0 = No microalgae present, Feels rough, not slimy;
- 1 = Present but not visible, Feels slimy;
- 2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
- 3 = 1-5mm;
- 4 = 5-20mm;
- 5 = >20mm;
- UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
- D = Dry, not assessed.

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	17
Center Upstream	17
Center Right	17
Center Downstream	17
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

Inter-Transect: CD

Wetted Width (m): 3.5

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	10	9		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.9	9	21		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	1.8	Dry	303		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	2.6	11	55		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	3.5	11	4		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
	Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)								

Microalgae Thickness Codes

0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

FLOW HABITATS
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	40
Run	10
Glide	
Pool	50
Dry	

Site Code: MC-3	Site Name:	Date: 9 / 6 / 2012
Wetted Width (m): 2.1	Bankfull Width (m): 30 / Bankfull Height (m): 36	**Transect D**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	1	>1		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.5	24	36		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	1.1	26	30		(P) A	2	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	1.6	22	39		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	2.1	15	11		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 (1) 2 3 4	0 (1) 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 (3) 4	0 1 (2) (3) 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 (1) 2 3 4	0 (1) 2 3 4
Herbs/ grasses	0 1 2 (3) 4	0 1 (2) 3 4
Barren, bare soil/ duff	0 (1) 2 3 4	0 1 (2) 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	(0) 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 (1) 2 3 4
Boulders	0 (1) 2 3 4
Woody Debris >0.3 m	0 (1) 2 3 4
Woody Debris <0.3 m	0 (1) 2 3 4
Undercut Banks	0 (1) 2 3 4
Overhang. Vegetation	0 1 2 3 (4)
Live Tree Roots	(0) 1 2 3 4
Artificial Structures	(0) 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	17
Center Upstream	17
Center Right	17
Center Downstream	17
Optional	
Left Bank	
Right Bank	

Human Influence

(circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B (0)	Y (N)	(0) B C P
Buildings	P C B (0)	Y (N)	(0) B C P
Pavement/ Cleared Lot	P C B (0)		(0) B C P
Road/ Railroad	P C B (0)	Y (N)	(0) B C P
Pipes (Inlet/ Outlet)	P C B (0)	Y (N)	(0) B C P
Landfill/ Trash	P C B (0)	Y (N)	(0) B C P
Park/ Lawn	P C B (0)		(0) B C P
Row Crop	P C B (0)		(0) B C P
Pasture/ Range	P C B (0)		(0) B C P
Logging Operations	P C B (0)		(0) B C P
Mining Activity	P C B (0)	Y (N)	(0) B C P
Vegetation Management	P C B (0)		(0) B C P
Bridges/ Abutments	P C B (0)	Y (N)	(0) B C P
Orchards/ Vineyards	P C B (0)		(0) B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	(stable)
Right Bank	eroded	vulnerable	(stable)

Inter-Transect: DE

Wetted Width (m): 1.7

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	10	>1		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.4	16	11		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.9	20	3		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	1.3	25	150	35	P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	1.7	10	>1		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

FLOW HABITATS
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	55
Run	25
Glide	
Pool	20
Dry	

Site Code: MC-3	Site Name:	Date: 9 / 6 / 2012
Wetted Width (m): 1.7	Bankfull Width (m): 3.9 / Bankfull Height (m): 40	**Transect E**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	5	1		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D
Left Center	0.4	12	20		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.9	5	195	50	(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	1.3	7	91	0	(P) A	2	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	1.7	15	4	0	(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	6
Center Upstream	17
Center Right	17
Center Downstream	2
Optional	
Left Bank	
Right Bank	

Human Influence

(circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

Inter-Transect: EF

Wetted Width (m): 3.1

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	2	4		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.8	1	27		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	1.6	8	30		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	2.3	11	48		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	3.1	12	5		~~P~~ A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes

- **0** = No microalgae present, Feels rough, not slimy;
- **1** = Present but not visible, Feels slimy;
- **2** = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
- **3** = 1-5mm;
- **4** = 5-20mm;
- **5** = >20mm;
- **UD** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
- **D** = Dry, not assessed

FLOW HABITATS
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	10
Rapid	
Riffle	60
Run	10
Glide	
Pool	20
Dry	

Site Code: MC-3	Site Name:	Date: 9 / 6 / 2012
Wetted Width (m): 2.0	Bankfull Width (m): 5.0	Bankfull Height (m): 2.5

Transect F

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	4	7	>1	P A	0	P A D	P A D	P A D
Left Center	0.5	5	1		P A	0	P A D	P A D	P A D
Center	1.0	11	42		P A	0	P A D	P A D	P A D
Right Center	1.5	10	10		P A	0	P A D	P A D	P A D
Right Bank	2.0	2	7		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
- **0** = No microalgae present, Feels rough, not slimy;
- **1** = Present but not visible, Feels slimy;
- **2** = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
- **3** = 1-5mm;
- **4** = 5-20mm;
- **5** = >20mm;
- **UD** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
- **D** = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	17
Center Upstream	17
Center Right	17
Center Downstream	15
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

TAKE PHOTOGRAPHS

(check box if taken & record photo code)

Downstream (**required**) 931	☐
Upstream (**required**) 932	☐

Inter-Transect: FG

Wetted Width (m): 1.5

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	30	>1		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.4	29	109	10	(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.8	31	7		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	1.1	29	52		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	1.5	28	5		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes

- **0** = No microalgae present, Feels rough, not slimy;
- **1** = Present but not visible, Feels slimy;
- **2** = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
- **3** = 1-5mm;
- **4** = 5-20mm;
- **5** = >20mm;
- **UD** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
- **D** = Dry, not assessed

FLOW HABITATS
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	10
Rapid	
Riffle	20
Run	20
Glide	
Pool	50
Dry	

Site Code: MC-3	Site Name:	Date: 9 / 16 / 2012
Wetted Width (m): 1.8	Bankfull Width (m): 3.0 / Bankfull Height (m): 41	**Transect G**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	50	3		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.5	45	4		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.9	35	120	0	P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	1.4	19	1		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	1.8	2	1		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	6
Center Upstream	16
Center Right	17
Center Downstream	15
Optional	
Left Bank	
Right Bank	

Human Influence

(circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

Inter-Transect: GH

Wetted Width (m): 1.9

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	7	1		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.5	5	51		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	1.0	10	86	20	P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	1.4	15	11		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	1.9	11	71		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes

0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

FLOW HABITATS
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	10
Rapid	
Riffle	30
Run	10
Glide	
Pool	50
Dry	

Site Code: MC-3	Site Name:	Date: 9 / 10 / 2012
Wetted Width (m): 1.3	Bankfull Width (m): 2.3	Bankfull Height (m): 40

Transect H

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	1	>1		P A	0	P A D	P A D	P A D
Left Center	0.3	11	1		P A	0	P A D	P A D	P A D
Center	0.7	22	50		P A	0	P A D	P A D	P A D
Right Center	1.0	28	78		P A	0	P A D	P A D	P A D
Right Bank	1.3	9	1		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	17
Center Upstream	16
Center Right	3
Center Downstream	13
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

Inter-Transect: HI

Wetted Width (m): 1.5

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	9	>1		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.4	16	9		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.8	11	61		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	1.1	11	110	5	P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	1.5	14	59		P A	1	P ~~A~~ D	P ~~A~~ D	P A D
	Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)								

Microalgae Thickness Codes

0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

FLOW HABITATS
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	~~15~~ 55
Run	15
Glide	
Pool	20
Dry	

Site Code: MC-3	Site Name:	Date: 9 / 6 / 2012
Wetted Width (m): 1.1	Bankfull Width (m): 1.7	Bankfull Height (m): .52

Transect I

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	8	22		P ~~A~~	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.3	15	115		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.6	0.4	790		(P) A	2	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	0.8	2	20		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	1.1	1	208	10	(P) A	1	P ~~A~~ D	P ~~A~~ D	(P) A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	5
Center Upstream	17
Center Right	17
Center Downstream	17
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

Inter-Transect: IJ

Wetted Width (m): 1.8

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	5	19		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.5	3	42		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.9	10	79	25	P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	1.4	6	80	30	P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	1.8	5	24		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes

- **0** = No microalgae present, Feels rough, not slimy;
- **1** = Present but not visible, Feels slimy;
- **2** = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
- **3** = 1-5mm;
- **4** = 5-20mm;
- **5** = >20mm;
- **UD** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
- **D** = Dry, not assessed

FLOW HABITATS
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	85
Run	10
Glide	
Pool	5
Dry	

Site Code: MC-J	Site Name:	Date: __ __ / __ __ / 2012
Wetted Width (m): 1.8	Bankfull Width (m): 3.0	Bankfull Height (m): 3.2

Transect J

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	5	>1		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.5	09	600		(P) A	1	P ~~A~~ D	P ~~A~~ D	(P) A D
Center	0.9	28	165	0	(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	1.4	19	179	0	(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	1.8	1	14	[illegible]	(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them; scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	(0) 1 2 3 4	(0) 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 (3) 4	0 1 2 (3) 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 (1) 2 3 4	0 (1) 2 3 4
Herbs/ grasses	0 1 2 (3) 4	0 1 2 (3) 4
Barren, bare soil/ duff	0 (1) 2 ~~(3)~~ 4	0 1 (2) 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	(0) 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 (1) 2 3 4
Boulders	0 1 (2) 3 4
Woody Debris >0.3 m	0 (1) 2 3 4
Woody Debris <0.3 m	0 (1) 2 3 4
Undercut Banks	0 1 (2) 3 4
Overhang. Vegetation	0 1 2 (3) 4
Live Tree Roots	(0) 1 2 3 4
Artificial Structures	(0) 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	17
Center Upstream	17
Center Right	17
Center Downstream	17
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B (0)	Y (N)	(0) B C P
Buildings	P C B (0)	Y (N)	(0) B C P
Pavement/ Cleared Lot	P C B (0)	(N)	(0) B C P
Road/ Railroad	P C B (0)	Y (N)	(0) B C P
Pipes (Inlet/ Outlet)	P C B (0)	Y (N)	(0) B C P
Landfill/ Trash	P C B (0)	Y (N)	(0) B C P
Park/ Lawn	P C B (0)		(0) B C P
Row Crop	P C B (0)		(0) B C P
Pasture/ Range	P C B (0)		(0) B C P
Logging Operations	P C B (0)		(0) B C P
Mining Activity	P C B (0)	Y (N)	(0) B C P
Vegetation Management	P C B (0)	(N)	(0) B C P
Bridges/ Abutments	P C B (0)	Y (N)	(0) B C P
Orchards/ Vineyards	P C B (0)		(0) B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	(stable)
Right Bank	eroded	vulnerable	(stable)

Inter-Transect: JK

Wetted Width (m): 2.2

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	10	430		P A	2	P ~~A~~ D	P ~~A~~ D	P A D
Left Center	0.6	18	140	0	P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	1.1	5	109	0	P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	1.7	04	190	0	P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	2.2	7	60		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes

- **0** = No microalgae present, Feels rough, not slimy;
- **1** = Present but not visible, Feels slimy;
- **2** = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them; scraping leaves visible trail.
- **3** = 1-5mm;
- **4** = 5-20mm;
- **5** = >20mm;
- **UD** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
- **D** = Dry, not assessed

FLOW HABITATS
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	~~100~~ 90
Run	10
Glide	
Pool	
Dry	

Site Code: MC-3	Site Name:	Date: 9 / 6 / 2012
Wetted Width (m): 2.4	Bankfull Width (m): 3.0 / Bankfull Height (m): 3.2	**Transect K**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	4	1		P A	0	P A D	P A D	P A D
Left Center	0.6	8	>1		P A	0	P A D	P A D	P A D
Center	1.2	11	61		P A	1	P A D	P A D	P A D
Right Center	1.8	10	205	70	P A	1	P A D	P A D	P A D
Right Bank	2.4	15	74	10	P A	1	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
U = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	16
Center Upstream	17
Center Right	17
Center Downstream	17
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

TAKE PHOTOGRAPHS

(check box if taken & record photo code)

Downstream (**required**) ☐
934

Upstream (**optional**) ☐
933

REACH DOCUMENTATION

Standard Reach Length (wetted width ≤ 10 m) = 150 m Distance between transects = 15 m
Alternate Reach Length (wetted width >10 m) = 250 m Distance between transects = 25 m

Project Name: TRWQMP	Date: 9 / 17 / 2012	Sample Collection Time: 1030	
Stream Name: MARTIS Creek	Site Name/ Description: LOWER WS MARTIS BELOW GOLF COURSE		
Site Code: MC-4	Crew Members: IAC JK		
Latitude (actual – decimal degrees): °N	datum: NAD83 other:		
Longitude (actual – decimal degrees): °W	GPS Device:		

AMBIENT WATER QUALITY MEASUREMENTS

*Turbidity, silica, oxygen saturation, and air temp are optional; calibration date required on page 24

Water Temp (Deg C)	pH	Alkalinity (mg/L)	Turbidity (ntu)*	Oxygen Sat. (%)*
8.83	6.89			88.9
Dissolved O^2 (mg/L)	**Specific Conduct (uS/cm)**	**Salinity (ppt)**	**Silica (mg/L)***	**Air Temp (Deg C)***
10.31	194 | 134	0.09		

Actual Reach Length (m) *(see reach length guidelines at top of form)*: 150

Explanation:

DISCHARGE MEASUREMENTS

1st measurement = left bank (looking downstream)

check if discharge measurements not possible (explain in field notes section) ☐

VELOCITY AREA METHOD (preferred)

cal. date: Transect Width (m): 8

	Distance from Left Bank (cm)	Depth (cm)	Velocity (ft/sec)		Distance from Left Bank (cm)	Depth (cm)	Velocity (ft/sec)
1	22	4	10%	11	62	20	0.141
2	26	10	50%	12	66	20	0.145
3	30	11	80%	13	70	20	0.134
4	34	12	0.181	14	74	18	0.163
5	38	15	0.177	15	78	17	0.185
6	42	18	0.200	16	82	18	0.200
7	46	18	0.200	17	86	17	0.235
8	50	20	0.146	18	90	15	0.183
9	54	20	0.118	19	94	16	80%
10	58	20	0.149	20	98	16	40%

BUOYANT OBJECT METHOD (use ONLY if velocity area method not possible)

	Float 1	Float 2	Float 3
Distance (m)			
Float Time (sec)			

Float Reach Cross Section

width (m) depth(cm)	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

NOTABLE FIELD CONDITIONS (check one box per topic)

Evidence of recent rainfall (enough to increase surface runoff)	NO	minimal	>10% flow increase
Evidence of fires in reach or immediately upstream (<500 m)	NO	< 1 year	< 5 years
Dominant landuse/ landcover in area surrounding reach	Agriculture / Urban/ Industrial	Forest / Suburb/Town	Rangeland / Other

ADDITIONAL COBBLE EMBEDDEDNESS MEASURES

(carry over from transect forms if needed to attain target count of 25; measure in %)

1	2	3	4	5	6	7	8	9	10	11	12	13
0	5	10	25	10	35	60	50	25	40	50	40	35
14	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	
10	25	0	5									

Site Code: MC-4 Date: 9 / 12 / 2012

SLOPE and BEARING FORM (transect based - for Full PHAB only)

AUTOLEVEL ☐
CLINOMETER ☐
HANDLEVEL ☐
OTHER ☐

Starting Transect	Main Segment (record percent of inter-transect distance in each segment if supplemental segments are used)					Supplemental Segment (record percent of inter-transect distance in each segment if supplemental segments are used)				
	Stadia rod measurements	Slope (%) or Elevation Difference cm ☐ % ☐	Segment Length (m)	Bearing (0°-359°)	Percent of Total Length (%)	Stadia rod measurements	Slope or Elevation Difference cm ☐ % ☐	Segment Length (m)	Bearing (0°-359°)	Percent of Total Length (%)
K	1.600									
J				290						
I				308						
H				321						
G				309						
F				352						
E				241						
D				340						
C				317						
B				310						
A	4.075			287						
additional calculation area	→ 2.475/150 → 1.65%									

ADDITIONAL HABITAT CHARACTERIZATION

High Gradient ☐ Low Gradient ☒

Parameter	Optimal	Suboptimal	Marginal	Poor
Epifaunal Substrate/ Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover (60% for low-gradient streams); mix of submerged logs, undercut banks, cobble or other stable habitat	40-70% mix of stable habitat (30-50% for low-gradient streams); well-suited for full colonization potential	20-40% mix of stable habitat (10-30% in low-gradient streams); substrate frequently disturbed or removed	Less than 20% stable habitat (10% in low-gradient streams); lack of habitat is obvious; substrate unstable or lacking
Score:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition (<20% in low-gradient streams)	Some new increase in bar formation, mostly from gravel, sand, or fine sediment; 5-30% of the bottom affected (20-50% in low-gradient streams)	Moderate deposition of new gravel, sand, or fine sediment on bars; 30-50% of the bottom affected (50-80% in low-gradient streams)	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently (>80% in low-gradient streams)
Score:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern	Some channelization present, (e.g., bridge abutments); evidence of past channelization (> 20yrs) may be present but recent channelization not present	Channelization may be extensive; embankments or shoring structures present on both banks; 40 to 80% of stream reach disrupted	Banks shored with gabian or cement; Over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely
Score:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Site Code: MC-4	Site Name:	Date: 9 / 17 / 2012
Wetted Width (m): 58	Bankfull Width (m): 10 / Bankfull Height (m): 40	**Transect A**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	8	16		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.1	20	11		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.3	21	4		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	0.4	26	27		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	0.6	20	17		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm
4 = 5-20mm
5 = >20mm
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code)
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	0
Center Upstream	0
Center Right	0
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present
B = On Bank
C = Between Bank & 10m from Channel
P = > 10m+ <50m from Channel
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

Left Bank	stable	vulnerable	eroding
Right Bank	stable	vulnerable	eroding

TAKE PHOTOGRAPHS
(check box if taken & record photo code)

Downstream (**optional**) ☐
27

Upstream (**required**) ☐
26

Inter-Transect: AB

Wetted Width (m): 52

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	11	1		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	1301	13	3		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	4.3	15	13		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	4.F	17	1		P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	4.T	12	22		P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them; scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed.

Flow Measurements	
Channel Type	
Channel Flow	
[illegible]	
[illegible]	20
[illegible]	5
[illegible]	
[illegible]	5
[illegible]	

Site Code: MC-4	Site Name:	Date: 9 / 17 / 2012
Wetted Width (m): 1.75	Bankfull Width (m): 1.3	Bankfull Height (m): 5.2

Transect B

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	9	21		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.2	10	13		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.4	10	20		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	0.6	10	4		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	0.8	8	1		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed.

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	0
Center Upstream	0
Center Right	0
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence

(circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m <50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

Left Bank	eroded	subvertical	stable
Right Bank	eroded	subvertical	stable

Inter-Transect: BC

Wetted Width (m): 66

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	8	1		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.2	3	56		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.3	4	190	70	(P) A	2	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	0.5	8	37		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	0.7	6	34		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-6mm.
4 = 6-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed.

Flow Habitats	
Channel Type	
Channel Fill	
Riffle	
Run	30
Pool	30
Glide	
Pool	40
Dry	

SWAMP Stream Habitat Characterization Form **FULL VERSION** *Revision Date: January 9th, 2012*

Site Code: MC-4	Site Name:	Date: 9 / 17 / 2012
Wetted Width (m): 77	Bankfull Width (m): 130 / Bankfull Height (m): 49	**Transect C**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	2	>1		P A	0	P A D	P A D	P A D
Left Center	0.2	10	>1		P A	0	P A D	P A D	P A D
Center	0.4	18	12		P A	1	P A D	P A D	P A D
Right Center	0.6	18	12		P A	0	P A D	P A D	P A D
Right Bank	0.8	3	>1		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed.

Riparian Vegetation (facing downstream)
0 = Absent (0%) 1 = Sparse (<10%) 2 = Moderate (10-40%) 3 = Heavy (40-75%) 4 = Very Heavy (>75%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity
0 = Absent (0%) 1 = Sparse (<10%) 2 = Moderate (10-40%) 3 = Heavy (40-75%) 4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17) *count covered dots*

Center Left	0
Center Upstream	0
Center Right	0
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)
0 = Not Present
B = On Bank
C = Between Bank & 10m from Channel
P = >10m <50m from Channel
Channel (record Yes or No)

	Left Bank				Channel	Right Bank			
Walls/ Rip-rap/ Dams	P	C	B	0	Y N	0	B	C	P
Buildings	P	C	B	0	Y N	0	B	C	P
Pavement/ Cleared Lot	P	C	B	0		0	B	C	P
Road/ Railroad	P	C	B	0	Y N	0	B	C	P
Pipes (Inlet/ Outlet)	P	C	B	0	Y N	0	B	C	P
Landfill/ Trash	P	C	B	0	Y N	0	B	C	P
Park/ Lawn	P	C	B	0		0	B	C	P
Row Crop	P	C	B	0		0	B	C	P
Pasture/ Range	P	C	B	0		0	B	C	P
Logging Operations	P	C	B	0		0	B	C	P
Mining Activity	P	C	B	0	Y N	0	B	C	P
Vegetation Management	P	C	B	0		0	B	C	P
Bridges/ Abutments	P	C	B	0	Y N	0	B	C	P
Orchards/ Vineyards	P	C	B	0		0	B	C	P

Bank Stability

Left Bank	stable	vulnerable	eroding
Right Bank	stable	vulnerable	eroding

Inter-Transect: CD

Wetted Width (m): 1.1

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	4	4		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.3	6	25		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.6	8	37		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	0.8	8	31		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	1.1	6	14		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed.

At Fence line

FLOW HABITATS (% between transects, total=100%)	
Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	40
Run	45
Glide	
Pool	15
Dry	

Site Code: MC-4	Site Name:	Date: 9 / 17 / 2012
Wetted Width (m): 1.1	Bankfull Width (m): 140 / Bankfull Height (m): 48	**Transect D**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	11	32		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.3	12	56		(P) A	2	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.6	6	33		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	0.8	4	10		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	1.1	1	3		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt. (formerly Z code).
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (≤10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	~~0~~ 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	0
Center Upstream	0
Center Right	0
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence

(circle only the closest to wetted channel)

0 = Not Present
B = On Bank
C = Between Bank & 10m from Channel
P = >10m-50m from Channel
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0	Y N	0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

Left Bank	stable	unstable	Yes
Right Bank	stable	unstable	Yes

Inter-Transect: DE

Wetted Width (m): 78cm

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	1	215	30	(P) A	2	P ~~A~~ D	P ~~A~~ D	(P) A D
Left Center	0.2	8	110	60	(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.4	8	73	70	(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	0.6	10	28		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	0.8	8	26		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed.

Flow Habitats
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	70
Run	10
Glide	
Pool	20
Dry	

Site Code: MC-4	Site Name:	Date: 9 / 17 2012
Wetted Width (m): 1.2	Bankfull Width (m): 1.5 / Bankfull Height (m): .48	**Transect E**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	4	B1		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.3	6	42		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.6	8	60		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	0.9	7	40		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	1.2	5	1		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code)
D = Dry, not assessed

Riparian Vegetation (facing downstream)
0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	(0) 1 2 3 4	(0) 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	(0) 1 2 3 4	0 1 (2) 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	(0) 1 2 3 4	(0) 1 2 3 4
Herbs/ grasses	0 1 2 3 (4)	0 1 2 3 (4)
Barren, bare soil/ duff	0 (1) 2 3 4	0 (1) 2 3 4

Instream Habitat Complexity
0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	(0) 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 (1) 2 3 4
Boulders	0 (1) 2 3 4
Woody Debris >0.3 m	(0) 1 2 3 4
Woody Debris <0.3 m	(0) 1 2 3 4
Undercut Banks	0 1 (2) 3 4
Overhang. Vegetation	0 1 2 (3) 4
Live Tree Roots	(0) 1 2 3 4
Artificial Structures	(0) 1 2 3 4

Densiometer Readings (0-17)
count covered dots

Center Left	(0)
Center Upstream	(0)
Center Right	(0)
Center Downstream	(0)
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)
0 = Not Present
B = On Bank
C = Between Bank & 10m from Channel
P = > 10m & <50m from Channel
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P (C) (B) 0	Y (N)	0 B C P
Buildings	P C B (0)	Y (N)	0 B C P
Pavement/ Cleared Lot	P C B (0)		0 B C P
Road/ Railroad Gravel Path	(P) (C) B 0	Y (N)	0 B C P
Pipes (Inlet/ Outlet)	P C B (0)	Y (N)	0 B C P
Landfill/ Trash	P C B (0)	Y (N)	0 B C P
Park/ Lawn	P C B (0)		0 B C P
Row Crop	P C B (0)		0 B C P
Pasture/ Range	P C B (0)		0 B C P
Logging Operations	P C B (0)		0 B C P
Mining Activity	P C B (0)	Y (N)	0 B C P
Vegetation Management	P C B (0)		0 B C P
Bridges/ Abutments	P C B (0)	Y (N)	0 B C P
Orchards/ Vineyards	P C B (0)		0 B C P

Bank Stability
[illegible]

Left Bank	stable	vulnerable	(Stable)
Right Bank	stable	vulnerable	(Stable)

Inter-Transect: EF

Wetted Width (m): 80

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	10	420		(P) A	2	P ~~A~~ D	P ~~A~~ D	(P) A D
Left Center	0.2	16	4		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.4	18	13		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	0.6	16	150	35	(0) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	0.8	8	13		(0) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

Flow Habitats
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	60
Run	20
Glide	
Pool	20
Dry	

Site Code: MC-4	Site Name:	Date: 9 / 17 / 2012
Wetted Width (m): 90	Bankfull Width (m): 1.4 / Bankfull Height (m): .48	**Transect F**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	3	6		P A	0	P ~~A~~ D	P ~~A~~ D	P A D
Left Center	0.2	5	28		P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.5	10	18		P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	0.7	8	205	70	P A	2	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	0.9	18	16		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	
Center Upstream	
Center Right	
Center Downstream	
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m-<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad CART PATH	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

TAKE PHOTOGRAPHS
(check box if taken & record photo code)

Downstream (**required**) 29	☐
Upstream (**required**) 28	☐

3 meter upstream of CART PATH Bridge

Inter-Transect: FG

Wetted Width (m): 70

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	5	22		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.2	9	9		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D
Center	0.4	22	24		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	0.5	13	17		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	0.7	3	20		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

FLOW HABITATS
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	55
Run	10
Glide	
Pool	35
Dry	

Site Code: MC4	Site Name:	Date: 9 / 17 / 2012
Wetted Width (m): 50	Bankfull Width (m): 1.5 / Bankfull Height (m): 60	**Transect G**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	2	1		P A	0	P A D	P A D	P A D
Left Center	0.1	5	4		P A	1	P A D	P A D	P A D
Center	0.3	4	41		P A	1	P A D	P A D	P A D
Right Center	0.4	9	32		P A	1	P A D	P A D	P A D
Right Bank	0.5	4	15		P A	1	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm, Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

RIPARIAN VEGETATION (facing downstream)
0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

INSTREAM HABITAT COMPLEXITY
0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

DENSIOMETER READINGS (0-17)
count covered dots

Center Left	0
Center Upstream	0
Center Right	0
Center Downstream	0
Optional	
Left Bank	
Right Bank	

HUMAN INFLUENCE (circle only the closest to wetted channel)
0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m <50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

Inter-Transect: GH

Wetted Width (m): 55

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	4	36		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.1	7	30		P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.3	9	20		P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	0.4	8	39		P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	0.6	6	3		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

FLOW HABITATS (% between transects, total=100%)	
Channel Type	%
Cascade/Falls	
Rapid	
Riffle	55
Run	20
Glide	10
Pool	15
Dry	

Site Code: MC-4	Site Name:	Date: 9 / 17 / 2012
Wetted Width (m): 90	Bankfull Width (m): 1.6 / Bankfull Height (m): 41	**Transect H**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	6	1		P A	0	P A D	P A D	P A D
Left Center	0.2	10	20		P A	1	P A D	P A D	P A D
Center	0.5	11	30		P A	1	P A D	P A D	P A D
Right Center	0.7	10	16		P A	1	P A D	P A D	P A D
Right Bank	0.9	9	17		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present; substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	0
Center Upstream	0
Center Right	0
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence

(circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad CART	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

Inter-Transect: HI

Wetted Width (m): 80

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	4	71		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.2	26	21		P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.4	9	74	0	P A	2	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	0.6	9	24		P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	0.8	6	1		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

FLOW HABITATS (% between transects, total=100%)	
Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	70
Run	15
Glide	
Pool	15
Dry	

Site Code: MC-4	Site Name:	Date: 9/17/2012
Wetted Width (m): 7.2	Bankfull Width (m): 18	Bankfull Height (m): 0.50

Transect I

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	9	71		P A	0	P ~~A~~ D	P ~~A~~ D	P A D
Left Center	0.2	10	11		P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.4	11	34		P A	1	P ~~A~~ D	P ~~A~~ D	P A D
Right Center	0.5	11	53		P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	0.7	10	30		P A	1	P ~~A~~ D	P ~~A~~ D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	0
Center Upstream	0
Center Right	0
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence

(circle only the closest to wetted channel)

0 = Not Present,
B = On Bank,
C = Between Bank & 10m from Channel,
P = >10m+<50m from Channel,
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

Inter-Transect: IJ

Wetted Width (m): 7.8

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	11	14		P A	1	P ~~A~~ D	P ~~A~~ D	P A D
Left Center	0.2	18	30		P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.4	15	>1		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	0.6	12	>1		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	0.8	8	>1		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code)
D = Dry, not assessed

Flow Habitats
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	35
Run	30
Glide	10
Pool	25
Dry	

Site Code: MC-4	Site Name:	Date: 9 / 17 / 2012
Wetted Width (m): 1.5	Bankfull Width (m): 1.9 / Bankfull Height (m): 30	**Transect J**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	25	12		P A	0	P A D	P A D	P A D
Left Center	0.4	11	13		P A	0	P A D	P A D	P A D
Center	0.8	5	17		P A	1	P A D	P A D	P A D
Right Center	1.1	8	11		P A	0	P A D	P A D	P A D
Right Bank	1.5	4	71		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	11
Center Upstream	3
Center Right	17
Center Downstream	17
Optional	
Left Bank	
Right Bank	

Human Influence

(circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

Inter-Transect: JK

Wetted Width (m): 1.5

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	4	71		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.4	8	3		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.8	10	8		P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	1.1	10	7		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	1.5	5	71		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes

0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them; scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code)
D = Dry, not assessed

FLOW HABITATS
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	
Run	
Glide	20
Pool	80
Dry	

SWAMP Stream Habitat Characterization Form *FULL VERSION* *Revision Date: January 9th, 2012*

Site Code:	Site Name:	Date: ___ ___ / ___ ___ / 2012
Wetted Width (m): 5.0	Bankfull Width (m): 1.2	Bankfull Height (m): 45

Transect K

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	11	1		P A	0	P A D	P A D	P A D
Left Center	0.1	12	4		P A	0	P A D	P A D	P A D
Center	0.3	8	105	0	P A	2	P A D	P A D	P A D
Right Center	0.4	10	120	0	P A	1	P A D	P A D	P A D
Right Bank	0.5	15	245	0	P A	2	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present; Feels rough, not slimy;
1 = Present but not visible; Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
U = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

Riparian Vegetation
(facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)
count covered dots

Center Left	7
Center Upstream	0
Center Right	0
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence
(circle only the closest to wetted channel)

0 = Not Present
B = On Bank
C = Between Bank & 10m from Channel;
P = >10m & <50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability
(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

TAKE PHOTOGRAPHS
(check box if taken & record photo code)

Downstream (**required**) 31	☐
Upstream (**optional**) 30	☐

SWAMP Stream Habitat Characterization Form — FULL VERSION — Revision Date: January 9th, 2012

REACH DOCUMENTATION

Standard Reach Length (wetted width ≤ 10 m) = 150 m. Distance between transects = 15 m
Alternate Reach Length (wetted width >10 m) = 250 m. Distance between transects = 25 m

Project Name: TRWQMP	Date: 8 / 27 / 2012 — Sample Collection Time: 1100
Stream Name: MARTIN CREEK	Site Name/ Description: MARTIN CRK (LOWER) ABOVE WB CONFL
Site Code: MC5	Crew Members: JAC, BJC
Latitude (actual – decimal degrees): °N	datum: ~~NAD83~~ other: NAD27
Longitude (actual – decimal degrees): °W	GPS Device: GARMIN 62

AMBIENT WATER QUALITY MEASUREMENTS

*Turbidity, silica, oxygen saturation, and air temp are optional; calibration date required on page 24

Water Temp (Deg C)	pH	Alkalinity (mg/L)	Turbidity (ntu)*	Oxygen Sat. (%)*
8.83	7.52	-62.7	100.0	94.8
Dissolved O^2 (mg/L)	**Specific Conduct (uS/cm)**	**Salinity (ppt)**	**Silica (mg/L)***	**Air Temp (Deg C)***
10.99	143/99	0.07	94	

Actual Reach Length (m) (see reach length guidelines at top of form): 150

Explanation:

DISCHARGE MEASUREMENTS

1st measurement = left bank (looking downstream)

check if discharge measurements not possible (explain in field notes section) ☐

VELOCITY AREA METHOD (preferred)

cal. date: Transect Width (m): 2.2m

	Distance from Left Bank (cm)	Depth (cm)	Velocity (ft/sec)		Distance from Left Bank (cm)	Depth (cm)	Velocity (ft/sec)
1	75.5	34	50%	11	185.5	40	0.258
2	86.5	36	0.119	12	196.5	38	0.167
3	97.5	42	0.258	13	207.5	36	0.110
4	108.5	44	0.323	14	218.5	36	85%
5	119.5	46	0.331	15	229.5	33	80%
6	130.5	46	0.456	16	240.5	32	50%
7	141.5	46	0.419	17	251.5	30	20%
8	152.5	46	0.361	18	262.5	30	5%
9	163.5	42	0.324	19	273.5	30	0
10	174.5	42	0.267	20	284.5	30	0

Air Gap 11cm

BUOYANT OBJECT METHOD (use ONLY if velocity area method not possible)

	Float 1	Float 2	Float 3
Distance (m)			
Float Time (sec)			

Float Reach Cross Section

width (m) depth(cm)	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

NOTABLE FIELD CONDITIONS (check one box per topic)

Evidence of recent rainfall (enough to increase surface runoff)	NO	minimal	>10% flow increase
Evidence of fires in reach or immediately upstream (<500 m)	NO	< 1 year	< 5 years
Dominant landuse/ landcover in area surrounding reach	Agriculture	Forest	Rangeland
	Urban/ Industrial	Suburb/Town	Other

ADDITIONAL COBBLE EMBEDDEDNESS MEASURES

(carry over from transect forms if needed to attain target count of 25; measure in %)

1	2	3	4	5	6	7	8	9	10	11	12	13
14	15	16	17	18	19	20	21	22	23	24	25	

Site Code: MC-5 Date: 8 / 22 / 2012

SLOPE and BEARING FORM (transect based - for Full PHAB only)

AUTOLEVEL ☒ CLINOMETER ☐ HANDLEVEL ☐ OTHER ☐

Starting Transect	MAIN SEGMENT (record percent of inter-transect distance in each segment if supplemental segments are used)					SUPPLEMENTAL SEGMENT (record percent of inter-transect distance in each segment if supplemental segments are used)				
	Stadia rod measurements	Slope (%) or Elevation Difference cm ☐ % ☐	Segment Length (m)	Bearing (0°-359°)	Percent of Total Length (%)	Stadia rod measurements	Slope or Elevation Difference cm ☐ % ☐	Segment Length (m)	Bearing (0°-359°)	Percent of Total Length (%)
K	3.05									
J										
I										
H										
G										
F	0.61									
E	9									
D										
C										
B										
A	3.86									
additional calculation area	= 0.61/150 → 0.0041 0.41%									

ADDITIONAL HABITAT CHARACTERIZATION

High Gradient ☐ Low Gradient ☒

Parameter	Optimal	Suboptimal	Marginal	Poor
Epifaunal Substrate/ Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover (50% for low-gradient streams); mix of submerged logs, undercut banks, cobble or other stable habitat	40-70% mix of stable habitat (30-50% for low-gradient streams); well-suited for full colonization potential	20-40% mix of stable habitat (10-30% in low-gradient streams); substrate frequently disturbed or removed	Less than 20% stable habitat (10% in low-gradient streams); lack of habitat is obvious; substrate unstable or lacking
Score:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition (<20% in low-gradient streams)	Some new increase in bar formation, mostly from gravel, sand, or fine sediment; 5-30% of the bottom affected (20-50% in low-gradient streams)	Moderate deposition of new gravel, sand, or fine sediment on bars; 30-50% of the bottom affected (50-80% in low-gradient streams)	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently (>80% in low-gradient streams)
Score:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, (e.g., bridge abutments); evidence of past channelization (> 20yrs) may be present but recent channelization not present	Channelization may be extensive; embankments or shoring structures present on both banks; 40 to 80% of stream reach disrupted	Banks shored with gabian or cement; Over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely
Score:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Site Code: MC-B	Site Name:	Date: 8 / 27 / 2012
Wetted Width (m): 2.3	Bankfull Width (m): 6.0 / Bankfull Height (m): 48	**Transect A**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	8	93	0	P A	1	P ~~A~~ D	P ~~A~~ D	P A D
Left Center	0.6	18	144	10	P A	2	P ~~A~~ D	P ~~A~~ D	P A D
Center	1.2	Dry	520		P A	3	P A D	P ~~A~~ D	P A D
Right Center	1.7	40	24		P A	1	P ~~A~~ D	P ~~A~~ D	P A D
Right Bank	2.3	29	165	10	P A	1	P ~~A~~ D	P ~~A~~ D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them; scraping leaves visible trail.
3 = 1-5mm
4 = 5-20mm
5 = >20mm
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code)
D = Dry, not assessed

Riparian Vegetation (facing downstream)
0 = Absent (0%) 1 = Sparse (<10%) 2 = Moderate (10-40%) 3 = Heavy (40-75%) 4 = Very Heavy (>75%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity
0 = Absent (0%) 1 = Sparse (<10%) 2 = Moderate (10-40%) 3 = Heavy (40-75%) 4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17) *count covered dots*

Center Left	0
Center Upstream	0
Center Right	0
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)
0 = Not Present
B = On Bank
C = Between Bank & 10m from Channel
P = >10m & <50m from Channel
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams Cobble	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad TRAIL	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

Left Bank	stable	vulnerable	unstable
Right Bank	stable	vulnerable	unstable

TAKE PHOTOGRAPHS *(check box if taken & record photo code)*

Downstream (**optional**) ☐
913

Upstream (**required**) ☐
914

Inter-Transect: AB

Wetted Width (m): 2.2

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	41	>1		P A	0	P ~~A~~ D	P ~~A~~ D	P A D
Left Center	0.6	52	80	0	P A	3	P A D	P ~~A~~ D	P ~~A~~ D
Center	1.1	49	3		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	1.7	46	16		P A	1	P ~~A~~ D	P ~~A~~ D	P A D
Right Bank	2.2	22	>1	0	P A		P ~~A~~ D	P ~~A~~ D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z-code).
D = Dry; not assessed.

Flow Habitats	
Channel Type	
Channel Fill	
[illegible]	
[illegible]	
[illegible]	5
[illegible]	
[illegible]	10
Dry	

Site Code: MC-5	Site Name:	Date: 8 / 27 / 2012
Wetted Width (m): 2.1	Bankfull Width (m): 4.5 / Bankfull Height (m): 36	**Transect B**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	4	71		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D
Left Center	0.5	22	130	50	(P) A	3	(P) A D	P ~~A~~ D	P ~~A~~ D
Center	1.1	24	160	20	(P) A	3	(P) A D	P ~~A~~ D	P ~~A~~ D
Right Center	1.6	26	25		(P) A	2	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	2.1	10	71		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed.

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	(0) 1 2 3 4	(0) 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 (1) 2 3 4	0 1 (2) 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 (1) 2 3 4	0 (1) 2 3 4
Herbs/ grasses	0 1 (2) 3 4	0 1 2 3 (4)
Barren, bare soil/ duff	0 1 (2) 3 4	0 (1) 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 (1) 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 (1) 2 3 4
Boulders	(0) 1 2 3 4
Woody Debris >0.3 m	0 (1) 2 3 4
Woody Debris <0.3 m	(0) 1 2 3 4
Undercut Banks	0 (1) 2 3 4
Overhang. Vegetation	0 (1) 2 3 4
Live Tree Roots	(0) 1 2 3 4
Artificial Structures	(0) 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	0
Center Upstream	0
Center Right	0
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence

(circle only the closest to wetted channel)

0 = Not Present
B = On Bank
C = Between Bank & 10m from Channel
P = >10m-<50m from Channel
Channel (record Yes or No)

	Left Bank				Channel	Right Bank			
Walls/ Rip-rap/ Dams	P	(C)	B	0	Y (N)	0	B	C	P
Buildings	P	C	B	(0)	Y (N)	0	B	C	P
Pavement/ Cleared Lot	P	C	B	(0)		0	B	C	P
Road/ Railroad TRAIL	(P)	C	B	0	Y (N)	0	B	C	P
Pipes (Inlet/ Outlet)	P	C	B	(0)	Y (N)	0	B	C	P
Landfill/ Trash	P	C	B	(0)	Y (N)	0	B	C	P
Park/ Lawn	P	C	B	(0)		0	B	C	P
Row Crop	P	C	B	(0)		0	B	C	P
Pasture/ Range	P	C	B	(0)		0	B	C	P
Logging Operations	P	C	B	(0)		0	B	C	P
Mining Activity	P	C	B	(0)	Y (N)	0	B	C	P
Vegetation Management	P	C	B	(0)		0	B	C	P
Bridges/ Abutments	P	C	B	(0)	Y (N)	0	B	C	P
Orchards/ Vineyards	P	C	B	(0)		0	B	C	P

Bank Stability

Left Bank	(stable)	vulnerable	stable
Right Bank	eroded	vulnerable	(stable)

BEAVER DAM

Inter-Transect: BC

Wetted Width (m): 3.3

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	15	71		P A	0	P A D	P A D	P A D
Left Center	0.8	41	71		P A	0	P A D	P A D	P A D
Center	1.7	40	11		P A	0	P A D	P A D	P A D
Right Center	2.5	40	10		P A	0	P A D	P A D	P A D
Right Bank	3.3	40	71		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed.

Fish Habitats	
Pool	
Riffle	
Run	SD
Glide	
Flat	SD
Pool	
Riffle	

BEAVER DAM
PIC 915
BACK WATER SITE FOR

MORE MACROPHYTE GROWTH IN BACKWATER SECTION

Site Code: MC-3	Site Name:	Date: 8 / 27 / 2012
Wetted Width (m): 5.0	Bankfull Width (m): 5.7 / Bankfull Height (m): 40	**Transect C**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	3	71		P A	0	P ~~A~~ D	P ~~A~~ D	P A D
Left Center	1.3	55	71		P A	0	P ~~A~~ D	P ~~A~~ D	P A D
Center	2.5	50	71		P A	0	P ~~A~~ D	P ~~A~~ D	P A D
Right Center	3.8	55	22		P A	1	P A D	P ~~A~~ D	P A D
Right Bank	5.1	58	71		P A	0	P ~~A~~ D	P ~~A~~ D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed.

Riparian Vegetation (facing downstream)

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	0
Center Upstream	0
Center Right	8
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence

(circle only the closest to wetted channel)

0 = Not Present
B = On Bank
C = Between Bank & 10m from Channel
P = >10m, <50m from Channel
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad TRAIL	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

Inter-Transect: CD

Wetted Width (m): 4.8

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	3	71		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D
Left Center	1.2	50	71		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D
Center	2.4	53	13		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	3.6	45	210	20	(P) A	3	P ~~A~~ D	P ~~A~~ D	(P) A D
Right Bank	4.8	8	[illegible]		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes

0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm, Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

Flow Measures	
Channel Type	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	
[illegible]	1/2
[illegible]	

Site Code: MC-3	Site Name:	Date: 8-1-2012
Wetted Width (m): 4.3	Bankfull Width (m): 5.9 / Bankfull Height (m): 2.42	**Transect D**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	8	71		P A	0	P A D	P A D	P A D
Left Center	1.1	30	71		P A	0	P A D	P A D	P A D
Center	2.2	31	12		P A	1	P A D	P A D	P A D
Right Center	3.2	35	36		P A	1	P A D	P A D	P A D
Right Bank	4.3	1	100	0	P A	2	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small, or covered with silt (formerly Z code).
D = Dry, not assessed.

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	0
Center Upstream	0
Center Right	0
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence

(circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m & <50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad TRAIL	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

Inter-Transect: DE

Wetted Width (m): 4.5

Inter-Transect Substrates

Position	Dist. from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	5	13		P A	0	P ~~A~~ D	P ~~A~~ D	P A D
Left Center	1.1	55	60		P A	1	P ~~A~~ D	P ~~A~~ D	P A D
Center	2.3	69	81	0	P A	2	P ~~A~~ D	P ~~A~~ D	P A D
Right Center	3.4	42	205	0	P A	3	P ~~A~~ D	P ~~A~~ D	P A D
Right Bank	4.5	5	101	0	P A	1	P ~~A~~ D	P ~~A~~ D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

Flow Habitat Data	
Channel Type	%
[illegible]	
[illegible]	
[illegible]	
[illegible]	10
[illegible]	10
[illegible]	80
[illegible]	

Site Code: MK-3	Site Name:	Date: 8 / 27 / 2012
Wetted Width (m): 4.3	Bankfull Width (m): 4.6 / Bankfull Height (m): 38	**Transect E**

Transect Substrates

Position	Dist. from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	28	10		P A	0	P ~~A~~ D	P ~~A~~ D	P A D
Left Center	1.1	54	48		P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	2.2	55	78	0	P A	3	P A D	P ~~A~~ D	P ~~A~~ D
Right Center	3.2	52	185	0	P A	3	P ~~A~~ D	P ~~A~~ D	P A D
Right Bank	4.3	25	3	0	P A	3	P ~~A~~ D	P ~~A~~ D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	2
Center Upstream	0
Center Right	4
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence

(circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m & <50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad TRAIL	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

Inter-Transect: EF

Wetted Width (m): 4.0

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	10	71		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D
Left Center	1.0	30	6		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D
Center	2.0	29	58		(P) A	3	(P) A D	P ~~A~~ D	P ~~A~~ D
Right Center	3.0	31	305		(P) A	3	(P) A D	P ~~A~~ D	(P) A D
Right Bank	4.0	25	1		(P) A		(P) ~~A~~ D	P ~~A~~ D	(P) A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code)
D = Dry, not assessed

Flow Habitats

Habitat Type	%
Pool/Glide	
Riffle	
Run	
Pool	50
Glide	10
Riffle	40
Run	

Site Code: MC-5	Site Name:	Date: 8 / 27 / 2012
Wetted Width (m): 3.8	Bankfull Width (m): 4.7 / Bankfull Height (m): 44	**Transect F**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	4	28		P A	1	P A D	P A D	P A D
Left Center	1.0	30	26		P A	0	P A D	P A D	P A D
Center	1.9	36	43		P A	2	P A D	P A D	P A D
Right Center	2.9	24	23		P A	1	P A D	P A D	P A D
Right Bank	3.8	10	71		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed.

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

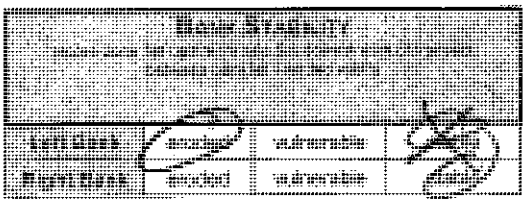
count covered dots

Center Left	0
Center Upstream	0
Center Right	0
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present
B = On Bank
C = Between Bank & 10m from Channel
P = >10m <50m from Channel
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad TRAIL	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P



TAKE PHOTOGRAPHS
(check box if taken & record photo code)

Downstream (**required**) 917	☐
Upstream (**required**) 916	☐

Inter-Transect: FG

Wetted Width (m): 1.8

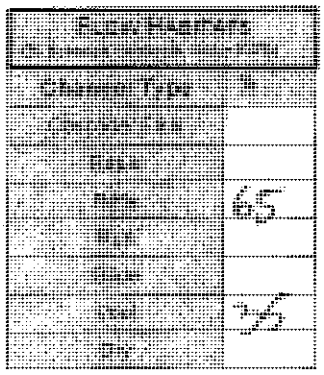
Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	8	71		P A	0	P A D	P A D	P A D
Left Center	0.5	13	14		P A	1	P A D	P A D	P A D
Center	0.9	18	21		P A	1	P A D	P A D	P A D
Right Center	1.4	12	84	0	P A	2	P A D	P A D	P A D
Right Bank	1.8	5	1		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed.



Site Code: MC-5	Site Name:	Date: 8 / 27 / 2012
Wetted Width (m): 4.0	Bankfull Width (m): 5.7 / Bankfull Height (m): 42	**Transect G**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	31	71		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D
Left Center	1.0	8	11		(P) A	2	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	2.0	15	21		(P) A	2	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	3.0	9	16		P ~~A~~	1	P ~~A~~ D	P ~~A~~ D	(P) A D
Right Bank	4.0	10	1		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them; scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	(0) 1 2 3 4	(0) 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	(0) 1 2 3 4	0 1 2 (3) 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	(0) 1 2 3 4	0 (1) 2 3 4
Herbs/ grasses	0 1 (2) 3 4	0 1 2 (3) 4
Barren, bare soil/ duff	0 1 (2) 3 4	0 (1) 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 (1) 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 (1) 2 3 4
Boulders	(0) 1 2 3 4
Woody Debris >0.3 m	0 (1) 2 3 4
Woody Debris <0.3 m	(0) 1 2 3 4
Undercut Banks	(0) 1 2 3 4
Overhang. Vegetation	0 (1) 2 3 4
Live Tree Roots	(0) 1 2 3 4
Artificial Structures	(0) 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	0
Center Upstream	0
Center Right	3
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence

(circle only the closest to wetted channel)

0 = Not Present
B = On Bank
C = Between Bank & 10m from Channel
P = >10m & <50m from Channel
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip rap/ Dams	P C B (0)	Y (N)	(0) B C P
Buildings	P C B (0)	Y (N)	(0) B C P
Pavement/ Cleared Lot	P C B (0)		(0) B C P
Road/ Railroad TRAIL	(P) C B 0	Y (N)	(0) B C P
Pipes (Inlet/ Outlet)	P C B (0)	Y (N)	(0) B C P
Landfill/ Trash	P C B (0)	Y (N)	(0) B C P
Park/ Lawn	P C B (0)		(0) B C P
Row Crop	P C B (0)		(0) B C P
Pasture/ Range	P C B (0)		(0) B C P
Logging Operations	P C B (0)		(0) B C P
Mining Activity	P C B (0)	Y (N)	(0) B C P
Vegetation Management	P C B (0)		(0) B C P
Bridges/ Abutments	P C B (0)	Y (N)	(0) B C P
Orchards/ Vineyards	P C B (0)		(0) B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	(eroded)	vulnerable	stable
Right Bank	eroded	vulnerable	(stable)

Inter-Transect: GH

Wetted Width (m): 3.7

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	10	71		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D
Left Center	0.9	22	4		P ~~A~~	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	1.9	56	11		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	2.8	61	104	0	(P) A	2	P ~~A~~ D	P ~~A~~ D	(P) A D
Right Bank	3.7	41	95	0	(P) A	1	P ~~A~~ D	P ~~A~~ D	(P) A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them; scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

Flow Habitats

Channel Type	%
Backwater	
Pool	
Run	
Riffle	5
Step	
Rapid	95
Dry	

Site Code: MC-5	Site Name:	Date: 7 / 27 / 2012
Wetted Width (m): 4.0	Bankfull Width (m): 4.4	Bankfull Height (m): 4.0

Transect H

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	1	8		P A	0	P ~~A~~ D	P ~~A~~ D	P A D
Left Center	1.0	8	24		P A	1	P ~~A~~ D	P ~~A~~ D	P A D
Center	2.0	11	700		P A	2	P A D	P ~~A~~ D	P A D
Right Center	3.0	35	38		P ~~A~~	2	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	4.0	21	71		P A	0	P ~~A~~ D	P ~~A~~ D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
6 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed.

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	0
Center Upstream	0
Center Right	4
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m - <50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad TRAIL	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

Left Bank	[illegible]	[illegible]	[illegible]
Right Bank	[illegible]	[illegible]	[illegible]

Inter-Transect: HI

Wetted Width (m): 3.1

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	8	11		P A	0	P A D	P A D	P A D
Left Center	0.8	18	45		P A	2	P A D	P A D	P A D
Center	1.6	14	19		P A	2	P A D	P A D	P A D
Right Center	2.3	5	14		P A	2	P A D	P A D	P A D
Right Bank	3.1	5	71		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy.
1 = Present but not visible. Feels slimy.
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm.
4 = 5-20mm.
5 = >20mm.
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly 2 code).
D = Dry, not assessed.

Flow Measurements

Channel Type	
Channel Type	
Width	
Area	50
Flow	25
Velocity	
Time	25
Flow	

Site Code: MC-3	Site Name:	Date: 8 / 27 / 2012
Wetted Width (m): 2.7	Bankfull Width (m): 4.5 / Bankfull Height (m): 44	**Transect I**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	10	3		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D
Left Center	0.7	39	36		(P) A	0	~~P~~ ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	1.4	38	24		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D
Right Center	2.0	25	71		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	2.7	5	71		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

Riparian Vegetation (facing downstream)
0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity
0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)
count covered dots

Center Left	0
Center Upstream	0
Center Right	0
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)
0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad TQ 45 L	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability
(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

Inter-Transect: IJ

Wetted Width (m): 2.7

Inter-Transect Substrates

Position	Dist. from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	19	10		P A	0	P ~~A~~ D	P ~~A~~ D	P A D
Left Center	0.7	21	54		P A	2	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	1.4	17	23		P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	2.0	11	29		P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	2.7	3	>1		P A	0	P ~~A~~ D	P ~~A~~ D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

[illegible]	
[illegible]	
[illegible]	
[illegible]	20
[illegible]	20
[illegible]	
[illegible]	
[illegible]	

Site Code: MK-3	Site Name:	Date: 8 / 27 / 2012
Wetted Width (m): 3.1	Bankfull Width (m): 54 / Bankfull Height (m): 46	**Transect J**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	2	11		P A	0	P ~~A~~ D	P ~~A~~ D	P A D
Left Center	0.8	34	18		P A	0	P ~~A~~ D	P ~~A~~ D	P A D
Center	1.6	21	18		P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	2.3	16	24		P A	1	P A D	P ~~A~~ D	P ~~A~~ D
Right Bank	3.1	1	71		P A	0	~~P~~ ~~A~~ D	~~P~~ ~~A~~ D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	0
Center Upstream	0
Center Right	3
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad TRAIL	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

Inter-Transect: JK

Wetted Width (m): 3.0

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	1	>1		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D
Left Center	0.8	14	35		(P) A	2	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	1.5	18	12		P ~~A~~	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	2.3	14	82	0	(P) A	3	(P) A D	P ~~A~~ D	P ~~A~~ D
Right Bank	3.0	2	4		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes

0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them; scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

Flow Habitats
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	5
Run	70
Glide	
Pool	25
Dry	

Site Code: MC-5	Site Name:	Date: 2/27/2012
Wetted Width (m): 4.2	Bankfull Width (m): 5.8 / Bankfull Height (m): 40	**Transect K**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	2	20		(P) A	1	(P) A D	P ~~A~~ D	(P) A D
Left Center	1.1	13	21		P ~~A~~	1	(P) A D	P ~~A~~ D	P ~~A~~ D
Center	2.1	23	16		P ~~A~~	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	3.2	30	12		P ~~A~~	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	4.2	28	20		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present. Feels rough, not slimy;
1 = Present but not visible. Feels slimy;
2 = Present and visible but <1mm. Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
U = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed.

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	(0) 1 2 3 4	(0) 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 (2) 3 4	0 (1) 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 (1) 2 3 4	0 (1) 2 3 4
Herbs/ grasses	0 1 (2) 3 4	0 1 2 (3) 4
Barren, bare soil/ duff	0 1 (2) 3 4	0 1 (2) 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 (1) 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 (1) 2 3 4
Boulders	0 (1) 2 3 4
Woody Debris >0.3 m	(0) 1 2 3 4
Woody Debris <0.3 m	0 (1) 2 3 4
Undercut Banks	(0) 1 2 3 4
Overhang. Vegetation	0 (1) 2 3 4
Live Tree Roots	(0) 1 2 3 4
Artificial Structures	(0) 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	5
Center Upstream	0
Center Right	0
Center Downstream	0
Optional	
Left Bank	-
Right Bank	

Human Influence

(circle only the closest to wetted channel)

0 = Not Present;
B = On Bank
C = Between Bank & 10m from Channel;
P = >10m-<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Riprap/ Dams	P (C) (B) 0	Y (N)	0 (B) (C) P
Buildings	P C B (0)	Y (N)	0 B C P
Pavement/ Cleared Lot	P C B (0)		0 B C P
Road/ Railroad TRAIL	(P) C B 0	Y (N)	0 B C P
Pipes (Inlet/ Outlet)	P C B (0)	Y (N)	0 B C P
Landfill/ Trash	P C B (0)	Y (N)	0 B C P
Park/ Lawn	P C B (0)		0 B C P
Row Crop	P C B (0)		0 B C P
Pasture/ Range	P C B (0)		0 B C P
Logging Operations	P C B (0)		0 B C P
Mining Activity	P C B (0)	Y (N)	0 B C P
Vegetation Management	P C B (0)		0 B C P
Bridges/ Abutments	P C B (0)	Y (N)	0 B C P
Orchards/ Vineyards	P C B (0)		0 B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	(eroded)	vulnerable	stable
Right Bank	(eroded)	vulnerable	stable

TAKE PHOTOGRAPHS
(check box if taken & record photo code)

Downstream (**required**) ☐
919

Upstream (**optional**) ☐
918

REACH DOCUMENTATION

Standard Reach Length (wetted width ≤ 10 m) = 150 m Distance between transects = 15 m
Alternate Reach Length (wetted width >10 m) = 250 m Distance between transects = 25 m

Project Name: TRWQMP	Date: 9 / 6 / 2012	Sample Collection Time: 1000	
Stream Name: MARTIS CREEK	Site Name/ Description: EAST MARTIS CRK		
Site Code: MC-6	Crew Members: IAC BJK		
Latitude (actual – decimal degrees): °N	datum: NAD83 other:		
Longitude (actual – decimal degrees): °W	GPS Device:		

AMBIENT WATER QUALITY MEASUREMENTS

* Turbidity, silica, oxygen saturation, and air temp are optional; calibration date required on page 24

Water Temp (Deg C)	pH	Alkalinity (mg/L)	Turbidity (ntu)*	Oxygen Sat. (%)*
9.13	7.46			97.7%
Dissolved O² (mg/L)	**Specific Conduct (uS/cm)**	**Salinity (ppt)**	**TDS ~~Silica (mg/L)~~***	**Air Temp (Deg C)***
11.25	172 120	0.08	0.112	

7.46
-60.3
133.0

Actual Reach Length (m) (see reach length guidelines at top of form): 150

Explanation:

DISCHARGE MEASUREMENTS

1st measurement = left bank (looking downstream)

check if discharge measurements not possible (explain in field notes section) ☐

VELOCITY AREA METHOD (preferred)

cal. date: Transect Width (m): 68 cm

3.4

	Distance from Left Bank (cm)	Depth (cm)	Velocity (ft/sec)		Distance from Left Bank (cm)	Depth (cm)	Velocity (ft/sec)
1	1.7	12		11	34.7	30	0.412
2	5.1	16	10%	12	38.1	29	0.412
3	8.5	17	30%	13	41.5	29	0.368
4	11.9	17	80%	14	44.9	29	0.360
5	14.3	29	0.317	15	48.3	29	0.307
6	17.7	29	.317	16	51.7	29	0.169
7	21.1	31	0.397	17	55.1	26	90%
8	24.5	31	0.410	18	58.5	18	50%
9	27.9	31	0.441	19	61.9	14	20%
10	31.3	30	0.441	20	65.3	8	5%

BUOYANT OBJECT METHOD (use ONLY if velocity area method not possible)

	Float 1	Float 2	Float 3
Distance (m)			
Float Time (sec)			

Float Reach Cross Section

width (m) depth(cm)	Upper Section	Middle Section	Lower Section
Width			
Depth 1			
Depth 2			
Depth 3			
Depth 4			
Depth 5			

NOTABLE FIELD CONDITIONS (check one box per topic)

Evidence of recent rainfall (enough to increase surface runoff)	NO	minimal	>10% flow increase
Evidence of fires in reach or immediately upstream (<500 m)	NO	< 1 year	< 5 years
Dominant landuse/ landcover in area surrounding reach	Agriculture / Urban/ Industrial	Forest / Suburb/Town	Rangeland / Other

EVE T. STUDY

ADDITIONAL COBBLE EMBEDDEDNESS MEASURES

(carry over from transect forms if needed to attain target count of 25; measure in %)

1	2	3	4	5	6	7	8	9	10	11	12	13
14	15	16	17	18	19	20	21	22	23	24	25	

Add 10% of flow to total measured (notes side channel)

– RIFFLES = ↑ GRAD SECTIONS W/ GRAV / COBB / SCOUR, SUBSTR W/ DENSE MOSS = MACROPHYTES, SEDGES MOS ACROSS ENTIRE WIDTH IN SEVERAL RIFFLES

Site Code: MC6 Date: 09/06/2012

SLOPE and BEARING FORM (transect based - for Full PHAB only)

AUTOLEVEL ☐
CLINOMETER ☐
HANDLEVEL ☐
OTHER ☐

Starting Transect	MAIN SEGMENT (record percent of inter-transect distance in each segment if supplemental segments are used)					SUPPLEMENTAL SEGMENT (record percent of inter-transect distance in each segment if supplemental segments are used)				
	Stadia rod measurements	Slope (%) or Elevation Difference cm ☐ % ☐	Segment Length (m)	Bearing (0°-359°)	Percent of Total Length (%)	Stadia rod measurements	Slope or Elevation Difference cm ☐ % ☐	Segment Length (m)	Bearing (0°-359°)	Percent of Total Length (%)
K	1.064									
J				265						
I				305						
H				301						
G				268						
F				228						
E				274						
D				275						
C				235						
B				261						
A	4.721			245						
additional calculation area	→ 3.675/150 → 0.02456 → 2.46%									

ADDITIONAL HABITAT CHARACTERIZATION

High Gradient ☐ Low Gradient ☐

Parameter	Optimal	Suboptimal	Marginal	Poor
Epifaunal Substrate/ Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover (50% for low-gradient streams); mix of submerged logs, undercut banks, cobble or other stable habitat	40-70% mix of stable habitat (30-50% for low-gradient streams); well-suited for full colonization potential	20-40% mix of stable habitat (10-30% in low-gradient streams); substrate frequently disturbed or removed	Less than 20% stable habitat (10% in low-gradient streams); lack of habitat is obvious; substrate unstable or lacking
Score:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition (<20% in low-gradient streams)	Some new increase in bar formation, mostly from gravel, sand, or fine sediment; 5-30% of the bottom affected (20-50% in low-gradient streams)	Moderate deposition of new gravel, sand, or fine sediment on bars; 30-50% of the bottom affected (50 - 80% in low-gradient streams)	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently (>80% in low-gradient streams)
Score:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern	Some channelization present, (e.g., bridge abutments); evidence of past channelization (> 20yrs) may be present but recent channelization not present	Channelization may be extensive: embankments or shoring structures present on both banks; 40 to 80% of stream reach disrupted	Banks shored with gabian or cement; Over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely
Score:	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

Site Code: MC-6	Site Name:	Date: 9 / 5 / 2012
Wetted Width (m): 1.1	Bankfull Width (m): 2.3	Bankfull Height (m): 30

Transect A

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	47	25		P A	0	P A D	P A D	P A D
Left Center	0.3	48	71		P A	0	P A D	P A D	P A D
Center	0.6	47	71		P A	0	P A D	P A D	P A D
Right Center	0.8	48	71		P A	0	P A D	P A D	P A D
Right Bank	1.1	44	71		P A	0	P A D	P A D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	0
Center Upstream	0
Center Right	0
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

TAKE PHOTOGRAPHS

(check box if taken & record photo code)

Downstream (**optional**) ☐
928

Upstream (**required**) ☐
927

Inter-Transect: AB

Wetted Width (m): 0.9

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	22	82	35	(P) A	~~3~~ 1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.2	28	115	40	(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.5	30	15		P ~~A~~	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	0.7	30	92	25	(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	0.9	25	81	5	(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes

0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

FLOW HABITATS
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	25
Run	50
Glide	25
Pool	
Dry	

Site Code:	Site Name: NC-6	Date: 9 / 6 / 2012
Wetted Width (m): 1.15	Bankfull Width (m): 2.5	Bankfull Height (m): 29

Transect B

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	5	16		P A	1	P ~~A~~ D	P ~~A~~ D	P A D
Left Center	0.3	15	200	35	P A	1	P ~~A~~ D	P ~~A~~ D	P A D
Center	0.6	15	280		P A	1	P ~~A~~ D	P ~~A~~ D	P A D
Right Center	0.9	19	10		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	1.12	8	10		P A	0	P ~~A~~ D	P ~~A~~ D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them; scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	0
Center Upstream	0
Center Right	0
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

Cobble + Boulders covered with Dense moss = MACROphytes

Inter-Transect: BC

Wetted Width (m): 80

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	8	37		P A	1	P ~~A~~ D	P ~~A~~ D	P A D
Left Center	0.2	11	7		P A	1	P ~~A~~ D	P ~~A~~ D	P A D
Center	0.4	18	52		P A	1	P A D	P ~~A~~ D	P A D
Right Center	0.6	19	23		P A	1	P ~~A~~ D	P ~~A~~ D	P A D
Right Bank	0.80	15	1		P A	0	P ~~A~~ D	~~P A~~ D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes

0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present; substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

FLOW HABITATS
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	70
Run	25
Glide	
Pool	5
Dry	

Site Code: MC-6	Site Name:	Date: 9 / 6 / 2012
Wetted Width (m): 1.22	Bankfull Width (m): 2.2 / Bankfull Height (m): 3.1	**Transect C**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	35	150	60	(P) A	1	P ~~A~~ D	P ~~A~~ D	(P) A D
Left Center	0.3	46	190	50	(P) A	1	P ~~A~~ D	P ~~A~~ D	(P) A D
Center	0.6	52	135	35	(P) A	2	P ~~A~~ D	P ~~A~~ D	~~P~~ A D
Right Center	0.9	42	141	0	(P) A	2	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	1.2	37	130	0	(P) A	2	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

Riparian Vegetation
(facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	(0) 1 2 3 4	(0) 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	(0) 1 2 3 4	(0) 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 (1) 2 3 4	0 (1) 2 3 4
Herbs/ grasses	0 1 2 3 (4)	0 1 2 3 (4)
Barren, bare soil/ duff	0 (1) 2 3 4	0 (1) 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	(0) 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 (2) 3 4
Boulders	0 (1) 2 3 4
Woody Debris >0.3 m	(0) 1 2 3 4
Woody Debris <0.3 m	(0) ~~1~~ 2 3 4
Undercut Banks	0 (1) 2 3 4
Overhang. Vegetation	0 1 (2) 3 4
Live Tree Roots	(0) 1 2 3 4
Artificial Structures	(0) 1 2 3 4

Densiometer Readings (0-17)
count covered dots

Center Left	0
Center Upstream	0
Center Right	0
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence
(circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B (0)	Y (N)	(0) B C P
Buildings	P C B (0)	Y (N)	(0) B C P
Pavement/ Cleared Lot	P C B (0)		(0) B C P
Road/ Railroad	P C B (0)	Y (N)	(0) B C P
Pipes (Inlet/ Outlet)	P C B (0)	Y (N)	(0) B C P
Landfill/ Trash	P C B (0)	Y (N)	(0) B C P
Park/ Lawn	P C B (0)		(0) B C P
Row Crop	P C B (0)		(0) B C P
Pasture/ Range	P C B (0)		(0) B C P
Logging Operations	P C B (0)		(0) B C P
Mining Activity	P C B (0)	Y (N)	(0) B C P
Vegetation Management	P C B (0)		(0) B C P
Bridges/ Abutments	P C B (0)	Y (N)	(0) B C P
Orchards/ Vineyards	P C B (0)		(0) B C P

Bank Stability
(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	(stable)
Right Bank	eroded	vulnerable	(stable)

Inter-Transect: CD

Wetted Width (m): 1.20

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	8	69	10	P A	1	P ~~A~~ D	P ~~A~~ D	P A D
Left Center	0.3	10	30		P A	1	P ~~A~~ D	P ~~A~~ D	P A D
Center	0.6	18	5		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Center	0.9	15	53		P A	1	P ~~A~~ D	P ~~A~~ D	P A D
Right Bank	1.2	9	40		P A	1	P ~~A~~ D	P ~~A~~ D	P A D
	Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)								

Microalgae Thickness Codes

- 0 = No microalgae present, Feels rough, not slimy;
- 1 = Present but not visible, Feels slimy;
- 2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
- 3 = 1-5mm;
- 4 = 5-20mm;
- 5 = >20mm;
- UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
- D = Dry, not assessed

FLOW HABITATS
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	90
Run	
Glide	
Pool	10
Dry	

Site Code: RC-6	Site Name:	Date: 9 / 6 / 2012
Wetted Width (m): 1.6	Bankfull Width (m): 2.4	Bankfull Height (m): 1.4

Transect D

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	4	36		P A	1	P ~~A~~ D	P ~~A~~ D	P A D
Left Center	0.4	8	15		P A	0	P ~~A~~ D	P ~~A~~ D	P A D
Center	0.8	10	82	10	P A	1	P ~~A~~ D	P ~~A~~ D	P A D
Right Center	1.2	18	51		P A	1	P A D	P ~~A~~ D	P A D
Right Bank	1.6	9	71		P A	0	P ~~A~~ D	P ~~A~~ D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	0
Center Upstream	0
Center Right	0
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence

(circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

Inter-Transect: DE

Wetted Width (m): .6

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	5	20		(P) A	2	P ~~A~~ D	P ~~A~~ D	(P) A D
Left Center	0.2	10	15		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.3	20	41		(P) A	1	(P) A D	P ~~A~~ D	(P) A D
Right Center	0.5	9	56		(P) A	1	P ~~A~~ D	P ~~A~~ D	(P ~~A~~ D
Right Bank	0.6	5	20		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D
	Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)								

Microalgae Thickness Codes

0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

FLOW HABITATS
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	80
Run	20
Glide	
Pool	
Dry	

Site Code: M-6	Site Name:	Date: 9 / 6 / 2012
Wetted Width (m): 1.3	Bankfull Width (m): 2.3	Bankfull Height (m): 28

Transect E

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	38	160	10	(P) A	2	P ~~A~~ D	P ~~A~~ D	(P) A D
Left Center	0.3	36	21		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.7	35	96	40	(P) A	2	(P) A D	P ~~A~~ D	(P) A D
Right Center	1.0	35	>1	0	(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	1.3	5	>1	0	(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm: Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	(0) 1 2 3 4	(0) 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	(0) 1 2 3 4	0 (1) 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 (1) 2 3 4	0 (1) 2 3 4
Herbs/ grasses	0 1 2 3 (4)	0 1 2 3 (4)
Barren, bare soil/ duff	0 ~~(1)~~ (2) 3 4	0 (1) 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	(0) 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 (1) 2 3 4
Boulders	(0) 1 2 3 4
Woody Debris >0.3 m	(0) 1 2 3 4
Woody Debris <0.3 m	(0) 1 2 3 4
Undercut Banks	0 1 (2) 3 4
Overhang. Vegetation	0 1 (2) 3 4
Live Tree Roots	(0) 1 2 3 4
Artificial Structures	(0) 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	0
Center Upstream	0
Center Right	0
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B (0)	Y (N)	(0) B C P
Buildings	P C B (0)	Y (N)	(0) B C P
Pavement/ Cleared Lot	P C B (0)		(0) B C P
Road/ Railroad	P C B (0)	Y (N)	(0) B C P
Pipes (Inlet/ Outlet)	P C B (0)	Y (N)	(0) B C P
Landfill/ Trash	P C B (0)	Y (N)	(0) B C P
Park/ Lawn	P C B (0)		(0) B C P
Row Crop	P C B (0)		(0) B C P
Pasture/ Range	P C B (0)		(0) B C P
Logging Operations	P C B (0)		(0) B C P
Mining Activity	P C B (0)	Y (N)	(0) B C P
Vegetation Management	P C B (0)		(0) B C P
Bridges/ Abutments	P C B (0)	Y (N)	(0) B C P
Orchards/ Vineyards	P C B (0)		(0) B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	(stable)
Right Bank	eroded	vulnerable	(stable)

Inter-Transect: EF

Wetted Width (m): 1.8

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	10	56		(P) A	1	P ~~A~~ D	P ~~A~~ D	(P) A D
Left Center	0.5	12	190	10	(P) A	1	P ~~A~~ D	P ~~A~~ D	(P) A D
Center	0.9	18	26		P A	1	P ~~A~~ D	P ~~A~~ D	(P) A D
Right Center	1.4	13	55		(P) A	1	P ~~A~~ D	P ~~A~~ D	(P) A D
Right Bank	1.8	9	>1		(P) A	0	P ~~A~~ D	P (A) D	~~(P)~~ A D
	Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)								

Microalgae Thickness Codes

0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

FLOW HABITATS
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	75
Run	10
Glide	
Pool	15
Dry	

Site Code: MC-6	Site Name:	Date: 9 / 6 / 2012
Wetted Width (m): 1.1	Bankfull Width (m): 2.2 / Bankfull Height (m): 31	**Transect F**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	12	10		(P) A	1	P ~~A~~ D	P ~~A~~ D	(P) A D
Left Center	0.3	10	159	5	(P) A	2	P ~~A~~ D	P ~~A~~ D	(P) A D
Center	0.6	12	72	0	(P) A	1	P ~~A~~ D	P ~~A~~ D	(P) A D
Right Center	0.8	19	50		(P) A	1	P ~~A~~ D	P ~~A~~ D	(P) A D
Right Bank	1.1	20	34		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail;
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code);
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	(0) 1 2 3 4	(0) 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 (2) 3 4	0 (1) 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 (1) 2 3 4	0 (1) 2 3 4
Herbs/ grasses	0 1 2 3 (4)	0 1 2 (3) 4
Barren, bare soil/ duff	0 (1) 2 3 4	0 (1) 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	(0) 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 (2) 3 4
Boulders	0 (1) 2 3 4
Woody Debris >0.3 m	0 (1) 2 3 4
Woody Debris <0.3 m	(0) 1 2 3 4
Undercut Banks	0 1 (2) 3 4
Overhang. Vegetation	0 1 (2) 3 4
Live Tree Roots	(0) 1 2 3 4
Artificial Structures	(0) 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	17
Center Upstream	6
Center Right	7
Center Downstream	7
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B (0)	Y (N)	(0) B C P
Buildings	P C B (0)	Y (N)	(0) B C P
Pavement/ Cleared Lot	P C B (0)		(0) B C P
Road/ Railroad	P C B (0)	Y (N)	(0) B C P
Pipes (Inlet/ Outlet)	P C B (0)	Y (N)	(0) B C P
Landfill/ Trash	P C B (0)	Y (N)	(0) B C P
Park/ Lawn	P C B (0)		(0) B C P
Row Crop	P C B (0)		(0) B C P
Pasture/ Range	P C B (0)		(0) B C P
Logging Operations	P C B (0)		(0) B C P
Mining Activity	P C B (0)	Y (N)	(0) B C P
Vegetation Management	P C B (0)		(0) B C P
Bridges/ Abutments	P C B (0)	Y (N)	(0) B C P
Orchards/ Vineyards	P C B (0)		(0) B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	(stable)
Right Bank	eroded	vulnerable	(stable)

TAKE PHOTOGRAPHS

(check box if taken & record photo code)

Downstream (**required**) ☐
926

Upstream (**required**) ☐
925

Inter-Transect: FG

Wetted Width (m): 1.0

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	15	116	35	(P) A	1	P ~~A~~ D	P ~~A~~ D	(P) A D
Left Center	0.3	22	74	0	(P) A	0/1	P ~~A~~ D	P ~~A~~ D	(P) A D
Center	0.5	11	137	10	(P) A	1	P ~~A~~ D	P ~~A~~ D	(P) A D
Right Center	0.8	18	13		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	1.0	5	71		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes

0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

FLOW HABITATS
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	100
Run	
Glide	
Pool	
Dry	

Site Code: MC-6	Site Name:	Date: 9 / 6 / 2012
Wetted Width (m): 9	Bankfull Width (m): 17 / Bankfull Height (m): 30	**Transect G**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	8	17		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.2	18	122	0	P A	1	P ~~A~~ D	P ~~A~~ D	P A D
Center	0.5	16	159	10	P A	1	P ~~A~~ D	P ~~A~~ D	P A D
Right Center	0.7	21	110	80	P A	1	P ~~A~~ D	P ~~A~~ D	P A D
Right Bank	0.9	19	135	10	P A	1	P ~~A~~ D	P ~~A~~ D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	0 1 2 3 4	0 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	0 1 2 3 4	0 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 1 2 3 4	0 1 2 3 4
Herbs/ grasses	0 1 2 3 4	0 1 2 3 4
Barren, bare soil/ duff	0 1 2 3 4	0 1 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 2 3 4
Boulders	0 1 2 3 4
Woody Debris >0.3 m	0 1 2 3 4
Woody Debris <0.3 m	0 1 2 3 4
Undercut Banks	0 1 2 3 4
Overhang. Vegetation	0 1 2 3 4
Live Tree Roots	0 1 2 3 4
Artificial Structures	0 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	0
Center Upstream	0
Center Right	0
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B 0	Y N	0 B C P
Buildings	P C B 0	Y N	0 B C P
Pavement/ Cleared Lot	P C B 0		0 B C P
Road/ Railroad	P C B 0	Y N	0 B C P
Pipes (Inlet/ Outlet)	P C B 0	Y N	0 B C P
Landfill/ Trash	P C B 0	Y N	0 B C P
Park/ Lawn	P C B 0		0 B C P
Row Crop	P C B 0		0 B C P
Pasture/ Range	P C B 0		0 B C P
Logging Operations	P C B 0		0 B C P
Mining Activity	P C B 0	Y N	0 B C P
Vegetation Management	P C B 0		0 B C P
Bridges/ Abutments	P C B 0	Y N	0 B C P
Orchards/ Vineyards	P C B 0		0 B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	stable
Right Bank	eroded	vulnerable	stable

Inter-Transect: GH

Wetted Width (m): 1.3

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	20	50		P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.3	18	92	D	P A	2	P A D	P A D	P A D
Center	0.7	17	95	0	P A	1	P ~~A~~ D	P ~~A~~ D	P A D
Right Center	1.0	15	36		P A	1	P A D	P ~~A~~ D	P A D
Right Bank	1.3	11	3		P A	0	P ~~A~~ D	P ~~A~~ D	P A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes

0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

FLOW HABITATS
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	90
Run	5
Glide	
Pool	5
Dry	

Site Code: MC-6	Site Name:	Date: 9 / 6 / 2012
Wetted Width (m): 1.2	Bankfull Width (m): 1.8 / Bankfull Height (m): .35	**Transect H**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	11	60		(P) A	1	P ~~A~~ D	P ~~A~~ D	(P) A D
Left Center	0.3	17	23		(P) A	1	P (A) D	P (A) D	P (A) D
Center	0.6	12	90	0	(P) A	2	(P) A D	P ~~A~~ D	P ~~A~~ D
Right Center	0.9	16	120	0	(P) A	1	P ~~A~~ D	P ~~A~~ D	(P) A D
Right Bank	1.2	10	6		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred).

Microalgae Thickness Codes
- 0 = No microalgae present, Feels rough, not slimy;
- 1 = Present but not visible, Feels slimy;
- 2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
- 3 = 1-5mm;
- 4 = 5-20mm;
- 5 = >20mm;
- UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
- D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	(0) 1 2 3 4	(0) 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	(0) 1 2 3 4	0 (1) 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 (1) ~~2~~ 3 4	0 ~~1~~ (2) 3 4
Herbs/ grasses	0 1 2 3 (4)	0 1 2 (3) 4
Barren, bare soil/ duff	(0) 1 2 3 4	0 (1) 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 (1) 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 1 (2) 3 4
Boulders	0 (1) 2 3 4
Woody Debris >0.3 m	0 (1) 2 3 4
Woody Debris <0.3 m	(0) 1 2 3 4
Undercut Banks	0 1 (2) 3 4
Overhang. Vegetation	0 (1) 2 3 4
Live Tree Roots	(0) 1 2 3 4
Artificial Structures	(0) 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	0
Center Upstream	16
Center Right	0
Center Downstream	0
Optional	
Left Bank	
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B (0)	Y (N)	(0) B C P
Buildings	P C B (0)	Y (N)	(0) B C P
Pavement/ Cleared Lot	P C B (0)	(N)	(0) B C P
Road/ Railroad	P C B (0)	Y (N)	(0) B C P
Pipes (Inlet/ Outlet)	P C B (0)	Y (N)	(0) B C P
Landfill/ Trash	P C B (0)	Y (N)	(0) B C P
Park/ Lawn	P C B (0)		(0) B C P
Row Crop	P C B (0)		(0) B C P
Pasture/ Range	P C B (0)		(0) B C P
Logging Operations	P C B (0)		(0) B C P
Mining Activity	P C B (0)	Y (N)	(0) B C P
Vegetation Management	P C B (0)	(N)	(0) B C P
Bridges/ Abutments	P C B (0)	Y (N)	(0) B C P
Orchards/ Vineyards	P C B (0)	(N)	(0) B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	(stable)
Right Bank	eroded	vulnerable	(stable)

Inter-Transect: HI

Wetted Width (m): 2.1

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	5	42		P A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.7	6	78	0	P A	1	P ~~A~~ D	P ~~A~~ D	P A D
Center	1.1	10	161	10	P A	1	P ~~A~~ D	P ~~A~~ D	P A D
Right Center	1.4	8	116	0	P A	1	P ~~A~~ D	P ~~A~~ D	P A D
Right Bank	2.1	10	25		P A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
	Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)								

Microalgae Thickness Codes
0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

FLOW HABITATS
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	90
Run	
Glide	
Pool	10
Dry	

Site Code: MC6	Site Name:	Date: 9 / 16 / 2012
Wetted Width (m): 80	Bankfull Width (m): 2.3	Bankfull Height (m): 36

Transect I

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	15	18		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.2	19	24		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Center	0.4	20	210	40	(P) A	2	P ~~A~~ D	P ~~A~~ D	(P) A D
Right Center	0.6	16	17		(P) A	1	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Right Bank	0.8	5	71		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	(0) 1 2 3 4	(0) 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	(0) 1 2 3 4	0 (1) 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	0 (1) 2 3 4	(0) 1 2 3 4
Herbs/ grasses	0 1 2 3 (4)	0 1 2 3 (4)
Barren, bare soil/ duff	0 (1) 2 3 4	(0) 1 2 3 ~~(4)~~

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	(0) 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 (1) 2 3 4
Boulders	(0) 1 2 3 4
Woody Debris >0.3 m	(0) 1 2 3 4
Woody Debris <0.3 m	(0) 1 2 3 4
Undercut Banks	0 (1) 2 3 4
Overhang. Vegetation	0 1 (2) 3 4
Live Tree Roots	(0) 1 2 3 4
Artificial Structures	(0) 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	0
Center Upstream	0
Center Right	0
Center Downstream	9
Optional	
Left Bank	
Right Bank	

Human Influence

(circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B (0)	Y (N)	(0) B C P
Buildings	P C B (0)	Y (N)	(0) B C P
Pavement/ Cleared Lot	P C B (0)		(0) B C P
Road/ Railroad	P C B (0)	Y (N)	(0) B C P
Pipes (Inlet/ Outlet)	P C B (0)	Y (N)	(0) B C P
Landfill/ Trash	P C B (0)	Y (N)	(0) B C P
Park/ Lawn	P C B (0)		(0) B C P
Row Crop	P C B (0)		(0) B C P
Pasture/ Range	P C B (0)		(0) B C P
Logging Operations	P C B (0)		(0) B C P
Mining Activity	P C B (0)	Y (N)	(0) B C P
Vegetation Management	P C B (0)		(0) B C P
Bridges/ Abutments	P C B (0)	Y (N)	(0) B C P
Orchards/ Vineyards	P C B (0)		(0) B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	(stable)
Right Bank	eroded	vulnerable	(stable)

Inter-Transect: IJ

Wetted Width (m): 0.75

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	9	20		(P) A	0	P ~~A~~ D	P ~~A~~ D	P ~~A~~ D
Left Center	0.12	18	81	0	(P) A	1	(P) A D	P ~~A~~ D	(P) A D
Center	0.24	11	105	0	(P) A	1	(P) A D	~~P~~ A D	(P) A D
Right Center	0.16	16	44		(P) A	1	P ~~A~~ D	P ~~A~~ D	(P) A D
Right Bank	0.08	9	30		(P) A	1	P ~~A~~ D	P ~~A~~ D	(P) A D
	Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)								

Microalgae Thickness Codes

- **0** = No microalgae present, Feels rough, not slimy;
- **1** = Present but not visible, Feels slimy;
- **2** = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
- **3** = 1-5mm;
- **4** = 5-20mm;
- **5** = >20mm;
- **UD** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
- **D** = Dry, not assessed

FLOW HABITATS
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	60
Run	15
Glide	
Pool	25
Dry	

Site Code: ML-6	Site Name:	Date: 9 / 6 / 2012
Wetted Width (m): .8	Bankfull Width (m): 1.8	Bankfull Height (m): .30

Transect J

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	10	81	40	(P) A	1	P ~~A~~ D	P ~~A~~ D	(P) A D
Left Center	0.2	19	45		(P) A	1	P ~~A~~ D	P ~~A~~ D	(P) A D
Center	0.4	20	80	0	(P) A	2	P ~~A~~ D	P ~~A~~ D	(P) A D
Right Center	0.6	15	127	0	(P) A	2	P ~~A~~ D	P ~~A~~ D	(P) A D
Right Bank	0.8	11	10		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	(0) 1 2 3 4	(0) 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	~~0~~ (1) 2 3 4	(0) 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	(0) 1 2 3 4	(0) 1 2 3 4
Herbs/ grasses	0 1 2 3 (4)	0 1 2 3 (4)
Barren, bare soil/ duff	0 (1) 2 3 4	0 (1) 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 (1) ~~2~~ 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 (1) 2 3 4
Boulders	(0) 1 2 3 4
Woody Debris >0.3 m	(0) 1 2 3 4
Woody Debris <0.3 m	(0) 1 2 3 4
Undercut Banks	0 (1) 2 3 4
Overhang. Vegetation	0 1 (2) 3 4
Live Tree Roots	(0) 1 2 3 4
Artificial Structures	(0) 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	(0)
Center Upstream	(0)
Center Right	(0)
Center Downstream	(0)
Optional	
Left Bank	
Right Bank	

Human Influence

(circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B (0)	Y (N)	(0) B C P
Buildings	P C B (0)	Y (N)	(0) B C P
Pavement/ Cleared Lot	P C B (0)		(0) B C P
Road/ Railroad	P C B (0)	Y (N)	(0) B C P
Pipes (Inlet/ Outlet)	P C B (0)	Y (N)	(0) B C P
Landfill/ Trash	P C B (0)	Y (N)	(0) B C P
Park/ Lawn	P C B (0)		(0) B C P
Row Crop	P C B (0)		(0) B C P
Pasture/ Range	P C B (0)		(0) B C P
Logging Operations	P C B (0)		(0) B C P
Mining Activity	P C B (0)	Y (N)	(0) B C P
Vegetation Management	P C B (0)		(0) B C P
Bridges/ Abutments	P C B (0)	Y (N)	(0) B C P
Orchards/ Vineyards	P C B (0)		(0) B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	(stable)
Right Bank	eroded	vulnerable	(stable)

Inter-Transect: JK

Wetted Width (m): .65

Inter-Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	19	15		(P) A	1	P ~~A~~ D	P ~~A~~ D	(P) A D
Left Center	0.2	19	15		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D
Center	0.3	20	15		(P) A	1	P ~~A~~ D	P ~~A~~ D	(P) A D
Right Center	0.5	15	15		(P) A	1	P ~~A~~ D	P ~~A~~ D	(P) A D
Right Bank	0.7	10	20		(P) A	1	P ~~A~~ D	P ~~A~~ D	(P) A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes

0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

FLOW HABITATS
(% between transects, total=100%)

Channel Type	%
Cascade/ Falls	
Rapid	
Riffle	75
Run	10
Glide	
Pool	15
Dry	

Site Code: MC-6	Site Name:	Date: 9 / 6 / 2012
Wetted Width (m): 1.3	Bankfull Width (m): 21 / Bankfull Height (m): 29	**Transect K**

Transect Substrates

Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes
Left Bank	0	5	31		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D
Left Center	0.3	10	152	10	(P) A	2	(P) A D	P ~~A~~ D	(P) A D
Center	0.7	20	119	0	(P) A	2	(P) A D	P ~~A~~ D	(P) A D
Right Center	1.0	19	73	0	(P) A	2	(P) A D	P ~~A~~ D	(P) A D
Right Bank	1.3	8	>1		(P) A	0	P ~~A~~ D	P ~~A~~ D	(P) A D

Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)

Microalgae Thickness Codes
0 = No microalgae present, Feels rough, not slimy;
1 = Present but not visible, Feels slimy;
2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
3 = 1-5mm;
4 = 5-20mm;
5 = >20mm;
U = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
D = Dry, not assessed

Riparian Vegetation (facing downstream)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

Vegetation Class	Left Bank	Right Bank
Upper Canopy (>5 m high)		
Trees and saplings >5 m high	(0) 1 2 3 4	(0) 1 2 3 4
Lower Canopy (0.5 m-5 m high)		
All vegetation 0.5 m to 5 m	(0) 1 2 3 4	(0) 1 2 3 4
Ground Cover (<0.5 m high)		
Woody shrubs & saplings <0.5 m	(0) 1 2 3 4	(0) 1 2 3 4
Herbs/ grasses	0 1 2 3 (4)	0 1 2 3 (4)
Barren, bare soil/ duff	0 (1) 2 3 4	0 (1) 2 3 4

Instream Habitat Complexity

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

Filamentous Algae	0 1 2 3 4
Aquatic Macrophytes/ Emergent Vegetation	0 (1) 2 3 4
Boulders	(0) 1 2 3 4
Woody Debris >0.3 m	(0) 1 2 3 4
Woody Debris <0.3 m	(0) 1 2 3 4
Undercut Banks	0 1 (2) 3 4
Overhang. Vegetation	0 (1) 2 3 4
Live Tree Roots	(0) 1 2 3 4
Artificial Structures	(0) 1 2 3 4

Densiometer Readings (0-17)

count covered dots

Center Left	2
Center Upstream	0
Center Right	2
Center Downstream	0
Optional	
Left Bank	0
Right Bank	

Human Influence (circle only the closest to wetted channel)

0 = Not Present;
B = On Bank;
C = Between Bank & 10m from Channel;
P = >10m+<50m from Channel;
Channel (record Yes or No)

	Left Bank	Channel	Right Bank
Walls/ Rip-rap/ Dams	P C B (0)	Y (N)	(0) B C P
Buildings	P C B (0)	Y (N)	(0) B C P
Pavement/ Cleared Lot	P C B (0)	(N)	(0) B C P
Road/ Railroad	P C B (0)	Y (N)	(0) B C P
Pipes (Inlet/ Outlet)	P C B (0)	Y (N)	(0) B C P
Landfill/ Trash	P C B (0)	Y (N)	(0) B C P
Park/ Lawn	P C B (0)		(0) B C P
Row Crop	P C B (0)		(0) B C P
Pasture/ Range	P C B (0)		(0) B C P
Logging Operations	P C B (0)		(0) B C P
Mining Activity	P C B (0)	Y (N)	(0) B C P
Vegetation Management	P C B (0)	(N)	(0) B C P
Bridges/ Abutments	P C B (0)	Y (N)	(0) B C P
Orchards/ Vineyards	P C B (0)		(0) B C P

Bank Stability

(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

Left Bank	eroded	vulnerable	(stable)
Right Bank	eroded	vulnerable	(stable)

TAKE PHOTOGRAPHS

(check box if taken & record photo code)

Downstream (**required**) ☐
924

Upstream (**optional**) ☐
923