Appendix A through F

for

Squalicum Creek and Soos Creek: Bioassessment Monitoring and Analysis to Support Total Maximum Daily Load (TMDL) Development

Washington State Department of Ecology

Publication No. 13-03-017

https://fortress.wa.gov/ecy/publications/SummaryPages/1303017.html

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Appendix A. Field Data

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Table A1. Soos Creek site 148th Ave. flow

Site Name	Stream Discharge				Bank Stability (% instability) at Transects 1-4		Comments
	Width (ft)	Depth (ft)	Velocity (ft/s)	Comments	Left Bank	Right Bank	Silt fence in creek
At 148th Ave SE	1	0	0		60	40	
	2	0.1	-0.05		20	20	
	3	0.3	-0.07		10	10	
	4	0.4	-0.08		10	10	
	5	0.6	-0.07				
	6	0.8	0.01				
	7	0.8	0.02				
	8	0.5	0.02	On a rock			
	9	0.8	0.16				
	10	0.75	0.61				
	11	0.2	0.25	On a rock			
	12	0.8	0.32				
	13	0.8	0.09				
	14	0.95	0.09				
	15	0.2	0.11	On a rock			
	16	0.65	0.14				
	17	0.5	0.24				
	18	0.35	-0.13				
	19	0.1	0				
Average Velocity = .12 ft/sec							
Discharge = 1.17 cfs							

Table A2. Stream profile for Soos Creek site 148th Ave

Site Name	**Stream Reach Profile**				
At 148 Ave SE	**Channel Feature**	**Riffle 1**	**Riffle 2**	**Riffle 3**	**Riffle 4**
	Wetted Width (ft)	17	13	12	12.5
	Bankfull Width (ft)	27	27	32	34
	Maximum Depth (ft	0.9	0.7	0.5	1.1
	Gradient (%)	2	2	2	1.5
Canopy Cover Measurements - Soos Creek					
Direction	Riffle 1	Riffle 2	Riffle 3	Riffle 4	Comments
Center Up	3	9	17	9	Riffle 3 is almost under the bridge. Riffle 4 is on the other side of the bridge.
Center Down	17	16	17	17	
Center Left	12	11	17	13	
Center Right	17	16	17	15	
Left Bank	15	14	17	16	
Right Bank	17	16	17	16	

Table A3. Soos Creek site 148th Ave riffle pebble count and embeddedness

Riffle 1												
		L Bank	**10%**	**20%**	**30%**	**40%**	**50%**	**60%**	**70%**	**80%**	**90%**	**R Bank**
Pebble Class Size		CG	CG	CG	C	C	C	B	B	C	CG	CG
% Embeddedness	Transect 1	0	20	80	90	70	30	60	60	50	90	30
Pebble Class Size		B	CG	C	FG	C	C	B	C	C	CG	FG
% Embeddedness	Transect 2	70	20	60	90	60	90	75	50	10	10	90
Pebble Class Size	Transect 3	Sf	Sf	C	C	C	CG	B	B	C	CG	CG
% Embeddedness		0	10	10	20	40	20	95	70	10	10	0
Riffle 2												
Pebble Class Size		Sf	Sf	CG	CG	C	B	C	B	CG	C	FG
% Embeddedness	Transect 1	0	0	10	10	50	60	20	10	70	50	90
Pebble Class Size		Sf	Sf	CG	CG	C	B	C	CG	CG	CG	FG
% Embeddedness	Transect 2	0	0	90	70	70	20	90	70	50	10	0
Pebble Class Size		Sf	Sf	CG	CG	C	C	C	B	C	CG	CG
% Embeddedness	Transect 3	0	0	20	90	10	70	20	10	70	10	50
Riffle 3												
Pebble Class Size		Sf	C	C	CG	C	C	C	B	C	C	CG
% Embeddedness	Transect 1	0	70	20	80	10	20	10	10	70	80	90
Pebble Class Size		C	CG	CG	CG	B	CG	C	B	C	CG	CG
% Embeddedness	Transect 2	30	50	50	30	90	90	70	70	50	40	40
Pebble Class Size												
% Embeddedness		C	C	CG	CG	C	C	B	C	CG	CG	CG
	Transect 3	10	20	80	60	50	40	40	30	40	10	90
Riffle 4												
Pebble Class Size		B	B	C	B	W	W	SCM	SCM	SCM	B	B
% Embeddedness	Transect 1	10	60	20	90	0	0				90	10
Pebble Class Size		W	SCM	SCM	W	C	W	SCM	W	SCM	SCM	B
% Embeddedness	Transect 2	0			10	90	10		80			10
Pebble Class Size												
% Embeddedness		W	SCM	W	W	SCM	SCM	SCM	B	SCM	W	W
	Transect 3	0		0	0				90		10	0

Table A4. Soos Creek site 148th Ave canopy cover measurements

Canopy Cover Measurements - Soos Creek					
Direction	**Riffle 1**	**Riffle 2**	**Riffle 3**	**Riffle 4**	**Comments**
Center Up	3	9	17	9	Riffle 3 is almost under the bridge. Riffle 4 is on the other side of the bridge.
Center Down	17	16	17	17	
Center Left	12	11	17	13	
Center Right	17	16	17	15	
Left Bank	15	14	17	16	
Right Bank	17	16	17	16	

Table A5. Soos Creek site 164th Ave flow measurements

Site Name	Stream Discharge				Bank Stability (% instability) at Transects 1-4	
	Width (ft)	Depth (ft)	Velocity (ft/s)	Comments	Left Bank	Right Bank
At 164th Ave SE	1	0	0		5	20
	2	0.25	-0.05		5	20
	3	0.3	0.09		5	20
	4	0.5	0.39		10	10
	5	0.6	0.13			
	6	0.7	0.45			
	7	0.7	0.59			
	8	0.7	0.64			
	9	0.8	0.34	On branches		
	10	0.6	0.42	On wood		
	11	0.6	0.35	On branches		
	12	0.4	0.02			
	13	0.2	0.01			
	14	0.2	0.01	Min		
	15	0.1	0.01	Min		
	16	0	0			
Average Velocity = .32 ft/sec						
Discharge = 2.10 cfs						

Table A6. Soos Creek site 164th Ave stream profile

Site Name	Stream Reach Profile				
At 164th Ave SE	**Channel Feature**	**Riffle 1**	**Riffle 2**	**Riffle 3**	**Riffle 4**
	Wetted Width (ft)	16	11	12	8
	Bankfull Width (ft)	100	100	150	65
	Maximum Depth (ft	0.6	0.55	0.8	1
	Gradient (%)	1	1.5	1.5	2

Table A7. Site 164th Ave canopy cover measurements

Direction	Riffle 1	Riffle 2	Riffle 3	Riffle 4
Center Up	12	17	17	17
Center Down	8	16	17	17
Center Left	16	17	17	17
Center Right	16	17	15	17
Left Bank	17	17	17	17
Right Bank	17	16	12	17

Table A8. Soos Creek site 164th Ave pebble class size and embeddedness measurements

Riffle 1												
		L Bank	**10%**	**20%**	**30%**	**40%**	**50%**	**60%**	**70%**	**80%**	**90%**	**R Bank**
Pebble Class Size		Se	CG	FG	Sa	CG	CG	W	Sa	FG	W	Se
% Embeddedness	Transect 1	10	90	10	0	30	40	10	0	20	10	10
Pebble Class Size		Se	CG	CG	Sa	W	W	W	FG	W	CG	Se
% Embeddedness	Transect 2	10	30	30	0	30	40	0	30	10	20	10
Pebble Class Size	Transect 3	Se	CG	FG	FG	FG	W	SCM	SCM	FG	FG	Se
% Embeddedness		10	20	0	10	0	0			0	10	0
Riffle 2												
Pebble Class Size		W	CG	FG	FG	CG	W	W	W	W	FG	FG
% Embeddedness	Transect 1	0	10	90	30	10	10	0	0	10	90	60
Pebble Class Size		W	CG	FG	FG	W	W	C	C	FG	W	C
% Embeddedness	Transect 2	0	30	40	80	0	10	20	40	90	10	70
Pebble Class Size		W	FG	FG	FG	W	W	W	W	W	CG	FG
% Embeddedness	Transect 3	0	90	40	50	20	50	30	0	0	20	10
Riffle 3												
Pebble Class Size		Se	FG	C	FG	SCM	W	SCM	W	SCM	FG	CG
% Embeddedness	Transect 1	0	10	80	10		50		50		10	40
Pebble Class Size		Se	SCM	FG	W	W	SCM	W	FG	CG	W	SCM
% Embeddedness	Transect 2	0		20	30	20		40	60	10	10	
Pebble Class Size												
% Embeddedness		Se	FG	CG	CG	W	SCM	FG	FG	W	W	W
	Transect 3	0	0	10	20	40		70	60	0	20	0
Riffle 4												
Pebble Class Size		W	W	W	W	C	CG	W	CG	B	CG	FG
% Embeddedness	Transect 1	10	50	70	90	20	20	10	10	10	20	30
Pebble Class Size		W	W	FG	C	C	B	CG	CG	C	W	CG
% Embeddedness	Transect 2	0	10	60	30	20	40	10	10	20	10	50
Pebble Class Size												
% Embeddedness		W	W	C	C	B	CG	FG	W	FG	FG	FG
	Transect 3	10	30	10	10	20	10	10	10	30	20	70

Table A9. Soos Creek site 168th Way flow measurements

Site Name	Stream Discharge			Bank Stability (% instability) at Transects 1-4	
	Width (ft)	Depth (ft)	Velocity (ft/s)	Left Bank	Right Bank
At 168th Way SE	0 (RB)	0.7	0.63	15	10
	1	0.75	0.79	50	10
	2	1.15	1.32	60	10
	3	1.5	1.33	80	20
	4	1.4	1.34		
	5	0.5	1.39		
	6	0.45	1.13		
	7	0.9	1.13		
	8	0.7	1.03		
	9	0.8	0.82		
	10	0.5	0.69		
	11	0.6	0.49		
	12	0.45	0.62		
	13	0.4	0.71		
	14	0.35	0.77		
	15	0.2	0.83		
	16	0.1	0.01		
	17	0.05	0.01		
	18	0.05	0.01		
	19	0.1	0.01		
	20 (LB)	0.1	0.01		
Average Velocity = 1.01 ft/sec					
Discharge = 11.44 cfs					

Table A10. Soos Creek site 168th Way stream profile measurements

Site Name	Stream Reach Profile				
At 168th Way SE	**Channel Feature**	**Riffle 1**	**Riffle 2**	**Riffle 3**	**Riffle 4**
	Wetted Width (ft)	26.4	29.1	18.1	15.7
	Bankfull Width (ft)	34.8	35.2	32.5	22.7
	Maximum Depth (ft	0.9	0.73	0.75	0.67
	Gradient (%)	1	3	1	2

Table A11. Soos Creek site 168th Way canopy cover measurements

Direction	Riffle 1	Riffle 2	Riffle 3	Riffle 4
Center Up	13	7	8	13
Center Down	8	10	14	11
Center Left	16	14	16	12
Center Right	16	12	11	17
Left Bank	14	17	14	17
Right Bank	16	10	12	10

Table A12. Soos Creek site 168th Way pebble class size and embeddedness

Riffle 1												
		L Bank	**10%**	**20%**	**30%**	**40%**	**50%**	**60%**	**70%**	**80%**	**90%**	**R Bank**
Pebble Class Size		Sa	FG	C	CG	B	B	B	C	C	CG	Sa
% Embeddedness	Transect 1		20	10	20	30	10	10	0	10	20	
Pebble Class Size		Sa	C	CG	CG	B	C	C	B	C	C	CG
% Embeddedness	Transect 2		10	10	30	10	10	20	10	10	10	20
Pebble Class Size	Transect 3	Sa	CG	CG	CG	C	C	B	B	C	CG	FG
% Embeddedness			10	20	20	10	10	20	10	20	30	10
Riffle 2												
Pebble Class Size		C	CG	C	B	B	C	C	B	B	W	W
% Embeddedness	Transect 1	20	50	10	5	50	10	10	10	20	0	0
Pebble Class Size		CG	C	C	CG	C	B	CG	B	B	C	W
% Embeddedness	Transect 2	60	10	0	10	20	5	20	30	40	10	0
Pebble Class Size		FG	CG	CG	C	W	B	C	C	B	B	W
% Embeddedness	Transect 3	70	10	5	10	10	30	5	5	20	10	0
Riffle 3												
Pebble Class Size		FG	C	C	B	B	B	C	C	C	C	CG
% Embeddedness	Transect 1	10	10	10	30	10	10	10	20	30	30	10
Pebble Class Size		W	CG	C	B	B	B	B	B	C	C	C
% Embeddedness	Transect 2	0	10	10	20	50	30	20	20	10	5	0
Pebble Class Size												
% Embeddedness		W	C	C	B	B	B	B	C	C	C	C
	Transect 3	0	20	20	30	40	10	5	10	50	20	0
Riffle 4												
Pebble Class Size		SCM	FG	C	C	C	C	B	C	B	C	FG
% Embeddedness	Transect 1		10	10	50	70	20	70	70	50	10	0
Pebble Class Size		SCM	FG	C	C	B	CG	C	C	B	B	C
% Embeddedness	Transect 2		10	50	20	10	10	40	10	10	40	30
Pebble Class Size												
% Embeddedness		SCM	CG	C	W	W	B	CG	C	C	C	B
	Transect 3		10	20	10	10	10	20	10	20	50	0

Table A13. Soos Creek site 272nd St. flow measurements

Site Name	Stream Discharge				Bank Stability (% instability) at Transects 1-4	
	Width (ft)	Depth (ft)	Velocity (ft/s)	Comments	Left Bank	Right Bank
At 272nd St.	1	0.1	0.01	Min	40	75
	1.5	0.2	-0.13		40	75
	2	0.25	0.03		40	75
	2.5	0.45	0.42		40	75
	3	0.5	0.95			
	3.5	0.3	-0.11	On a rock		
	4	0.5	0.94			
	4.5	0.5	0.85			
	5	0.5	0.94			
	5.5	0.5	1.13			
	6	0.5	1.06			
	6.5	0.5	0.97			
	7	0.2	0.72	On a rock		
	7.5	0.4	0.47			
	8	0.2	0.24			
	8.5	0.2	0.15			
	9	0	0	On a boulder		
Average Velocity = .65 ft/sec						
Discharge = 1.97 cfs						

Table A14. Soos Creek site 272nd St. stream profile

Site Name	Stream Reach Profile				
At 272nd St.	**Channel Feature**	**Riffle**	**Riffle 2**	**Riffle 3**	**Riffle 4**
	Wetted Width (ft)	7.5	6.8	9.8	9.6
	Bankfull Width (ft)	50	25	38	40
	Maximum Depth (ft	0.6	0.5	0.7	0.8
	Gradient (%)	1	4	1.5	2

Table A15. Soos Creek site 272nd canopy cover measurements

Direction	Riffle 1	Riffle 2	Riffle 3	Riffle 4	Comments
Center Up	17	16	17	16	Site at 272nd St.
Center Down	17	17	16	17	
Center Left	17	17	17	17	
Center Right	17	17	17	17	
Left Bank	17	17	16	16	
Right Bank	17	17	17	17	

Table A16. Soos Creek site 272nd St. pebble class size and embeddedness

Riffle 1												
		L Bank	**10%**	**20%**	**30%**	**40%**	**50%**	**60%**	**70%**	**80%**	**90%**	**R Bank**
Pebble Class Size		W	C	C	CG	C	FG	C	CG	Sa	FG	Sa
% Embeddedness	Transect 1	0	5	10	20	40	10	20	20		10	
Pebble Class Size		SCM	C	C	CG	CG	CG	FG	C	C	Sa	Sa
% Embeddedness	Transect 2		10	30	20	40	10	10	20	20		
Pebble Class Size	Transect 3	SCM	CG	FG	FG	FG	CG	C	C	CG	Sa	Sa
% Embeddedness			10	20	10	10	50	30	40	10		
Riffle 2												
Pebble Class Size		W	CG	CG	CG	CG	CG	FG	FG	Sa	Sa	Sa
% Embeddedness	Transect 1	10	20	10	10	10	20	10	10			
Pebble Class Size		SCM	C	CG	CG	FG	B	C	FG	FG	SCM	SCM
% Embeddedness	Transect 2		40	10	10	10	40	10	10	10		
Pebble Class Size		W	C	C	CG	CG	CG	C	CG	C	C	CG
% Embeddedness	Transect 3	10	20	40	50	50	50	40	30	10	10	10
Riffle 3												
Pebble Class Size		C	CG	CG	FG	C	CG	FG	CG	Sa	FG	Sa
% Embeddedness	Transect 1	20	10	30	50	50	60	10	20		10	
Pebble Class Size		C	CG	CG	C	C	CG	CG	CG	FG	Sa	Sa
% Embeddedness	Transect 2	20	10	50	30	70	60	20	10	10		
Pebble Class Size												
% Embeddedness		C	C	FG	FG	CG	FG	C	C	C	CG	Sa
	Transect 3	50	10	20	20	20	10	50	50	40	10	
Riffle 4												
Pebble Class Size		FG	FG	CG	C	CG	FG	C	CG	Sa	Sa	Sa
% Embeddedness	Transect 1	10	10	50	30	30	10	50	50			
Pebble Class Size		W	W	CG	C	CG	FG	FG	CG	C	Sa	Sa
% Embeddedness	Transect 2	10	10	20	20	40	70	30	50	10		
Pebble Class Size												
% Embeddedness		W	W	C	B	B	C	B	FG	CG	C	C
	Transect 3	10	10	40	30	20	70	30	50	10	10	10

Table A17. Soos Creek site Near SR 58 flow measurements

Site Name	Stream Discharge				Bank Stability (% instability) at Transects 1-4	
	Width (ft)	Depth (ft)	Velocity (ft/s)	Comments	Left Bank	Right Bank
Near SR 58	1	0.1	0.1		5	40
	2.5	0.55	-0.07		10	20
	4	0.95	-0.06		50	15
	5.5	0.55	0.22		30	30
	7	1.2	0.55			
	8.5	1.3	0.95			
	10	1.6	1.59			
	11.5	1.75	2.1			
	13	1.9	2.22			
	14.5	2.1	2.61			
	16	1.8	2.3			
	17.5	1.8	2.34			
	19	1.4	2.54			
	20.5	0.5	0.81			
	22	0.9	0.2			
Average Velocity = 1.69 ft/sec						
Discharge = 45.37 cfs						

Table A18. Soos Creek Near SR 58 stream profile

Site Name	Stream Reach Profile				
Near SR 58	**Channel Feature**	**Riffle 1**	**Riffle 2**	**Riffle 3**	**Riffle 4**
	Wetted Width (ft)	21	27.5	24	30.5
	Bankfull Width (ft)	50	42	45	40.5
	Maximum Depth (ft	1.7	1.1	1.8	1.2
	Gradient (%)	1.5	0.75	2.5	1.5

Table A19. Soos Creek Near SR 58 canopy cover measurements

Direction	Riffle 1	Riffle 2	Riffle 3	Riffle 4
Center Up	0	9	6	0
Center Down	15	6	15	6
Center Left	12	8	12	1
Center Right	9	17	16	7
Left Bank	15	8	11	1
Right Bank	16	17	16	10

Table A20. Soos Creek Near SR 58 pebble class size and embeddedness measurements

Riffle 1												
		L Bank	**10%**	**20%**	**30%**	**40%**	**50%**	**60%**	**70%**	**80%**	**90%**	**R Bank**
Pebble Class Size		B	CG	CG	CG	FG	CG	CG	CG	Sa	Sa	Sa
% Embeddedness	Transect 1	60	5	0	10	75	20	75	80			
Pebble Class Size		B	CG	CG	CG	CG	CG	CG	CG	CG	CG	Sa
% Embeddedness	Transect 2	0	5	5	20	5	0	50	10	0	40	
Pebble Class Size	Transect 3	B	B	CG	CG	CG	CG	FG	FG	CG	CG	CG
% Embeddedness		5	25	10	15	0	25	0	5	0	75	50
Riffle 2												
Pebble Class Size		B	B	C	CG	CG	CG	FG	FG	CG	FG	FG
% Embeddedness	Transect 1	0	20	20	10	30	10	80	10	20	0	0
Pebble Class Size		B	CG	CG	C	FG	FG	CG	FG	C	FG	FG
% Embeddedness	Transect 2	10	10	20	10	20	70	20	40	10	20	40
Pebble Class Size		B	CG	CG	FG	FG	FG	CG	C	CG	FG	C
% Embeddedness	Transect 3	10	30	30	50	50	10	25	10	30	70	10
Riffle 3												
Pebble Class Size		W	CG	FG	CG	C	FG	FG	CG	C	Sa	Sa
% Embeddedness	Transect 1	30	50	80	30	10	70	20	50	20		
Pebble Class Size		W	W	FG	FG	CG	FG	FG	FG	C	Sa	Sa
% Embeddedness	Transect 2	10	10	30	30	20	80	60	80	20		
Pebble Class Size												
% Embeddedness		W	Sa	W	CG	CG	CG	FG	CG	C	CG	Sa
	Transect 3	10		10	10	20	20	10	30	30	20	
Riffle 4												
Pebble Class Size		W	W	CG	CG	C	FG	CG	C	C	FG	Sa
% Embeddedness	Transect 1	10	20	30	10	30	80	20	30	10	10	
Pebble Class Size		Sa	CG	CG	CG	FG	CG	C	FG	CG	CG	Sa
% Embeddedness	Transect 2		10	20	20	70	10	20	80	10	10	
Pebble Class Size												
% Embeddedness		CG	CG	FG	CG	CG	CG	CG	C	FG	CG	Sa
	Transect 3	10	10	30	10	20	50	20	10	40	60	

Table A21. SR 58 Crossing Kent-Black Diamond Rd. SE Flow Measurements

Site Name	Stream Discharge				Bank Stability (% instability) at Transects 1-4	
	Width (ft)	Depth (ft)	Velocity (ft/s)	Comments	Left Bank	Right Bank
SR 58 Crossing Kent-Black Diamond Rd. SE	1	0	0		20	15
	2.5	0.4	0.02		10	10
	4	0.7	0.47		10	90
	5.5	0.7	0.54		90	10
	7	0.6	0.83			
	8.5	0.55	0.78			
	10	0.5	1.21			
	11.5	0.6	1.63			
	13	0.5	0.88			
	14.5	0.6	0.91			
	16	0.5	1.28			
	17.5	0.8	1.1			
	19	0.55	1.19			
	20.5	0.5	1.56			
	22	0	0	On a rock		
	23.5	0.2	0.43			
	25	0	0			
Average Velocity = .94 ft/sec						
Discharge = 10.88 cfs						

Table A22. SR 58 Crossing Kent-Black Diamond Rd. riffle pebble class and embeddedness measurements

Riffle 1												
		L Bank	**10%**	**20%**	**30%**	**40%**	**50%**	**60%**	**70%**	**80%**	**90%**	**R Bank**
Pebble Class Size		CG	C	CG	CG	C	C	CG	C	CG	CG	Sa
% Embeddedness	Transect 1	75	25	50	30	50	50	75	40	15	10	
Pebble Class Size		SCM	SCM	SCM	C	CG	C	CG	CG	CG	CG	W
% Embeddedness	Transect 2				50	30	5	5	15	25	5	
Pebble Class Size	Transect 3	Sa	CG	FG	CG	B	B	FG	CG	CG	CG	Sa
% Embeddedness			80	50	25	10	30	80	5	50	50	
Riffle 2												
Pebble Class Size		CG	FG	CG	Sa	CG	CG	FG	FG	CG	CG	Sa
% Embeddedness	Transect 1	5	5	80		0	5	0	0	5	80	
Pebble Class Size		W	C	CG	CG	W	C	CG	CG	FG	Sa	W
% Embeddedness	Transect 2	0	10	15	0	0	25	5	10	0		0
Pebble Class Size		W	CG	FG	CG	CG	CG	FG	CG	CG	CG	CG
% Embeddedness	Transect 3	0	10	10	20	10	5	0	5	30	15	20
Riffle 3												
Pebble Class Size		SCM	FG	Sa	CG	CG	CG	Sa	SCM	CG	CG	SCM
% Embeddedness	Transect 1		0		75	10	0			10	10	
Pebble Class Size		Sa	FG	FG	FG	C	C	CG	CG	SCM	CG	SCM
% Embeddedness	Transect 2		90	0	0	10	20	50	15		40	
Pebble Class Size												
% Embeddedness		W	Sa	FG	FG	W	FG	CG	W	FG	CG	Sa
	Transect 3			0	0	0	0	50	0	0	5	
Riffle 4												
Pebble Class Size		FG	C	W	CG	CG	CG	CG	Sa	Sa	CG	Sa
% Embeddedness	Transect 1	0	25	0	5	10	10	20			15	
Pebble Class Size		W	CG	C	W	FG	FG	CG	Sa	Sa	Sa	Sa
% Embeddedness	Transect 2	0	5	5	0	0	0	5				
Pebble Class Size												
% Embeddedness		Sa	FG	FG	C	C	C	W	Sa	W	Sa	W
	Transect 3		0	0	15	10	15	0		30		30

Table A23. SR 58 Crossing Kent-Black Diamond Rd. stream profile

Site Name	Stream Reach Profile				
SR 58 Crossing Kent-Black Diamond Rd. SE	**Channel Feature**	**Riffle 1**	**Riffle 2**	**Riffle 3**	**Riffle 4**
	Wetted Width (ft)	23	23	22	22
	Bankfull Width (ft)	45	28	25	25
	Maximum Depth (ft	0.3	0.5	0.7	0.75
	Gradient (%)	1.5	2	2	2

Table A24. SR 58 Crossing Kent-Black Diamond Rd. canopy cover measurements

Direction	Riffle 1	Riffle 2	Riffle 3	Riffle 4
Center Up	14	13	9	14
Center Down	10	15	9	14
Center Left	16	17	14	11
Center Right	15	11	5	9
Left Bank	17	17	17	15
Right Bank	17	10	9	17

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Table A25. Soos Creek sites water quality information

Site Name	Stream Name	Major Basin	Date	Time	Latitude	Longitude	Elevation (ft)	Ecoregion	Investigators	Temp. (˚C)	pH (standard units)	Conductivity (umhos/cm)	Dissolved Oxygen (mg/L)	Water Clarity	Water Odors	Sediment Odors	Surface Films	Field Notes	DO Calibration	pH Calibration	Dominant Land Use	Weather
At 148th Ave SE	Big Soos Creek	Soos Creek	8/1/12	9:33	47.38634	-122.1441	333	2e	Shannon Brattebo, Jessica Blizard	14.23	6.83	161.7	6.43	Clear	Absent	Anoxic	Sheen	Took pictures from bridge. Water covered down trees and limbs. Only 1 riffle collected all 8 BMI and periphyton from same riffle.	Bp=759	7.05 at 16˚C	Urban/ Suburban - Biking trail nearby	Overcast
At 164th Ave SE	Little Soos Creek	Soos Creek	8/1/12	11:45	47.39369	-122.1171	479	2e	Shannon Brattebo, Jessica Blizard	18.53	6.67	53.3	9.27	Clear-Brown	Absent	Absent	Absent				Forest/ Urban	Clear
At 168th Way SE	Covington Creek	Soos Creek	7/31/12	14:45	47.3193	-122.1193	270	2b	Shannon Brattebo, Jessica Blizard, Rob Plotnikoff	14.86	7.98	133.5	9.89	Clear	Absent	Absent	Absent				Suburban	Clear/ Overcast
At 272nd St	Big Soos Creek	Soos Creek	8/2/12	9:30	47.35835	-122.1252	379	2e	Shannon Brattebo, Jessica Blizard	16.14	6.96	52.4	9.77	Clear	Absent	Absent	Absent	Staff gauge at D/S end of reach =.74. Upstream of culvert under SR 516, 272nd St.	Bp = 758	6.93 @ 19.3˚C	Urban	Overcast
Near SR 58	Big Soos Creek	Soos Creek	8/1/12	14:30	47.31758	-122.1475	132	2b	Shannon Brattebo, Jessica Blizard	16.27	7.34	140.2	10.23	Clear	Absent	Absent	Absent				Rural	Clear
SR 58 Crossing Kent-Black Diamond Rd. SE	Covintgon Creek	Soos Creek	7/31/12	11:25	47.3122	-122.0965	376	2b	Shannon Brattebo, Jessica Blizard, Rob Plotnikoff	15.38	7.48	135	9.7	Clear	Absent	Absent	Absent	Staff Gauge 1.12. Photos on cell phone. At riffle 4 found Margaritifera Falcata.	Bp=756	6.98 at 22.7˚C	Urban and rural	Overcast

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Table A26. Squalicum Creek Upper flow information

Site Name	Stream Discharge			Bank Stability (% instability) at Transects 1-4	
	Width (ft)	Depth (ft)	Velocity (ft/s)	Left Bank	Right Bank
Squalicum Creek 6	1	0	0	5	0
	1.5	0.15	0.55	90	0
	2	0.3	0. 1	5	0
	2.5	0.25	0.72	0	0
	3	0.2	0.92		
	3.5	0.2	0.92		
	4	0.2	0.87		
	4.5	0.15	0.69		
	5	0.1	0.53		
	5.5	0.05	0.36		
	6	0.05	0		
	7	0	0		
Average Velocity = .73 ft/sec					
Discharge = .61 cfs					

Table A27. Squalicum Creek Upper stream profile

Site Name	Stream Reach Profile				
Squalicum Creek 6	**Channel Feature**	**Riffle 1**	**Riffle 2**	**Riffle 3**	**Riffle 4**
	Wetted Width (ft)	9.5	8.8	6.5	20.6
	Bankfull Width (ft)	13.9	13.4	14.3	11.5
	Maximum Depth (ft	0.3	0.5	0.48	0.42
	Gradient (%)	2.5	0.5	2	2

Table A28. Squalicum Creek Upper canopy cover measurements

Direction	Riffle 1	Riffle 2	Riffle 3	Riffle 4
Center Up	12	16	14	17
Center Down	15	14	11	17
Center Left	17	16	17	17
Center Right	14	15	15	17
Left Bank	17	15	17	17
Right Bank	16	16	13	17

Table A29. Squalicum Creek Upper riffle pebble count and embeddedness

Site Name	**Riffle 1**												
Squalicum Creek 6			**L Bank**	**10%**	**20%**	**30%**	**40%**	**50%**	**60%**	**70%**	**80%**	**90%**	**R Bank**
	Pebble Class Size		Sa	FG	C	CG	CG	CG	CG	FG	CG	CG	CG
	% Embeddedness	Transect 1		0	40	5	40	40	65	0	5	25	35
	Pebble Class Size		CG	CG	CG	C	Sa	CG	CG	CG	C	FG	SCM
	% Embeddedness	Transect 2	60	5	65	25		15	20	70	65	15	
	Pebble Class Size	Transect 3	SCM	CG	FG	CG	CG	CG	FG	Sa	Sa	FG	CG
	% Embeddedness			55	80	70	55	25	0			5	20
	Riffle 2												
	Pebble Class Size		CG	CG	Sa	CG	CG	Sa	B	C	CG	CG	SCM
	% Embeddedness	Transect 1	25	55		5	30		60	40	5	50	
	Pebble Class Size		FG	CG	CG	CG	C	C	C	CG	C	CG	SCM
	% Embeddedness	Transect 2	0	45	50	50	45	25	40	45	55	10	
	Pebble Class Size		CG	CG	C	CG	B	B	C	C	CG	W	SCM
	% Embeddedness	Transect 3	15	5	80	30	10	10	60	55	30	60	
	Riffle 3												
	Pebble Class Size		Sa	CG	C	FG	CG	C	FG	CG	Sa	Sa	CG
	% Embeddedness	Transect 1		0	5	100	10	80	0	20			0
	Pebble Class Size		Sa	FG	FG	C	CG	C	CG	CG	Sa	FG	Sa
	% Embeddedness	Transect 2		20	10	30	0	15	35	5		100	
	Pebble Class Size												
	% Embeddedness		SCM	Sa	CG	Sa	FG	CG	FG	C	FG	CG	FG
		Transect 3			5		100	10	0	15	0	5	0
	Riffle 4												
	Pebble Class Size		SCM	Sa	FG	CG	C	C	FG	CG	Clay	Clay	Clay
	% Embeddedness	Transect 1			40	0	25	15	0	0			
	Pebble Class Size		Sa	Sa	CG	CG	C	B	FG	FG	C	CG	Clay
	% Embeddedness	Transect 2			5	10	5	30	0	0	5	15	
	Pebble Class Size												
	% Embeddedness		Clay	FG	FG	FG	CG	CG	C	C	B	CG	W
		Transect 3		0	0	15	40	10	5	15	10	0	10

Table A30. Squalicum Creek Above Cornwall Park flow measurements

Site Name	Stream Discharge				Bank Stability (% instability) at Transects 1-4	
	Width (ft)	Depth (ft)	Velocity (ft/s)	Comments	Left Bank	Right Bank
Squalicum Creek above Cornwall Park	0	0	0	Foam buildup along creek	0	0
	0.5	0.1	0.27		25	0
	1	0.2	0.06		5	15
	1.5	0.2	0.05		95	95
	2	0.2	1.31			
	2.5	0.15	1.53			
	3	0.2	2.37			
	3.5	0.2	2.74			
	4	0.3	2.88			
	4.5	0.25	2.65			
	5	0.25	2.56			
	5.5	0.4	2.23			
	6	0.5	2.53			
	6.5	0.6	1.08			
	7	0.7	0.4			
	7.5	0.7	0.16			
	8	0.45	0.09			
	8.5	0.3	0.08			
Average Velocity = 1.26 ft/sec						
Discharge = 3.49 cfs						

Table A31. Squalicum Creek above Cornwall Park stream profile

Site Name	Stream Reach Profile				
Squalicum Creek above Cornwall Park	**Channel Feature**	**Riffle 1**	**Riffle 2**	**Riffle 3**	**Riffle 4**
	Wetted Width (ft)	8.75	12.6	8.3	5.9
	Bankfull Width (ft)	26.1	25.6	29.7	22.4
	Maximum Depth (ft	0.6	0.48	0.42	0.44
	Gradient (%)	1.5	1	2.5	0.5

Table A32. Squalicum Creek Above Cornwall Park canopy cover

Direction	Riffle 1	Riffle 2	Riffle 3	Riffle 4
Center Up	15	16	17	12
Center Down	5	13	3	5
Center Left	14	11	17	10
Center Right	15	13	10	11
Left Bank	14	17	17	17
Right Bank	17	15	9	12

Table A33. Squalicum Creek Above Cornwall Park riffle pebble count and embeddedness measurements

10	**Riffle 1**												
Squalicum Creek above Cornwall Park			**L Bank**	**10%**	**20%**	**30%**	**40%**	**50%**	**60%**	**70%**	**80%**	**90%**	**R Bank**
	Pebble Class Size		SCM	CG	FG	Sa	FG	FG	FG	FG	CG	FG	CG
	% Embeddedness	Transect 1		40	20		20	10	30	20	15	20	10
	Pebble Class Size		Sa	CG	C	FG	FG	FG	FG	FG	CG	CG	CG
	% Embeddedness	Transect 2		20	15	0	0	10	25	100	60	40	15
	Pebble Class Size	Transect 3	FG	Sa	FG	FG	CG	FG	C	SCM	FG	FG	CG
	% Embeddedness		15		10	90	0	0	25		90	25	0
	Riffle 2												
	Pebble Class Size		SCM	SCM	FG	CG	FG	Sa	Sa	FG	CG	FG	Sa
	% Embeddedness	Transect 1			100	90	80			100	10	0	
	Pebble Class Size		FG	FG	Sa	FG	FG	CG	FG	FG	CG	CG	Sa
	% Embeddedness	Transect 2	0	80		0	10	15	40	30	40	20	
	Pebble Class Size		Sa	FG	CG	FG	FG	FG	Sa	Sa	SCM	FG	Sa
	% Embeddedness	Transect 3		100	80	60	20	0				0	
	Riffle 3												
	Pebble Class Size		FG	CG	FG	FG	FG	FG	FG	C	C	SCM	Sa
	% Embeddedness	Transect 1	0	10	0	0	0	0	10	25	15		
	Pebble Class Size		S	FG	CG	FG	FG	Sa	Sa	C	FG	C	Sa
	% Embeddedness	Transect 2		0	20	0	0			30	30	10	
	Pebble Class Size												
	% Embeddedness		S	C	C	C	CG	FG	SCM	FG	C	CG	C
		Transect 3		0	15	70	30	100		30	80	10	0
	Riffle 4												
	Pebble Class Size		CG	FG	SCM	CG	CG	FG	FG	S	CG	SCM	Sa
	% Embeddedness	Transect 1	0	100		15	40	0	0		10	0	0
	Pebble Class Size		FG	FG	FG	CG	FG	FG	Sa	Sa	CG	FG	Sa
	% Embeddedness	Transect 2	0	100	0	60	20	30			10	100	
	Pebble Class Size												
	% Embeddedness		FG	CG	FG	SCM	FG	SCM	FG	FG	Sa	FG	Sa
		Transect 3	0	30	100		60		100	100		0	

Table A34. Squalicum Creek at West St. flow measurements

Site Name	Stream Discharge				Bank Stability (% instability) at Transects 1-4		Comments
	Width (ft)	Depth (ft)	Velocity (ft/s)	Comments	Left Bank	Right Bank	
Squalicum Creek at West Street	1	0.05	0.19		0	0	
	1.5	0.15	0.03		0	10	
	2	0.3	0.18		0	20	
	2.5	0.2	0.38		0	20	
	3	0.2	0.61				
	4	0.3	0.82				
	5	0.3	0.77				
	6	0.4	0.75				
	7	0.25	1.11				
	8	0.5	1.02				
	9	0.4	0.75				
	10	0.4	0.86				
	11	0.35	1				
	12	0.3	0.77				
	13	0.3	0.66				
	14	0.3	0.28				
	15	0.2	0.14				
	16	0.2	0.05				
	17	0.15	0.01				
	18	0	0				
Average Velocity = .68 ft/sec							
Discharge = 3.27 cfs							

Table A35. Squalicum Creek at West St. stream profile

Site Name	Stream Reach Profile				
Squalicum Creek at West Street	**Channel Feature**	**Riffle 1**	**Riffle 2**	**Riffle 3**	**Riffle 4**
	Wetted Width (ft)	18	17.2	37.2	19.8
	Bankfull Width (ft)	27.7	63.4	48.9	33.1
	Maximum Depth (ft	0.37	0.53	0.35	0.44
	Gradient (%)	2.5	3	1	2.5

Table A36. Squalicum Creek at West St. canopy cover measurements

Direction	Riffle 1	Riffle 2	Riffle 3	Riffle 4
Center Up	14	12	17	16
Center Down	11	7	17	16
Center Left	17	5	17	16
Center Right	4	9	17	17
Left Bank	17	1	17	17
Right Bank	6	14	17	17

Table A37. Squalicum Creek at West St. riffle pebble count and embeddedness measurements

Site Name	**Riffle 1**												
Squalicum Creek At West St.			**L Bank**	**10%**	**20%**	**30%**	**40%**	**50%**	**60%**	**70%**	**80%**	**90%**	**R Bank**
	Pebble Class Size		C	CG	C	C	CG	C	CG	CG	C	C	FG
	% Embeddedness	Transect 1	30	0	40	35	0	35	15	10	35	20	0
	Pebble Class Size		C	C	C	CG	C	C	C	C	C	CG	CG
	% Embeddedness	Transect 2	40	35	10	0	0	15	0	30	15	10	10
	Pebble Class Size	Transect 3	CG	CG	C	C	C	FG	C	CG	CG	CG	CG
	% Embeddedness		30	0	15	25	0	0	30	15	50	50	0
	Riffle 2												
	Pebble Class Size		CG	CG	CG	C	CG	C	C	C	FG	Sa	FG
	% Embeddedness	Transect 1	50	10	30	25	0	15	5	10	0		0
	Pebble Class Size		CG	CG	C	CG	CG	FG	FG	C	FG	FG	FG
	% Embeddedness	Transect 2	20	30	15	0	20	0	0	50	10	0	0
	Pebble Class Size		FG	C	CG	C	FG	FG	C	C	FG	CG	Sa
	% Embeddedness	Transect 3	0	35	40	15	0	0	40	55	0	0	
	Riffle 3												
	Pebble Class Size		CG	CG	C	C	CG	C	C	C	B	C	CG
	% Embeddedness	Transect 1	50	15	10	30	5	80	25	35	60	50	10
	Pebble Class Size		CG	C	C	C	C	CG	C	FG	FG	CG	CG
	% Embeddedness	Transect 2	25	60	30	20	15	0	70	0	0	30	0
	Pebble Class Size												
	% Embeddedness		CG	C	C	C	C	C	CG	C	C	CG	CG
		Transect 3	60	40	15	15	50	60	0	20	65	30	30
	Riffle 4												
	Pebble Class Size		CG	C	C	C	FG	B	CG	C	Sa	C	Sa
	% Embeddedness	Transect 1	20	30	15	40	0	30	15	30		30	
	Pebble Class Size		CG	CG	C	CG	C	C	C	FG	C	C	C
	% Embeddedness	Transect 2	20	20	15	0	30	50	15	0	0	10	10
	Pebble Class Size												
	% Embeddedness		CG	C	CG	C	Sa	C	FG	CG	B	CG	B
		Transect 3	80	20	0	5		50	0	30	0	5	5

Table A38. Squalicum Creek Baker Creek stream profile

Site Name	Stream Reach Profile				
Baker Creek	**Channel Feature**	**Riffle 1**	**Riffle 2**	**Riffle 3**	**Riffle 4**
	Wetted Width (ft)	6.7	4.2	7.6	11.2
	Bankfull Width (ft)	25.9	29.2	27.9	28.4
	Maximum Depth (ft	0.23	0.43	0.29	0.26
	Gradient (%)	2	4	2	3

Table A39. Squalicum Creek Baker Creek canopy cover measurements

Direction	Riffle 1	Riffle 2	Riffle 3	Riffle 4
Center Up	17	17	16	17
Center Down	14	12	17	13
Center Left	17	17	17	13
Center Right	17	10	17	17
Left Bank	17	17	17	8
Right Bank	17	12	17	17

Table A40. Squalicum Creek Baker Creek flow measurements

Site Name	Stream Discharge				Bank Stability (% instability) at Transects 1-4	
	Width (ft)	Depth (ft)	Velocity (ft/s)	Comments	Left Bank	Right Bank
Baker Creek	0	0	0		100	100
	0.5	0.1	0.05		100	100
	1	0.1	0.01		100	100
	1.5	0.15	0.06		100	100
	2	0.1	0.53			
	2.5	0.1	0.45			
	3	0.1	0.81			
	3.5	0.1	0.03			
	4	0.2	0.3			
	4.5	0.15	1.3			
	5	0.3	0.42			
	5.5	0.2	0.37			
	6	0.15	0.34			
	6.5	0.05	0.33			
	7	0	0			
Average Velocity = .41 ft/sec						
Discharge = .37 cfs						

Table A41. Squalicum Creek Baker Creek riffle pebble class size and embeddedness

Site Name	**Riffle 1**												
Baker Creek			**L Bank**	**10%**	**20%**	**30%**	**40%**	**50%**	**60%**	**70%**	**80%**	**90%**	**R Bank**
	Pebble Class Size		Sa	C	CG	CG	CG	C	CG	FG	CG	FG	C
	% Embeddedness	Transect 1		40	0	5	0	0	0	0	0	5	0
	Pebble Class Size		Sa	FG	FG	CG	CG	CG	C	C	C	CG	C
	% Embeddedness	Transect 2		10	0	5	0	0	20	0	0	0	0
	Pebble Class Size	Transect 3	Sa	FG	FG	CG	FG	CG	C	C	CG	C	FG
	% Embeddedness			0	0	0	10	5	20	0	0	40	0
	Riffle 2												
	Pebble Class Size		C	FG	C	C	C	C	FG	FG	C	C	CG
	% Embeddedness	Transect 1	30	5	0	0	0	30	0	0	10	15	0
	Pebble Class Size		C	C	CG	FG	C	C	C	CG	CG	C	CG
	% Embeddedness	Transect 2	15	40	20	0	10	0	30	15	5	0	5
	Pebble Class Size		C	C	FG	CG	FG	C	FG	FG	C	C	C
	% Embeddedness	Transect 3	15	20	0	0	0	0	0	0	0	0	15
	Riffle 3												
	Pebble Class Size		C	C	CG	CG	CG	FG	CG	C	FG	CG	C
	% Embeddedness	Transect 1	0	0	15	0	5	0	0	0	0	15	5
	Pebble Class Size		C	C	CG	CG	FG	C	C	FG	FG	Sa	FG
	% Embeddedness	Transect 2	15	0	0	0	0	15	0	0	5		0
	Pebble Class Size												
	% Embeddedness		C	C	C	C	C	C	C	CG	CG	C	CG
		Transect 3	25	0	0	15	0	0	0	15	5	0	0
	Riffle 4												
	Pebble Class Size		C	FG	CG	C	FG	FG	C	C	C	FG	Sa
	% Embeddedness	Transect 1	0	5	5	25	0	0	0	15	10	0	
	Pebble Class Size		C	CG	C	C	C	FG	CG	FG	C	CG	CG
	% Embeddedness	Transect 2	0	0	0	20	0	0	0	5	0	15	0
	Pebble Class Size												
	% Embeddedness		C	Sa	FG	FG	C	CG	FG	CG	FG	C	C
		Transect 3	15		0	0	15	0	0	0	0	20	0

Table A42. Squalicum Creek BLW Hannegan Rd. flow measurements

Site Name	Stream Discharge				Bank Stability (% instability) at Transects 1-4	
	Width (ft)	Depth (ft)	Velocity (ft/s)	Comments	Left Bank	Right Bank
Squalicum Creek BLW Hannegan Rd.	0	0.05	0.14	Divided channel	10	50
	0.5	0.05	0.75		0	50
	1	0.2	2.37		5	5
	1.5	0.2	2.55		15	0
	2	0.3	2.5			
	2.5	0.3	2.12			
	3	0.25	2.33			
	3.5	0.4	0.15			
	4	0.45	0.08			
	4.5	0.4	0.44			
	5	0.45	0.38			
	5.5	0.55	0.13			
	6	0.6	0.12			
	6.5	0.6	0.1			
	7	0.65	0.02			
	7.5	0.7	0.04			
	8	0.65	0.31			
	8.5	0.5	0.46			
	9	0.45	0.3			
	9.5	0.55	0.15			
	10	0.5	0.08			
	10.5	0.45	0.07			
Average Velocity = .5 ft/sec						
Discharge = 2.26 cfs						

Table A43. Squalicum Creek BLW Hannegan Rd. stream profile

Site Name	Stream Reach Profile				
Squalicum Creek BLW Hannegan Rd.	**Channel Feature**	**Riffle 1**	**Riffle 2**	**Riffle 3**	**Riffle 4**
	Wetted Width (ft)	11.4	6.2	15.7	15.4
	Bankfull Width (ft)	40.3	29.9	47.8	35.8
	Maximum Depth (ft	0.32	0.62	0.47	0.45
	Gradient (%)	4	0.5	2.5	5

Table A44. Squalicum Creek BLW Hannegan Rd. canopy cover

Direction	Riffle 1	Riffle 2	Riffle 3	Riffle 4
Center Up	15	15	16	17
Center Down	16	17	17	16
Center Left	17	17	17	17
Center Right	10	17	17	17
Left Bank	17	16	17	17
Right Bank	17	17	17	17

Table A45. Squalicum Creek BLW Hannegan Rd. riffle pebble count and embeddedness

Site Name	**Riffle 1**												
Squalicum Creek BLW Hannegan Rd.			**L Bank**	**10%**	**20%**	**30%**	**40%**	**50%**	**60%**	**70%**	**80%**	**90%**	**R Bank**
	Pebble Class Size		Sa	CG	C	C	C	C	CG	C	Sa	Sa	SCM
	% Embeddedness	Transect 1		0	0	0	0	0	0	10			
	Pebble Class Size		SCM	CG	C	CG	C	CG	CG	Sa	Sa	CG	SCM
	% Embeddedness	Transect 2		5	0	0	35	15	40			0	
	Pebble Class Size	Transect 3	Sa	FG	CG	CG	CG	FG	CG	Sa	FG	CG	SCM
	% Embeddedness			0	0	0	0	5	15		0	5	
	Riffle 2												
	Pebble Class Size		FG	FG	CG	C	CG	C	CG	C	CG	FG	Sa
	% Embeddedness	Transect 1	5	5	0	0	0	0	0	50	5	0	
	Pebble Class Size		SCM	FG	CG	C	C	CG	CG	CG	FG	CG	SCM
	% Embeddedness	Transect 2		0	35	15	15	0	25	10	5	15	
	Pebble Class Size		SCM	FG	FG	CG	CG	CG	FG	CG	FG	Sa	Sa
	% Embeddedness	Transect 3		0	0	0	5	0	5	15	50		
	Riffle 3												
	Pebble Class Size		SCM	FG	FG	CG	FG	C	FG	FG	C	C	SCM
	% Embeddedness	Transect 1		0	50	15	15	30	0	5	50	75	
	Pebble Class Size		SCM	W	C	C	C	C	C	Sa	CG	CG	SCM
	% Embeddedness	Transect 2		60	0	5	45	0	45		10	0	
	Pebble Class Size												
	% Embeddedness		Sa	CG	C	CG	C	C	FG	C	C	C	C
		Transect 3		35	90	15	5	25	0	0	15	5	15
	Riffle 4												
	Pebble Class Size		Sa	FG	CG	FG	CG	B	FG	B	FG	CG	B
	% Embeddedness	Transect 1		0	0	5	40	40	0	60	0	15	10
	Pebble Class Size		Sa	FG	CG	FG	FG	CG	FG	FG	CG	CG	CG
	% Embeddedness	Transect 2		0	15	0	0	10	0	20	15	0	10
	Pebble Class Size												
	% Embeddedness		Sa	FG	CG	Sa	CG	CG	CG	C	B	C	Sa
		Transect 3		100	0		15	5	0	0	20	50	

Table A46. Squalicum Creek above SR 542 stream profile

Site Name	Stream Reach Profile				
Squalicum Creek above SR 542	**Channel Feature**	**Riffle 1**	**Riffle 2**	**Riffle 3**	**Riffle 4**
	Wetted Width (ft)	7	7.3	4.9	5.7
	Bankfull Width (ft)	28.3	19.7	21.7	18.3
	Maximum Depth (ft	0.25	0.33	0.46	0.36
	Gradient (%)	3.5	3	1.5	4

Table A47. Squalicum Creek Above SR 542 canopy cover measurements

Direction	Riffle 1	Riffle 2	Riffle 3	Riffle 4
Center Up	14	14	15	14
Center Down	13	12	16	17
Center Left	15	14	17	15
Center Right	14	14	16	17
Left Bank	14	13	16	13
Right Bank	16	12	15	17

Table A48. Squalicum Creek above SR 542 flow measurements

Site Name	Stream Discharge				Bank Stability (% instability) at Transects 1-4	
	Width (ft)	Depth (ft)	Velocity (ft/s)	Comments	Left Bank	Right Bank
Squalicum Creek above SR 542	0 (RB)	0	0		0	10
	0.5	0.05	0.14		0	10
	1	0.05	0.03		0	5
	1.5	0.1	0.7		0	0
	2	0.25	1.3			
	2.5	0.25	0.85			
	3	0.2	1.25			
	3.5	0.2	1.45			
	4	0.15	1.11			
	4.5	0.1	0.42			
	5	0.2	0.25			
	5.5	0.1	0.71			
	6	0.05	0.41			
	6.5	0.03	0			
	7 (LB)	0	0			
Average Velocity= .87 ft/sec						
Discharge= .75 cfs						

Table A49. Squalicum Creek above SR 542 pebble count

Site Name	**Riffle 1**												
Squalicum Creek above SR 542			**L Bank**	**10%**	**20%**	**30%**	**40%**	**50%**	**60%**	**70%**	**80%**	**90%**	**R Bank**
	Pebble Class Size		CG	CG	CG	Sa	CG	CG	CG	CG	CG	FG	SCM
	% Embeddedness	Transect 1	55	50	70		30	10	10	30	5	0	
	Pebble Class Size		C	C	C	C	FG	CG	FG	FG	FG	FG	CG
	% Embeddedness	Transect 2	35	10	35	50	0	10	0	5	0	0	25
	Pebble Class Size	Transect 3	CG	CG	CG	FG	C	C	CG	CG	C	CG	SCM
	% Embeddedness		10	30	15	0	15	0	5	5	5	65	
	Riffle 2												
	Pebble Class Size		Sa	C	CG	CG	CG	C	C	CG	C	FG	Sa
	% Embeddedness	Transect 1	100	80	0	0	0	10	20	40	30	0	100
	Pebble Class Size		CG	CG	C	CG	C	C	CG	CG	FG	FG	SCM
	% Embeddedness	Transect 2	0	10	5	5	30	15	0	60	0	100	100
	Pebble Class Size		FG	CG	CG	CG	C	C	CG	CG	CG	C	SCM
	% Embeddedness	Transect 3	100	60	20	60	10	70	0	5	0	90	
	Riffle 3												
	Pebble Class Size		Sa	CG	CG	CG	C	CG	C	C	C	CG	FG
	% Embeddedness	Transect 1		45	35	40	60	5	45	55	40	70	0
	Pebble Class Size		C	C	CG	Sa	C	C	CG	C	CG	C	B
	% Embeddedness	Transect 2	15	65	10		55	30	15	30	35	10	15
	Pebble Class Size												
	% Embeddedness		CG	C	C	C	C	CG	C	C	FG	CG	SCM
		Transect 3	70	55	35	0	65	45	75	45	10	15	
	Riffle 4												
	Pebble Class Size		FG	Sa	Sa	Sa	FG	CG	CG	C	CG	C	C
	% Embeddedness	Transect 1	0				0	0	20	30	0	60	40
	Pebble Class Size		FG	Sa	CG	Sa	FG	CG	CG	CG	C	CG	C
	% Embeddedness	Transect 2	0		90		0	20	15	0	40	20	30
	Pebble Class Size												
	% Embeddedness		SCM	B	CG	CG	FG	CG	W	CG	FG	SCM	Sa
		Transect 3		20	0	0	100	0	60	0	100		

Table A50. Squalicum Creek water quality information

Site Name	Stream Name	Major Basin	Date	Time	Latitude	Longitude	Ecoregion	Investigators	Temp. (˚C)	pH (standard units)	Conductivity (umhos/cm)	Dissolved Oxygen (mg/L)	Water Clarity	Water Odors	Sediment Odors	Surface Films	Field Notes	DO Calibration	pH Calibration	Dominant Land Use	Weather
Squalicum Creek Above SR 542	SQ-5	WRIA 1	7/24/12	11:22	48.787783	-122.439	2a	Rob Plotnikoff, Jennifer Lawson	13.99	7.69	97.2	8.88	Clear	Absent	Absent	Absent		Bp=769	6.95 @ 24.4	Urban residential	Overcast
Squalicum Creek BLW Hannegan Rd.	SQ-4	WRIA 1	7/25/12	8:50	48.801867	-122.39	2a	Rob Plotnikoff, Jennifer Lawson	14.17	7.74	150.4	8.16	Clear	Absent	Absent	Absent		Bp=772		Urban	Clear
Baker Creek	SQ-2	WRIA 1	7/25/12	16:00	48.7768	-122.491	2a	Rob Plotnikoff, Jennifer Lawson	17.95	7.46	273.1	7.57	Clear	Absent	Absent	Absent				Urban	Clear
Squalicum Creek at West Street	SQ-1	WRIA 1	7/26/12	9:00	48.766133	-122.5	2a	Rob Plotnikoff, Jennifer Lawson	16.19	7.49	191.8	8.08	Clear	Absent	Absent	Absent	Riffle 2 = Split channel, TT sampled R channel, Ecology sampled L channel (including substrate/ pebble class - R channel only). First site with visible knotweed	Bp= 774		Urban industrial/ residential	Clear
Squalicum Creek above Cornwall Park	SQ-3	WRIA 1	7/25/12	13:00	48.776433	-122.48	2a	Rob Plotnikoff, Jennifer Lawson	19.26	7.2	157	8.83	Clear	Absent	Absent	Absent	Colonial algae present throughout the site and suspended in water column. Very few large rocks/ lack of coarse substrate (<gravel) periphyton sample composite of more (>2) smaller rocks at each riffle.			Urban	Clear
Squalicum Creek Upper	SQ-6	WRIA 1	7/24/12	4:00PM	48.8	-122.404	2a	Rob Plotnikoff, Jennifer Lawson	14.91	7.61	93.1	8.52	Clear	Absent	Absent	Absent				Urban	Clear

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Appendix B. Laboratory Data

Chlorophyll *a* Results
Benthic Macroinvertebrate Taxonomic Data
Periphyton Taxonomic Data

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Table B1. Rhithron Chlorophyll A lab data

Project ID	Sample ID	Sample Station Name	Sample Client ID	Sample Date Collected	Total Volume (mL)	Sub-Sample Volume (mL)	Area Sampled (mm^2)	Area Sampled (cm^2)	Area Sampled (m^2)	Concentration Factor	664	750	665	750	DF	Cuvette Length (cm)	L of Extract	CE (mg/L)	Chl-a on filter (mg/m^2)	Total Chl-a in slurry (mg/m^2)	Reporting Value (mg/m^2)
TT12RPC	TT12RPC001	At 148th Ave. SE	BS-1	8/1/2012	600	10	440	4.40	0.000440	44.00	0.002	0.002	0.001	0.001	1	1	0.0105	0.00	0.00	0.00	B.D.
TT12RPC	TT12RPC002	Near SR 58	BS-2	8/1/2012	540	20	314	3.14	0.000314	15.70	0.007	0.003	0.002	0.004	1	1	0.0105	0.16	5.36	84.11	84.11
TT12RPC	TT12RPC003	At 272nd St.	BS-3	8/2/2012	440	20	391	3.91	0.000391	19.55	0.003	0.001	0.002	0.001	1	1	0.0105	0.03	0.72	14.02	B.D.
TT12RPC	TT12RPC004	At 242nd St.	BS-3 Dup	8/2/2012	450	20	479	4.79	0.000479	23.95	0.004	0.001	0.003	0.001	1	1	0.0105	0.03	0.59	14.02	B.D.
TT12RPC	TT12RPC005	168th Way	CC-1	7/31/2012	650	20	520	5.20	0.000520	26.00	0.012	0.001	0.011	0.001	1	1	0.0105	0.03	0.54	14.02	B.D.
TT12RPC	TT12RPC006	SR 58 Crossing Kent DeMans Rd.	CC-2	7/31/2012	572	10	635	6.35	0.000635	63.50	0.018	0.002	0.011	0.001	1	1	0.0105	0.16	2.65	168.21	168.21
TT12RPC	TT12RPC007	At 164th Ave. SE	LS-1	8/1/2012	545	15	512	5.12	0.000512	34.13	0.006	0.001	0.004	0.001	1	1	0.0105	0.05	1.10	37.38	B.D.
TT12RPC	TT12RPC008	Squalicum Cr. West St.	SQ-1	7/26/2012	375	10	800	8.00	0.000800	80.00	0.011	0.001	0.010	0.001	1	1	0.0105	0.03	0.35	28.03	B.D.
TT12RPC	TT12RPC009	Baker Creek	SQ-2	7/25/2012	300	10	701	7.01	0.000701	70.10	0.021	0.002	0.019	0.001	1	1	0.0105	0.03	0.40	28.04	B.D.
TT12RPC	TT12RPC010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	624	10	270	2.70	0.000270	27.00	0.058	0.001	0.054	0.002	1	1	0.0105	0.13	5.19	140.18	140.18
TT12RPC	TT12RPC011	Squalicum Cr. Below Hannegan Rd.	SQ-4	7/25/2012	600	10	584	5.84	0.000584	58.40	0.012	0.001	0.011	0.001	1	1	0.0105	0.03	0.48	28.04	B.D.
TT12RPC	TT12RPC012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	576	15	1038	10.38	0.001038	69.20	0.008	0.001	0.008	0.001	1	1	0.0105	0.00	0.00	0.00	B.D.
TT12RPC	TT12RPC013	Squalicum Cr. Upper	SQ-6	7/26/2012	611	20	643	6.43	0.000643	32.15	0.009	0.001	0.006	0.002	1	1	0.0105	0.11	1.74	56.07	56.07

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Table B2. Rhithron diatom attributes lab data

Taxon	PTC	Hab.	pH	H	N	O	S	T	M	Motility	Dist.	Rare
Achnanthes	3									N		
Achnanthes conspicua	3		3	1	1	2	1	7	1	N	C	
Achnanthes rupestoides	3		4	2	1	1	1	1	4	N	N	
Achnanthidium	3									N		
Achnanthidium affine	3		4	2			1			N		
Achnanthidium deflexum	3		4	2				3		N	C	P
Achnanthidium minutissimum	3		3	2	2	1	2	7	3	N	C	
Achnanthidium minutissimum v. gracillima	3											
Achnanthidium pyrenaicum	3		4	2				3		N	N	
Achnanthidium rivulare	3		3							N	N	M
Adlafia bryophila	2	A	3	1	1	1	1	3	5	M		
Amphora copulata	2		4	2	2	2	2	5	1	M	C	
Amphora inariensis	3			2				1		M		
Amphora pediculus	3		4	2	2	2	2	5	3	M	C	
Asterionella formosa	3	P	4	2	2	2	2	4	1	N	C	
Aulacoseira	3	P								N		
Aulacoseira ambigua	3	P	4	2	2	3	2	5	1	N	C	
Aulacoseira crenulata	3	P	3	1	1	1	1	1	2	N		
Aulacoseira granulata	3	P	4	2	2	3	2	5	1	N	C	
Aulacoseira italica	3	P	3	2	2	2	2	4	3	N		
Caloneis bacillum	2	A	4	2	1	2	2	4	2	M		
Cocconeis neodiminuta	3			2						N		
Cocconeis pediculus	3		4	3	2	2	2	5	1	N	C	
Cocconeis placentula	3		4	2	2	3	2	5	2	N	C	
Cocconeis placentula v. lineata	3		4	2	2	3	2	5	2	N	C	
Ctenophora pulchella	2		4	4	2	3	3	5	3	N	C	
Cyclotella bodanica v. lemanensis	3	P	3	1	1	1	1	1	1	N		
Cyclotella bodanica v. lemanica	3	P	3	1	1	1	1	1	1	N		
Cyclotella ocellata	3	P	4	1	1	1	1	4	1	N		
Cymbella	3									V		
Cymbella affiniformis	3									V		
Cymbella aspera	3		4	2	1	1	1	7		V		
Cymbella mexicana	3									V	N	M
Cymbella neocistula	3									V		
Cymbella subturgidula	3									V	N	M
Diadesmis confervacea	2	A	3	3	3	3	3	5	3	M		
Diadesmis contenta	2	A	4	2	2	1	2	7	4	M	C	
Diadesmis perpusilla	2	A	3	2	1	1	1	1	5	M	C	
Diatoma	2									N		
Diatoma moniliformis	2		4	3	2	3	3	5	1	N	C	
Diatoma tenuis	2		4	3	2	3	3	5	1	N	C	
Diatoma vulgaris	3		5	2	2	2	2	4	1	N	C	
Encyonema prostratum	3		4	2	1	1	2	5	1	V		
Encyonema silesiacum	2		3	2	2	3	3	7	1	V	C	
Encyonopsis subminuta	3									V		
Eolimna minima	1		4	2	3	4	4	5	3	M	C	

Taxon	PTC	Hab.	pH	H	N	O	S	T	M	Motility	Dist.	Rare
Eucocconeis laevis	3		3	1	1	1	1	1	3	N		
Eunotia	3									V		
Eunotia bilunaris	2		6	2	2	2	2	7	3	V	C	
Eunotia bilunaris v. mucophila	3											
Eunotia minor	2	A	2	1			1		4	V	C	
Fallacia tenera	1		5						3	M		
Fragilaria	3									N		
Fragilaria bicapitata	3		3	2	1	1	2	7	1	N		
Fragilaria bidens	2		4	2	1	1	2	5	2	N		
Fragilaria capucina	2		3	2			2	3		N	C	
Fragilaria capucina v. gracilis	2		3	2	1	1	1	2		N		
Fragilaria capucina v. mesolepta	2		4	2						N	C	
Fragilaria crotonensis	3	P	4	2	2	2	2	3	1	N	C	
Fragilaria pseudoconstruens	3									N		
Fragilaria vaucheriae	2	A	4	2	2	3	3	5	3	N	C	
Frustulia amphipleuroides	3		2	1	1	1	1	1	3	M		
Frustulia vulgaris	2		4	2	2	1	2	4	3	M	C	
Geissleria acceptata	2			1		1	2		4	M		
Geissleria decussis	3		4	2	1		1	4	3	M	C	
Gomphoneis	3									N	N	
Gomphoneis minuta	3									N	N	P
Gomphonema	3									N		
Gomphonema angustatum	2		4	2	2	2	2	5	3	N		
Gomphonema kobayasii	3			2				7		N	N	P
Gomphonema micropus	2		4	2	2	2	2	5	3	N		
Gomphonema minutum	3		3	2			2	5		N	C	
Gomphonema olivaceoides	3		3	1	1	1	1	2	3	N		
Gomphonema parvulum	1		3	2	3	4	4	5	3	N	C	
Gomphonema rhombicum	3									N	N	
Hantzschia amphioxys	2	A	3	2	2	2	3	7	4	H	C	
Hantzschia elongata	2	A	2	1	1	1	1	1		H		
Hippodonta capitata	2		4	2	2	3	3	4	3	M		
Karayevia laterostrata	3		3	1	1	1	1	1	3	N		
Lemnicola hungarica	2		4	2	2	4	3	6	1	N	C	
Luticola mutica	2	A	3	3	2	1	3	5	4	M	C	
Mayamaea agrestis	1	A	3	2					3	M		
Melosira varians	2		4	2	3	3	3	5	2	N	C	
Meridion circulare	3		4	2	2	2	2	7	1	N	C	
Meridion circulare v. constrictum	3		4	2	2	2	2	7	2	N	C	
Navicula	2									M		
Navicula aurora	3									M	N	
Navicula capitatoradiata	2		4	2	2	3	3	5	1	M	C	
Navicula cryptocephala	3		3	2	2	3	3	7	2	M	C	
Navicula cryptotenella	2		4	2			2	7	2	M	C	
Navicula cryptotenelloides	2									M	C	
Navicula dealpina	2									M		
Navicula evanida	2		3	2	1	1	1	3	4	M		
Navicula gregaria	2		4	3	2	4	3	5	3	M	C	

Taxon	PTC	Hab.	pH	H	N	O	S	T	M	Motility	Dist.	Rare
Navicula lanceolata	2		4	3	2	3	3	5	3	M	C	
Navicula lenzii	2		4	2			1			M		
Navicula maceria	2									M		
Navicula medioconvexa	3		3	1						M		
Navicula occulta	2									M		
Navicula radiosa	3		3	2	2	2	2	4	3	M	C	
Navicula recens	2		4	3			3	5	3	M		
Navicula rhynchocephala	3		4	2	2	4	2	7	2	M	C	
Navicula tenelloides	1	A	4	3	1	1	1	5	4	M		
Navicula tripunctata	3		4	2	2	2	2	5	3	M	C	
Navicula trivialis	2	A	4	3	2	3	3	5	3	M	C	
Navicula ventralis	2		3	1						M		
Neidium ampliatum	3		3	2				2	3	M		
Nitzschia	2									H		
Nitzschia acicularis	2		4	3	4	4	3	5	1	H		
Nitzschia acidoclinata	3		3	1	1	1	2	3	3	H		
Nitzschia archibaldii	2		3	2	2	2	2	5		H		
Nitzschia capitellata	2		4	4			4	6	3	H	C	
Nitzschia dissipata	3		4	2	2	2	2	4	3	H	C	
Nitzschia fonticola	3		4	2	2	2	2	4	1	H	C	
Nitzschia fossilis	2		4	2			2		2	H		
Nitzschia frustulum	2		4	3	4	3	2	5	3	H	C	
Nitzschia gracilis	2		3	1		2	2	3	1	H		
Nitzschia heufleriana	3		4	2			2			H	C	
Nitzschia inconspicua	2		4	3	3	3	3	5	3	H	C	
Nitzschia liebetruthii	2									H		
Nitzschia linearis	2		4	2	2	2	2	4	3	H	C	
Nitzschia microcephala	1		4	3	4	3	3	5	1	H	C	
Nitzschia palea	1	A	3	3	4	4	5	6	3	H	C	
Nitzschia paleacea	2		4	3	4	3	3	5	2	H	C	
Nitzschia perminuta	3		4	2	1	1	1	2	3	H		
Nitzschia recta	3		4	2	2	2	2	7	1	H	C	
Nitzschia sigma	2		4	4	2	3	3	5	2	H	C	
Nitzschia sociabilis	2		3	2	2	2	2	5	1	H	C	
Nitzschia solita	1			3				5		H		
Nitzschia sublinearis	2									H		
Nitzschia valdestriata	2	A	4	4		1			4	H	C	
Nitzschia vermicularis	2		4	2		1	2	7	2	H		
Pinnularia	3									M		
Pinnularia obscura	2	A	3	2	1	1	1		4	M	C	
Placoneis elginensis	3		4	2	2	2	2	5	3	M		
Planothidium	2									N		
Planothidium dubium	2									N		
Planothidium frequentissimum	2		4	2	2	3	4	7		N	C	
Planothidium haynaldii	2											
Planothidium lanceolatum	2		4	2	2	3	3	5	3	N	C	
Planothidium oestrupii	3		3	1	1	1	1	2	1	N		
Planothidium peragalli	3		3	1	1	1	2	1	2	N		

Taxon	PTC	Hab.	pH	H	N	O	S	T	M	Motility	Dist.	Rare
Planothidium rostratum	2		4	2	2	3	3	5	3	N		
Psammothidium	3											
Psammothidium daonense	3		3	2	1	1	1	1	1	N		
Psammothidium rossii	3		3	1	1	1	1	1		N		
Psammothidium subatomoides	3		2	1	1	1	1	2	1	N		
Pseudostaurosira brevistriata	3		4	2	1	1	1	7	2	N	C	
Pseudostaurosira parasitica	2		4	2	1	1	2	4	2	N	C	
Pseudostaurosira pseudoconstruens	3									N		
Pseudostaurosira robusta	3									N		
Reimeria sinuata	3		3	2	2	1	2	3	3	M	C	
Rhoicosphenia abbreviata	3		4	2	2	2	2	5	2	N	C	
Sellaphora pupula	2		3	2	2	3	3	4	2	M	C	
Sellaphora seminulum	1		3	2	3	4	4	5	3	M	C	
Stauroneis kriegeri	3		3	2	2	2	2	4	3	M	N	
Stauroneis thermicola	3	A	3	2	2	1	2	7	4	M		
Staurosira construens v. venter	3		4	2	2	1	2	4	1	N	C	
Staurosirella pinnata	3		4	2	2	1	2	7	3	N	C	
Stephanocyclus meneghiniana	2		4	3	3	5	4	5	2	N	C	
Stephanodiscus minutulus	2	P	5	2	2	3	3	6	2	N	C	
Surirella brightwellii	2									H	C	
Surirella ovalis	2		4	4	2	4	3	5	3	H		
Synedra acus	2		4	2	2	2	3	5	2	N		
Synedra ulna	2		4	2	2	3	4	7	2	N	C	
Tabellaria	3	P	2	1	1	1	2	2	2	N		
Tabellaria fenestrata	3	P	3	1	1	1	2	2		N		
Tabellaria flocculosa	3	P	2	1	1	1	2	3	3	N	C	
Thalassiosira pseudonana	2	P	4	3	3	3	3	6	1	N	C	

Table B3. Rhithron diatom attributes key

PTC	Pollution Tolerence Class	Tolerance to organic pollution according to Lange-Bertalot 1979; 1=most tolerant of pollution; 2=tolerant of pollution; 3=sensitive to pollution
Hab.	Habitat	A = aerophile; P = planktonic
pH	pH	1 acidobiontic, optimum pH <5.5; 2 acidophilous, pH <7; 3 circumneutral, pH ~7; 4 alkaliphilous, mainly pH >7; 5 alkalibiontic, exclusively pH >7; 6 indifferent, no apparent optimum
H	Salinity	1 fresh; 2 fresh brackish; 3 brackish fresh; 4 brackish; 5 marine (see Van Dam et al. 1994 for criteria)
N	Nitrogen Uptake Metabolism	1 nitrogen autotroph tolerating very small concentrations of organic nitrogen; 2 nitrogen autotroph tolerating elevated concentrations of organic nitrogen; 3 facultative nitrogen heterotroph; 4 obligate nitrogen heterotroph
O	Oxygen requirements	1 continuously high (~100% saturation); 2 high (>75%); 3 moderate (>50%); 4 low (>30%); 5 very low (~10% saturation)
S	Saprobity	1 oligosaprobous; 2 beta-mesosaprobous; 3 alpha-mesosaprobous; 4 alpha-meso-/polysaprobous; 5 polysaprobous (see Van Dam et al. 1994 for criteria)
T	Tropic State	1 oligotraphentic; 2 oligo-mesotraphentic; 3 mesotraphentic; 4 meso-eutraphentic; 5 eutraphentic; 6 hypereutraphentic; 7 oligo- to eutraphentic (variable); 8 dystrophic
M	Moisture	1 rarely occurs outside water bodies; 2 mainly in water but sometimes on wet places; 3 mainly in water but regularly on wet or moist places; 4 mainly on wet, moist, or temporarily dry places; 5 occurs almost exclusively outside water bodies
Motility	Motility	H = highly motile; M = moderately motile (diatoms with raphes but not highly motile); N = not motile; V = variable motility (source: Jan Stevenson)
Dist.	Distribution	N = North American endemics; C = cosmopolitan in temperate regions, broad ecological niche,generally aggressive and opportunistic species that develop large populations in response to disturbance and may exclude native species (**, Lange-Bertalot 1996)
Rare	Rare Taxa	M = Mountains Rare Taxa; P = Plains Rare Taxa; C = Mountains and Plains Rare Taxa

Table B4. Rhithron diatom metrics

Project ID	Sample ID	Group	Metric	Value
TT12RPP	TT12RPP001	Abnormality	Abnormal Cells Percent	0.00%
TT12RPP	TT12RPP001	Acid Tolerance	Acidophilous Taxa Percent	0.17%
TT12RPP	TT12RPP001	Autotrophism	Nitrogen Autotroph Taxa Percent	81.50%
TT12RPP	TT12RPP001	Brackishness	Mountains Brackish Taxa Percent	83.00%
TT12RPP	TT12RPP001	Brackishness	Plains Brackish Taxa Percent	0.83%
TT12RPP	TT12RPP001	Distribution	Cosmopolitan Taxa Percent	92.00%
TT12RPP	TT12RPP001	Distribution	Native Taxa Percent	1.17%
TT12RPP	TT12RPP001	Disturbance	Disturbance Taxa Percent	3.17%
TT12RPP	TT12RPP001	Diversity	Shannon H (log2)	3.39
TT12RPP	TT12RPP001	Diversity	Species Richness	33
TT12RPP	TT12RPP001	Dominance	Dominant Taxon Percent	29.00%
TT12RPP	TT12RPP001	Heterotrophism	Nitrogen Heterotroph Taxa Percent	10.50%
TT12RPP	TT12RPP001	Metals Tolerance	Metals Tolerant Taxa Percent	2.50%
TT12RPP	TT12RPP001	Motility	Motile Taxa Percent	54.17%
TT12RPP	TT12RPP001	Oxidation	Low DO Taxa Percent	3.00%
TT12RPP	TT12RPP001	Pollution	Pollution Index	2.79
TT12RPP	TT12RPP001	Rare Taxa	Mountains Rare Taxa Percent	1.17%
TT12RPP	TT12RPP001	Saprobity	Polysaprobous Taxa Percent	17.50%
TT12RPP	TT12RPP001	Siltation	Siltation Taxa Percent	18.50%
TT12RPP	TT12RPP001	Trophic State	Eutraphentic Taxa Percent	80.67%
TT12RPP	TT12RPP002	Abnormality	Abnormal Cells Percent	0.00%
TT12RPP	TT12RPP002	Acid Tolerance	Acidophilous Taxa Percent	1.00%
TT12RPP	TT12RPP002	Autotrophism	Nitrogen Autotroph Taxa Percent	76.00%
TT12RPP	TT12RPP002	Brackishness	Mountains Brackish Taxa Percent	86.00%
TT12RPP	TT12RPP002	Brackishness	Plains Brackish Taxa Percent	16.00%
TT12RPP	TT12RPP002	Distribution	Cosmopolitan Taxa Percent	72.00%
TT12RPP	TT12RPP002	Distribution	Native Taxa Percent	4.00%
TT12RPP	TT12RPP002	Disturbance	Disturbance Taxa Percent	7.00%
TT12RPP	TT12RPP002	Diversity	Shannon H (log2)	4.36
TT12RPP	TT12RPP002	Diversity	Species Richness	31
TT12RPP	TT12RPP002	Dominance	Dominant Taxon Percent	14.00%
TT12RPP	TT12RPP002	Heterotrophism	Nitrogen Heterotroph Taxa Percent	10.00%
TT12RPP	TT12RPP002	Metals Tolerance	Metals Tolerant Taxa Percent	29.00%
TT12RPP	TT12RPP002	Motility	Motile Taxa Percent	18.00%
TT12RPP	TT12RPP002	Oxidation	Low DO Taxa Percent	7.00%
TT12RPP	TT12RPP002	Pollution	Pollution Index	2.48
TT12RPP	TT12RPP002	Rare Taxa	Plains Rare Taxa Percent	4.00%
TT12RPP	TT12RPP002	Saprobity	Polysaprobous Taxa Percent	39.00%
TT12RPP	TT12RPP002	Siltation	Siltation Taxa Percent	15.00%
TT12RPP	TT12RPP002	Trophic State	Eutraphentic Taxa Percent	48.00%
TT12RPP	TT12RPP003	Abnormality	Abnormal Cells Percent	0.00%
TT12RPP	TT12RPP003	Autotrophism	Nitrogen Autotroph Taxa Percent	80.83%
TT12RPP	TT12RPP003	Brackishness	Mountains Brackish Taxa Percent	90.17%
TT12RPP	TT12RPP003	Brackishness	Plains Brackish Taxa Percent	4.00%
TT12RPP	TT12RPP003	Distribution	Cosmopolitan Taxa Percent	87.50%
TT12RPP	TT12RPP003	Distribution	Native Taxa Percent	2.17%

Project ID	Sample ID	Group	Metric	Value
TT12RPP	TT12RPP003	Disturbance	Disturbance Taxa Percent	16.50%
TT12RPP	TT12RPP003	Diversity	Shannon H (log2)	4.34
TT12RPP	TT12RPP003	Diversity	Species Richness	69
TT12RPP	TT12RPP003	Dominance	Dominant Taxon Percent	17.17%
TT12RPP	TT12RPP003	Heterotrophism	Nitrogen Heterotroph Taxa Percent	6.83%
TT12RPP	TT12RPP003	Metals Tolerance	Metals Tolerant Taxa Percent	10.17%
TT12RPP	TT12RPP003	Motility	Motile Taxa Percent	25.00%
TT12RPP	TT12RPP003	Oxidation	Low DO Taxa Percent	2.83%
TT12RPP	TT12RPP003	Pollution	Pollution Index	2.73
TT12RPP	TT12RPP003	Rare Taxa	Plains Rare Taxa Percent	1.67%
TT12RPP	TT12RPP003	Saprobity	Polysaprobous Taxa Percent	13.00%
TT12RPP	TT12RPP003	Siltation	Siltation Taxa Percent	22.50%
TT12RPP	TT12RPP003	Trophic State	Eutraphentic Taxa Percent	52.83%
TT12RPP	TT12RPP004	Abnormality	Abnormal Cells Percent	0.00%
TT12RPP	TT12RPP004	Autotrophism	Nitrogen Autotroph Taxa Percent	77.00%
TT12RPP	TT12RPP004	Brackishness	Mountains Brackish Taxa Percent	83.67%
TT12RPP	TT12RPP004	Brackishness	Plains Brackish Taxa Percent	1.33%
TT12RPP	TT12RPP004	Distribution	Cosmopolitan Taxa Percent	75.67%
TT12RPP	TT12RPP004	Distribution	Native Taxa Percent	13.33%
TT12RPP	TT12RPP004	Disturbance	Disturbance Taxa Percent	14.00%
TT12RPP	TT12RPP004	Diversity	Shannon H (log2)	3.28
TT12RPP	TT12RPP004	Diversity	Species Richness	32
TT12RPP	TT12RPP004	Dominance	Dominant Taxon Percent	29.67%
TT12RPP	TT12RPP004	Heterotrophism	Nitrogen Heterotroph Taxa Percent	1.33%
TT12RPP	TT12RPP004	Metals Tolerance	Metals Tolerant Taxa Percent	1.67%
TT12RPP	TT12RPP004	Motility	Motile Taxa Percent	8.67%
TT12RPP	TT12RPP004	Oxidation	Low DO Taxa Percent	1.67%
TT12RPP	TT12RPP004	Pollution	Pollution Index	2.95
TT12RPP	TT12RPP004	Rare Taxa	Mountains Rare Taxa Percent	7.67%
TT12RPP	TT12RPP004	Rare Taxa	Plains Rare Taxa Percent	5.67%
TT12RPP	TT12RPP004	Saprobity	Polysaprobous Taxa Percent	2.67%
TT12RPP	TT12RPP004	Siltation	Siltation Taxa Percent	4.33%
TT12RPP	TT12RPP004	Trophic State	Eutraphentic Taxa Percent	56.33%
TT12RPP	TT12RPP005	Abnormality	Abnormal Cells Percent	0.00%
TT12RPP	TT12RPP005	Autotrophism	Nitrogen Autotroph Taxa Percent	29.83%
TT12RPP	TT12RPP005	Brackishness	Mountains Brackish Taxa Percent	94.00%
TT12RPP	TT12RPP005	Brackishness	Plains Brackish Taxa Percent	3.83%
TT12RPP	TT12RPP005	Distribution	Cosmopolitan Taxa Percent	30.83%
TT12RPP	TT12RPP005	Distribution	Native Taxa Percent	60.00%
TT12RPP	TT12RPP005	Disturbance	Disturbance Taxa Percent	4.67%
TT12RPP	TT12RPP005	Diversity	Shannon H (log2)	2.87
TT12RPP	TT12RPP005	Diversity	Species Richness	44
TT12RPP	TT12RPP005	Dominance	Dominant Taxon Percent	59.33%
TT12RPP	TT12RPP005	Heterotrophism	Nitrogen Heterotroph Taxa Percent	2.00%
TT12RPP	TT12RPP005	Metals Tolerance	Metals Tolerant Taxa Percent	5.50%
TT12RPP	TT12RPP005	Motility	Motile Taxa Percent	9.00%
TT12RPP	TT12RPP005	Oxidation	Low DO Taxa Percent	2.17%
TT12RPP	TT12RPP005	Pollution	Pollution Index	2.85

Project ID	Sample ID	Group	Metric	Value
TT12RPP	TT12RPP005	Rare Taxa	Mountains Rare Taxa Percent	0.17%
TT12RPP	TT12RPP005	Rare Taxa	Plains Rare Taxa Percent	59.33%
TT12RPP	TT12RPP005	Saprobity	Polysaprobous Taxa Percent	6.83%
TT12RPP	TT12RPP005	Siltation	Siltation Taxa Percent	7.67%
TT12RPP	TT12RPP005	Trophic State	Eutraphentic Taxa Percent	20.67%
TT12RPP	TT12RPP006	Abnormality	Abnormal Cells Percent	0.00%
TT12RPP	TT12RPP006	Autotrophism	Nitrogen Autotroph Taxa Percent	68.50%
TT12RPP	TT12RPP006	Brackishness	Mountains Brackish Taxa Percent	89.33%
TT12RPP	TT12RPP006	Brackishness	Plains Brackish Taxa Percent	8.67%
TT12RPP	TT12RPP006	Distribution	Cosmopolitan Taxa Percent	85.00%
TT12RPP	TT12RPP006	Distribution	Native Taxa Percent	2.00%
TT12RPP	TT12RPP006	Disturbance	Disturbance Taxa Percent	26.83%
TT12RPP	TT12RPP006	Diversity	Shannon H (log2)	4.06
TT12RPP	TT12RPP006	Diversity	Species Richness	54
TT12RPP	TT12RPP006	Dominance	Dominant Taxon Percent	26.83%
TT12RPP	TT12RPP006	Heterotrophism	Nitrogen Heterotroph Taxa Percent	19.33%
TT12RPP	TT12RPP006	Metals Tolerance	Metals Tolerant Taxa Percent	7.83%
TT12RPP	TT12RPP006	Motility	Motile Taxa Percent	11.83%
TT12RPP	TT12RPP006	Oxidation	Low DO Taxa Percent	1.50%
TT12RPP	TT12RPP006	Pollution	Pollution Index	2.67
TT12RPP	TT12RPP006	Rare Taxa	Mountains Rare Taxa Percent	1.67%
TT12RPP	TT12RPP006	Rare Taxa	Plains Rare Taxa Percent	4.00%
TT12RPP	TT12RPP006	Saprobity	Polysaprobous Taxa Percent	26.17%
TT12RPP	TT12RPP006	Siltation	Siltation Taxa Percent	8.17%
TT12RPP	TT12RPP006	Trophic State	Eutraphentic Taxa Percent	42.17%
TT12RPP	TT12RPP007	Abnormality	Abnormal Cells Percent	0.00%
TT12RPP	TT12RPP007	Autotrophism	Nitrogen Autotroph Taxa Percent	33.33%
TT12RPP	TT12RPP007	Brackishness	Mountains Brackish Taxa Percent	39.67%
TT12RPP	TT12RPP007	Brackishness	Plains Brackish Taxa Percent	1.00%
TT12RPP	TT12RPP007	Distribution	Cosmopolitan Taxa Percent	82.67%
TT12RPP	TT12RPP007	Distribution	Native Taxa Percent	11.67%
TT12RPP	TT12RPP007	Disturbance	Disturbance Taxa Percent	14.33%
TT12RPP	TT12RPP007	Diversity	Shannon H (log2)	2.56
TT12RPP	TT12RPP007	Diversity	Species Richness	17
TT12RPP	TT12RPP007	Dominance	Dominant Taxon Percent	48.17%
TT12RPP	TT12RPP007	Heterotrophism	Nitrogen Heterotroph Taxa Percent	49.67%
TT12RPP	TT12RPP007	Metals Tolerance	Metals Tolerant Taxa Percent	2.17%
TT12RPP	TT12RPP007	Motility	Motile Taxa Percent	66.83%
TT12RPP	TT12RPP007	Oxidation	Low DO Taxa Percent	2.17%
TT12RPP	TT12RPP007	Pollution	Pollution Index	2.45
TT12RPP	TT12RPP007	Rare Taxa	Mountains Rare Taxa Percent	10.17%
TT12RPP	TT12RPP007	Rare Taxa	Plains Rare Taxa Percent	1.50%
TT12RPP	TT12RPP007	Saprobity	Polysaprobous Taxa Percent	52.50%
TT12RPP	TT12RPP007	Siltation	Siltation Taxa Percent	51.67%
TT12RPP	TT12RPP007	Trophic State	Eutraphentic Taxa Percent	66.33%
TT12RPP	TT12RPP008	Abnormality	Abnormal Cells Percent	0.00%
TT12RPP	TT12RPP008	Acid Tolerance	Acidophilous Taxa Percent	0.17%
TT12RPP	TT12RPP008	Autotrophism	Nitrogen Autotroph Taxa Percent	42.00%

Project ID	Sample ID	Group	Metric	Value
TT12RPP	TT12RPP008	Brackishness	Mountains Brackish Taxa Percent	87.83%
TT12RPP	TT12RPP008	Brackishness	Plains Brackish Taxa Percent	0.67%
TT12RPP	TT12RPP008	Distribution	Cosmopolitan Taxa Percent	80.50%
TT12RPP	TT12RPP008	Distribution	Native Taxa Percent	9.50%
TT12RPP	TT12RPP008	Disturbance	Disturbance Taxa Percent	0.33%
TT12RPP	TT12RPP008	Diversity	Shannon H (log2)	4.15
TT12RPP	TT12RPP008	Diversity	Species Richness	55
TT12RPP	TT12RPP008	Dominance	Dominant Taxon Percent	30.67%
TT12RPP	TT12RPP008	Heterotrophism	Nitrogen Heterotroph Taxa Percent	38.50%
TT12RPP	TT12RPP008	Metals Tolerance	Metals Tolerant Taxa Percent	10.00%
TT12RPP	TT12RPP008	Motility	Motile Taxa Percent	25.50%
TT12RPP	TT12RPP008	Oxidation	Low DO Taxa Percent	8.00%
TT12RPP	TT12RPP008	Pollution	Pollution Index	2.22
TT12RPP	TT12RPP008	Rare Taxa	Mountains Rare Taxa Percent	2.33%
TT12RPP	TT12RPP008	Rare Taxa	Plains Rare Taxa Percent	7.17%
TT12RPP	TT12RPP008	Saprobity	Polysaprobous Taxa Percent	59.83%
TT12RPP	TT12RPP008	Siltation	Siltation Taxa Percent	24.17%
TT12RPP	TT12RPP008	Trophic State	Eutraphentic Taxa Percent	52.17%
TT12RPP	TT12RPP009	Abnormality	Abnormal Cells Percent	0.00%
TT12RPP	TT12RPP009	Acid Tolerance	Acidophilous Taxa Percent	1.33%
TT12RPP	TT12RPP009	Autotrophism	Nitrogen Autotroph Taxa Percent	65.67%
TT12RPP	TT12RPP009	Brackishness	Mountains Brackish Taxa Percent	96.00%
TT12RPP	TT12RPP009	Brackishness	Plains Brackish Taxa Percent	4.67%
TT12RPP	TT12RPP009	Distribution	Cosmopolitan Taxa Percent	86.67%
TT12RPP	TT12RPP009	Disturbance	Disturbance Taxa Percent	5.33%
TT12RPP	TT12RPP009	Diversity	Shannon H (log2)	4.41
TT12RPP	TT12RPP009	Diversity	Species Richness	45
TT12RPP	TT12RPP009	Dominance	Dominant Taxon Percent	19.33%
TT12RPP	TT12RPP009	Heterotrophism	Nitrogen Heterotroph Taxa Percent	25.00%
TT12RPP	TT12RPP009	Metals Tolerance	Metals Tolerant Taxa Percent	31.67%
TT12RPP	TT12RPP009	Motility	Motile Taxa Percent	35.00%
TT12RPP	TT12RPP009	Oxidation	Low DO Taxa Percent	24.33%
TT12RPP	TT12RPP009	Pollution	Pollution Index	2.28
TT12RPP	TT12RPP009	Saprobity	Polysaprobous Taxa Percent	42.00%
TT12RPP	TT12RPP009	Siltation	Siltation Taxa Percent	29.67%
TT12RPP	TT12RPP009	Trophic State	Eutraphentic Taxa Percent	63.67%
TT12RPP	TT12RPP010	Abnormality	Abnormal Cells Percent	0.00%
TT12RPP	TT12RPP010	Autotrophism	Nitrogen Autotroph Taxa Percent	94.50%
TT12RPP	TT12RPP010	Brackishness	Mountains Brackish Taxa Percent	94.83%
TT12RPP	TT12RPP010	Brackishness	Plains Brackish Taxa Percent	0.17%
TT12RPP	TT12RPP010	Distribution	Cosmopolitan Taxa Percent	97.00%
TT12RPP	TT12RPP010	Distribution	Native Taxa Percent	0.83%
TT12RPP	TT12RPP010	Disturbance	Disturbance Taxa Percent	1.00%
TT12RPP	TT12RPP010	Diversity	Shannon H (log2)	1.70
TT12RPP	TT12RPP010	Diversity	Species Richness	35
TT12RPP	TT12RPP010	Dominance	Dominant Taxon Percent	78.67%
TT12RPP	TT12RPP010	Heterotrophism	Nitrogen Heterotroph Taxa Percent	3.33%
TT12RPP	TT12RPP010	Metals Tolerance	Metals Tolerant Taxa Percent	2.17%

Project ID	Sample ID	Group	Metric	Value
TT12RPP	TT12RPP010	Motility	Motile Taxa Percent	9.50%
TT12RPP	TT12RPP010	Oxidation	Low DO Taxa Percent	1.50%
TT12RPP	TT12RPP010	Pollution	Pollution Index	2.91
TT12RPP	TT12RPP010	Rare Taxa	Mountains Rare Taxa Percent	0.17%
TT12RPP	TT12RPP010	Rare Taxa	Plains Rare Taxa Percent	0.33%
TT12RPP	TT12RPP010	Saprobity	Polysaprobous Taxa Percent	7.17%
TT12RPP	TT12RPP010	Siltation	Siltation Taxa Percent	4.67%
TT12RPP	TT12RPP010	Trophic State	Eutraphentic Taxa Percent	90.17%
TT12RPP	TT12RPP011	Abnormality	Abnormal Cells Percent	0.00%
TT12RPP	TT12RPP011	Acid Tolerance	Acidophilous Taxa Percent	0.83%
TT12RPP	TT12RPP011	Autotrophism	Nitrogen Autotroph Taxa Percent	79.33%
TT12RPP	TT12RPP011	Brackishness	Mountains Brackish Taxa Percent	94.00%
TT12RPP	TT12RPP011	Brackishness	Plains Brackish Taxa Percent	2.33%
TT12RPP	TT12RPP011	Distribution	Cosmopolitan Taxa Percent	80.83%
TT12RPP	TT12RPP011	Distribution	Native Taxa Percent	13.67%
TT12RPP	TT12RPP011	Disturbance	Disturbance Taxa Percent	3.17%
TT12RPP	TT12RPP011	Diversity	Shannon H (log2)	2.64
TT12RPP	TT12RPP011	Diversity	Species Richness	46
TT12RPP	TT12RPP011	Dominance	Dominant Taxon Percent	59.33%
TT12RPP	TT12RPP011	Heterotrophism	Nitrogen Heterotroph Taxa Percent	2.33%
TT12RPP	TT12RPP011	Metals Tolerance	Metals Tolerant Taxa Percent	3.50%
TT12RPP	TT12RPP011	Motility	Motile Taxa Percent	7.50%
TT12RPP	TT12RPP011	Oxidation	Low DO Taxa Percent	2.67%
TT12RPP	TT12RPP011	Pollution	Pollution Index	2.90
TT12RPP	TT12RPP011	Rare Taxa	Mountains Rare Taxa Percent	2.00%
TT12RPP	TT12RPP011	Rare Taxa	Plains Rare Taxa Percent	11.67%
TT12RPP	TT12RPP011	Saprobity	Polysaprobous Taxa Percent	4.17%
TT12RPP	TT12RPP011	Siltation	Siltation Taxa Percent	3.67%
TT12RPP	TT12RPP011	Trophic State	Eutraphentic Taxa Percent	72.83%
TT12RPP	TT12RPP012	Abnormality	Abnormal Cells Percent	0.00%
TT12RPP	TT12RPP012	Acid Tolerance	Acidophilous Taxa Percent	1.00%
TT12RPP	TT12RPP012	Autotrophism	Nitrogen Autotroph Taxa Percent	66.33%
TT12RPP	TT12RPP012	Brackishness	Mountains Brackish Taxa Percent	73.00%
TT12RPP	TT12RPP012	Brackishness	Plains Brackish Taxa Percent	6.00%
TT12RPP	TT12RPP012	Distribution	Cosmopolitan Taxa Percent	66.67%
TT12RPP	TT12RPP012	Distribution	Native Taxa Percent	18.00%
TT12RPP	TT12RPP012	Disturbance	Disturbance Taxa Percent	16.33%
TT12RPP	TT12RPP012	Diversity	Shannon H (log2)	4.09
TT12RPP	TT12RPP012	Diversity	Species Richness	42
TT12RPP	TT12RPP012	Dominance	Dominant Taxon Percent	16.67%
TT12RPP	TT12RPP012	Heterotrophism	Nitrogen Heterotroph Taxa Percent	8.00%
TT12RPP	TT12RPP012	Metals Tolerance	Metals Tolerant Taxa Percent	10.00%
TT12RPP	TT12RPP012	Motility	Motile Taxa Percent	17.33%
TT12RPP	TT12RPP012	Oxidation	Low DO Taxa Percent	3.33%
TT12RPP	TT12RPP012	Pollution	Pollution Index	2.76
TT12RPP	TT12RPP012	Rare Taxa	Mountains Rare Taxa Percent	16.67%
TT12RPP	TT12RPP012	Rare Taxa	Plains Rare Taxa Percent	0.67%
TT12RPP	TT12RPP012	Saprobity	Polysaprobous Taxa Percent	10.00%

Project ID	Sample ID	Group	Metric	Value
TT12RPP	TT12RPP012	Siltation	Siltation Taxa Percent	10.67%
TT12RPP	TT12RPP012	Trophic State	Eutraphentic Taxa Percent	20.00%
TT12RPP	TT12RPP013	Abnormality	Abnormal Cells Percent	0.00%
TT12RPP	TT12RPP013	Acid Tolerance	Acidophilous Taxa Percent	0.33%
TT12RPP	TT12RPP013	Autotrophism	Nitrogen Autotroph Taxa Percent	76.83%
TT12RPP	TT12RPP013	Brackishness	Mountains Brackish Taxa Percent	85.00%
TT12RPP	TT12RPP013	Brackishness	Plains Brackish Taxa Percent	3.83%
TT12RPP	TT12RPP013	Distribution	Cosmopolitan Taxa Percent	78.17%
TT12RPP	TT12RPP013	Distribution	Native Taxa Percent	9.17%
TT12RPP	TT12RPP013	Disturbance	Disturbance Taxa Percent	11.33%
TT12RPP	TT12RPP013	Diversity	Shannon H (log2)	4.82
TT12RPP	TT12RPP013	Diversity	Species Richness	77
TT12RPP	TT12RPP013	Dominance	Dominant Taxon Percent	18.67%
TT12RPP	TT12RPP013	Heterotrophism	Nitrogen Heterotroph Taxa Percent	5.50%
TT12RPP	TT12RPP013	Metals Tolerance	Metals Tolerant Taxa Percent	7.17%
TT12RPP	TT12RPP013	Motility	Motile Taxa Percent	31.00%
TT12RPP	TT12RPP013	Oxidation	Low DO Taxa Percent	4.50%
TT12RPP	TT12RPP013	Pollution	Pollution Index	2.73
TT12RPP	TT12RPP013	Rare Taxa	Mountains Rare Taxa Percent	1.67%
TT12RPP	TT12RPP013	Rare Taxa	Plains Rare Taxa Percent	7.00%
TT12RPP	TT12RPP013	Saprobity	Polysaprobous Taxa Percent	19.00%
TT12RPP	TT12RPP013	Siltation	Siltation Taxa Percent	25.17%
TT12RPP	TT12RPP013	Trophic State	Eutraphentic Taxa Percent	54.67%

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Table B5. Rhithron BIBI and RIVPACS

Metric Calculations by Rhithron Associates, Inc.	TT12RPM001	TT12RPM002	TT12RPM003	TT12RPM004	TT12RPM005	TT12RPM006	TT12RPM007	TT12RPM008	TT12RPM009	TT12RPM010	TT12RPM011	TT12RPM012	TT12RPM013
	At 148th Ave. SE	Near SR 58	Near SR 58	At 272nd St.	168th Way	SR 58 Crossing Kent-De Rd.	At 164th Ave. SE	Squalicum Cr. West Street	Baker Creek	Squalicum Cr. Above Cornwall Park	Squalicum below Hannegan	Squalicum Cr. Above SR 542	Squalicum Cr. Upper
METRIC VALUES	BS-1	BS-2	BS-2 Dup	BS-3	CC-1	CC-2	LS-1	SQ-1	SQ-2	SQ-3	SQ-4	SQ-5	SQ-6
Taxa Richness	25	49	42	31	43	45	24	29	27	28	25	42	37
E Richness	1	6	5	3	6	5	0	1	1	1	1	7	2
P Richness	4	5	3	5	5	8	2	1	1	0	2	6	6
T Richness	5	12	12	6	9	11	8	4	0	1	4	11	10
Pollution Sensitive Richness	0	1	2	1	2	1	0	0	0	0	0	3	3
Clinger Richness	12	25	22	19	25	30	12	7	5	5	13	28	22
Semivoltine Richness	5	9	11	7	8	8	2	1	1	0	4	7	4
Pollution Tolerant Percent	17.24%	11.78%	8.06%	15.71%	1.33%	16.45%	41.45%	2.02%	3.09%	2.55%	14.04%	1.30%	4.55%
Predator Percent	29.89%	17.29%	31.87%	10.73%	19.39%	20.15%	7.24%	4.22%	3.27%	2.94%	5.26%	20.00%	15.12%
Dominant Taxa (3) Percent	42.53%	37.09%	43.96%	39.85%	56.46%	47.87%	69.41%	64.77%	80.04%	72.75%	81.23%	31.74%	39.34%
METRIC SCORES													
Taxa Richness	3	5	5	3	5	5	3	3	3	3	3	5	3
E Richness	1	3	3	1	3	3	1	1	1	1	1	3	1
P Richness	3	3	1	3	3	5	1	1	1	1	1	3	3
T Richness	3	5	5	3	3	5	3	1	1	1	1	5	5
Pollution Sensitive Richness	1	1	1	1	1	1	1	1	1	1	1	3	3
Clinger Richness	3	5	5	3	5	5	3	1	1	1	3	5	5
Semivoltine Richness	5	5	5	5	5	5	1	1	1	1	3	5	3
Pollution Tolerant Percent	5	5	5	5	5	5	3	5	5	5	5	5	5
Predator Percent	5	3	5	3	3	5	1	1	1	1	1	5	3
Dominant Taxa (3) Percent	5	5	5	5	3	5	3	3	1	3	1	5	5
SAMPLE SCORE	**34**	**40**	**40**	**32**	**36**	**44**	**20**	**18**	**16**	**18**	**20**	**44**	**36**
RIVPACS RESULTS													
O/E	0.61	0.92	0.95	0.85	0.90	0.97	0.47	0.55	0.55	0.47	0.54	0.73	0.55

Table B6. Rhithron invertebrate counts

Sample _ID	Sample_Station_Name	Sample_Client_ID	Sample_Date_Collected	TSN	Taxon	Count	Unique	Life_Stage	Qualifier	Comment	Proportion of Sample Sorted
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	100817	Baetis tricaudatus	1	TRUE	Larva			100.00%
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	114166	Cleptelmis addenda	1	TRUE	Adult			100.00%
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	95599	Decapoda	1	FALSE	Unknown	Damaged		100.00%
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	121027	Dicranota	5	TRUE	Larva			100.00%
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	76569	Ferrissia	1	TRUE	Unknown			100.00%
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	102995	Isoperla	2	TRUE	Larva			100.00%
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	71570	Juga	8	TRUE	Unknown			100.00%
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	116794	Lepidostoma	1	TRUE	Larva			100.00%
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	68441	Lumbriculus	2	TRUE	Unknown			100.00%
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	102567	Malenka	24	TRUE	Larva		A4	100.00%
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	129890	Micropsectra	5	TRUE	Larva			100.00%
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	114177	Optioservus	3	FALSE	Larva			100.00%
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	114177	Optioservus	2	TRUE	Adult		A1	100.00%
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	112314	Oreodytes	5	TRUE	Adult			100.00%
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	97326	Pacifastacus leniusculus	1	TRUE	Unknown			100.00%
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	81400	Pisidium	2	TRUE	Unknown			100.00%
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	115974	Psychoglypha	1	TRUE	Larva			100.00%
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	68839	Rhyacodrilus	1	TRUE	Unknown			100.00%
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	115153	Rhyacophila blarina	2	TRUE	Larva			100.00%
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	115151	Rhyacophila Brunnea Gr.	4	TRUE	Larva			100.00%
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	115155	Rhyacophila narvae	4	TRUE	Larva			100.00%
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	126774	Simulium	1	TRUE	Larva			100.00%
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	103273	Sweltsa	2	TRUE	Larva			100.00%
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	129872	Tanytarsini	1	FALSE	Larva	Damaged		100.00%
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	128236	Thienemannimyia Gr.	1	TRUE	Larva			100.00%
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	129205	Tvetenia Bavarica Gr.	1	TRUE	Larva			100.00%
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	102594	Zapada cinctipes	4	TRUE	Larva		A1	100.00%
TT12RPM001	At 148th Ave. SE	BS-1	8/1/2012	128259	Zavrelimyia	1	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	119660	Antocha monticola	2	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	115530	Arctopsyche grandis	39	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	83282	Atractides	1	TRUE	Adult			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	100817	Baetis tricaudatus	30	TRUE	Larva		A5	100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	116918	Brachycentrus occidentalis	2	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	128477	Brillia	7	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	102986	Calineuria californica	2	TRUE	Larva		A1	100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	136305	Chelifera	1	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	103202	Chloroperlidae	1	FALSE	Larva	Early Instar		100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	129873	Cladotanytarsus	3	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	116268	Dicosmoecus gilvipes	2	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	698494	Drunella doddsii	2	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	101392	Drunella flavilinea	7	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	101276	Ephemerella excrucians	2	TRUE	Larva		A1	100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	101401	Ephemerella tibialis	21	TRUE	Larva			100.00%

Sample _ID	Sample_Station_Name	Sample_Client_ID	Sample_Date_Collected	TSN	Taxon	Count	Unique	Life_Stage	Qualifier	Comment	Proportion of Sample Sorted
TT12RPM002	Near SR 58	BS-2	8/1/2012	128704	Eukiefferiella Brehmi Gr.	4	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	204785	Fridericia	1	TRUE	Unknown			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	117159	Glossosoma	75	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	117120	Glossosomatidae	7	FALSE	Pupa			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	114169	Heterlimnius corpulentus	2	TRUE	Adult			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	114169	Heterlimnius corpulentus	28	FALSE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	115453	Hydropsyche	2	TRUE	Larva		A1	100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	71570	Juga	26	TRUE	Unknown			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	68441	Lumbriculus	8	TRUE	Unknown			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	129890	Micropsectra	34	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	114144	Narpus concolor	3	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	116054	Neophylax rickeri	1	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	100692	Nixe	7	TRUE	Larva		A2	100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	116318	Onocosmoecus unicolor	1	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	114177	Optioservus	14	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	128401	Pagastia	1	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	128978	Parametriocnemus	1	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	116525	Parthina	1	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	102994	Perlodidae	1	TRUE	Larva	Early Instar		100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	54510	Polycelis	1	TRUE	Unknown			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	129657	Polypedilum	14	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	129657	Polypedilum	1	FALSE	Pupa			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	125802	Protanyderus	1	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	115097	Rhyacophila	7	FALSE	Pupa			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	115099	Rhyacophila Angelita Gr.	4	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	115151	Rhyacophila Brunnea Gr.	1	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	115181	Rhyacophila malkini	4	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	126774	Simulium	2	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	103102	Skwala	5	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	83006	Sperchon	1	TRUE	Adult			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	81389	Sphaeriidae	1	TRUE	Immature			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	129969	Stempellinella	3	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	103254	Suwallia	1	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	129872	Tanytarsini	1	FALSE	Larva	Damaged		100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	129182	Thienemanniella	1	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	128236	Thienemannimyia Gr.	1	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	129205	Tvetenia Bavarica Gr.	3	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	115258	Wormaldia	2	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	114205	Zaitzevia	4	TRUE	Larva			100.00%
TT12RPM002	Near SR 58	BS-2	8/1/2012	102594	Zapada cinctipes	2	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	119660	Antocha monticola	1	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	115530	Arctopsyche grandis	46	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	100817	Baetis tricaudatus	3	TRUE	Larva		A1	100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	116918	Brachycentrus occidentalis	1	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	128477	Brillia	9	TRUE	Larva			100.00%

Sample _ID	Sample_Station_Name	Sample_Client_ID	Sample_Date_Collected	TSN	Taxon	Count	Unique	Life_Stage	Qualifier	Comment	Proportion of Sample Sorted
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	136305	Chelifera	1	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	129873	Cladotanytarsus	1	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	116268	Dicosmoecus gilvipes	4	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	698494	Drunella doddsii	1	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	101392	Drunella flavilinea	9	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	135830	Empididae	1	FALSE	Pupa			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	101401	Ephemerella tibialis	7	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	128704	Eukiefferiella Brehmi Gr.	2	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	117159	Glossosoma	54	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	117120	Glossosomatidae	5	FALSE	Pupa			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	130915	Glutops	1	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	102972	Hesperoperla pacifica	6	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	114169	Heterlimnius corpulentus	17	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	115453	Hydropsyche	2	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	71570	Juga	13	TRUE	Unknown			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	116794	Lepidostoma	1	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	128811	Lopescladius	1	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	68441	Lumbriculus	2	TRUE	Unknown			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	129890	Micropsectra	4	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	114144	Narpus concolor	5	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	116054	Neophylax rickeri	2	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	116318	Onocosmoecus unicolor	3	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	114177	Optioservus	5	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	112314	Oreodytes	1	TRUE	Adult			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	97326	Pacifastacus leniusculus	2	TRUE	Unknown		A1	100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	81400	Pisidium	1	TRUE	Unknown			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	129657	Polypedilum	16	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	129657	Polypedilum	4	FALSE	Pupa			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	83170	Protzia	1	TRUE	Adult			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	100572	Rhithrogena	2	TRUE	Larva		A1	100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	115097	Rhyacophila	10	FALSE	Pupa			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	115099	Rhyacophila Angelita Gr.	2	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	115101	Rhyacophila Betteni Gr.	1	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	115181	Rhyacophila malkini	7	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	126774	Simulium	3	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	103102	Skwala	5	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	83006	Sperchon	1	TRUE	Adult			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	103254	Suwallia	4	TRUE	Larva		A3	100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	129205	Tvetenia Bavarica Gr.	2	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	115258	Wormaldia	1	TRUE	Larva			100.00%
TT12RPM003	Near SR 58	BS-2 Dup	8/1/2012	114205	Zaitzevia	3	TRUE	Larva			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	128477	Brillia	8	TRUE	Larva			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	100598	Cinygma	1	TRUE	Larva			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	121027	Dicranota	2	TRUE	Larva			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	135830	Empididae	1	TRUE	Pupa			100.00%

Sample _ID	Sample_Station_Name	Sample_Client_ID	Sample_Date_Collected	TSN	Taxon	Count	Unique	Life_Stage	Qualifier	Comment	Proportion of Sample Sorted
TT12RPM004	At 272nd St.	BS-3	8/2/2012	100626	Epeorus	52	TRUE	Larva			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	128693	Eukiefferiella Claripennis Gr.	1	TRUE	Larva			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	117159	Glossosoma	6	TRUE	Larva			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	117120	Glossosomatidae	2	FALSE	Pupa			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	102972	Hesperoperla pacifica	6	TRUE	Larva			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	115453	Hydropsyche	10	TRUE	Larva			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	71570	Juga	16	TRUE	Unknown			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	114137	Lara	4	TRUE	Larva			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	68440	Lumbriculidae	28	FALSE	Unknown	Damaged		100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	102567	Malenka	2	TRUE	Larva			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	129890	Micropsectra	18	TRUE	Larva			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	129890	Micropsectra	1	FALSE	Pupa			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	116063	Neophylax splendens	1	TRUE	Larva			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	114177	Optioservus	3	TRUE	Adult			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	114177	Optioservus	21	FALSE	Larva			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	733326	Oribatida	1	TRUE	Adult			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	97326	Pacifastacus leniusculus	3	TRUE	Unknown			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	115563	Parapsyche almota	7	TRUE	Larva			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	81400	Pisidium	2	TRUE	Unknown		A1	100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	129657	Polypedilum	4	TRUE	Larva			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	100572	Rhithrogena	3	TRUE	Larva		A2	100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	115101	Rhyacophila Betteni Gr.	1	TRUE	Larva			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	126774	Simulium	22	TRUE	Larva			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	126774	Simulium	2	FALSE	Pupa			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	103102	Skwala	7	TRUE	Larva			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	68450	Stylodrilus	2	TRUE	Unknown			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	103273	Sweltsa	2	TRUE	Larva			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	128236	Thienemannimyia Gr.	1	TRUE	Larva			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	129205	Tvetenia Bavarica Gr.	7	TRUE	Larva			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	115258	Wormaldia	11	TRUE	Larva			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	114205	Zaitzevia	1	TRUE	Larva			100.00%
TT12RPM004	At 272nd St.	BS-3	8/2/2012	102594	Zapada cinctipes	2	TRUE	Larva		A1	100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	119660	Antocha monticola	6	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	119660	Antocha monticola	1	FALSE	Pupa			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	115530	Arctopsyche grandis	30	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	100800	Baetis	2	TRUE	Larva	Damaged		100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	121255	Blepharicera	1	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	116912	Brachycentrus americanus	12	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	128477	Brillia	1	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	102986	Calineuria californica	11	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	103202	Chloroperlidae	1	TRUE	Larva	Early Instar		100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	698494	Drunella doddsii	98	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	101392	Drunella flavilinea	7	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	135830	Empididae	3	TRUE	Pupa			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	68531	Enchytraeus	9	TRUE	Unknown			100.00%

Sample _ID	Sample_Station_Name	Sample_Client_ID	Sample_Date_Collected	TSN	Taxon	Count	Unique	Life_Stage	Qualifier	Comment	Proportion of Sample Sorted
TT12RPM005	168th Way	CC-1	7/31/2012	100626	Epeorus	7	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	101401	Ephemerella tibialis	1	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	128689	Eukiefferiella	1	FALSE	Pupa			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	128704	Eukiefferiella Brehmi Gr.	1	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	128701	Eukiefferiella Coerulescens Gr.	1	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	204785	Fridericia	4	TRUE	Unknown			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	117159	Glossosoma	169	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	102972	Hesperoperla pacifica	20	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	115453	Hydropsyche	24	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	68441	Lumbriculus	4	TRUE	Unknown			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	68544	Mesenchytraeus	3	TRUE	Unknown			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	129890	Micropsectra	18	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	114144	Narpus concolor	6	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	563956	Nemata	2	TRUE	Unknown			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	116054	Neophylax rickeri	2	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	114177	Optioservus	2	TRUE	Adult			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	114177	Optioservus	5	FALSE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	97326	Pacifastacus leniusculus	1	TRUE	Unknown			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	128401	Pagastia	1	TRUE	Pupa			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	128978	Parametriocnemus	1	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	128978	Parametriocnemus	2	FALSE	Pupa			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012		Pericoma / Telmatoscopus	1	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	54510	Polycelis	2	TRUE	Unknown			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	129657	Polypedilum	10	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	129657	Polypedilum	2	FALSE	Pupa			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	100572	Rhithrogena	3	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	115097	Rhyacophila	13	FALSE	Pupa			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	115099	Rhyacophila Angelita Gr.	11	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	115101	Rhyacophila Betteni Gr.	5	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	115151	Rhyacophila Brunnea Gr.	3	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	115155	Rhyacophila narvae	3	TRUE	Larva		A2	100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	126774	Simulium	4	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	126774	Simulium	2	FALSE	Pupa			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	103102	Skwala	1	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	129969	Stempellinella	1	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	129872	Tanytarsini	2	FALSE	Larva	Early Instar		100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	128236	Thienemannimyia Gr.	1	TRUE	Larva			100.00%
TT12RPM005	168th Way	CC-1	7/31/2012	102594	Zapada cinctipes	5	TRUE	Larva			100.00%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	119660	Antocha monticola	2	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	100817	Baetis tricaudatus	26	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	128477	Brillia	3	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	102986	Calineuria californica	10	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	114166	Cleptelmis addenda	3	TRUE	Adult			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	114166	Cleptelmis addenda	3	FALSE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	568598	Diphetor hageni	1	TRUE	Larva			93.33%

Sample _ID	Sample_Station_Name	Sample_Client_ID	Sample_Date_Collected	TSN	Taxon	Count	Unique	Life_Stage	Qualifier	Comment	Proportion of Sample Sorted
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	698494	Drunella doddsii	5	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	68531	Enchytraeus	8	TRUE	Unknown			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	100626	Epeorus	1	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	128689	Eukiefferiella	1	FALSE	Larva	Damaged		93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	128693	Eukiefferiella Claripennis Gr.	10	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	128705	Eukiefferiella Gracei Gr.	29	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	204785	Fridericia	3	TRUE	Unknown			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	117159	Glossosoma	14	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	117120	Glossosomatidae	2	FALSE	Pupa			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	100504	Heptageniidae	1	TRUE	Larva	Damaged		93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	102972	Hesperoperla pacifica	14	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	115453	Hydropsyche	124	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	115398	Hydropsychidae	1	FALSE	Pupa			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	114137	Lara	1	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	68441	Lumbriculus	22	TRUE	Unknown			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	102567	Malenka	16	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	80372	Margaritifera falcata	2	TRUE	Unknown			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	116958	Micrasema	1	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	129890	Micropsectra	3	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	114144	Narpus concolor	16	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	116054	Neophylax rickeri	2	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	116063	Neophylax splendens	2	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	116318	Onocosmoecus unicolor	2	TRUE	Larva		A1	93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	114177	Optioservus	70	FALSE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	114177	Optioservus	15	TRUE	Adult			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	128978	Parametriocnemus	1	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	128215	Pentaneura	1	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	102994	Perlodidae	1	TRUE	Larva	Early Instar		93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	129657	Polypedilum	1	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	102471	Pteronarcys	3	TRUE	Larva	Early Instar		93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	129952	Rheotanytarsus	5	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	129952	Rheotanytarsus	1	FALSE	Pupa			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	115097	Rhyacophila	1	FALSE	Pupa			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	115165	Rhyacophila arnaudi	1	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	115101	Rhyacophila Betteni Gr.	6	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	115153	Rhyacophila blarina	2	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	115151	Rhyacophila Brunnea Gr.	50	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	115155	Rhyacophila narvae	4	TRUE	Larva		A3	93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	126774	Simulium	11	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	126774	Simulium	1	FALSE	Pupa			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	103102	Skwala	16	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	103273	Sweltsa	2	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	128236	Thienemannimyia Gr.	1	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	129205	Tvetenia Bavarica Gr.	12	TRUE	Larva			93.33%
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	114205	Zaitzevia	4	TRUE	Adult			93.33%

Sample _ID	Sample_Station_Name	Sample_Client_ID	Sample_Date_Collected	TSN	Taxon	Count	Unique	Life_Stage	Qualifier	Comment	Proportion of Sample Sorted
TT12RPM006	SR 58 Crossing Kent-De Rd.	CC-2	7/31/2012	102594	Zapada cinctipes	4	TRUE	Larva			93.33%
TT12RPM007	At 164th Ave. SE	LS-1	8/1/2012	93294	Amphipoda	3	TRUE	Unknown	Damaged		100.00%
TT12RPM007	At 164th Ave. SE	LS-1	8/1/2012	128477	Brillia	1	TRUE	Larva			100.00%
TT12RPM007	At 164th Ave. SE	LS-1	8/1/2012	115408	Cheumatopsyche	3	TRUE	Larva			100.00%
TT12RPM007	At 164th Ave. SE	LS-1	8/1/2012	115453	Hydropsyche	41	TRUE	Larva			100.00%
TT12RPM007	At 164th Ave. SE	LS-1	8/1/2012	115398	Hydropsychidae	6	FALSE	Pupa			100.00%
TT12RPM007	At 164th Ave. SE	LS-1	8/1/2012	71570	Juga	123	TRUE	Unknown			100.00%
TT12RPM007	At 164th Ave. SE	LS-1	8/1/2012	114137	Lara	1	TRUE	Larva			100.00%
TT12RPM007	At 164th Ave. SE	LS-1	8/1/2012	116794	Lepidostoma	3	TRUE	Larva			100.00%
TT12RPM007	At 164th Ave. SE	LS-1	8/1/2012	68441	Lumbriculus	4	TRUE	Unknown			100.00%
TT12RPM007	At 164th Ave. SE	LS-1	8/1/2012	129890	Micropsectra	3	TRUE	Larva			100.00%
TT12RPM007	At 164th Ave. SE	LS-1	8/1/2012	116318	Onocosmoecus unicolor	1	TRUE	Larva			100.00%
TT12RPM007	At 164th Ave. SE	LS-1	8/1/2012	128978	Parametriocnemus	10	TRUE	Larva			100.00%
TT12RPM007	At 164th Ave. SE	LS-1	8/1/2012	81400	Pisidium	47	TRUE	Unknown			100.00%
TT12RPM007	At 164th Ave. SE	LS-1	8/1/2012	129952	Rheotanytarsus	8	TRUE	Larva			100.00%
TT12RPM007	At 164th Ave. SE	LS-1	8/1/2012	115097	Rhyacophila	1	FALSE	Pupa			100.00%
TT12RPM007	At 164th Ave. SE	LS-1	8/1/2012	115101	Rhyacophila Betteni Gr.	2	TRUE	Larva			100.00%
TT12RPM007	At 164th Ave. SE	LS-1	8/1/2012	115153	Rhyacophila blarina	1	TRUE	Larva			100.00%
TT12RPM007	At 164th Ave. SE	LS-1	8/1/2012	115151	Rhyacophila Brunnea Gr.	14	TRUE	Larva			100.00%
TT12RPM007	At 164th Ave. SE	LS-1	8/1/2012	126774	Simulium	14	TRUE	Larva			100.00%
TT12RPM007	At 164th Ave. SE	LS-1	8/1/2012	83006	Sperchon	1	TRUE	Adult			100.00%
TT12RPM007	At 164th Ave. SE	LS-1	8/1/2012	129746	Stenochironomus	1	TRUE	Larva			100.00%
TT12RPM007	At 164th Ave. SE	LS-1	8/1/2012	103273	Sweltsa	2	TRUE	Larva			100.00%
TT12RPM007	At 164th Ave. SE	LS-1	8/1/2012	127994	Tanypodinae	1	TRUE	Larva	Damaged		100.00%
TT12RPM007	At 164th Ave. SE	LS-1	8/1/2012	129205	Tvetenia Bavarica Gr.	4	TRUE	Larva			100.00%
TT12RPM007	At 164th Ave. SE	LS-1	8/1/2012	115258	Wormaldia	2	TRUE	Larva			100.00%
TT12RPM007	At 164th Ave. SE	LS-1	8/1/2012	102591	Zapada	7	TRUE	Larva	Damaged	A6	100.00%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	119660	Antocha monticola	25	TRUE	Larva			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	119660	Antocha monticola	9	FALSE	Pupa			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	100817	Baetis tricaudatus	113	TRUE	Larva			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	128477	Brillia	15	TRUE	Larva			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	92686	Caecidotea	8	TRUE	Unknown			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	128511	Cardiocladius	1	TRUE	Larva			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	95081	Crangonyx	38	TRUE	Unknown			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	121027	Dicranota	11	TRUE	Larva			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	68531	Enchytraeus	1	TRUE	Unknown			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	128693	Eukiefferiella Claripennis Gr.	12	TRUE	Larva			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	128695	Eukiefferiella Devonica Gr.	1	TRUE	Larva			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	204785	Fridericia	1	TRUE	Unknown			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	115641	Hydroptila	3	TRUE	Larva			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	115629	Hydroptilidae	7	FALSE	Pupa			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	68471	Kincaidiana hexatheca	10	TRUE	Unknown			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	116794	Lepidostoma	1	TRUE	Larva			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	68441	Lumbriculus	14	TRUE	Unknown			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	129890	Micropsectra	15	TRUE	Larva			56.67%

Sample _ID	Sample_Station_Name	Sample_Client_ID	Sample_Date_Collected	TSN	Taxon	Count	Unique	Life_Stage	Qualifier	Comment	Proportion of Sample Sorted
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	129890	Micropsectra	2	FALSE	Pupa			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	136352	Neoplasta	1	TRUE	Larva			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	97326	Pacifastacus leniusculus	1	TRUE	Unknown			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	128978	Parametriocnemus	4	TRUE	Larva			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	129086	Rheocricotopus	1	TRUE	Larva			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	129952	Rheotanytarsus	7	TRUE	Larva			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	129952	Rheotanytarsus	1	FALSE	Pupa			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	115151	Rhyacophila Brunnea Gr.	3	TRUE	Larva			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	115155	Rhyacophila narvae	1	TRUE	Larva			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	126774	Simulium	40	FALSE	Pupa			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	126774	Simulium	162	TRUE	Larva			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	103254	Suwallia	1	TRUE	Larva			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	129978	Tanytarsus	1	TRUE	Larva			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	128236	Thienemannimyia Gr.	1	TRUE	Larva			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	53964	Turbellaria	4	TRUE	Unknown			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	129197	Tvetenia	2	FALSE	Pupa			56.67%
TT12RPM008	Squalicum Cr. West Street	SQ-1	7/26/2012	129205	Tvetenia Bavarica Gr.	28	TRUE	Larva			56.67%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	100817	Baetis tricaudatus	18	TRUE	Larva		A3	80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	128477	Brillia	5	TRUE	Larva			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	92686	Caecidotea	11	TRUE	Unknown			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	95081	Crangonyx	12	TRUE	Unknown			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	128575	Cricotopus	3	TRUE	Pupa			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	121027	Dicranota	1	TRUE	Larva			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	111963	Dytiscidae	3	TRUE	Larva			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	68531	Enchytraeus	1	TRUE	Unknown			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	128689	Eukiefferiella	2	FALSE	Pupa			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	128693	Eukiefferiella Claripennis Gr.	16	TRUE	Larva			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	204785	Fridericia	2	TRUE	Unknown			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	68471	Kincaidiana hexatheca	2	TRUE	Unknown			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	68440	Lumbriculidae	11	FALSE	Unknown	Damaged		80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	76626	Menetus	3	TRUE	Unknown			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	129890	Micropsectra	4	TRUE	Larva			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	69449	Mooreobdella	1	TRUE	Unknown			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	68946	Nais	2	TRUE	Unknown			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	128978	Parametriocnemus	2	TRUE	Larva			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	128978	Parametriocnemus	1	FALSE	Pupa			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	76677	Physa	1	TRUE	Unknown			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	129952	Rheotanytarsus	3	TRUE	Larva			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	126774	Simulium	36	FALSE	Pupa			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	126774	Simulium	282	TRUE	Larva			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	83006	Sperchon	6	TRUE	Adult			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	76534	Stagnicola	2	TRUE	Unknown			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	68450	Stylodrilus	1	TRUE	Unknown			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	128877	Symposiocladius	1	TRUE	Larva			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	127994	Tanypodinae	3	FALSE	Pupa	Damaged		80.00%

Sample _ID	Sample_Station_Name	Sample_Client_ID	Sample_Date_Collected	TSN	Taxon	Count	Unique	Life_Stage	Qualifier	Comment	Proportion of Sample Sorted
TT12RPM009	Baker Creek	SQ-2	7/25/2012	128236	Thienemannimyia Gr.	4	TRUE	Larva			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	119037	Tipula	3	TRUE	Larva			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	129197	Tvetenia	1	FALSE	Pupa			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	129205	Tvetenia Bavarica Gr.	105	TRUE	Larva			80.00%
TT12RPM009	Baker Creek	SQ-2	7/25/2012	102594	Zapada cinctipes	3	TRUE	Larva			80.00%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	100817	Baetis tricaudatus	5	TRUE	Larva			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	128511	Cardiocladius	1	TRUE	Larva			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	127338	Ceratopogoninae	2	TRUE	Larva			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	95081	Crangonyx	16	TRUE	Unknown		A4	16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	568521	Cricotopus (Cricotopus)	18	TRUE	Larva			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	121027	Dicranota	6	TRUE	Larva			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	129428	Dicrotendipes	2	TRUE	Larva			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	128689	Eukiefferiella	1	FALSE	Pupa			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	128693	Eukiefferiella Claripennis Gr.	10	TRUE	Larva			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	69398	Helobdella stagnalis	1	TRUE	Unknown			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	94025	Hyalella	8	TRUE	Unknown		A1	16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	115641	Hydroptila	7	TRUE	Larva			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	115629	Hydroptilidae	1	FALSE	Pupa			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	83034	Lebertia	1	TRUE	Adult			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	68441	Lumbriculus	1	TRUE	Unknown			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	76626	Menetus	2	TRUE	Unknown			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	129890	Micropsectra	7	TRUE	Larva			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	68946	Nais	1	TRUE	Unknown			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	563956	Nemata	2	TRUE	Unknown			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	128978	Parametriocnemus	5	TRUE	Larva			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	76677	Physa	3	TRUE	Unknown			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	81400	Pisidium	10	TRUE	Unknown		A7	16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	129657	Polypedilum	2	TRUE	Larva			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	129952	Rheotanytarsus	205	TRUE	Larva			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	129952	Rheotanytarsus	10	FALSE	Pupa			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	126774	Simulium	23	FALSE	Pupa			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	126774	Simulium	79	TRUE	Larva			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	129978	Tanytarsus	15	TRUE	Larva			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	129978	Tanytarsus	2	FALSE	Pupa			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	129182	Thienemanniella	1	TRUE	Larva			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	128236	Thienemannimyia Gr.	4	TRUE	Larva			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	119037	Tipula	2	TRUE	Larva			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	129197	Tvetenia	3	FALSE	Pupa			16.67%
TT12RPM010	Squalicum Cr. Above Cornwall Park	SQ-3	7/25/2012	129205	Tvetenia Bavarica Gr.	54	TRUE	Larva			16.67%
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	100817	Baetis tricaudatus	10	TRUE	Larva			30.00%
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	128477	Brillia	7	TRUE	Larva			30.00%
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	114166	Cleptelmis addenda	1	TRUE	Adult			30.00%
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	95081	Crangonyx	1	TRUE	Unknown			30.00%
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	116268	Dicosmoecus gilvipes	1	TRUE	Larva		Large & Rare	100.00%

Sample _ID	Sample_Station_Name	Sample_Client_ID	Sample_Date_Collected	TSN	Taxon	Count	Unique	Life_Stage	Qualifier	Comment	Proportion of Sample Sorted
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	121027	Dicranota	4	TRUE	Larva			30.00%
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	68531	Enchytraeus	9	TRUE	Unknown			30.00%
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	128693	Eukiefferiella Claripennis Gr.	4	TRUE	Larva			30.00%
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	76569	Ferrissia	1	TRUE	Unknown			30.00%
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	114169	Heterlimnius corpulentus	2	TRUE	Larva			30.00%
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	68441	Lumbriculus	7	TRUE	Unknown			30.00%
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	129890	Micropsectra	5	TRUE	Larva			30.00%
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	114177	Optioservus	8	TRUE	Adult			30.00%
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	114177	Optioservus	54	FALSE	Larva		A2	30.00%
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	128978	Parametriocnemus	2	TRUE	Larva			30.00%
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	129657	Polypedilum	4	TRUE	Larva			30.00%
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	129952	Rheotanytarsus	4	TRUE	Larva			30.00%
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	115101	Rhyacophila Betteni Gr.	4	TRUE	Larva			30.00%
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	115151	Rhyacophila Brunnea Gr.	3	TRUE	Larva			30.00%
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	126774	Simulium	346	TRUE	Larva			30.00%
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	126774	Simulium	38	FALSE	Pupa			30.00%
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	103102	Skwala	17	TRUE	Larva			30.00%
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	83006	Sperchon	1	TRUE	Adult			30.00%
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	103273	Sweltsa	1	TRUE	Larva			30.00%
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	129205	Tvetenia Bavarica Gr.	16	TRUE	Larva			30.00%
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	115258	Wormaldia	3	TRUE	Larva			30.00%
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	114205	Zaitzevia	3	TRUE	Adult			30.00%
TT12RPM011	Squalicum below Hannegan	SQ-4	7/25/2012	114205	Zaitzevia	14	FALSE	Larva			30.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	115935	Apatania	5	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	100817	Baetis tricaudatus	15	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	127954	Boreochlus	1	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	128477	Brillia	25	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	102986	Calineuria californica	1	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	100598	Cinygma	1	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	100557	Cinygmula	1	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	121027	Dicranota	3	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	116025	Ecclisomyia	1	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	68531	Enchytraeus	4	TRUE	Unknown			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	100626	Epeorus	4	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	117159	Glossosoma	27	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	100504	Heptageniidae	9	TRUE	Larva	Damaged		100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	114169	Heterlimnius corpulentus	1	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	115453	Hydropsyche	27	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	100666	Ironodes	14	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	114137	Lara	3	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	116794	Lepidostoma	1	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	68441	Lumbriculus	52	TRUE	Unknown			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	102567	Malenka	1	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	776979	Matriella teresa	1	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	68544	Mesenchytraeus	1	TRUE	Unknown			100.00%

Sample _ID	Sample_Station_Name	Sample_Client_ID	Sample_Date_Collected	TSN	Taxon	Count	Unique	Life_Stage	Qualifier	Comment	Proportion of Sample Sorted
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	129890	Micropsectra	43	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	129890	Micropsectra	5	FALSE	Pupa			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	114144	Narpus concolor	2	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	116054	Neophylax rickeri	6	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	116063	Neophylax splendens	3	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	114177	Optioservus	5	FALSE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	114177	Optioservus	1	TRUE	Adult			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	128978	Parametriocnemus	12	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	128978	Parametriocnemus	2	FALSE	Pupa			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	115563	Parapsyche almota	46	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	102994	Perlodidae	3	TRUE	Larva	Early Instar		100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	129657	Polypedilum	6	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	102471	Pteronarcys	1	TRUE	Larva	Early Instar		100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	115097	Rhyacophila	5	FALSE	Pupa			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	115099	Rhyacophila Angelita Gr.	5	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	115101	Rhyacophila Betteni Gr.	18	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	115151	Rhyacophila Brunnea Gr.	4	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	126774	Simulium	23	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	126774	Simulium	5	FALSE	Pupa			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	68450	Stylodrilus	2	TRUE	Unknown			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	103273	Sweltsa	7	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	128877	Symposiocladius	1	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	129872	Tanytarsini	4	FALSE	Larva	Damaged		100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	119037	Tipula	1	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	129197	Tvetenia	1	FALSE	Pupa			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	129205	Tvetenia Bavarica Gr.	44	TRUE	Larva			100.00%
TT12RPM012	Squalicum Cr. Above SR 542	SQ-5	7/24/2012	102594	Zapada cinctipes	7	TRUE	Larva			100.00%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	115935	Apatania	4	TRUE	Larva			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	128477	Brillia	28	TRUE	Larva			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	102986	Calineuria californica	2	TRUE	Larva			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	127338	Ceratopogoninae	2	TRUE	Larva			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	100598	Cinygma	24	TRUE	Larva			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	114166	Cleptelmis addenda	1	TRUE	Larva			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	128563	Corynoneura	1	TRUE	Larva			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	121027	Dicranota	1	TRUE	Larva			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	116025	Ecclisomyia	4	TRUE	Larva			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	68531	Enchytraeus	16	TRUE	Unknown			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	128689	Eukiefferiella	2	TRUE	Pupa			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	117159	Glossosoma	30	TRUE	Larva			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	117120	Glossosomatidae	40	FALSE	Pupa			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	115453	Hydropsyche	54	TRUE	Larva			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	116794	Lepidostoma	1	TRUE	Larva			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	68441	Lumbriculus	77	TRUE	Unknown			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	102567	Malenka	4	TRUE	Larva			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	776979	Matriella teresa	1	TRUE	Larva			76.67%

Sample _ID	Sample_Station_Name	Sample_Client_ID	Sample_Date_Collected	TSN	Taxon	Count	Unique	Life_Stage	Qualifier	Comment	Proportion of Sample Sorted
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	129890	Micropsectra	31	TRUE	Larva			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	129535	Microtendipes	1	TRUE	Larva			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012		Naididae (Tubificinae) - with capillary setae	1	TRUE	Immature			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	563956	Nemata	2	TRUE	Unknown			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	116063	Neophylax splendens	1	TRUE	Larva			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	114177	Optioservus	7	TRUE	Adult			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	114177	Optioservus	18	FALSE	Larva			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	128978	Parametriocnemus	5	TRUE	Larva			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	115563	Parapsyche almota	55	TRUE	Larva			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	81400	Pisidium	2	TRUE	Unknown			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	115097	Rhyacophila	5	FALSE	Pupa			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	115101	Rhyacophila Betteni Gr.	10	TRUE	Larva			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	115151	Rhyacophila Brunnea Gr.	2	TRUE	Larva			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	115155	Rhyacophila narvae	2	TRUE	Larva		A1	76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	126774	Simulium	11	TRUE	Larva			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	126774	Simulium	1	FALSE	Pupa			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	103102	Skwala	3	TRUE	Larva			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	68450	Stylodrilus	4	TRUE	Unknown			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	103273	Sweltsa	1	TRUE	Larva			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	68760	Telmatodrilus vejdovskyi	1	TRUE	Unknown			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	129197	Tvetenia	6	FALSE	Pupa			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	129205	Tvetenia Bavarica Gr.	84	TRUE	Larva			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	102594	Zapada cinctipes	3	TRUE	Larva			76.67%
TT12RPM013	Squalicum Cr. Upper	SQ-6	7/24/2012	102597	Zapada Oregonensis Gr.	1	TRUE	Larva			76.67%

Table B7. Rhithron invertebrate matrix

Metric Calculations by Rhithron Associates, Inc.	TT12RPM001	TT12RPM002	TT12RPM003	TT12RPM004	TT12RPM005	TT12RPM006	TT12RPM007	TT12RPM008
	At 148th Ave. SE	Near SR 58	Near SR 58	At 272nd St.	168th Way	SR 58 Crossing Kent-De Rd.	At 164th Ave. SE	Squalicum Cr. West Street
Metric	BS-1	BS-2	BS-2 Dup	BS-3	CC-1	CC-2	LS-1	SQ-1
Air Breather Percent	11.49%	0.50%	0.73%	0.77%	1.33%	0.37%	0.00%	8.26%
Air Breather Richness	2	1	2	1	1	1	0	2
All Non-Insect Percent	18.39%	9.77%	7.33%	19.92%	4.75%	6.47%	58.55%	14.13%
All Non-Insect Richness	6	7	6	5	7	4	5	8
Baetidae/Ephemeroptera	1.00	0.43	0.14	0.00	0.02	0.79	0.00	1.00
Burrower Percent	2.30%	4.01%	4.03%	13.79%	1.14%	4.62%	1.97%	5.69%
Burrower Richness	1	3	2	1	3	2	3	4
Clinger Percent	63.22%	70.93%	72.89%	70.88%	89.54%	77.26%	34.54%	50.46%
Clinger Richness	12	25	22	19	25	30	12	7
Cold Stenotherm Percent	1.15%	0.50%	0.73%	0.38%	18.82%	0.92%	0.00%	0.00%
Cold Stenotherm Richness	1	1	2	1	2	1	0	0
Collector Percent	17.24%	39.85%	20.51%	60.15%	21.67%	53.60%	48.03%	90.83%
CTQa	60.42	67.69	62.00	59.50	59.34	59.63	70.63	84.81
Dominant Taxa (10) Percent	75.86%	73.18%	70.33%	76.25%	77.38%	73.57%	90.13%	88.81%
Dominant Taxa (2) Percent	36.78%	28.57%	36.63%	30.65%	50.76%	38.63%	55.92%	57.80%
Dominant Taxa (3) Percent	42.53%	37.09%	43.96%	39.85%	56.46%	47.87%	69.41%	64.77%
Dominant Taxon Percent	27.59%	18.80%	19.78%	19.92%	32.13%	22.92%	40.46%	37.06%
E Richness	1	6	5	3	6	5	0	1
EPT Percent	51.72%	57.39%	64.47%	43.30%	81.37%	57.67%	27.30%	23.67%
EPT Richness	10	23	20	14	20	24	10	6
Evenness	0.06	0.05	0.05	0.06	0.06	0.05	0.08	0.08
Filterer Percent	4.60%	2.51%	2.93%	18.01%	8.37%	26.80%	39.80%	38.72%
Filterer Richness	2	5	5	4	3	4	6	3
Hemoglobin Bearer Percent	1.15%	3.76%	7.33%	1.53%	2.28%	0.18%	0.33%	0.00%
Hemoglobin Bearer Richness	1	1	1	1	1	1	1	0
Hilsenhoff Biotic Index	3.17	2.94	2.51	3.61	1.60	4.00	5.44	5.06
Hydropsychidae/Trichoptera	0.00	0.28	0.35	0.45	0.20	0.59	0.68	0.00
Intolerant Percent	45.98%	46.12%	62.64%	34.48%	76.81%	28.10%	11.18%	1.10%
Margalef D	5.45	8.18	7.41	5.63	6.76	7.17	4.04	4.53
Metals Tolerance Index	2.30	2.61	2.68	2.22	2.04	3.64	3.60	4.52
Multivoltine Percent	11.49%	26.82%	16.12%	15.33%	9.13%	17.56%	9.54%	40.00%
Oligochaeta+Hirudinea Percent	3.45%	2.26%	0.73%	11.49%	3.80%	6.10%	1.32%	4.77%
Other Non-Insect Percent	14.94%	7.52%	6.59%	8.43%	0.95%	0.37%	57.24%	9.36%
P Richness	4	5	3	5	5	8	2	1
Pollution Sensitive Richness	0	1	2	1	2	1	0	0
Pollution Tolerant Percent	17.24%	11.78%	8.06%	15.71%	1.33%	16.45%	41.45%	2.02%
Predator Percent	29.89%	17.29%	31.87%	10.73%	19.39%	20.15%	7.24%	4.22%
Predator Richness	9	12	12	9	11	12	6	8
Scraper/Filterer	3.50	14.10	11.88	1.13	6.52	0.77	1.02	0.00
Scraper/Scraper+Filterer	0.78	0.93	0.92	0.53	0.87	0.43	0.50	0.00
Scraper+Shredder Percent	52.87%	42.36%	47.62%	29.12%	58.17%	26.25%	44.74%	3.12%
Sediment Sensitive Percent	0.00%	29.07%	37.00%	6.51%	37.83%	2.59%	0.66%	0.00%
Sediment Sensitive Richness	0	3	3	2	2	1	1	0
Sediment Tolerant Percent	16.09%	7.02%	5.13%	17.62%	1.33%	0.37%	40.46%	8.26%

Metric Calculations by Rhithron Associates, Inc.	TT12RPM001	TT12RPM002	TT12RPM003	TT12RPM004	TT12RPM005	TT12RPM006	TT12RPM007	TT12RPM008
	At 148th Ave. SE	Near SR 58	Near SR 58	At 272nd St.	168th Way	SR 58 Crossing Kent-De Rd.	At 164th Ave. SE	Squalicum Cr. West Street
Metric	BS-1	BS-2	BS-2 Dup	BS-3	CC-1	CC-2	LS-1	SQ-1
Sediment Tolerant Richness	3	2	2	2	1	1	1	2
Semivoltine Richness	5	9	11	7	8	8	2	1
Shannon H (log2)	3.86	4.28	4.22	4.02	3.64	4.22	2.96	3.21
Shannon H (loge)	2.67	2.97	2.92	2.78	2.52	2.92	2.05	2.22
Simpson D	0.11	0.09	0.09	0.10	0.16	0.10	0.22	0.18
Supertolerant Percent	2.30%	1.50%	0.73%	0.38%	0.57%	7.39%	0.00%	3.85%
Swimmer Percent	6.90%	7.52%	1.47%	0.00%	0.38%	4.99%	0.00%	20.73%
Swimmer Richness	2	1	2	0	1	2	0	1
T Richness	5	12	12	6	9	11	8	4
Taxa Richness	25	49	42	31	43	45	24	29
Univoltine Richness	13	22	20	16	20	22	13	11

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Table B8. Rhithron invertebrate metrics continued

TT12RPM009	TT12RPM010	TT12RPM011	TT12RPM012	TT12RPM013
Baker Creek	**Squalicum Cr. Above Cornwall Park**	**Squalicum Below Hannegan**	**Squalicum Cr. Above SR 542**	**Squalicum Cr. Upper**
SQ-2	SQ-3	SQ-4	SQ-5	SQ-6
1.27%	1.57%	0.70%	0.87%	0.18%
3	2	1	2	1
9.98%	8.82%	3.33%	12.83%	18.76%
12	10	5	4	7
1.00	1.00	1.00	0.33	0.00
3.45%	1.18%	2.46%	16.96%	19.13%
2	4	2	3	2
60.07%	68.63%	88.42%	61.96%	57.56%
5	5	13	28	22
0.00%	0.00%	0.00%	1.52%	5.83%
0	0	0	3	3
92.92%	89.80%	81.58%	54.35%	55.19%
90.22	98.40	76.86	58.26	65.17
91.83%	89.61%	93.68%	71.74%	81.60%
76.77%	62.16%	78.25%	21.74%	29.33%
80.04%	72.75%	81.23%	31.74%	39.34%
57.71%	42.16%	67.37%	11.30%	15.30%
1	1	1	7	2
3.81%	2.55%	6.84%	46.30%	44.99%
2	2	7	24	18
0.08	0.08	0.06	0.04	0.06
58.26%	67.45%	68.60%	12.83%	12.57%
2	4	3	2	4
0.54%	1.18%	0.70%	1.30%	0.18%
1	3	1	1	1
5.74	5.89	5.47	3.44	3.42
0.00	0.00	0.00	0.49	0.52
0.00%	0.00%	2.11%	21.74%	22.40%
4.19	4.39	3.91	6.75	5.83
4.82	2.50	4.72	2.78	3.23
31.58%	69.80%	9.30%	34.57%	29.14%
3.63%	0.59%	2.81%	12.83%	18.03%
6.53%	8.43%	0.53%	0.00%	0.73%
1	0	2	6	6
0	0	0	3	3
3.09%	2.55%	14.04%	1.30%	4.55%
3.27%	2.94%	5.26%	20.00%	15.12%
5	6	6	8	9
0.02	0.01	0.16	1.22	1.80
0.02	0.01	0.14	0.55	0.64
3.81%	5.29%	13.16%	25.65%	29.33%
0.00%	0.00%	0.53%	5.87%	5.46%
0	0	1	1	1
3.09%	1.57%	0.88%	0.87%	0.18%
3	2	2	2	1
1	0	4	7	4
2.31	2.97	1.86	4.37	3.86
1.60	2.06	1.29	3.03	2.68
0.37	0.24	0.56	0.06	0.10
5.99%	5.29%	0.70%	0.00%	0.36%
3.81%	0.98%	1.75%	3.26%	0.00%
2	1	1	1	0
0	1	4	11	10
27	28	25	42	37
12	11	11	25	21

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Table B9. Rhithron periphyton densities

Algal densities (#/cm²) Tetra Tech 2012 Determinations by Rhithron Associates, Inc.	Rhithron identifier	TT12RPP001	TT12RPP002	TT12RPP003	TT12RPP004	TT12RPP005	TT12RPP006	TT12RPP007	TT12RPP008	TT12RPP009	TT12RPP010	TT12RPP011	TT12RPP012	TT12RPP013
	Sampling date	7/26/2012	7/24/2012	7/31/2012	8/2/2012	7/24/2012	7/31/2012	7/25/2012	7/25/2012	8/1/2012	7/25/2012	8/2/2012	8/1/2012	8/1/2012
	Site name	Squalicum Cre West St	Squalicum Cr Upper	168th Way	@242 2nd St	Squalicum Cr below SR542	SR 58 crossing Kent De Moines Rd.	Squalicum Cr below Hannegan Rd	Squalicum Cr above Cornwall Park	@148 Ave SE	Baker Creek	@242nd St	@ 164th Ave SE	Near SR 58
	Site identifier	SQ-1	SQ-6	CC-1	BS-3	SQ-5	CC-2	SQ-4	SQ-3	BS-1	SQ-2	BS-3 Dup	LS-1	BS-2
Group	Taxon													
non-diatom algae	*Audouinella*			21567	303230	278313	484555	525114	1904762	671937	95102	92518	585938	49848
non-diatom algae	*Calothrix*								2645503					
non-diatom algae	*Chamaesiphon*		15552		6126	9991	1526348			326087		3218		
non-diatom algae	*Cladophora*	110571												
non-diatom algae	Diatoms	4201714	15552	510424	62790	79926	2325863	4246575	10052910	286561	1540656	82059	126202	451399
non-diatom algae	*Heteroleibleinia*		17456											
non-diatom algae	*Homeothrix*	718714	10791			49954		867580		197628			90144	
non-diatom algae	*Komvophoron*	221143											27043	27693
non-diatom algae	*Leptolyngbya*												75120	33232
non-diatom algae	*Leptolyngbya* sp.2									839921				
non-diatom algae	*Monoraphidium*			25162							9510			
non-diatom algae	*Nostoc*				65853									
non-diatom algae	*Oscillatoria*			165349								17699		41540
non-diatom algae	*Phormidium*	110571	8252	312725			2955784	1278539	17248677	444664	1283880	42639		77541
non-diatom algae	*Pseudanabaena*						387644			286561		3218		163390
non-diatom algae	*Scenedesmus*							91324						
non-diatom algae	*Spirogyra*										19020			
non-diatom algae	*Spirulina*					11418								
non-diatom algae	*Stigeoclonium*	2930143	15869	43134	42881									
non-diatom algae	*Tribonema*		6030											
non-diatom algae	*Ulothrix*		3809											
non-diatom algae	Unknown Green Spherical		317											

Algal densities (#/cm²) Tetra Tech 2012 Determinations by Rhithron Associates, Inc.	Rhithron identifier	TT12RPP001	TT12RPP002	TT12RPP003	TT12RPP004	TT12RPP005	TT12RPP006	TT12RPP007	TT12RPP008	TT12RPP009	TT12RPP010	TT12RPP011	TT12RPP012	TT12RPP013
	Sampling date	7/26/2012	7/24/2012	7/31/2012	8/2/2012	7/24/2012	7/31/2012	7/25/2012	7/25/2012	8/1/2012	7/25/2012	8/2/2012	8/1/2012	8/1/2012
	Site name	**Squalicum Cre West St**	**Squalicum Cr Upper**	**168th Way**	**@242 2nd St**	**Squalicum Cr below SR542**	**SR 58 crossing Kent De Moines Rd.**	**Squalicum Cr below Hannegan Rd**	**Squalicum Cr above Cornwall Park**	**@148 Ave SE**	**Baker Creek**	**@242nd St**	**@ 164th Ave SE**	**Near SR 58**
	Site identifier	**SQ-1**	**SQ-6**	**CC-1**	**BS-3**	**SQ-5**	**CC-2**	**SQ-4**	**SQ-3**	**BS-1**	**SQ-2**	**BS-3 Dup**	**LS-1**	**BS-2**
Group	**Taxon**													
diatoms	*Achnanthes*													752
diatoms	*Achnanthes conspicua*			2552						3821				
diatoms	*Achnanthes rupestoides*										5136			
diatoms	*Achnanthidium*			1701										
diatoms	*Achnanthidium affine*			851					33510	1910				
diatoms	*Achnanthidium deflexum*			1701			85282					274		2257
diatoms	*Achnanthidium minutissimum*	133054	1089	84220	8791	3730	624107	608676	33510	15283	15407	2462	20613	50406
diatoms	*Achnanthidium minutissimum v. gracillima*											137		752
diatoms	*Achnanthidium pyrenaicum*			3403										
diatoms	*Achnanthidium rivulare*	49020			4814	133	34888	431735	234568		2568	1641	21034	6019
diatoms	*Adlafia bryophila*											274		752
diatoms	*Amphora copulata*												841	
diatoms	*Amphora inariensis*	210086						198174		4776	7703	410		5266
diatoms	*Amphora pediculus*	1218497	467	4254	419	533	50394	424658	33510	7642	20542	547	5048	6771
diatoms	*Asterionella formosa*					1332			16755					
diatoms	*Aulacoseira*				628	266	19382		33510	955		410	421	1505
diatoms	*Aulacoseira ambigua*			851										
diatoms	*Aulacoseira crenulata*		2177	851	209	2664	27135		16755	4776		410		2257
diatoms	*Aulacoseira granulata*													752
diatoms	*Aulacoseira italica*				1047		11629							
diatoms	*Caloneis bacillum*									1910				
diatoms	*Cocconeis neodiminuta*			1701									421	
diatoms	*Cocconeis pediculus*	91037	156	2552			65899				23110	274		1505
diatoms	*Cocconeis placentula*	140057	933	87623	14232	2797	54270	7078	83774	25791	35949	5607		39874
diatoms	*Cocconeis placentula v. lineata*	1113454	467	87623	18628	3064	248092	21233	50265	17194	1211983	48688	7993	84261
diatoms	*Ctenophora pulchella*								33510					
diatoms	*Cyclotella bodanica v. lemanensis*				209		62023			955		410	3786	7523
diatoms	*Cyclotella bodanica v. lemanica*			7656										
diatoms	*Cyclotella ocellata*			5955			85282					137	421	3009
diatoms	*Cymbella*								33510	955				
diatoms	*Cymbella affiniformis*			851										

Algal densities (#/cm²) Tetra Tech 2012 Determinations by Rhithron Associates, Inc.	Rhithron identifier	TT12RPP001	TT12RPP002	TT12RPP003	TT12RPP004	TT12RPP005	TT12RPP006	TT12RPP007	TT12RPP008	TT12RPP009	TT12RPP010	TT12RPP011	TT12RPP012	TT12RPP013
	Sampling date	7/26/2012	7/24/2012	7/31/2012	8/2/2012	7/24/2012	7/31/2012	7/25/2012	7/25/2012	8/1/2012	7/25/2012	8/2/2012	8/1/2012	8/1/2012
	Site name	**Squalicum Cre West St**	**Squalicum Cr Upper**	**168th Way**	**@242 2nd St**	**Squalicum Cr below SR542**	**SR 58 crossing Kent De Moines Rd.**	**Squalicum Cr below Hannegan Rd**	**Squalicum Cr above Cornwall Park**	**@148 Ave SE**	**Baker Creek**	**@242nd St**	**@ 164th Ave SE**	**Near SR 58**
	Site identifier	**SQ-1**	**SQ-6**	**CC-1**	**BS-3**	**SQ-5**	**CC-2**	**SQ-4**	**SQ-3**	**BS-1**	**SQ-2**	**BS-3 Dup**	**LS-1**	**BS-2**
Group	**Taxon**													
diatoms	*Cymbella aspera*													752
diatoms	*Cymbella mexicana*													1505
diatoms	*Cymbella neocistula*						11629							
diatoms	*Cymbella subturgidula*						3876							
diatoms	*Diadesmis confervacea*									955			2103	1505
diatoms	*Diadesmis contenta*			1701		799								
diatoms	*Diadesmis perpusilla*					266								
diatoms	*Diatoma*			851			7753							
diatoms	*Diatoma moniliformis*													1505
diatoms	*Diatoma tenuis*			851			3876							
diatoms	*Diatoma vulgaris*			851							5136			
diatoms	*Encyonema prostratum*						3876							
diatoms	*Encyonema silesiacum*		156	5104		533	42641		33510		2568		841	3009
diatoms	*Encyonopsis subminuta*						3876							
diatoms	*Eolimna minima*	70029	467	2552	209	1199	7753	63699	569665	55402		547	3786	752
diatoms	*Eucocconeis laevis*						7753							
diatoms	*Eunotia*				1674	400	3876		50265	4776		410	841	
diatoms	*Eunotia bilunaris*											137		
diatoms	*Eunotia bilunaris v. mucophila*				209									
diatoms	*Eunotia minor*		156							3821		410	421	752
diatoms	*Fallacia tenera*			851										
diatoms	*Fragilaria*				209	400								
diatoms	*Fragilaria bicapitata*			1701										
diatoms	*Fragilaria bidens*		156											
diatoms	*Fragilaria capucina*	7003	311	9358		799	31012		117284			274	2524	3009
diatoms	*Fragilaria capucina v. gracilis*			11910		133	23259		33510	955		137	5469	2257
diatoms	*Fragilaria capucina v. mesolepta*									2866				
diatoms	*Fragilaria crotonensis*	21009		851					368607			137	18930	1505
diatoms	*Fragilaria pseudoconstruens*			851										
diatoms	*Fragilaria vaucheriae*	7003	2022	12761		400	46517		50265		5136	137		6019
diatoms	*Frustulia amphipleuroides*	7003							16755					
diatoms	*Frustulia vulgaris*								16755					
diatoms	*Geissleria acceptata*			851										

Algal densities (#/cm²) Tetra Tech 2012 Determinations by Rhithron Associates, Inc.	Rhithron identifier	TT12RPP001	TT12RPP002	TT12RPP003	TT12RPP004	TT12RPP005	TT12RPP006	TT12RPP007	TT12RPP008	TT12RPP009	TT12RPP010	TT12RPP011	TT12RPP012	TT12RPP013
	Sampling date	7/26/2012	7/24/2012	7/31/2012	8/2/2012	7/24/2012	7/31/2012	7/25/2012	7/25/2012	8/1/2012	7/25/2012	8/2/2012	8/1/2012	8/1/2012
	Site name	Squalicum Cre West St	Squalicum Cr Upper	168th Way	@242 2nd St	Squalicum Cr below SR542	SR 58 crossing Kent De Moines Rd.	Squalicum Cr below Hannegan Rd	Squalicum Cr above Cornwall Park	@148 Ave SE	Baker Creek	@242nd St	@ 164th Ave SE	Near SR 58
	Site identifier	SQ-1	SQ-6	CC-1	BS-3	SQ-5	CC-2	SQ-4	SQ-3	BS-1	SQ-2	BS-3 Dup	LS-1	BS-2
Group	Taxon													
diatoms	*Geissleria decussis*				419									
diatoms	*Gomphoneis*			851										
diatoms	*Gomphoneis minuta*						7753							1505
diatoms	*Gomphonema*	14006	778	1701	1047	799	7753		83774			547	421	1505
diatoms	*Gomphonema angustatum*			1701						3821		547		752
diatoms	*Gomphonema kobayasii*		622	6806	3558	47423		63699	720459		5136	9300	841	27836
diatoms	*Gomphonema micropus*					932						274		
diatoms	*Gomphonema minutum*					2398			50265					752
diatoms	*Gomphonema olivaceoides*						3876							
diatoms	*Gomphonema parvulum*			3403					33510	8597	2568	957		752
diatoms	*Gomphonema rhombicum*					266								752
diatoms	*Hantzschia amphioxys*					133								
diatoms	*Hantzschia elongata*												841	
diatoms	*Hippodonta capitata*								16755	1910				4514
diatoms	*Karayevia laterostrata*	28011					3876	42466			2568		421	752
diatoms	*Lemnicola hungarica*						3876			1910				
diatoms	*Luticola mutica*								16755					
diatoms	*Mayamaea agrestis*					400			83774					
diatoms	*Melosira varians*	49020		16163			410902		3082892	2866	30813	274		15047
diatoms	*Meridion circulare*					133								
diatoms	*Meridion circulare v. constrictum*	14006	156											3009
diatoms	*Navicula*	21009	156	851		533			16755					3009
diatoms	*Navicula aurora*													752
diatoms	*Navicula capitatoradiata*			1701	209		15506							
diatoms	*Navicula cryptocephala*	14006		851					134039	3821				2257
diatoms	*Navicula cryptotenella*			6806			11629		184303	2866	2568	410	421	5266
diatoms	*Navicula cryptotenelloides*	28011		17014			42641		184303			547	2524	4514
diatoms	*Navicula dealpina*			851										
diatoms	*Navicula evanida*								418871		5136			
diatoms	*Navicula gregaria*	35014	156	3403	419	533		28311	134039		7703	547		13542
diatoms	*Navicula lanceolata*	147060		2552		799		28311	134039		12839		421	11285

Algal densities (#/cm²) Tetra Tech 2012 Determinations by Rhithron Associates, Inc.	Rhithron identifier	TT12RPP001	TT12RPP002	TT12RPP003	TT12RPP004	TT12RPP005	TT12RPP006	TT12RPP007	TT12RPP008	TT12RPP009	TT12RPP010	TT12RPP011	TT12RPP012	TT12RPP013
	Sampling date	7/26/2012	7/24/2012	7/31/2012	8/2/2012	7/24/2012	7/31/2012	7/25/2012	7/25/2012	8/1/2012	7/25/2012	8/2/2012	8/1/2012	8/1/2012
	Site name	Squalicum Cre West St	Squalicum Cr Upper	168th Way	@242 2nd St	Squalicum Cr below SR542	SR 58 crossing Kent De Moines Rd.	Squalicum Cr below Hannegan Rd	Squalicum Cr above Cornwall Park	@148 Ave SE	Baker Creek	@242nd St	@ 164th Ave SE	Near SR 58
	Site identifier	SQ-1	SQ-6	CC-1	BS-3	SQ-5	CC-2	SQ-4	SQ-3	BS-1	SQ-2	BS-3 Dup	LS-1	BS-2
Group	Taxon													
diatoms	*Navicula lenzii*								33510					
diatoms	*Navicula maceria*										5136			
diatoms	*Navicula mediocovexa*			1701	419									
diatoms	*Navicula occulta*								33510					
diatoms	*Navicula radiosa*						3876			955				752
diatoms	*Navicula recens*	7003												
diatoms	*Navicula rhynchocephala*			851								137	421	
diatoms	*Navicula tenelloides*			1701										
diatoms	*Navicula tripunctata*	7003		22969	209		15506					137	421	32350
diatoms	*Navicula trivialis*								33510	955				
diatoms	*Navicula ventralis*					400			33510				421	
diatoms	*Neidium ampliatum*													752
diatoms	*Nitzschia*		156				3876		16755					2257
diatoms	*Nitzschia acicularis*										2568			
diatoms	*Nitzschia acidoclinata*		156											
diatoms	*Nitzschia archibaldii*			851						955				
diatoms	*Nitzschia capitellata*													752
diatoms	*Nitzschia dissipata*	126051		29775	209	533	42641		150794	2866	12839	137	841	9780
diatoms	*Nitzschia fonticola*									955				
diatoms	*Nitzschia fossilis*			1701										
diatoms	*Nitzschia frustulum*	7003		3403	209	133						137		
diatoms	*Nitzschia gracilis*						3876							
diatoms	*Nitzschia heufleriana*									955				752
diatoms	*Nitzschia inconspicua*	294120	467	4254		266	7753	2045434	117284		5136		1683	2257
diatoms	*Nitzschia liebetruthii*													3762
diatoms	*Nitzschia linearis*			851		133	3876			2866	2568			752
diatoms	*Nitzschia microcephala*		156											
diatoms	*Nitzschia palea*	7003	156	1701			11629		33510		7703			3009
diatoms	*Nitzschia paleacea*			851										
diatoms	*Nitzschia perminuta*		156	1701					33510	5731	2568		421	2257
diatoms	*Nitzschia recta*										2568			
diatoms	*Nitzschia sigma*								16755					
diatoms	*Nitzschia sociabilis*	14006					3876							2257
diatoms	*Nitzschia solita*						3876							
diatoms	*Nitzschia sublinearis*					133								
diatoms	*Nitzschia valdestriata*											137		
diatoms	*Nitzschia vermicularis*									1910				752

Algal densities (#/cm²) Tetra Tech 2012 Determinations by Rhithron Associates, Inc.	Rhithron identifier	TT12RPP001	TT12RPP002	TT12RPP003	TT12RPP004	TT12RPP005	TT12RPP006	TT12RPP007	TT12RPP008	TT12RPP009	TT12RPP010	TT12RPP011	TT12RPP012	TT12RPP013
	Sampling date	7/26/2012	7/24/2012	7/31/2012	8/2/2012	7/24/2012	7/31/2012	7/25/2012	7/25/2012	8/1/2012	7/25/2012	8/2/2012	8/1/2012	8/1/2012
	Site name	Squalicum Cre West St	Squalicum Cr Upper	168th Way	@242 2nd St	Squalicum Cr below SR542	SR 58 crossing Kent De Moines Rd.	Squalicum Cr below Hannegan Rd	Squalicum Cr above Cornwall Park	@148 Ave SE	Baker Creek	@242nd St	@ 164th Ave SE	Near SR 58
	Site identifier	SQ-1	SQ-6	CC-1	BS-3	SQ-5	CC-2	SQ-4	SQ-3	BS-1	SQ-2	BS-3 Dup	LS-1	BS-2
Group	Taxon													
diatoms	*Pinnularia*				628				16755			137	421	
diatoms	*Pinnularia obscura*				419		3876							
diatoms	*Placoneis elginensis*													1505
diatoms	*Planothidium*										7703		841	
diatoms	*Planothidium dubium*			851										
diatoms	*Planothidium frequentissimum*	77031	933	1701				35388	1139330	18149	12839		1262	1505
diatoms	*Planothidium haynaldii*				209	133								
diatoms	*Planothidium lanceolatum*	14006	1089	1701	419	1332	15506	28311	100529	21014	15407	821		12037
diatoms	*Planothidium oestrupii*													1505
diatoms	*Planothidium peragalli*						7753							
diatoms	*Planothidium rostratum*													1505
diatoms	*Psammothidium*				209					955			421	752
diatoms	*Psammothidium daonense*			851	209									
diatoms	*Psammothidium rossii*			851										
diatoms	*Psammothidium subatomoides*											137		
diatoms	*Pseudostaurosira brevistriata*		156											
diatoms	*Pseudostaurosira parasitica*					133				2866				2257
diatoms	*Pseudostaurosira pseudoconstruens*			851										
diatoms	*Pseudostaurosira robusta*												421	2257
diatoms	*Reimeria sinuata*	63026		8507	1256	266	31012	21233	50265	955	46220	1778	421	8276
diatoms	*Rhoicosphenia abbreviata*	154063	311	1701		1865		169863	351852	31522	5136	137	421	3762
diatoms	*Sellaphora pupula*			851			7753							
diatoms	*Sellaphora seminulum*		311	1701	419		3876		33510	1910				1505
diatoms	*Stauroneis kriegeri*					133						274	841	3009
diatoms	*Stauroneis thermicola*													2257
diatoms	*Staurosira construens v. venter*		778	1701	419	266	11629		301587	2866		410	10096	1505
diatoms	*Staurosirella pinnata*		156	2552	628	133	38764		100529	4776		137	1683	7523
diatoms	*Stephanocyclus*	14006		851			7753			1910	2568			

Algal densities (#/cm²) Tetra Tech 2012 Determinations by Rhithron Associates, Inc.	Rhithron identifier	TT12RPP001	TT12RPP002	TT12RPP003	TT12RPP004	TT12RPP005	TT12RPP006	TT12RPP007	TT12RPP008	TT12RPP009	TT12RPP010	TT12RPP011	TT12RPP012	TT12RPP013
	Sampling date	7/26/2012	7/24/2012	7/31/2012	8/2/2012	7/24/2012	7/31/2012	7/25/2012	7/25/2012	8/1/2012	7/25/2012	8/2/2012	8/1/2012	8/1/2012
	Site name	**Squalicum Cre West St**	**Squalicum Cr Upper**	**168th Way**	**@242 2nd St**	**Squalicum Cr below SR542**	**SR 58 crossing Kent De Moines Rd.**	**Squalicum Cr below Hannegan Rd**	**Squalicum Cr above Cornwall Park**	**@148 Ave SE**	**Baker Creek**	**@242nd St**	**@ 164th Ave SE**	**Near SR 58**
	Site identifier	**SQ-1**	**SQ-6**	**CC-1**	**BS-3**	**SQ-5**	**CC-2**	**SQ-4**	**SQ-3**	**BS-1**	**SQ-2**	**BS-3 Dup**	**LS-1**	**BS-2**
Group	**Taxon**													
	meneghiniana													
diatoms	*Stephanodiscus minutulus*		156			133			284832			137		
diatoms	*Surirella brightwellii*							28311			2568			
diatoms	*Surirella ovalis*													752
diatoms	*Synedra acus*					133								
diatoms	*Synedra ulna*			3403			23259		16755	955	2568			2257
diatoms	*Tabellaria*											137		
diatoms	*Tabellaria fenestrata*												1262	
diatoms	*Tabellaria flocculosa*													752
diatoms	*Thalassiosira pseudonana*												2524	

Table B10. Rhithron periphyton metric values

Tetra Tech 2012 Periphyton Metric Calculations by Rhithron Associates, Inc.		TT12RPP001	TT12RPP002	TT12RPP003	TT12RPP004	TT12RPP005	TT12RPP006	TT12RPP007
		7/26/2012	7/24/2012	7/31/2012	8/2/2012	7/24/2012	7/31/2012	7/25/2012
		Squalicum Cre West St	**Squalicum Cr Upper**	**168th Way**	**272nd St**	**Squalicum Cr below SR542**	**SR 58 crossing Kent De Moines Rd.**	**Squalicum Cr below Hannegan Rd**
		SQ-1	**SQ-6**	**CC-1**	**BS-3**	**SQ-5**	**CC-2**	**SQ-4**
Metric								
Combined metrics:								
Total number of algal divisions		3	4	4	4	3	3	4
Total number of algal genera		15	18	26	19	24	26	12
Total number of algal species		33	31	69	32	44	54	17
Diatom metrics:								
Total number of diatom genera		15	18	26	19	24	26	12
Total number of diatom species		33	31	69	32	44	54	17
Shannon H (log2)		3.39	4.36	4.34	3.28	2.87	4.06	2.56
Pollution Index		2.79	2.48	2.73	2.95	2.85	2.67	2.45
Siltation Taxa Percent		18.50%	15.00%	22.50%	4.33%	7.67%	8.17%	51.67%
Percent live diatoms		59.38%	51.04%	56.80%	32.54%	59.57%	54.24%	64.81%
Valves counted		600	600	600	600	600	600	600
Cells counted		300	300	300	300	300	300	300
Dominant Taxon Percent		29.00%	14.00%	17.17%	29.67%	59.33%	26.83%	48.17%
Pollution Tolerance (% by category)								
	1	1.83%	7.00%	2.33%	1.00%	2.00%	1.17%	1.50%
	2	17.17%	38.00%	22.67%	3.00%	11.00%	31.00%	51.67%
	3	81.00%	55.00%	75.00%	96.00%	87.00%	67.83%	46.83%
Disturbance Taxa Percent		3.17%	7.00%	16.50%	14.00%	4.67%	26.83%	14.33%
Rhopalodiales Percent		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Percent aerophiles		0.33%	15.00%	3.50%	0.67%	2.50%	2.67%	0.00%
Percent centrics		1.50%	15.00%	6.33%	3.33%	3.83%	26.83%	0.00%
Motile Taxa Percent		54.17%	18.00%	25.00%	8.67%	9.00%	11.83%	66.83%
Van Dam diatom metrics (% in each category):								
pH								
	2	0.17%	1.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	3	7.50%	28.00%	28.33%	28.33%	15.00%	40.83%	26.00%
	4	85.83%	59.00%	64.17%	58.33%	21.83%	54.17%	67.17%
	5	0.00%	1.00%	0.33%	0.00%	0.17%	0.00%	0.00%
	6	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	Other	6.50%	11.00%	7.17%	13.33%	63.00%	5.00%	6.83%
Salinity								
	1	0.83%	16.00%	4.00%	1.33%	3.83%	8.67%	1.00%
	2	82.17%	70.00%	86.17%	82.33%	90.17%	80.67%	38.67%
	3	14.33%	7.00%	4.33%	1.00%	2.17%	4.33%	49.50%
	4	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	Other	2.67%	7.00%	5.50%	15.33%	3.83%	6.33%	10.83%
Nitrogen uptake								
	1	0.83%	18.00%	7.00%	2.33%	4.00%	9.83%	1.00%
	2	80.67%	58.00%	73.83%	74.67%	25.83%	58.67%	32.33%

Tetra Tech 2012 Periphyton Metric Calculations by Rhithron Associates, Inc.	TT12RPP001	TT12RPP002	TT12RPP003	TT12RPP004	TT12RPP005	TT12RPP006	TT12RPP007
	7/26/2012	7/24/2012	7/31/2012	8/2/2012	7/24/2012	7/31/2012	7/25/2012
	Squalicum Cre West St	**Squalicum Cr Upper**	**168th Way**	**272nd St**	**Squalicum Cr below SR542**	**SR 58 crossing Kent De Moines Rd.**	**Squalicum Cr below Hannegan Rd**
	SQ-1	**SQ-6**	**CC-1**	**BS-3**	**SQ-5**	**CC-2**	**SQ-4**
Metric							
3	10.17%	8.00%	5.67%	1.00%	1.83%	18.83%	49.67%
4	0.33%	2.00%	1.17%	0.33%	0.17%	0.50%	0.00%
Other	8.00%	14.00%	12.33%	21.67%	68.17%	12.17%	17.00%
Oxygen demand							
1	5.50%	31.00%	26.00%	19.33%	10.50%	40.17%	15.83%
2	39.17%	7.00%	13.50%	3.00%	7.33%	8.67%	14.00%
3	44.33%	41.00%	45.50%	53.67%	11.83%	37.67%	51.00%
4	2.67%	7.00%	2.67%	1.67%	2.17%	1.17%	2.17%
5	0.33%	0.00%	0.17%	0.00%	0.00%	0.33%	0.00%
Other	8.00%	14.00%	12.17%	22.33%	68.17%	12.00%	17.00%
Saprobity							
1	0.83%	17.00%	6.83%	2.33%	3.83%	9.33%	1.00%
2	74.00%	33.00%	71.67%	73.33%	25.17%	54.33%	29.50%
3	13.50%	27.00%	10.00%	1.67%	5.33%	23.83%	50.17%
4	3.83%	11.00%	2.67%	1.00%	1.50%	1.83%	2.33%
5	0.17%	1.00%	0.33%	0.00%	0.00%	0.50%	0.00%
Other	7.67%	11.00%	8.50%	21.67%	64.17%	10.17%	17.00%
Trophic state							
1	5.83%	14.00%	2.00%	1.00%	3.67%	4.67%	5.67%
2	0.00%	1.00%	2.67%	0.00%	0.17%	1.17%	0.00%
3	2.17%	3.00%	4.67%	2.00%	1.33%	6.50%	0.50%
4	3.00%	5.00%	7.83%	3.33%	3.17%	7.17%	0.00%
5	80.50%	46.00%	52.50%	56.33%	20.50%	41.50%	66.33%
6	0.17%	2.00%	0.33%	0.00%	0.17%	0.67%	0.00%
7	5.67%	21.00%	23.17%	20.67%	66.17%	31.83%	16.67%
Other	2.67%	8.00%	6.83%	16.67%	4.83%	6.50%	10.83%
Moisture							
1	3.00%	8.00%	6.50%	1.67%	2.83%	13.00%	0.00%
2	35.67%	29.00%	41.17%	52.67%	13.50%	34.33%	4.67%
3	51.67%	43.00%	38.17%	23.33%	14.33%	40.00%	77.50%
4	0.00%	1.00%	0.83%	0.67%	1.17%	0.17%	0.00%
	0.00%	0.00%	0.00%	0.00%	0.33%	0.00%	0.00%
Other	9.67%	19.00%	13.33%	21.67%	67.83%	12.50%	17.83%
Non-diatom metrics:							
Dominant phylum	Chlorophyta	Cyanophyta	Cyanophyta	Rhodophyta	Rhodophyta	Cyanophyta	Cyanophyta
Percent 5 dominant genera	100.00%	86.99%	100.00%	100.00%	100.00%	100.00%	100.00%
Percent 10 dominant genera	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Total number of genera (within each non-diatom algal division)							
Chlorophyta	2	3	2	1	0	0	1
Chrysophyta	0	1	0	0	0	0	0
Cyanophyta	3	4	2	2	3	3	2
Rhodophyta	0	0	1	1	1	1	1
Total number of non-diatom genera	5	8	5	4	4	4	4

Tetra Tech 2012 Periphyton Metric Calculations by Rhithron Associates, Inc.	TT12RPP001	TT12RPP002	TT12RPP003	TT12RPP004	TT12RPP005	TT12RPP006	TT12RPP007
	7/26/2012	7/24/2012	7/31/2012	8/2/2012	7/24/2012	7/31/2012	7/25/2012
	Squalicum Cre West St	**Squalicum Cr Upper**	**168th Way**	**272nd St**	**Squalicum Cr below SR542**	**SR 58 crossing Kent De Moines Rd.**	**Squalicum Cr below Hannegan Rd**
	SQ-1	**SQ-6**	**CC-1**	**BS-3**	**SQ-5**	**CC-2**	**SQ-4**
Metric							
Other metrics:							
Abnormal Cells Percent	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Acidophilous Taxa Percent	0.17%	1.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Cosmopolitan Taxa Percent	92.00%	72.00%	87.50%	75.67%	30.83%	85.00%	82.67%
Eutraphentic Taxa Percent	80.67%	48.00%	52.83%	56.33%	20.67%	42.17%	66.33%
Low DO Taxa Percent	3.00%	7.00%	2.83%	1.67%	2.17%	1.50%	2.17%
Metals Tolerant Taxa Percent	2.50%	29.00%	10.17%	1.67%	5.50%	7.83%	2.17%
Mountains Brackish Taxa Percent	83.00%	86.00%	90.17%	83.67%	94.00%	89.33%	39.67%
Mountains Rare Taxa Percent	1.17%	0.00%	0.00%	7.67%	0.17%	1.67%	10.17%
Native Taxa Percent	1.17%	4.00%	2.17%	13.33%	60.00%	2.00%	11.67%
Nitrogen Autotroph Taxa Percent	81.50%	76.00%	80.83%	77.00%	29.83%	68.50%	33.33%
Nitrogen Heterotroph Taxa Percent	10.50%	10.00%	6.83%	1.33%	2.00%	19.33%	49.67%
Plains Brackish Taxa Percent	0.83%	16.00%	4.00%	1.33%	3.83%	8.67%	1.00%
Plains Rare Taxa Percent	0.00%	4.00%	1.67%	5.67%	59.33%	4.00%	1.50%
Polysaprobous Taxa Percent	17.50%	39.00%	13.00%	2.67%	6.83%	26.17%	52.50%

Table B11. Rhithron periphyton metric values continued

TT12RPP008	TT12RPP009	TT12RPP010	TT12RPP011	TT12RPP012	TT12RPP013
7/25/2012	8/1/2012	7/25/2012	8/2/2012	8/1/2012	8/1/2012
Squalicum Cr above Cornwall Park	**@148 Ave SE**	**Baker Creek**	**@242nd St**	**@ 164th Ave SE**	**Near SR 58**
SQ-3	**BS-1**	**SQ-2**	**BS-3 Dup**	**LS-1**	**BS-2**
3	3	4	3	3	3
26	23	15	23	26	35
55	45	35	46	42	77
26	23	15	23	26	35
55	45	35	46	42	77
4.15	4.41	1.70	2.64	4.09	4.82
2.22	2.28	2.91	2.90	2.76	2.73
24.17%	29.67%	4.67%	3.67%	10.67%	25.17%
34.30%	60.42%	38.39%	33.89%	51.22%	49.10%
600	600	600	600	600	600
300	300	300	300	300	300
30.67%	19.33%	78.67%	59.33%	16.67%	18.67%
7.50%	23.00%	0.67%	1.83%	3.00%	1.33%
62.67%	26.33%	8.17%	6.33%	18.33%	24.33%
29.83%	50.67%	91.17%	91.83%	78.67%	74.33%
0.33%	5.33%	1.00%	3.17%	16.33%	11.33%
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2.17%	2.67%	0.83%	1.17%	2.67%	3.17%
34.00%	4.00%	2.17%	2.17%	5.67%	6.67%
25.50%	35.00%	9.50%	7.50%	17.33%	31.00%
0.17%	1.33%	0.00%	0.83%	1.00%	0.33%
13.50%	15.33%	5.50%	10.50%	47.33%	23.17%
71.67%	79.00%	92.33%	73.83%	45.67%	63.50%
2.83%	0.00%	0.33%	0.17%	0.00%	0.00%
0.00%	0.00%	0.00%	0.17%	0.00%	0.00%
11.83%	4.33%	1.83%	14.50%	6.00%	13.00%
0.67%	4.67%	0.17%	2.33%	6.00%	3.83%
87.17%	91.33%	94.67%	91.67%	67.00%	81.17%
4.67%	1.33%	4.00%	1.17%	5.33%	7.67%
0.50%	0.00%	0.00%	0.17%	0.00%	0.33%
7.00%	2.67%	1.17%	4.67%	21.67%	7.00%
5.17%	7.33%	1.00%	2.00%	10.00%	5.33%
36.83%	58.33%	93.50%	77.33%	56.33%	71.50%
38.17%	25.00%	2.67%	2.17%	8.00%	4.83%
0.33%	0.00%	0.67%	0.17%	0.00%	0.67%
19.50%	9.33%	2.17%	18.33%	25.67%	17.67%
10.33%	14.33%	5.00%	8.00%	36.00%	21.00%
9.17%	20.00%	4.67%	3.17%	21.67%	15.00%
53.00%	32.67%	86.67%	68.00%	13.33%	42.00%
8.00%	23.67%	1.33%	2.67%	3.33%	4.50%
0.00%	0.67%	0.17%	0.00%	0.00%	0.00%
19.50%	8.67%	2.17%	18.17%	25.67%	17.50%
5.83%	7.67%	1.00%	2.33%	9.33%	4.83%
19.00%	45.00%	89.83%	76.50%	57.67%	61.17%
41.67%	11.67%	5.33%	2.33%	6.00%	16.67%
17.83%	30.33%	1.33%	1.83%	4.00%	1.67%
0.33%	0.00%	0.50%	0.00%	0.00%	0.67%
15.33%	5.33%	2.00%	17.00%	23.00%	15.00%
0.33%	3.67%	1.00%	1.50%	4.00%	3.50%
0.67%	2.33%	0.17%	0.50%	5.67%	1.50%
9.50%	0.33%	3.33%	3.33%	17.33%	3.67%
5.00%	6.00%	1.33%	1.17%	9.67%	5.67%
49.00%	63.00%	89.67%	72.67%	18.00%	53.83%
3.17%	0.67%	0.50%	0.17%	2.00%	0.83%
23.50%	18.00%	2.83%	15.33%	20.67%	23.67%
8.83%	6.00%	1.17%	5.33%	22.67%	7.33%
7.17%	3.67%	2.33%	1.83%	29.67%	5.33%
42.00%	34.33%	83.83%	68.17%	7.33%	35.67%
18.00%	47.33%	10.33%	11.67%	30.67%	41.33%
4.33%	1.33%	0.67%	0.67%	0.33%	0.67%
0.00%	0.00%	0.00%	0.33%	0.00%	0.17%
28.50%	13.33%	2.83%	17.33%	32.00%	16.83%

TT12RPP008	TT12RPP009	TT12RPP010	TT12RPP011	TT12RPP012	TT12RPP013
7/25/2012	8/1/2012	7/25/2012	8/2/2012	8/1/2012	8/1/2012
Squalicum Cr above Cornwall Park	**@148 Ave SE**	**Baker Creek**	**@242nd St**	**@ 164th Ave SE**	**Near SR 58**
SQ-3	**BS-1**	**SQ-2**	**BS-3 Dup**	**LS-1**	**BS-2**
Cyanophyta	Cyanophyta	Cyanophyta	Rhodophyta	Rhodophyta	Cyanophyta
100.00%	92.86%	100.00%	100.00%	99.60%	92.96%
100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
0	0	2	0	0	0
0	0	0	0	0	0
2	5	1	4	3	5
1	1	1	1	1	1
3	6	4	5	4	6
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
0.17%	1.33%	0.00%	0.83%	1.00%	0.33%
80.50%	86.67%	97.00%	80.83%	66.67%	78.17%
52.17%	63.67%	90.17%	72.83%	20.00%	54.67%
8.00%	24.33%	1.50%	2.67%	3.33%	4.50%
10.00%	31.67%	2.17%	3.50%	10.00%	7.17%
87.83%	96.00%	94.83%	94.00%	73.00%	85.00%
2.33%	0.00%	0.17%	2.00%	16.67%	1.67%
9.50%	0.00%	0.83%	13.67%	18.00%	9.17%
42.00%	65.67%	94.50%	79.33%	66.33%	76.83%
38.50%	25.00%	3.33%	2.33%	8.00%	5.50%
0.67%	4.67%	0.17%	2.33%	6.00%	3.83%
7.17%	0.00%	0.33%	11.67%	0.67%	7.00%
59.83%	42.00%	7.17%	4.17%	10.00%	19.00%

Table B12. Rhithron periphyton raw counts

Project_ID	Sample_ID	Taxon	Count	Portion	Sample_Station_Name	Sample_Date_Collected	Sample_Client_ID
TT12RPP	TT12RPP001	Cladophora	4	Algae	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Diatoms	152	Algae	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Empty diatom cells	104	Algae	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Homeothrix	26	Algae	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Komvophoron	8	Algae	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Phormidium	4	Algae	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Stigeoclonium	106	Algae	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Achnanthidium minutissimum	19	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Achnanthidium rivulare	7	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Amphora inariensis	30	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Amphora pediculus	174	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Cocconeis pediculus	13	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Cocconeis placentula	20	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Cocconeis placentula v. lineata	159	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Eolimna minima	10	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Fragilaria capucina	1	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Fragilaria crotonensis	3	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Fragilaria vaucheriae	1	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Frustulia amphipleuroides	1	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Gomphonema	2	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Karayevia laterostrata	4	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Melosira varians	7	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Meridion circulare v. constrictum	2	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Navicula	3	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Navicula cryptocephala	2	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Navicula cryptotenelloides	4	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Navicula gregaria	5	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Navicula lanceolata	21	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Navicula recens	1	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Navicula tripunctata	1	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Nitzschia dissipata	18	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Nitzschia frustulum	1	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Nitzschia inconspicua	42	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Nitzschia palea	1	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Nitzschia sociabilis	2	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Planothidium frequentissimum	11	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Planothidium lanceolatum	2	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Reimeria sinuata	9	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Rhoicosphenia abbreviata	22	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP001	Stephanocyclus meneghiniana	2	Diatoms	Squalicum Cre West St	7/26/2012	SQ-1
TT12RPP	TT12RPP002	Chamaesiphon	49	Algae	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Diatoms	49	Algae	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Empty diatom cells	47	Algae	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Heteroleibleinia	55	Algae	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Homeothrix	34	Algae	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Phormidium	26	Algae	Squalicum Cr Upper	7/24/2012	SQ-6

Project_ID	Sample_ID	Taxon	Count	Portion	Sample_Station_Name	Sample_Date_Collected	Sample_Client_ID
TT12RPP	TT12RPP002	Stigeoclonium	50	Algae	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Tribonema	19	Algae	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Ulothrix	12	Algae	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Unknown Green Spherical	1	Algae	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Achnanthidium minutissimum	42	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Amphora pediculus	18	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Aulacoseira crenulata	84	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Cocconeis pediculus	6	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Cocconeis placentula	36	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Cocconeis placentula v. lineata	18	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Encyonema silesiacum	6	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Eolimna minima	18	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Eunotia minor	6	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Fragilaria bidens	6	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Fragilaria capucina	12	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Fragilaria vaucheriae	78	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Gomphonema	30	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Gomphonema kobayasii	24	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Meridion circulare v. constrictum	6	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Navicula	6	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Navicula gregaria	6	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Nitzschia	6	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Nitzschia acidoclinata	6	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Nitzschia inconspicua	18	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Nitzschia microcephala	6	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Nitzschia palea	6	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Nitzschia perminuta	6	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Planothidium frequentissimum	36	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Planothidium lanceolatum	42	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Pseudostaurosira brevistriata	6	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Rhoicosphenia abbreviata	12	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Sellaphora seminulum	12	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Staurosira construens v. venter	30	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Staurosirella pinnata	6	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP002	Stephanodiscus minutulus	6	Diatoms	Squalicum Cr Upper	7/24/2012	SQ-6
TT12RPP	TT12RPP003	Audouinella	6	Algae	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Diatoms	142	Algae	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Empty diatom cells	108	Algae	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Monoraphidium	7	Algae	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Oscillatoria	46	Algae	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Phormidium	87	Algae	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Stigeoclonium	12	Algae	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Achnanthes conspicua	3	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Achnanthidium	2	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Achnanthidium affine	1	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Achnanthidium deflexum	2	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Achnanthidium minutissimum	99	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Achnanthidium pyrenaicum	4	Diatoms	168th Way	7/31/2012	CC-1

Project_ID	Sample_ID	Taxon	Count	Portion	Sample_Station_Name	Sample_Date_Collected	Sample_Client_ID
TT12RPP	TT12RPP003	Amphora pediculus	5	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Aulacoseira ambigua	1	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Aulacoseira crenulata	1	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Cocconeis neodiminuta	2	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Cocconeis pediculus	3	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Cocconeis placentula	103	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Cocconeis placentula v. lineata	103	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Cyclotella bodanica v. lemanica	9	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Cyclotella ocellata	7	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Cymbella affiniformis	1	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Diadesmis contenta	2	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Diatoma	1	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Diatoma tenuis	1	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Diatoma vulgaris	1	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Encyonema silesiacum	6	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Eolimna minima	3	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Fallacia tenera	1	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Fragilaria bicapitata	2	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Fragilaria capucina	11	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Fragilaria capucina v. gracilis	14	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Fragilaria crotonensis	1	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Fragilaria pseudoconstruens	1	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Fragilaria vaucheriae	15	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Geissleria acceptata	1	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Gomphoneis	1	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Gomphonema	2	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Gomphonema angustatum	2	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Gomphonema kobayasii	8	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Gomphonema parvulum	4	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Melosira varians	19	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Navicula	1	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Navicula capitatoradiata	2	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Navicula cryptocephala	1	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Navicula cryptotenella	8	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Navicula cryptotenelloides	20	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Navicula dealpina	1	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Navicula gregaria	4	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Navicula lanceolata	3	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Navicula medioconvexa	2	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Navicula rhynchocephala	1	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Navicula tenelloides	2	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Navicula tripunctata	27	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Nitzschia archibaldii	1	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Nitzschia dissipata	35	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Nitzschia fossilis	2	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Nitzschia frustulum	4	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Nitzschia inconspicua	5	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Nitzschia linearis	1	Diatoms	168th Way	7/31/2012	CC-1

Project_ID	Sample_ID	Taxon	Count	Portion	Sample_Station_Name	Sample_Date_Collected	Sample_Client_ID
TT12RPP	TT12RPP003	Nitzschia palea	2	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Nitzschia paleacea	1	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Nitzschia perminuta	2	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Planothidium dubium	1	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Planothidium frequentissimum	2	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Planothidium lanceolatum	2	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Psammothidium daonense	1	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Psammothidium rossii	1	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Pseudostaurosira pseudoconstruens	1	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Reimeria sinuata	10	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Rhoicosphenia abbreviata	2	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Sellaphora pupula	1	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Sellaphora seminulum	2	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Staurosira construens v. venter	2	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Staurosirella pinnata	3	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Stephanocyclus meneghiniana	1	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP003	Synedra ulna	4	Diatoms	168th Way	7/31/2012	CC-1
TT12RPP	TT12RPP004	Audouinella	198	Algae	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Chamaesiphon	4	Algae	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Diatoms	41	Algae	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Empty diatom cells	85	Algae	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Nostoc	43	Algae	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Stigeoclonium	28	Algae	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Achnanthidium minutissimum	84	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Achnanthidium rivulare	46	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Amphora pediculus	4	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Aulacoseira	6	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Aulacoseira crenulata	2	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Aulacoseira italica	10	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Cocconeis placentula	136	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Cocconeis placentula v. lineata	178	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Cyclotella bodanica v. lemanensis	2	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Eolimna minima	2	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Eunotia	16	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Eunotia bilunaris v. mucophila	2	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Fragilaria	2	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Geissleria decussis	4	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Gomphonema	10	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Gomphonema kobayasii	34	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Navicula capitatoradiata	2	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Navicula gregaria	4	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Navicula medioconvexa	4	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Navicula tripunctata	2	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Nitzschia dissipata	2	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Nitzschia frustulum	2	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Pinnularia	6	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Pinnularia obscura	4	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Planothidium haynaldii	2	Diatoms	@242 2nd St	8/2/2012	BS-3

Project_ID	Sample_ID	Taxon	Count	Portion	Sample_Station_Name	Sample_Date_Collected	Sample_Client_ID
TT12RPP	TT12RPP004	Planothidium lanceolatum	4	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Psammothidium	2	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Psammothidium daonense	2	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Reimeria sinuata	12	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Sellaphora seminulum	4	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Staurosira construens v. venter	4	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP004	Staurosirella pinnata	6	Diatoms	@242 2nd St	8/2/2012	BS-3
TT12RPP	TT12RPP005	Audouinella	195	Algae	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Chamaesiphon	7	Algae	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Diatoms	56	Algae	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Empty diatom cells	38	Algae	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Homeothrix	35	Algae	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Spirulina	8	Algae	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Achnanthidium minutissimum	28	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Achnanthidium rivulare	1	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Amphora pediculus	4	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Asterionella formosa	10	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Aulacoseira	2	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Aulacoseira crenulata	20	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Cocconeis placentula	21	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Cocconeis placentula v. lineata	23	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Diadesmis contenta	6	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Diadesmis perpusilla	2	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Encyonema silesiacum	4	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Eolimna minima	9	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Eunotia	3	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Fragilaria	3	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Fragilaria capucina	6	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Fragilaria capucina v. gracilis	1	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Fragilaria vaucheriae	3	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Gomphonema	6	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Gomphonema kobayasii	356	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Gomphonema micropus	7	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Gomphonema minutum	18	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Gomphonema rhombicum	2	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Hantzschia amphioxys	1	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Mayamaea agrestis	3	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Meridion circulare	1	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Navicula	4	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Navicula gregaria	4	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Navicula lanceolata	6	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Navicula ventralis	3	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Nitzschia dissipata	4	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Nitzschia frustulum	1	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Nitzschia inconspicua	2	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Nitzschia linearis	1	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Nitzschia sublinearis	1	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Planothidium haynaldii	1	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5

Project_ID	Sample_ID	Taxon	Count	Portion	Sample_Station_Name	Sample_Date_Collected	Sample_Client_ID
TT12RPP	TT12RPP005	Planothidium lanceolatum	10	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Pseudostaurosira parasitica	1	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Reimeria sinuata	2	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Rhoicosphenia abbreviata	14	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Stauroneis kriegeri	1	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Staurosira construens v. venter	2	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Staurosirella pinnata	1	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Stephanodiscus minutulus	1	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP005	Synedra acus	1	Diatoms	Squalicum Cr below SR542	7/24/2012	SQ-5
TT12RPP	TT12RPP006	Audouinella	20	Algae	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Chamaesiphon	63	Algae	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Diatoms	96	Algae	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Empty diatom cells	81	Algae	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Phormidium	122	Algae	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Pseudanabaena	16	Algae	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Achnanthidium deflexum	22	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Achnanthidium minutissimum	161	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Achnanthidium rivulare	9	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Amphora pediculus	13	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Aulacoseira	5	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Aulacoseira crenulata	7	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Aulacoseira italica	3	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Cocconeis pediculus	17	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Cocconeis placentula	14	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Cocconeis placentula v. lineata	64	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Cyclotella bodanica v. lemanensis	16	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Cyclotella ocellata	22	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Cymbella neocistula	3	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Cymbella subturgidula	1	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Diatoma	2	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Diatoma tenuis	1	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Encyonema prostratum	1	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Encyonema silesiacum	11	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Encyonopsis subminuta	1	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Eolimna minima	2	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Eucocconeis laevis	2	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Eunotia	1	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Fragilaria capucina	8	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Fragilaria capucina v. gracilis	6	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Fragilaria vaucheriae	12	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Gomphoneis minuta	2	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Gomphonema	2	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Gomphonema olivaceoides	1	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Karayevia laterostrata	1	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Lemnicola hungarica	1	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Melosira varians	106	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Navicula capitatoradiata	4	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Navicula cryptotenella	3	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2

Project_ID	Sample_ID	Taxon	Count	Portion	Sample_Station_Name	Sample_Date_Collected	Sample_Client_ID
TT12RPP	TT12RPP006	Navicula cryptotenelloides	11	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Navicula radiosa	1	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Navicula tripunctata	4	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Nitzschia	1	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Nitzschia dissipata	11	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Nitzschia gracilis	1	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Nitzschia inconspicua	2	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Nitzschia linearis	1	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Nitzschia palea	3	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Nitzschia sociabilis	1	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Nitzschia solita	1	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Pinnularia obscura	1	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Planothidium lanceolatum	4	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Planothidium peragalli	2	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Reimeria sinuata	8	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Sellaphora pupula	2	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Sellaphora seminulum	1	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Staurosira construens v. venter	3	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Staurosirella pinnata	10	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Stephanocyclus meneghiniana	2	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP006	Synedra ulna	6	Diatoms	SR 58 crossing Kent De Moines Rd.	7/31/2012	CC-2
TT12RPP	TT12RPP007	Audouinella	23	Algae	Squalicum Cr blw Hannegan Rd	7/25/2012	SQ-4
TT12RPP	TT12RPP007	Diatoms	186	Algae	Squalicum Cr blw Hannegan Rd	7/25/2012	SQ-4
TT12RPP	TT12RPP007	Empty diatom cells	101	Algae	Squalicum Cr blw Hannegan Rd	7/25/2012	SQ-4
TT12RPP	TT12RPP007	Homeothrix	38	Algae	Squalicum Cr blw Hannegan Rd	7/25/2012	SQ-4
TT12RPP	TT12RPP007	Phormidium	56	Algae	Squalicum Cr blw Hannegan Rd	7/25/2012	SQ-4
TT12RPP	TT12RPP007	Scenedesmus	4	Algae	Squalicum Cr blw Hannegan Rd	7/25/2012	SQ-4
TT12RPP	TT12RPP007	Achnanthidium minutissimum	86	Diatoms	Squalicum Cr blw Hannegan Rd	7/25/2012	SQ-4
TT12RPP	TT12RPP007	Achnanthidium rivulare	61	Diatoms	Squalicum Cr blw Hannegan Rd	7/25/2012	SQ-4
TT12RPP	TT12RPP007	Amphora inariensis	28	Diatoms	Squalicum Cr blw Hannegan Rd	7/25/2012	SQ-4
TT12RPP	TT12RPP007	Amphora pediculus	60	Diatoms	Squalicum Cr blw Hannegan Rd	7/25/2012	SQ-4
TT12RPP	TT12RPP007	Cocconeis placentula	1	Diatoms	Squalicum Cr blw Hannegan Rd	7/25/2012	SQ-4
TT12RPP	TT12RPP007	Cocconeis placentula v. lineata	3	Diatoms	Squalicum Cr blw Hannegan Rd	7/25/2012	SQ-4
TT12RPP	TT12RPP007	Eolimna minima	9	Diatoms	Squalicum Cr blw Hannegan Rd	7/25/2012	SQ-4
TT12RPP	TT12RPP007	Gomphonema kobayasii	9	Diatoms	Squalicum Cr blw Hannegan Rd	7/25/2012	SQ-4
TT12RPP	TT12RPP007	Karayevia laterostrata	6	Diatoms	Squalicum Cr blw Hannegan Rd	7/25/2012	SQ-4
TT12RPP	TT12RPP007	Navicula gregaria	4	Diatoms	Squalicum Cr blw Hannegan Rd	7/25/2012	SQ-4
TT12RPP	TT12RPP007	Navicula lanceolata	4	Diatoms	Squalicum Cr blw Hannegan Rd	7/25/2012	SQ-4
TT12RPP	TT12RPP007	Nitzschia inconspicua	289	Diatoms	Squalicum Cr blw Hannegan Rd	7/25/2012	SQ-4
TT12RPP	TT12RPP007	Planothidium frequentissimum	5	Diatoms	Squalicum Cr blw Hannegan Rd	7/25/2012	SQ-4
TT12RPP	TT12RPP007	Planothidium lanceolatum	4	Diatoms	Squalicum Cr blw Hannegan Rd	7/25/2012	SQ-4
TT12RPP	TT12RPP007	Reimeria sinuata	3	Diatoms	Squalicum Cr blw Hannegan Rd	7/25/2012	SQ-4
TT12RPP	TT12RPP007	Rhoicosphenia abbreviata	24	Diatoms	Squalicum Cr blw Hannegan Rd	7/25/2012	SQ-4
TT12RPP	TT12RPP007	Surirella brightwellii	4	Diatoms	Squalicum Cr blw Hannegan Rd	7/25/2012	SQ-4
TT12RPP	TT12RPP008	Audouinella	18	Algae	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Calothrix	25	Algae	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Diatoms	95	Algae	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Empty diatom cells	182	Algae	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3

Project_ID	Sample_ID	Taxon	Count	Portion	Sample_Station_Name	Sample_Date_Collected	Sample_Client_ID
TT12RPP	TT12RPP008	Phormidium	163	Algae	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Achnanthidium affine	2	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Achnanthidium minutissimum	2	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Achnanthidium rivulare	14	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Amphora pediculus	2	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Asterionella formosa	1	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Aulacoseira	2	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Aulacoseira crenulata	1	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Cocconeis placentula	5	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Cocconeis placentula v. lineata	3	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Ctenophora pulchella	2	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Cymbella	2	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Encyonema silesiacum	2	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Eolimna minima	34	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Eunotia	3	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Fragilaria capucina	7	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Fragilaria capucina v. gracilis	2	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Fragilaria crotonensis	22	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Fragilaria vaucheriae	3	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Frustulia amphipleuroides	1	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Frustulia vulgaris	1	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Gomphonema	5	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Gomphonema kobayasii	43	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Gomphonema minutum	3	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Gomphonema parvulum	2	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Hippodonta capitata	1	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Luticola mutica	1	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Mayamaea agrestis	5	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Melosira varians	184	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Navicula	1	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Navicula cryptocephala	8	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Navicula cryptotenella	11	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Navicula cryptotenelloides	11	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Navicula evanida	25	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Navicula gregaria	8	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Navicula lanceolata	8	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Navicula lenzii	2	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Navicula occulta	2	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Navicula trivialis	2	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Navicula ventralis	2	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Nitzschia	1	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Nitzschia dissipata	9	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Nitzschia inconspicua	7	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Nitzschia palea	2	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Nitzschia perminuta	2	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Nitzschia sigma	1	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Pinnularia	1	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Planothidium frequentissimum	68	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3

Project_ID	Sample_ID	Taxon	Count	Portion	Sample_Station_Name	Sample_Date_Collected	Sample_Client_ID
TT12RPP	TT12RPP008	Planothidium lanceolatum	6	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Reimeria sinuata	3	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Rhoicosphenia abbreviata	21	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Sellaphora seminulum	2	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Staurosira construens v. venter	18	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Staurosirella pinnata	6	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Stephanodiscus minutulus	17	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP008	Synedra ulna	1	Diatoms	Squalicum Cr above Cornwall Park	7/25/2012	SQ-3
TT12RPP	TT12RPP009	Audouinella	68	Algae	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Chamaesiphon	33	Algae	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Diatoms	29	Algae	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Empty diatom cells	19	Algae	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Homeothrix	20	Algae	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Leptolyngbya sp.2	85	Algae	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Phormidium	45	Algae	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Pseudanabaena	29	Algae	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Achnanthes conspicua	8	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Achnanthidium affine	4	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Achnanthidium minutissimum	32	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Amphora inariensis	10	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Amphora pediculus	16	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Aulacoseira	2	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Aulacoseira crenulata	10	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Caloneis bacillum	4	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Cocconeis placentula	54	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Cocconeis placentula v. lineata	36	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Cyclotella bodanica v. lemanensis	2	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Cymbella	2	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Diadesmis confervacea	2	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Eolimna minima	116	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Eunotia	10	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Eunotia minor	8	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Fragilaria capucina v. gracilis	2	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Fragilaria capucina v. mesolepta	6	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Gomphonema angustatum	8	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Gomphonema parvulum	18	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Hippodonta capitata	4	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Lemnicola hungarica	4	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Melosira varians	6	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Navicula cryptocephala	8	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Navicula cryptotenella	6	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Navicula radiosa	2	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Navicula trivialis	2	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Nitzschia archibaldii	2	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Nitzschia dissipata	6	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Nitzschia fonticola	2	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Nitzschia heufleriana	2	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Nitzschia linearis	6	Diatoms	@148 Ave SE	8/1/2012	BS-1

Project_ID	Sample_ID	Taxon	Count	Portion	Sample_Station_Name	Sample_Date_Collected	Sample_Client_ID
TT12RPP	TT12RPP009	Nitzschia perminuta	12	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Nitzschia vermicularis	4	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Planothidium frequentissimum	38	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Planothidium lanceolatum	44	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Psammothidium	2	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Pseudostaurosira parasitica	6	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Reimeria sinuata	2	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Rhoicosphenia abbreviata	66	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Sellaphora seminulum	4	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Staurosira construens v. venter	6	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Staurosirella pinnata	10	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Stephanocyclus meneghiniana	4	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP009	Synedra ulna	2	Diatoms	@148 Ave SE	8/1/2012	BS-1
TT12RPP	TT12RPP010	Audouinella	10	Algae	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Diatoms	162	Algae	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Empty diatom cells	260	Algae	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Monoraphidium	1	Algae	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Phormidium	135	Algae	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Spirogyra	2	Algae	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Achnanthes rupestoides	2	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Achnanthidium minutissimum	6	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Achnanthidium rivulare	1	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Amphora inariensis	3	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Amphora pediculus	8	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Cocconeis pediculus	9	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Cocconeis placentula	14	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Cocconeis placentula v. lineata	472	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Diatoma vulgaris	2	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Encyonema silesiacum	1	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Fragilaria vaucheriae	2	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Gomphonema kobayasii	2	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Gomphonema parvulum	1	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Karayevia laterostrata	1	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Melosira varians	12	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Navicula cryptotenella	1	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Navicula evanida	2	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Navicula gregaria	3	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Navicula lanceolata	5	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Navicula maceria	2	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Nitzschia acicularis	1	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Nitzschia dissipata	5	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Nitzschia inconspicua	2	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Nitzschia linearis	1	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Nitzschia palea	3	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Nitzschia perminuta	1	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Nitzschia recta	1	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Planothidium	3	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Planothidium frequentissimum	5	Diatoms	Baker Creek	7/25/2012	SQ-2

Project_ID	Sample_ID	Taxon	Count	Portion	Sample_Station_Name	Sample_Date_Collected	Sample_Client_ID
TT12RPP	TT12RPP010	Planothidium lanceolatum	6	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Reimeria sinuata	18	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Rhoicosphenia abbreviata	2	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Stephanocyclus meneghiniana	1	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Surirella brightwellii	1	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP010	Synedra ulna	1	Diatoms	Baker Creek	7/25/2012	SQ-2
TT12RPP	TT12RPP011	Audouinella	115	Algae	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Chamaesiphon	4	Algae	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Diatoms	102	Algae	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Empty diatom cells	199	Algae	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Oscillatoria	22	Algae	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Phormidium	53	Algae	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Pseudanabaena	4	Algae	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Achnanthidium deflexum	2	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Achnanthidium minutissimum	18	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Achnanthidium minutissimum v. gracillima	1	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Achnanthidium rivulare	12	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Adlafia bryophila	2	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Amphora inariensis	3	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Amphora pediculus	4	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Aulacoseira	3	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Aulacoseira crenulata	3	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Cocconeis pediculus	2	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Cocconeis placentula	41	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Cocconeis placentula v. lineata	356	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Cyclotella bodanica v. lemanensis	3	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Cyclotella ocellata	1	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Eolimna minima	4	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Eunotia	3	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Eunotia bilunaris	1	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Eunotia minor	3	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Fragilaria capucina	2	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Fragilaria capucina v. gracilis	1	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Fragilaria crotonensis	1	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Fragilaria vaucheriae	1	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Gomphonema	4	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Gomphonema angustatum	4	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Gomphonema kobayasii	68	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Gomphonema micropus	2	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Gomphonema parvulum	7	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Melosira varians	2	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Navicula cryptotenella	3	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Navicula cryptotenelloides	4	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Navicula gregaria	4	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Navicula rhynchocephala	1	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Navicula tripunctata	1	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Nitzschia dissipata	1	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Nitzschia frustulum	1	Diatoms	@242nd St	8/2/2012	BS-3 Dup

Project_ID	Sample_ID	Taxon	Count	Portion	Sample_Station_Name	Sample_Date_Collected	Sample_Client_ID
TT12RPP	TT12RPP011	Nitzschia valdestriata	1	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Pinnularia	1	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Planothidium lanceolatum	6	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Psammothidium subatomoides	1	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Reimeria sinuata	13	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Rhoicosphenia abbreviata	1	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Stauroneis kriegeri	2	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Staurosira construens v. venter	3	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Staurosirella pinnata	1	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Stephanodiscus minutulus	1	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP011	Tabellaria	1	Diatoms	@242nd St	8/2/2012	BS-3 Dup
TT12RPP	TT12RPP012	Audouinella	195	Algae	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Diatoms	42	Algae	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Empty diatom cells	40	Algae	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Homeothrix	30	Algae	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Komvophoron	9	Algae	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Leptolyngbya	25	Algae	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Achnanthidium minutissimum	98	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Achnanthidium rivulare	100	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Amphora copulata	4	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Amphora pediculus	24	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Aulacoseira	2	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Cocconeis neodiminuta	2	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Cocconeis placentula v. lineata	38	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Cyclotella bodanica v. lemanensis	18	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Cyclotella ocellata	2	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Diadesmis confervacea	10	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Encyonema silesiacum	4	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Eolimna minima	18	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Eunotia	4	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Eunotia minor	2	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Fragilaria capucina	12	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Fragilaria capucina v. gracilis	26	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Fragilaria crotonensis	90	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Gomphonema	2	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Gomphonema kobayasii	4	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Hantzschia elongata	4	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Karayevia laterostrata	2	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Navicula cryptotenella	2	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Navicula cryptotenelloides	12	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Navicula lanceolata	2	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Navicula rhynchocephala	2	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Navicula tripunctata	2	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Navicula ventralis	2	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Nitzschia dissipata	4	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Nitzschia inconspicua	8	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Nitzschia perminuta	2	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Pinnularia	2	Diatoms	@ 164th Ave SE	8/1/2012	LS-1

Project_ID	Sample_ID	Taxon	Count	Portion	Sample_Station_Name	Sample_Date_Collected	Sample_Client_ID
TT12RPP	TT12RPP012	Planothidium	4	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Planothidium frequentissimum	6	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Psammothidium	2	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Pseudostaurosira robusta	2	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Reimeria sinuata	2	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Rhoicosphenia abbreviata	2	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Stauroneis kriegeri	4	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Staurosira construens v. venter	48	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Staurosirella pinnata	8	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Tabellaria fenestrata	6	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP012	Thalassiosira pseudonana	12	Diatoms	@ 164th Ave SE	8/1/2012	LS-1
TT12RPP	TT12RPP013	Audouinella	18	Algae	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Diatoms	163	Algae	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Empty diatom cells	169	Algae	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Komvophoron	10	Algae	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Leptolyngbya	12	Algae	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Oscillatoria	15	Algae	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Phormidium	28	Algae	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Pseudanabaena	59	Algae	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Achnanthes	1	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Achnanthidium deflexum	3	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Achnanthidium minutissimum	67	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Achnanthidium minutissimum v. gracillima	1	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Achnanthidium rivulare	8	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Adlafia bryophila	1	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Amphora inariensis	7	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Amphora pediculus	9	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Aulacoseira	2	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Aulacoseira crenulata	3	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Aulacoseira granulata	1	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Cocconeis pediculus	2	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Cocconeis placentula	53	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Cocconeis placentula v. lineata	112	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Cyclotella bodanica v. lemanensis	10	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Cyclotella ocellata	4	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Cymbella aspera	1	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Cymbella mexicana	2	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Diadesmis confervacea	2	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Diatoma moniliformis	2	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Encyonema silesiacum	4	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Eolimna minima	1	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Eunotia minor	1	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Fragilaria capucina	4	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Fragilaria capucina v. gracilis	3	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Fragilaria crotonensis	2	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Fragilaria vaucheriae	8	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Gomphoneis minuta	2	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Gomphonema	2	Diatoms	Near SR 58	8/1/2012	BS-2

Project_ID	Sample_ID	Taxon	Count	Portion	Sample_Station_Name	Sample_Date_Collected	Sample_Client_ID
TT12RPP	TT12RPP013	Gomphonema angustatum	1	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Gomphonema kobayasii	37	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Gomphonema minutum	1	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Gomphonema parvulum	1	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Gomphonema rhombicum	1	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Hippodonta capitata	6	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Karayevia laterostrata	1	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Melosira varians	20	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Meridion circulare v. constrictum	4	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Navicula	4	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Navicula aurora	1	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Navicula cryptocephala	3	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Navicula cryptotenella	7	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Navicula cryptotenelloides	6	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Navicula gregaria	18	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Navicula lanceolata	15	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Navicula radiosa	1	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Navicula tripunctata	43	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Neidium ampliatum	1	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Nitzschia	3	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Nitzschia capitellata	1	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Nitzschia dissipata	13	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Nitzschia heufleriana	1	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Nitzschia inconspicua	3	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Nitzschia liebetruthii	5	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Nitzschia linearis	1	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Nitzschia palea	4	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Nitzschia perminuta	3	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Nitzschia sociabilis	3	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Nitzschia vermicularis	1	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Placoneis elginensis	2	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Planothidium frequentissimum	2	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Planothidium lanceolatum	16	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Planothidium oestrupii	2	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Planothidium rostratum	2	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Psammothidium	1	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Pseudostaurosira parasitica	3	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Pseudostaurosira robusta	3	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Reimeria sinuata	11	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Rhoicosphenia abbreviata	5	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Sellaphora seminulum	2	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Stauroneis kriegeri	4	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Stauroneis thermicola	3	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Staurosira construens v. venter	2	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Staurosirella pinnata	10	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Surirella ovalis	1	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Synedra ulna	3	Diatoms	Near SR 58	8/1/2012	BS-2
TT12RPP	TT12RPP013	Tabellaria flocculosa	1	Diatoms	Near SR 58	8/1/2012	BS-2

Appendix C. Squalicum Creek Biometric-Stressor Relationships

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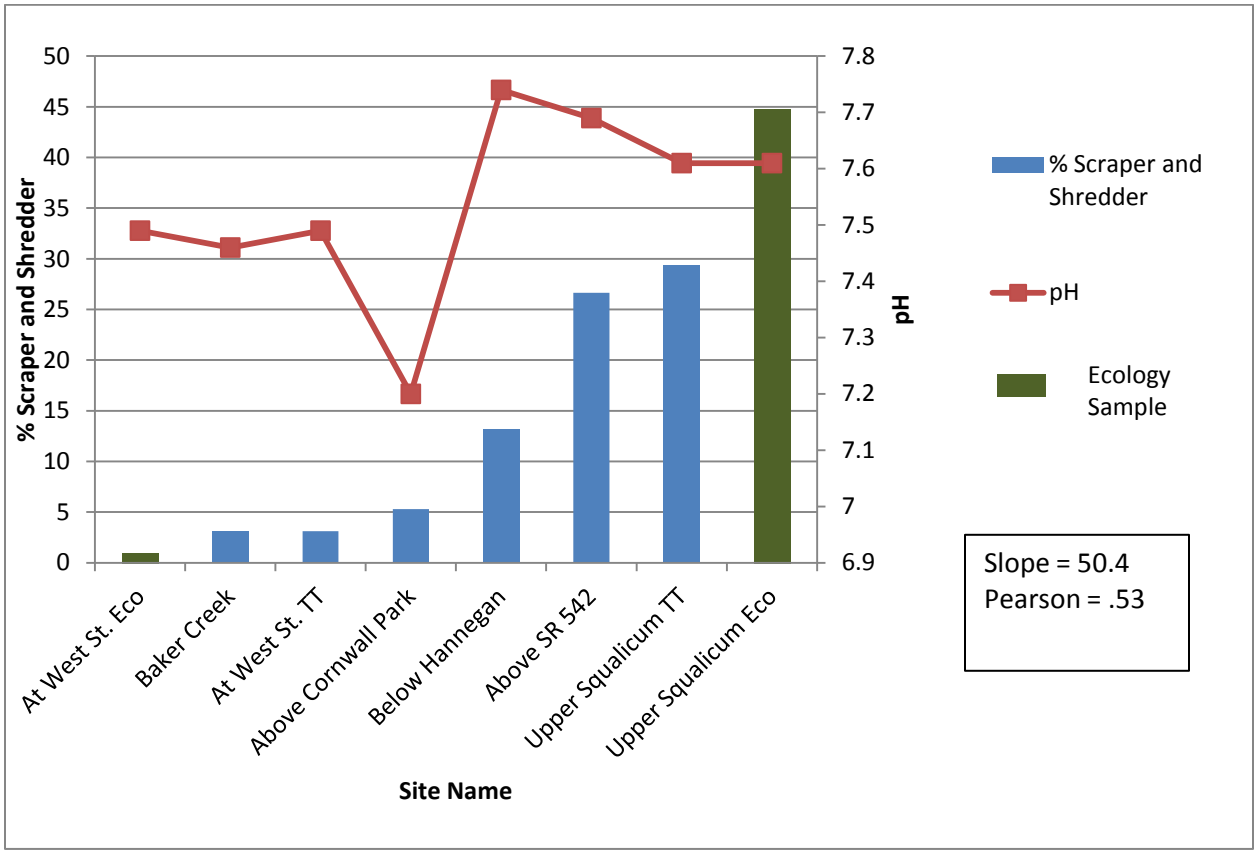

Figure C1. The relationship between pH and % scraper and shredder

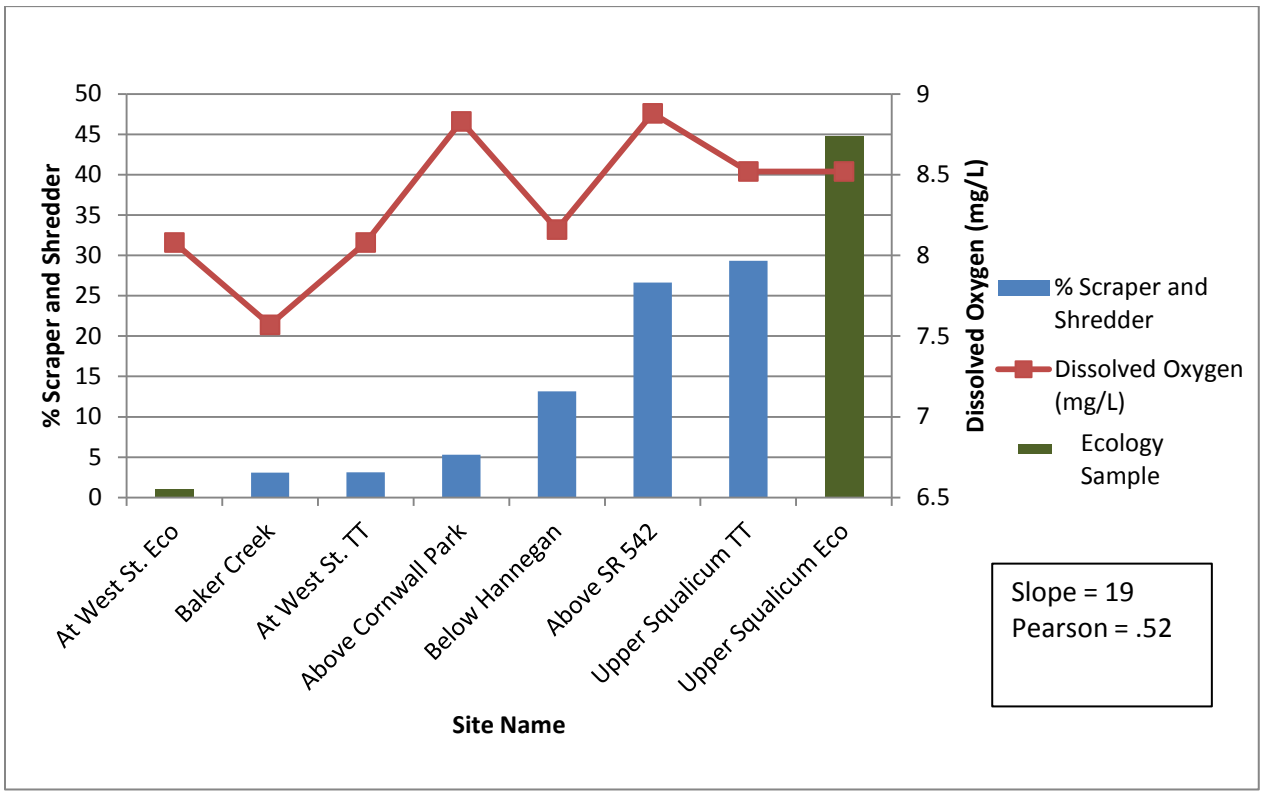

Figure C2. The relationship between dissolved oxygen and % scraper and shredder

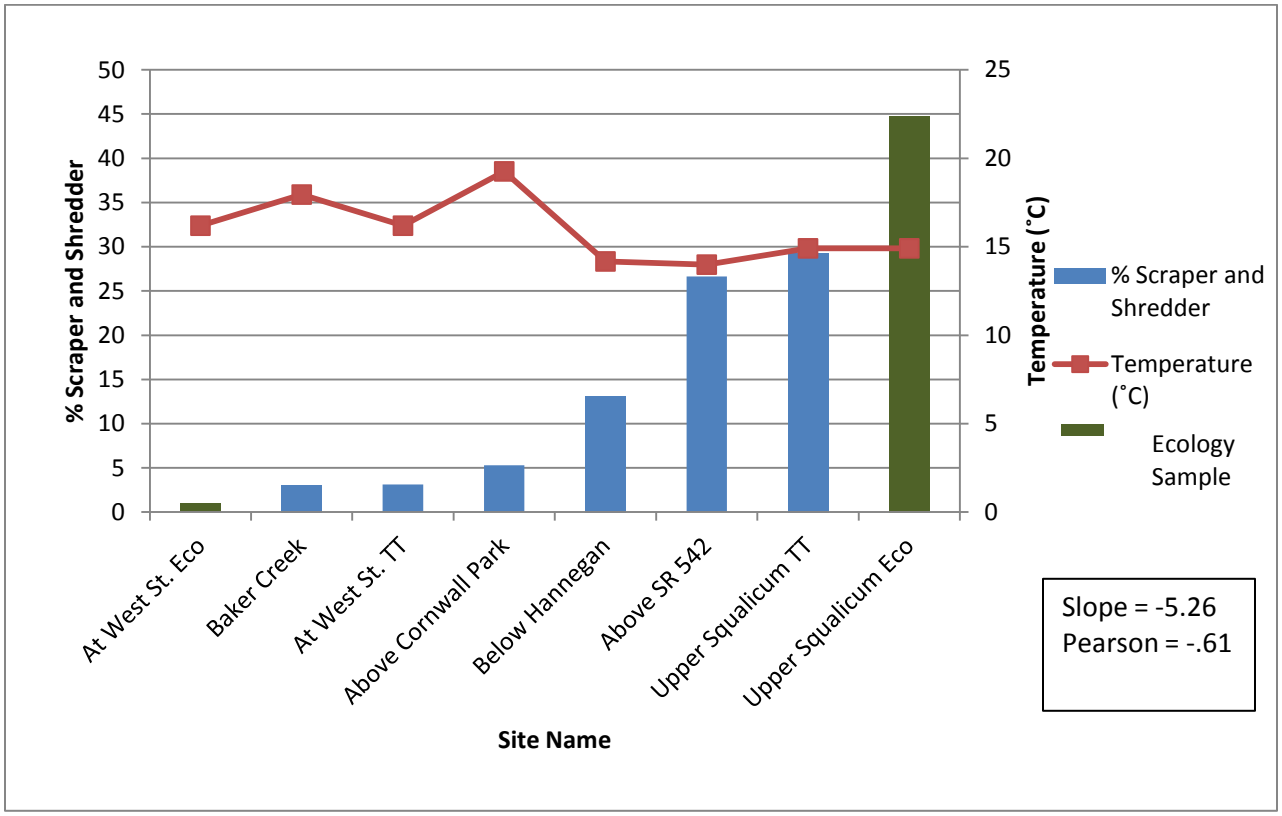

Figure C3. The relationship between temperature and % scraper and shredder

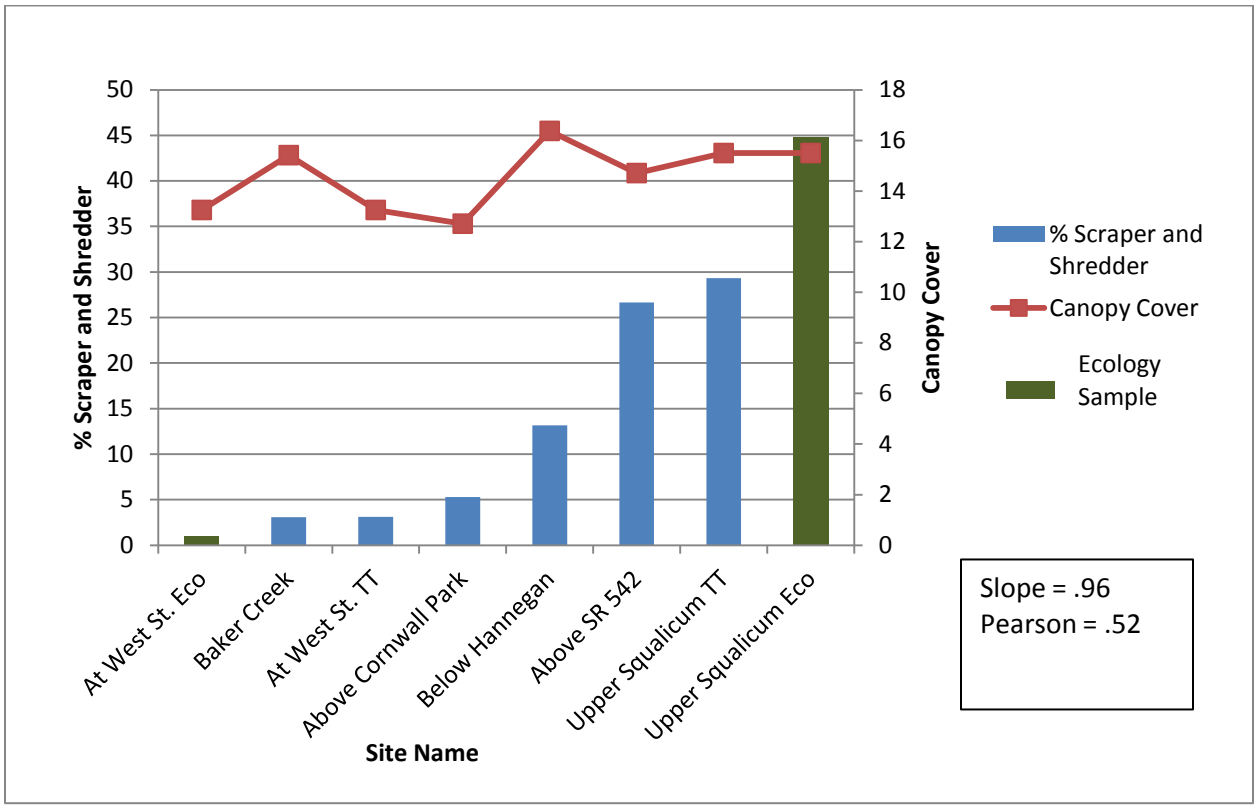

Figure C4. The relationship between canopy cover and % scraper and shredder

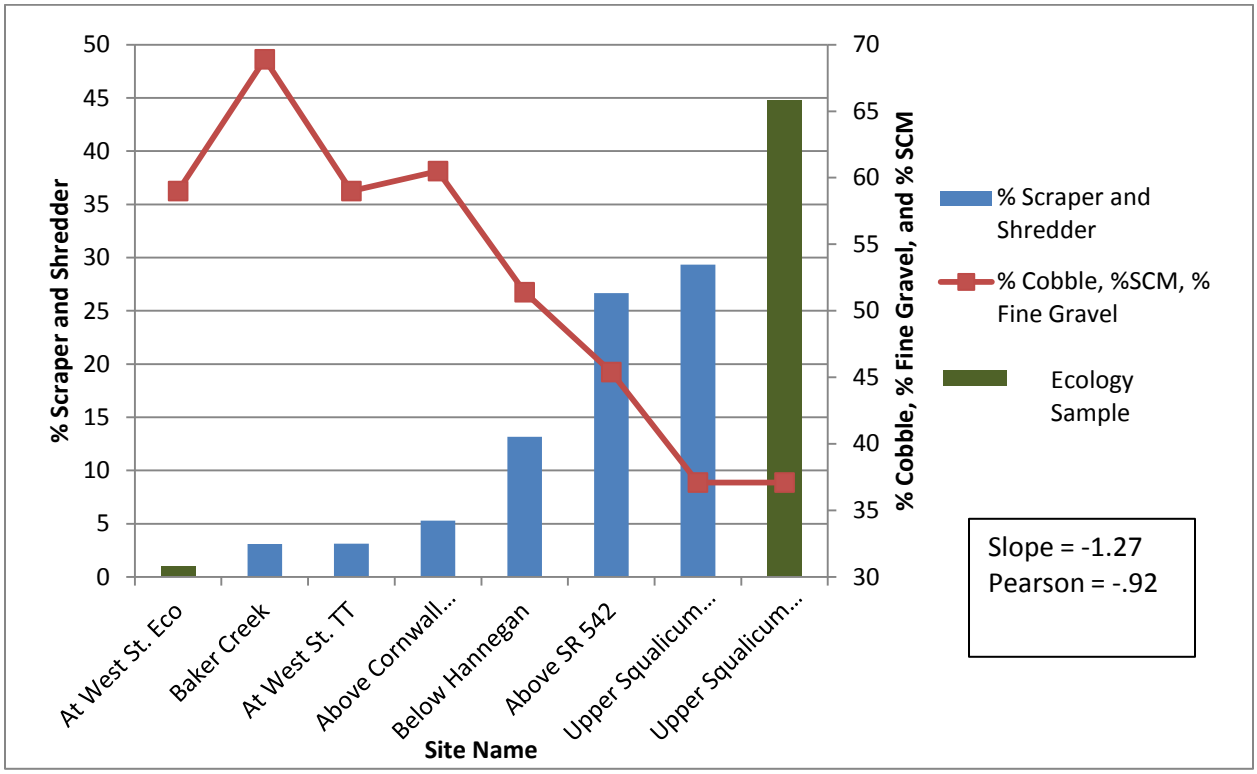

Figure C5. The relationship between % cobble, %SCM, and % fine gravel vs. % scraper and shredder

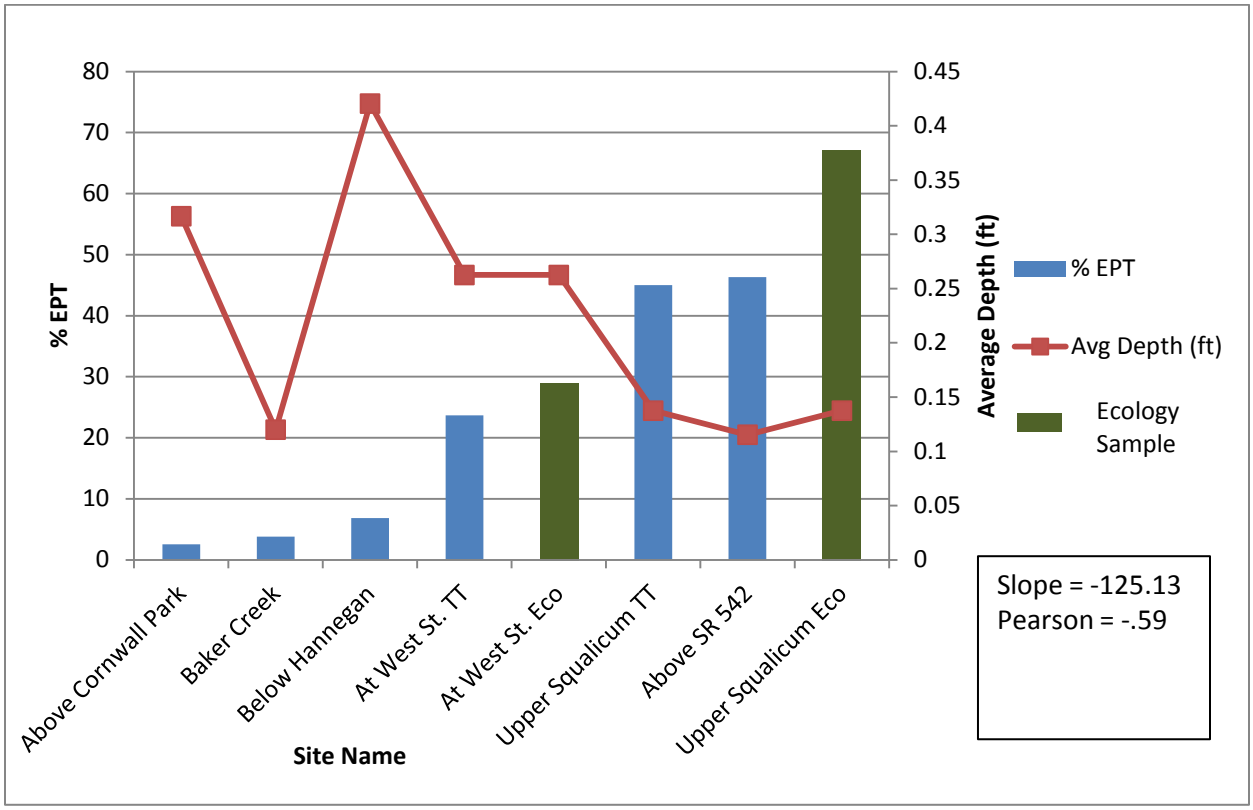

Figure C6. The relationship between depth and % EPT

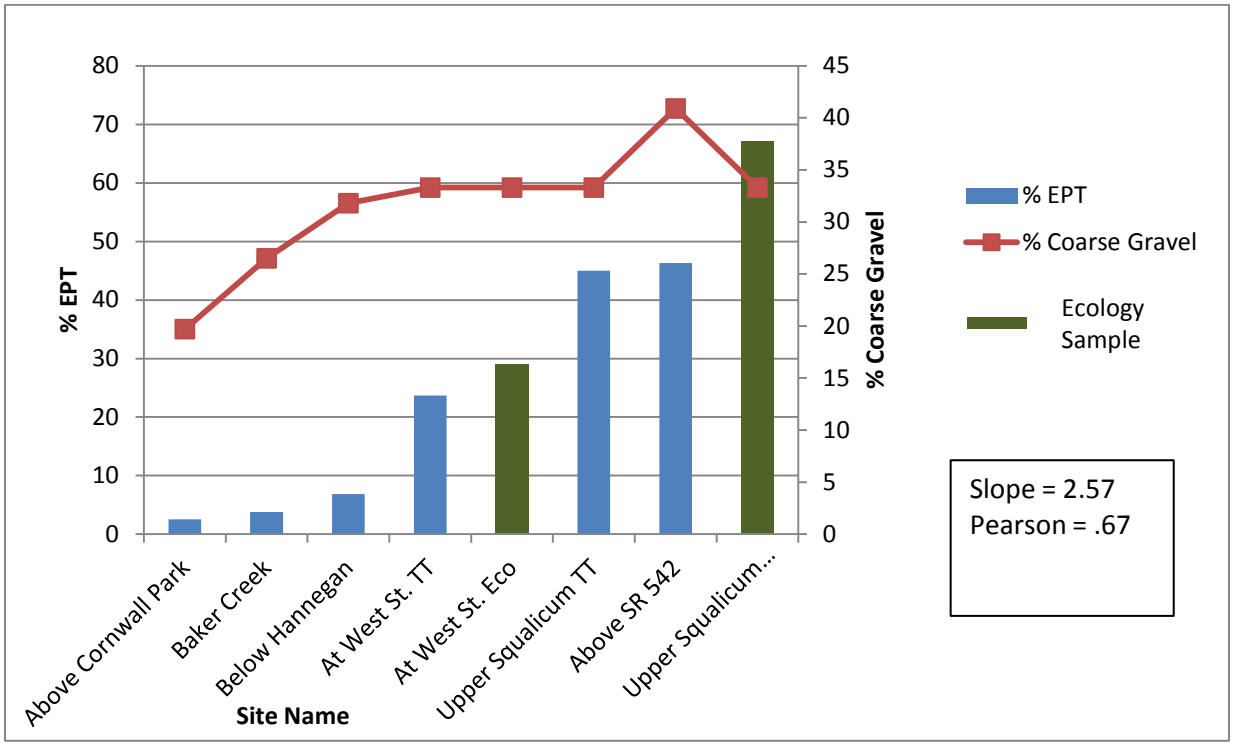

Figure C7. The relationship between % coarse gravel and % EPT

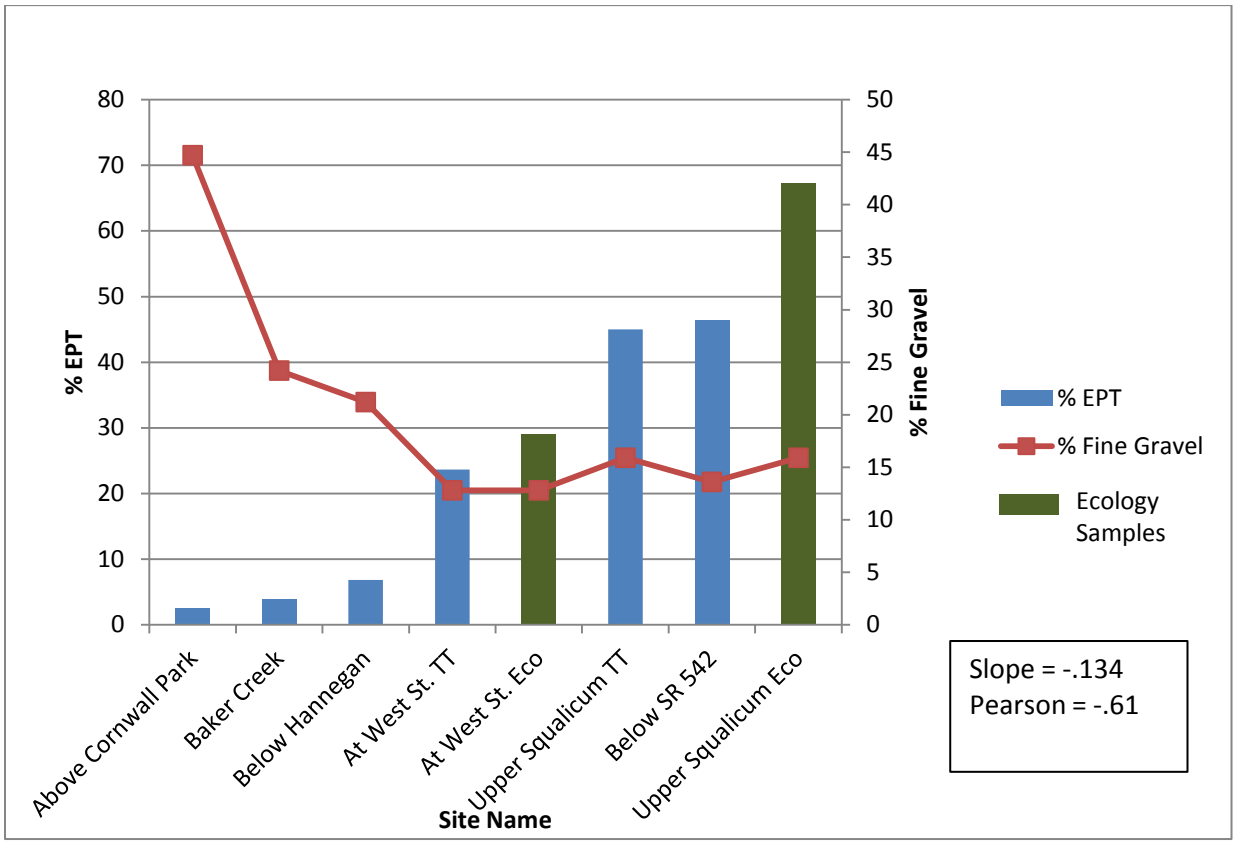

Figure C8. The relationship between % fine gravel and % EPT

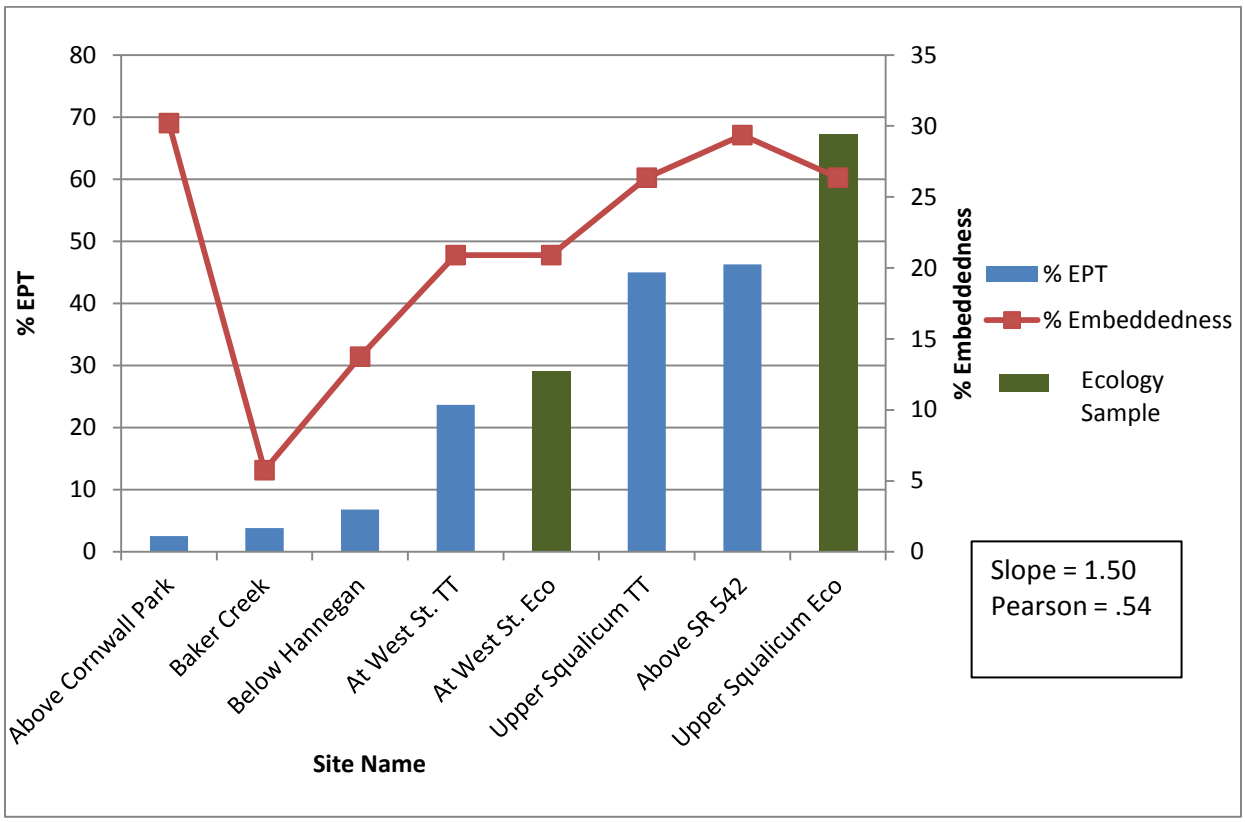

Figure C9. The relationship between % embeddedness and % EPT

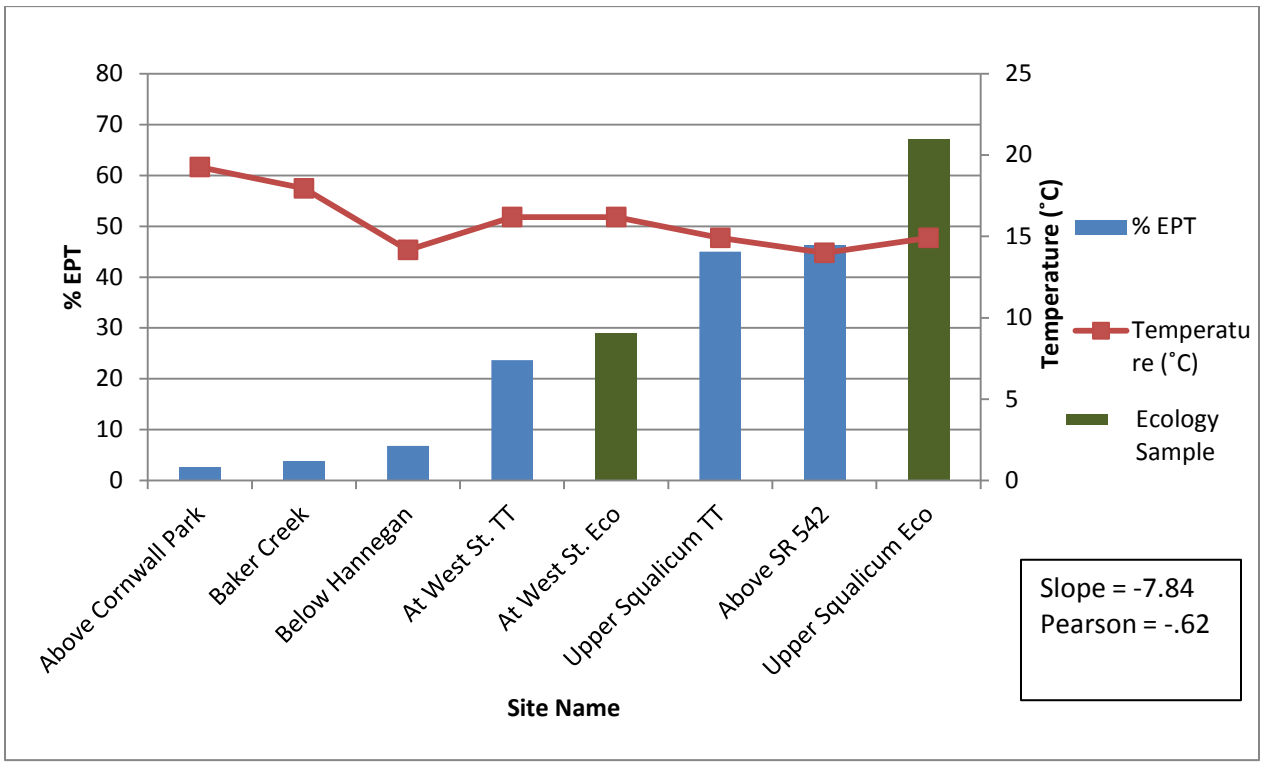

Figure C10. The relationship between temperature and % EPT

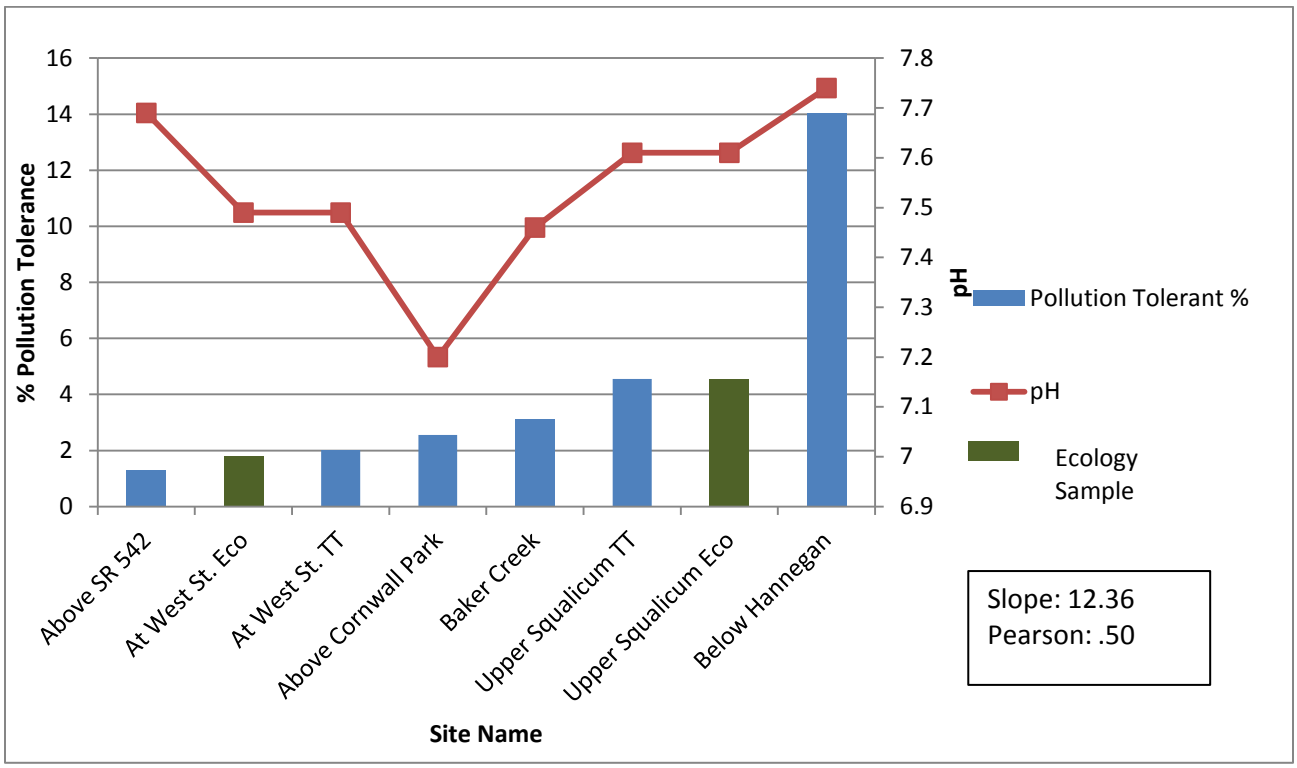

Figure C11. The relationship between pH and pollution tolerant %

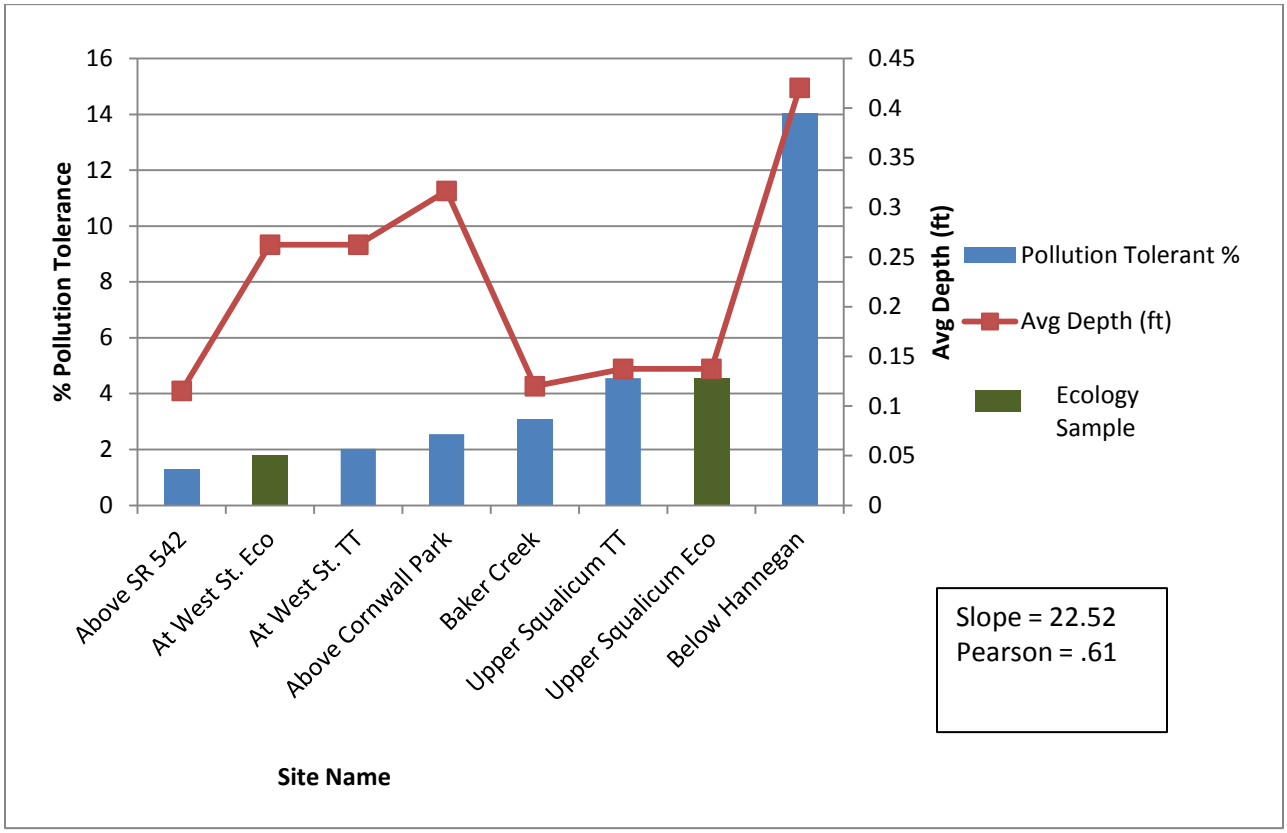

Figure C12. The relationship between depth and % pollution tolerance

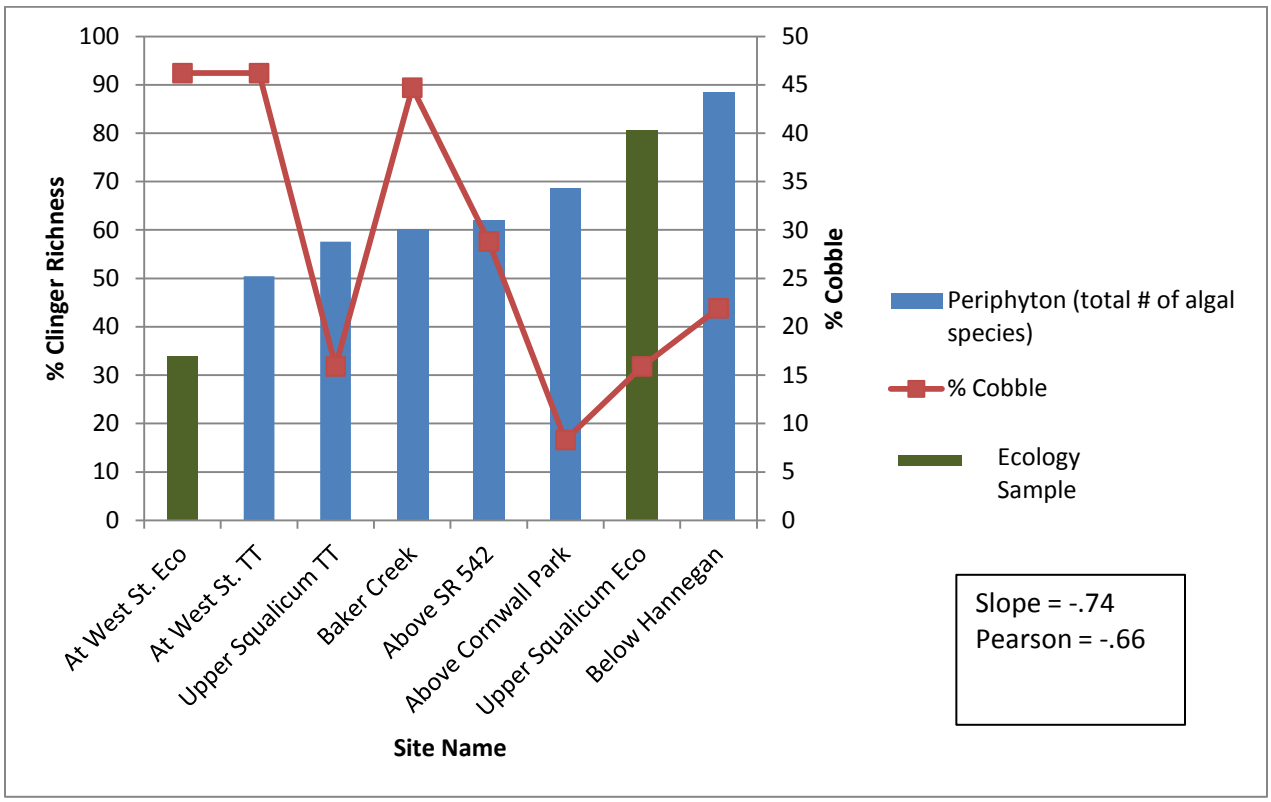

Figure C13. The relationship between % cobble and % clinger

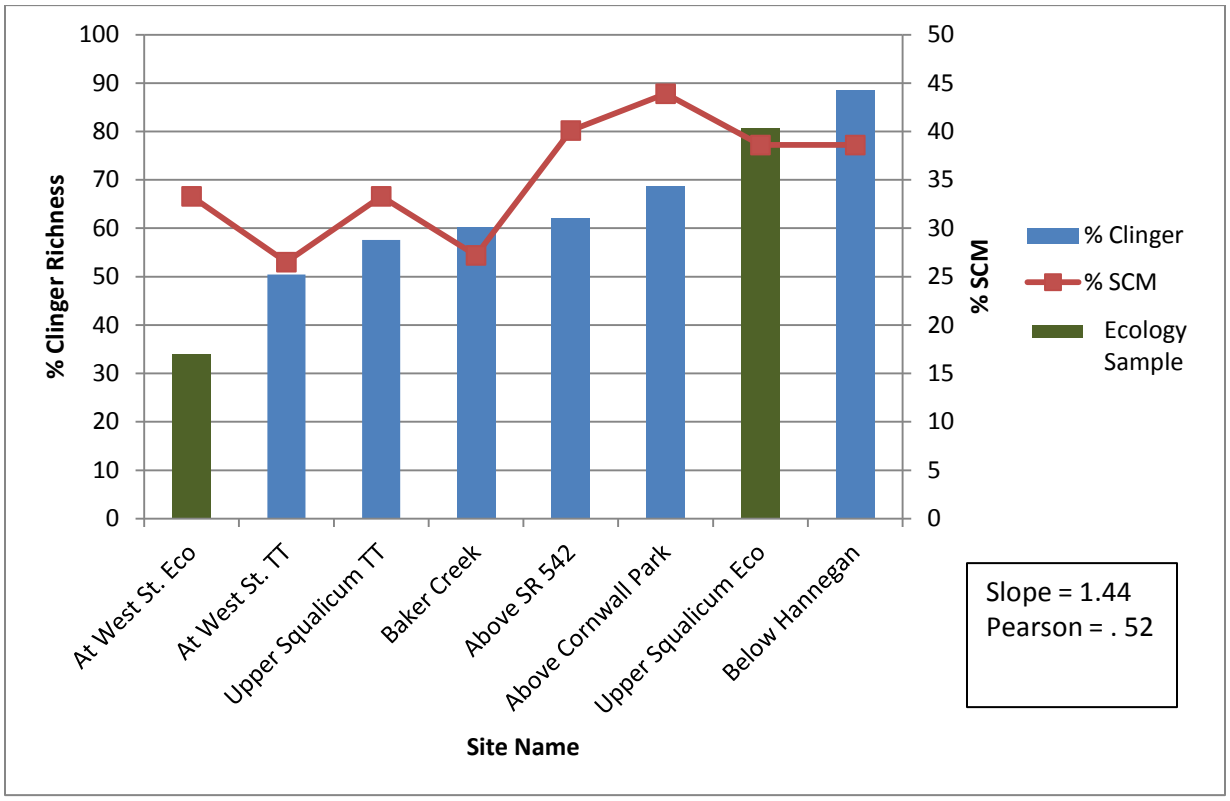

Figure C14. The relationship between % SCM. % coarse gravel, and % clinger

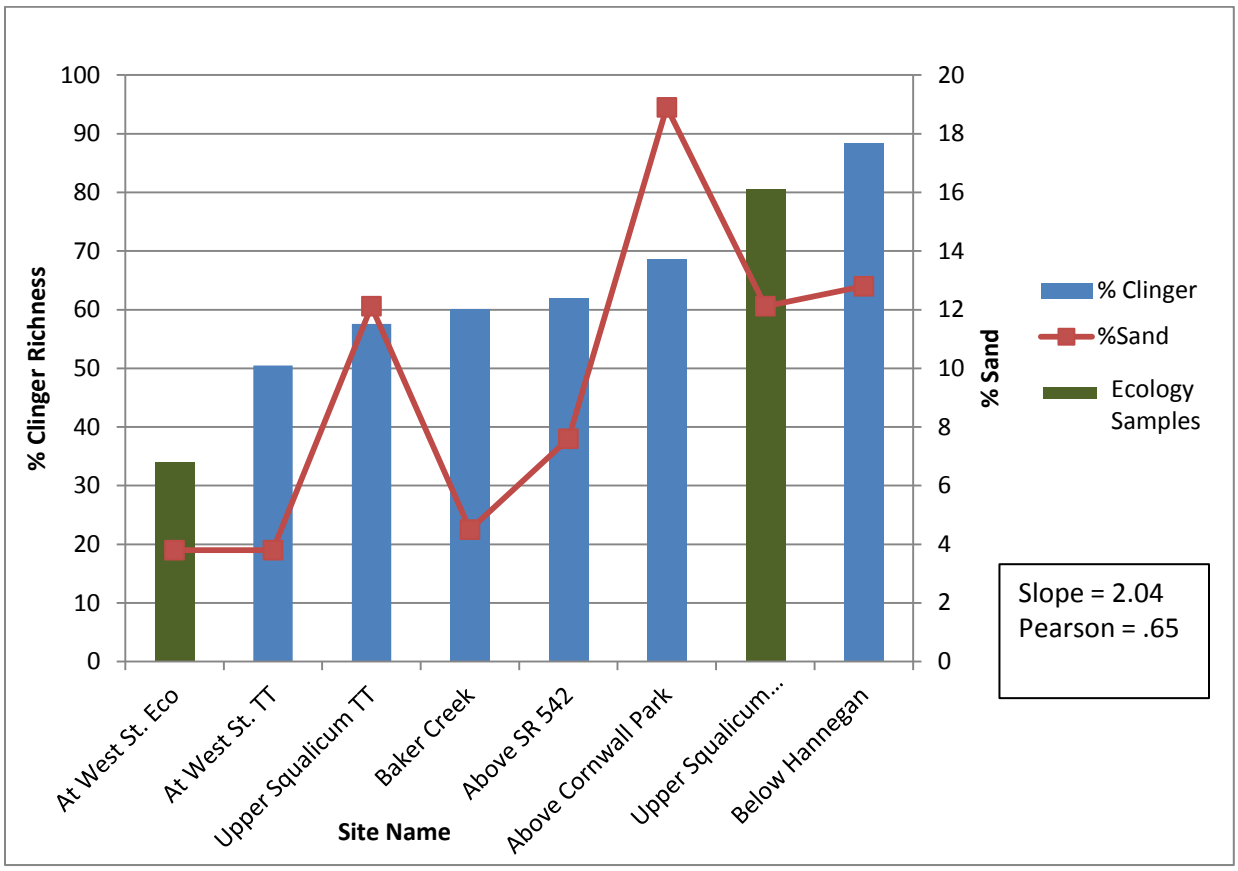

Figure C15. The relationship between % sand and % clinger

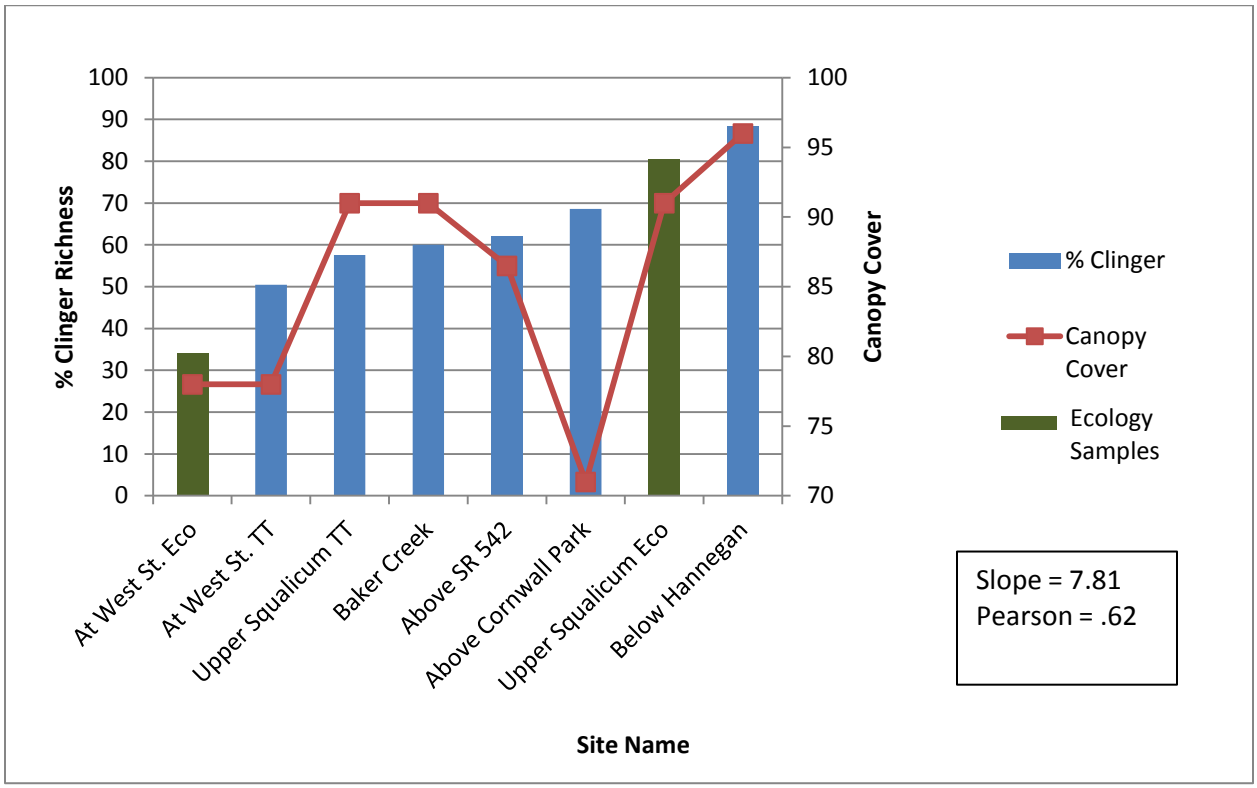

Figure C16. The relationship between canopy cover and % clinger

Squalicum Creek: Periphyton-Stressor Relationships

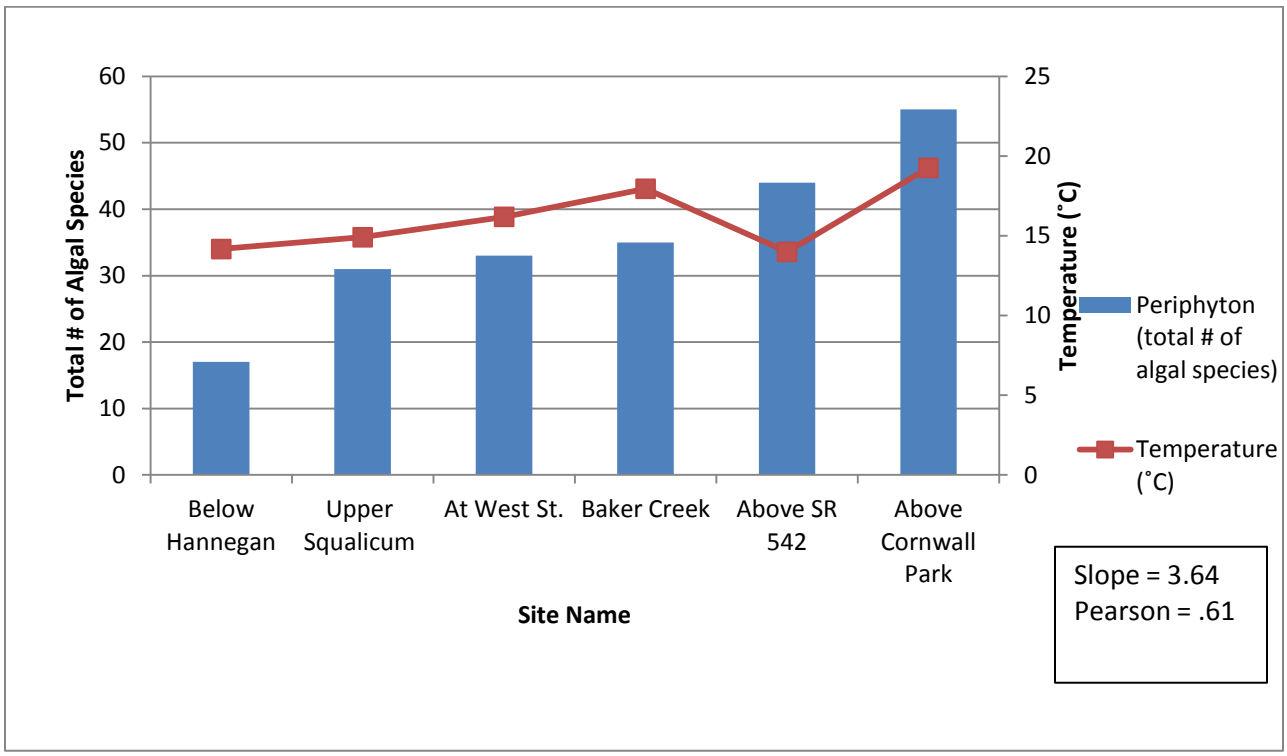

Figure C17. The relationship between periphyton and temperature

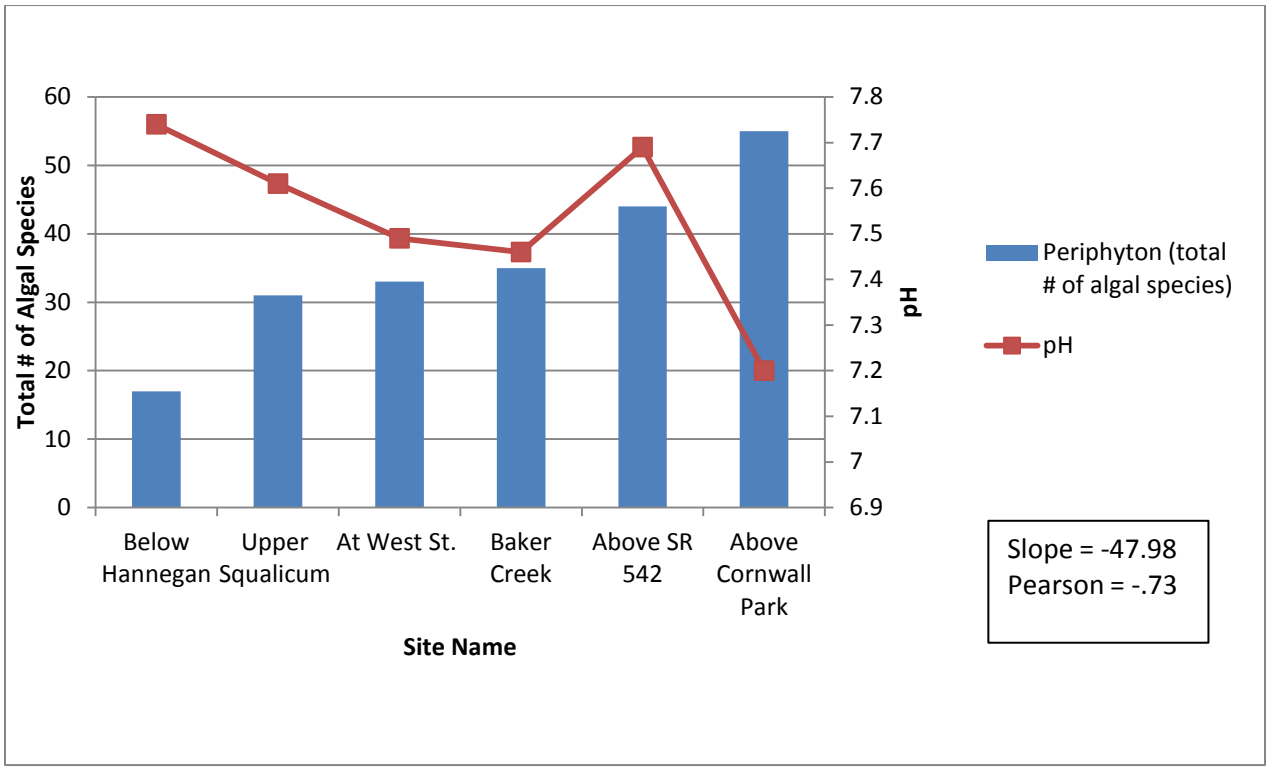

Figure C18. The relationship between periphyton and pH

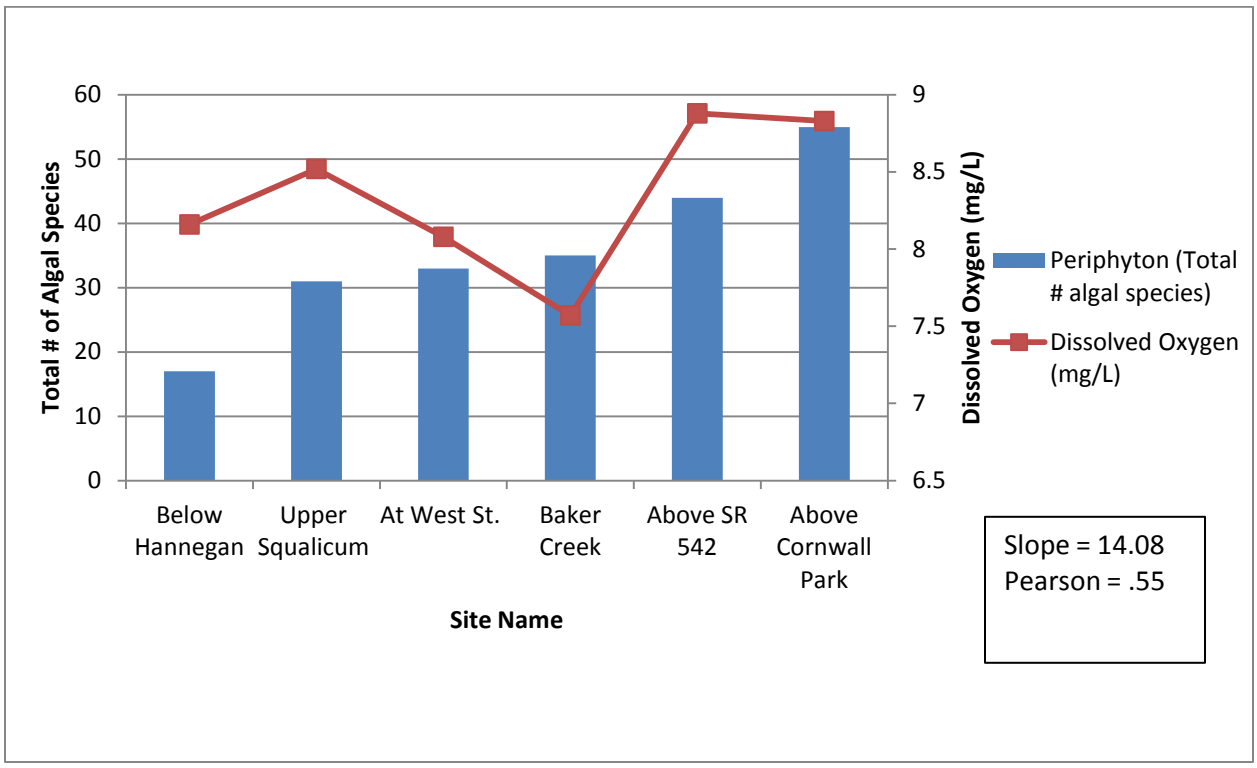

Figure C19. The relationship between periphyton and dissolved oxygen

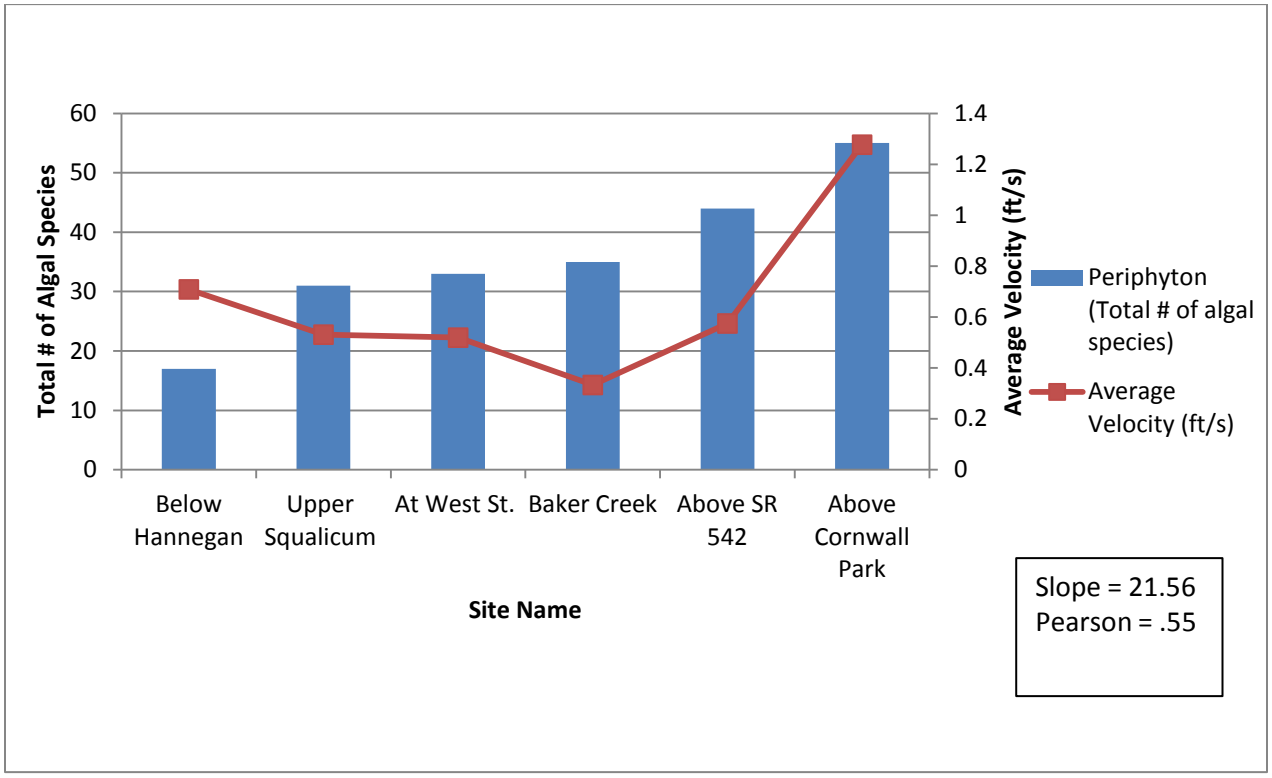

Figure C20. The relationship between periphyton and velocity

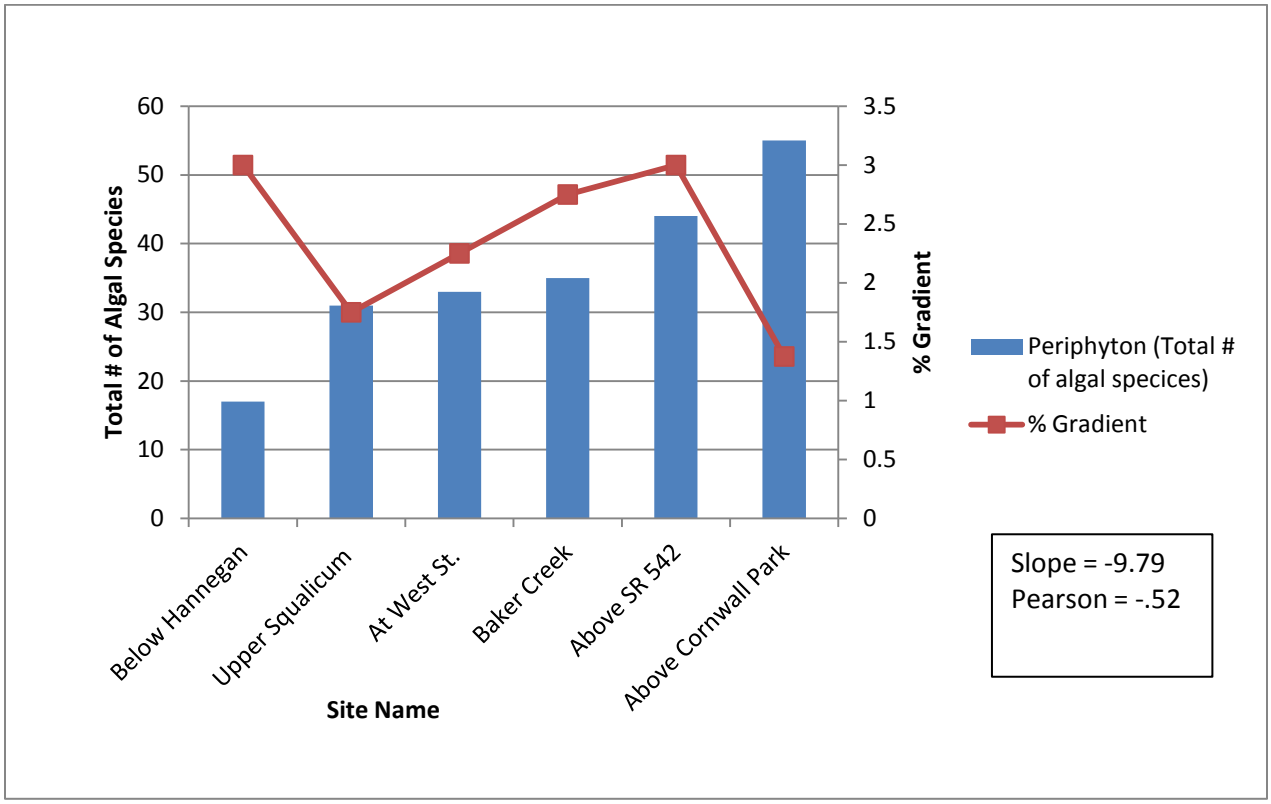

Figure C21. The relationship between periphyton and % gradient

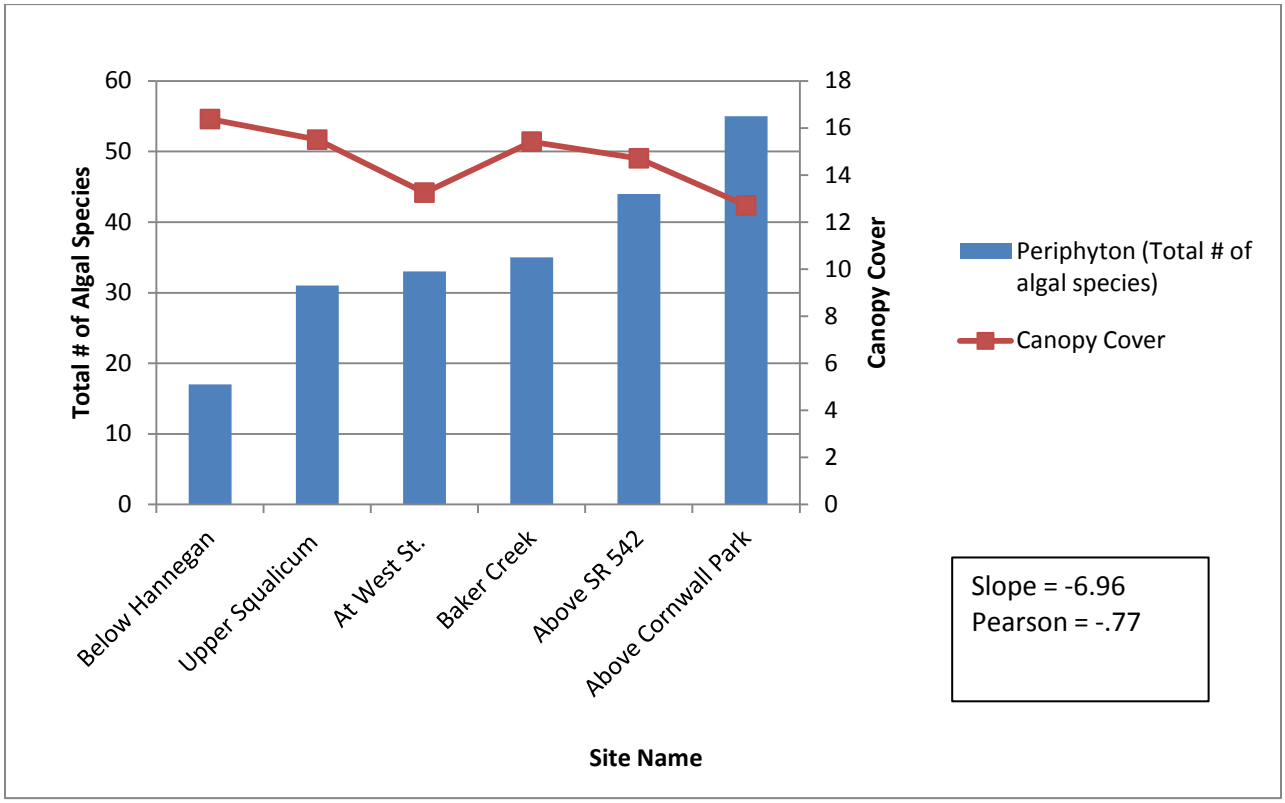

Figure C22. The relationship between periphyton and canopy cover

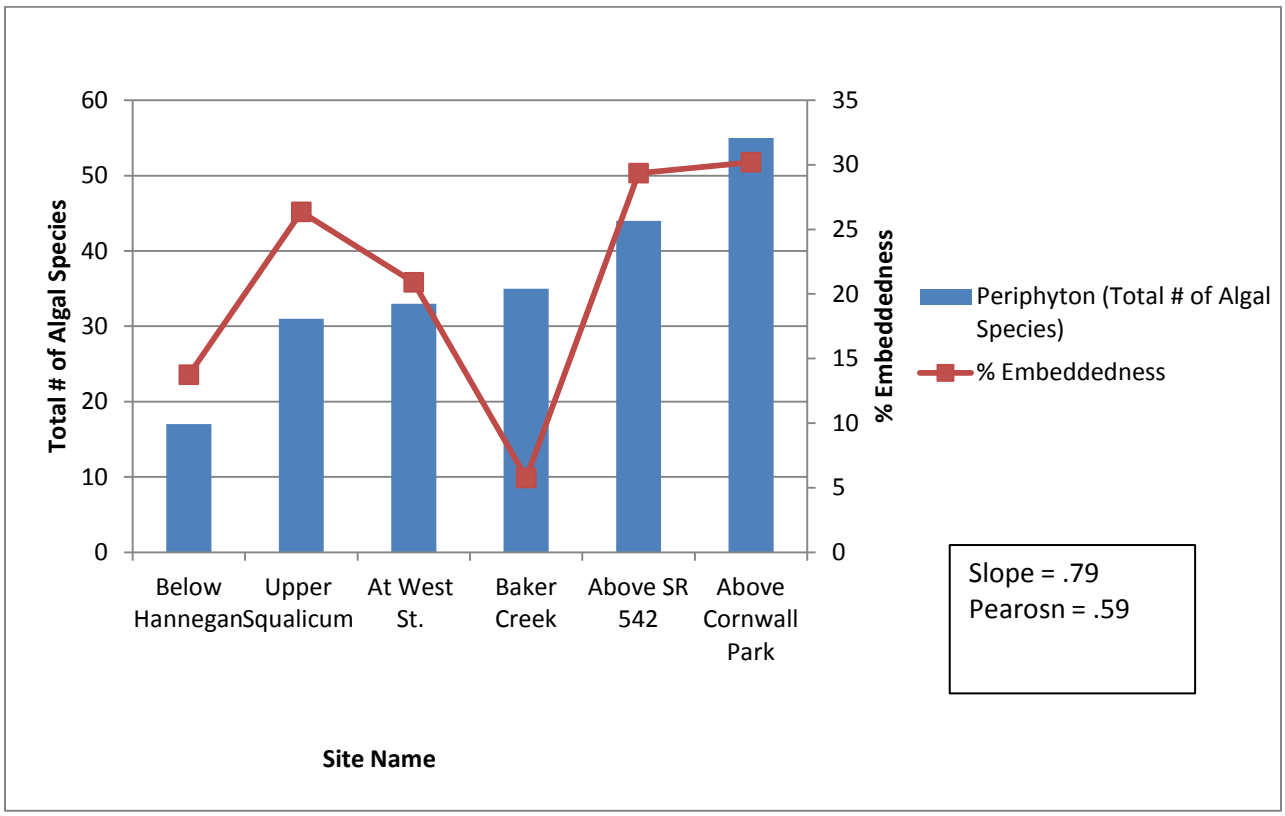

Figure C23. The relationship between periphyton and % embeddedness

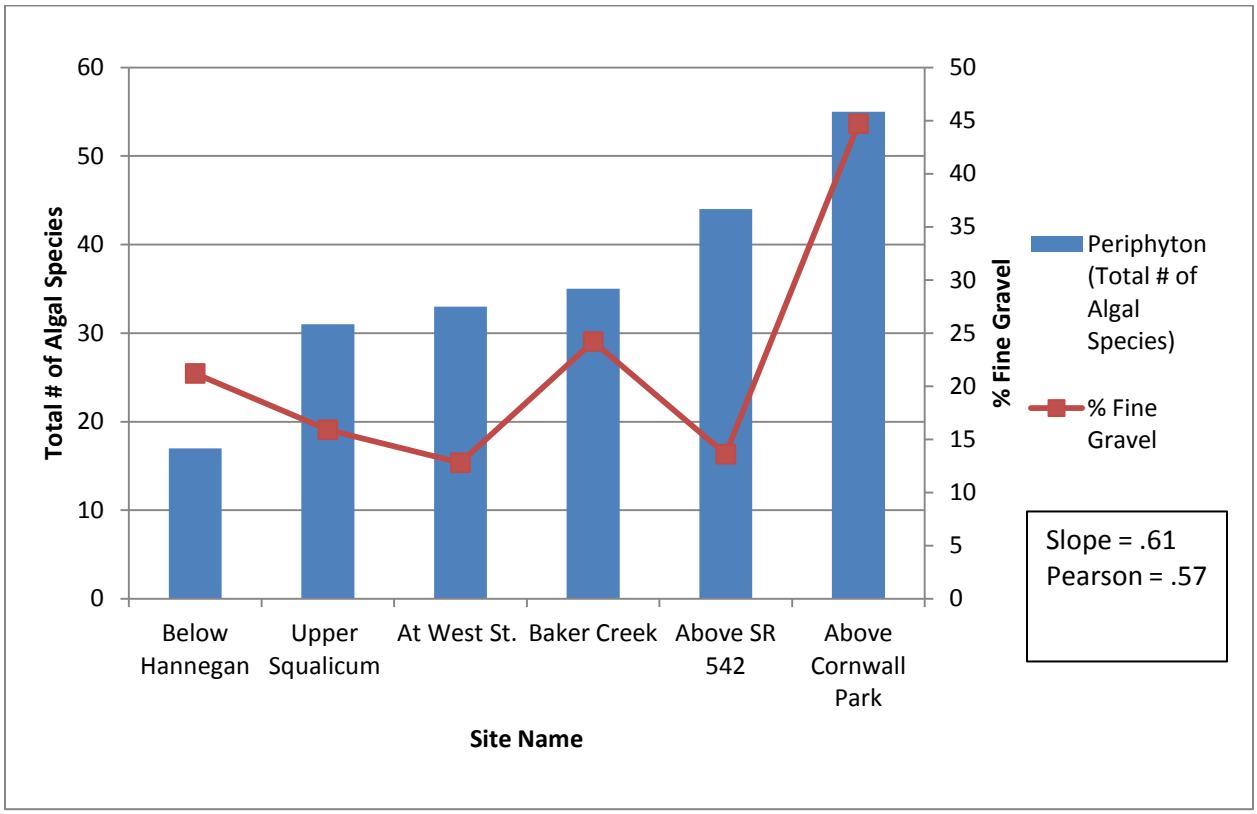

Figure C24. The relationship between periphyton and % fine gravel

Appendix D. Soos Creek Biometric-STRESSOR Relationships

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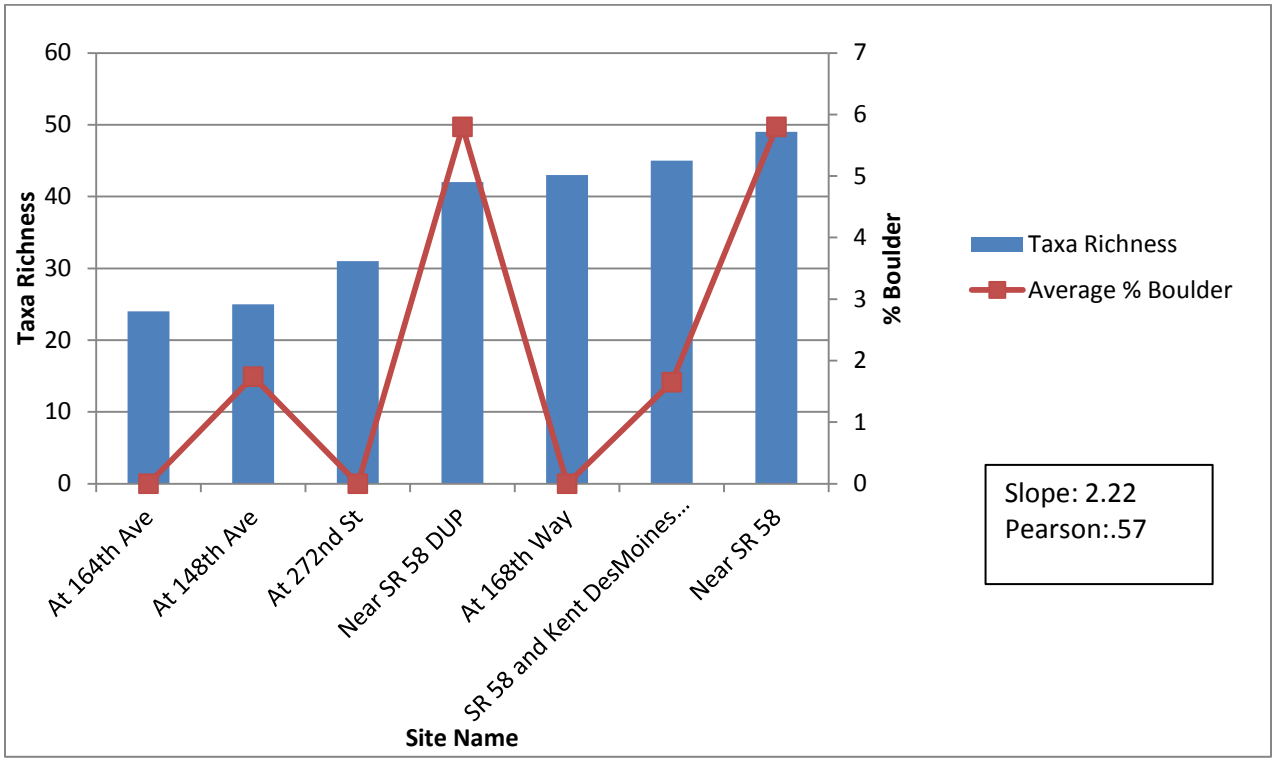

Figure D1. The relationship between % boulder and taxa richness

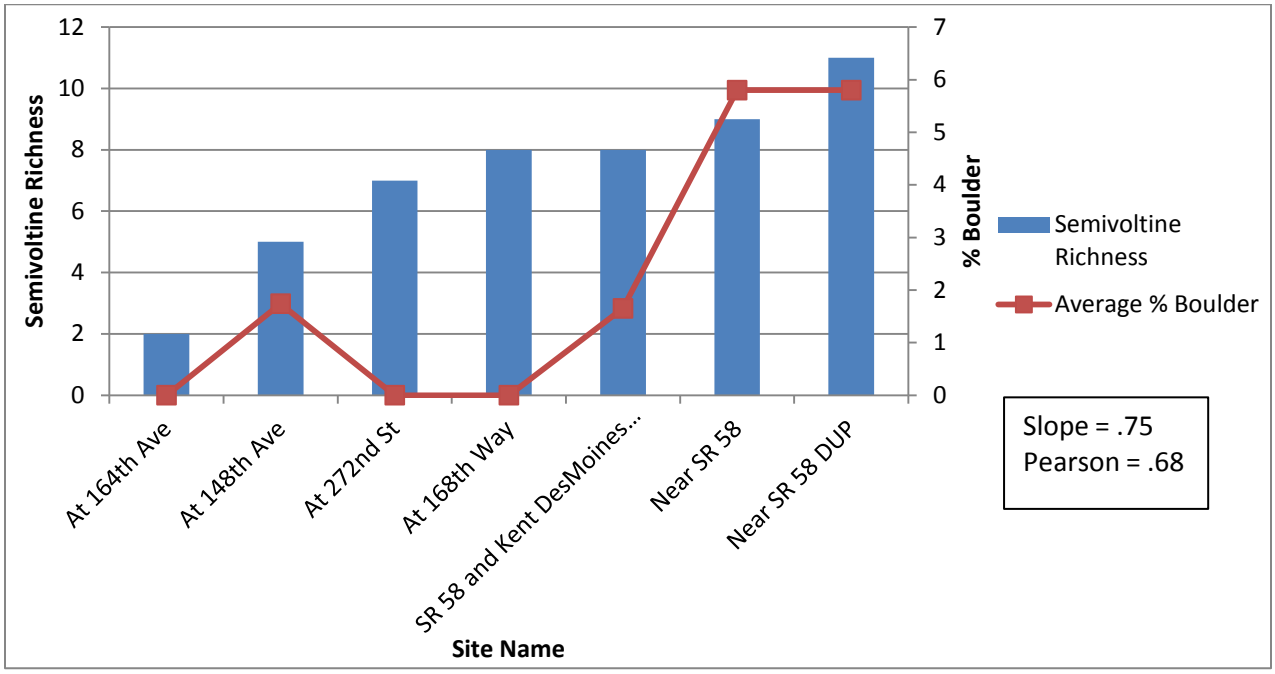

Figure D2. The relationship between % boulder and semivoltine richness

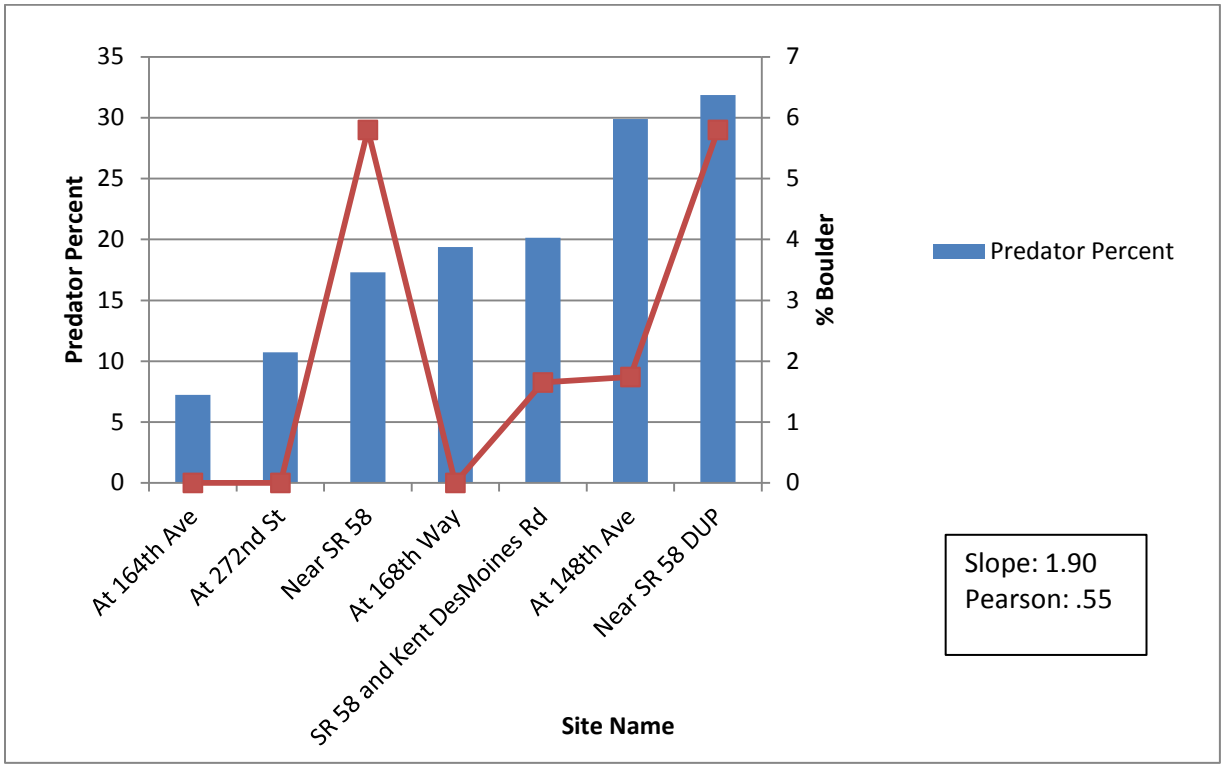

Figure D3. The relationship between % boulder and predator percent

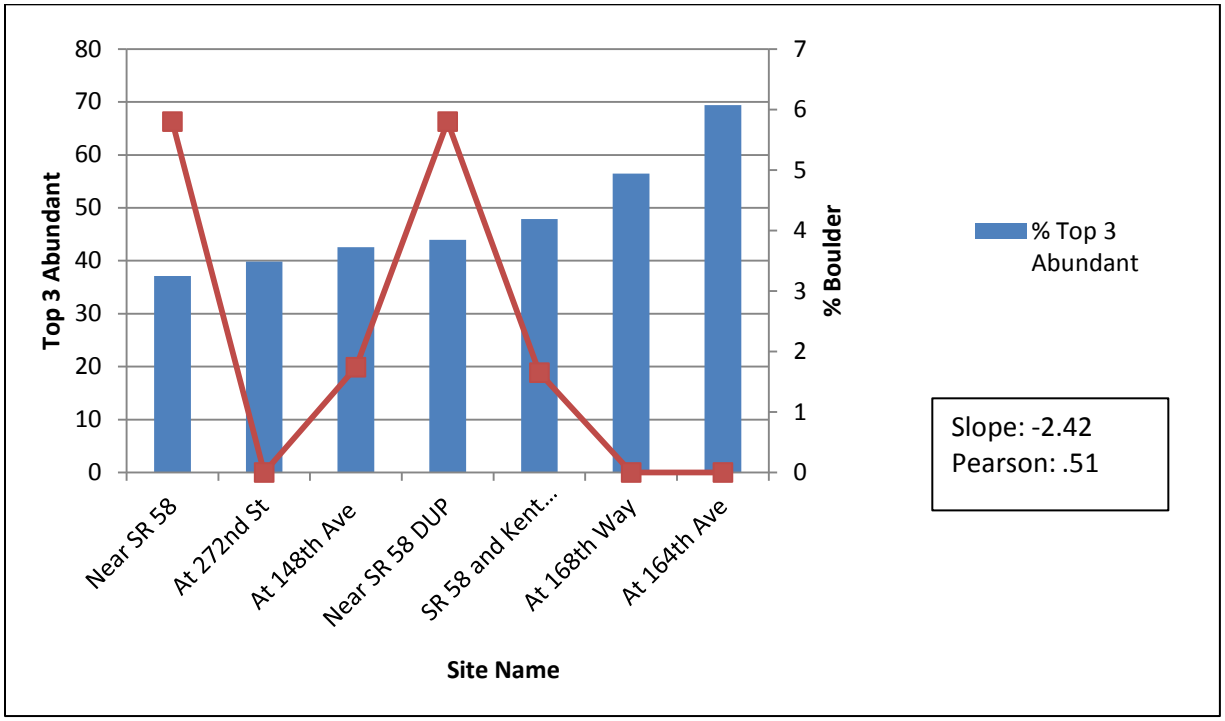

Figure D4. The relationship between % boulder and top 3 abundant

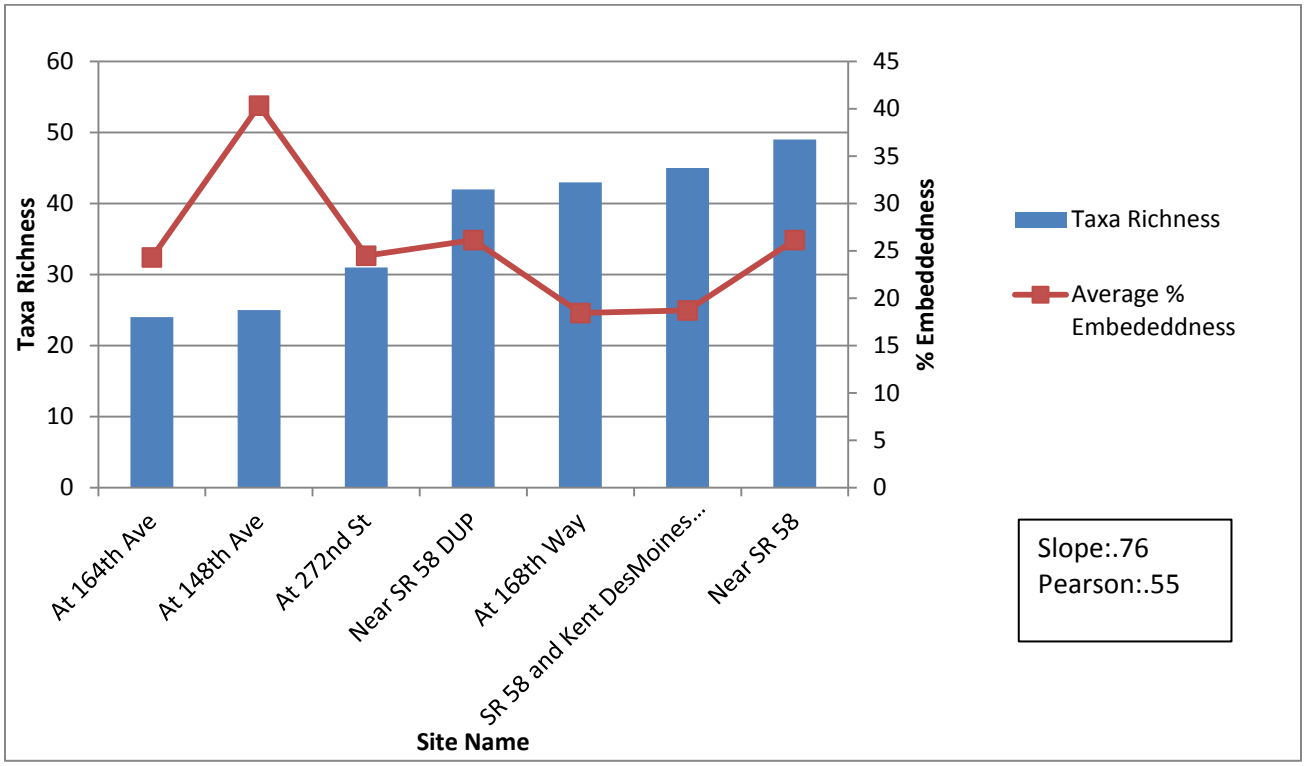

Figure D5. The relationship between % embeddedness and taxa richness

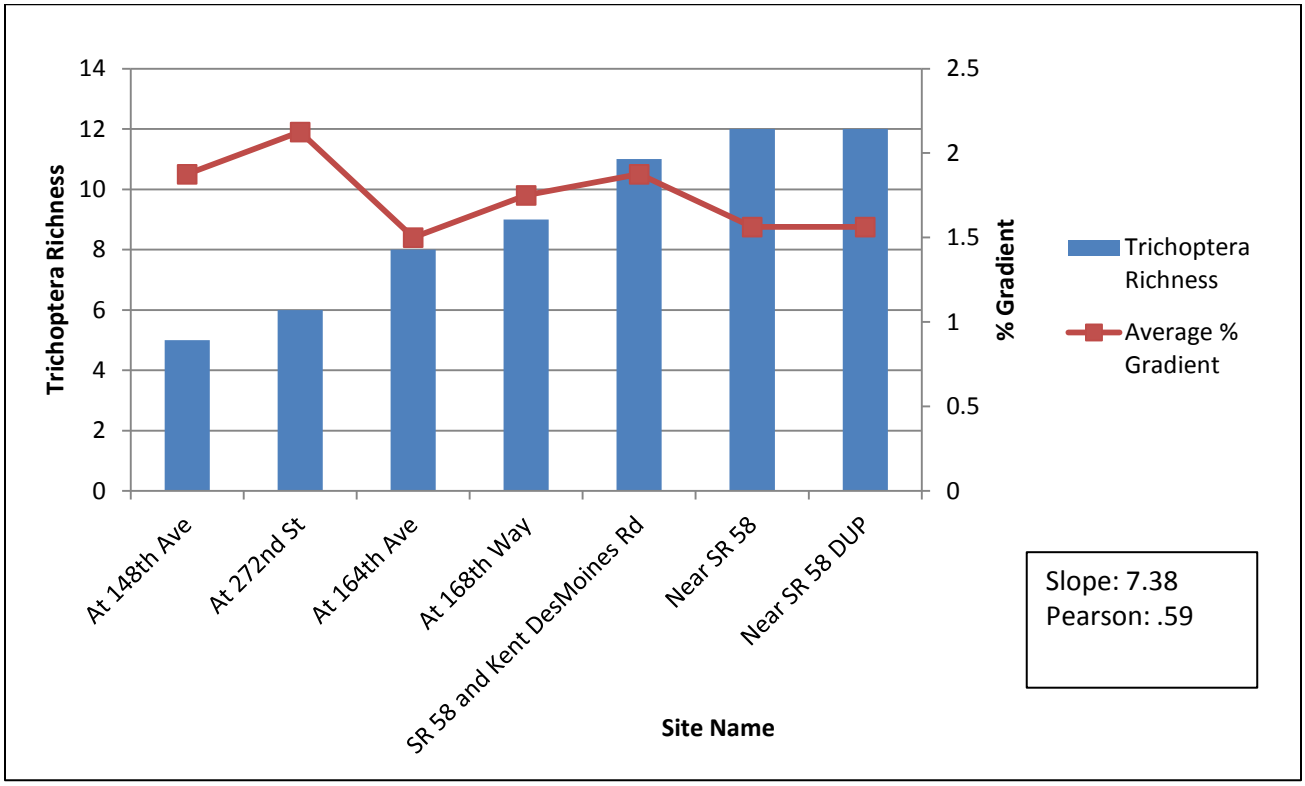

Figure D6. The relationship between % gradient and trichoptera richness

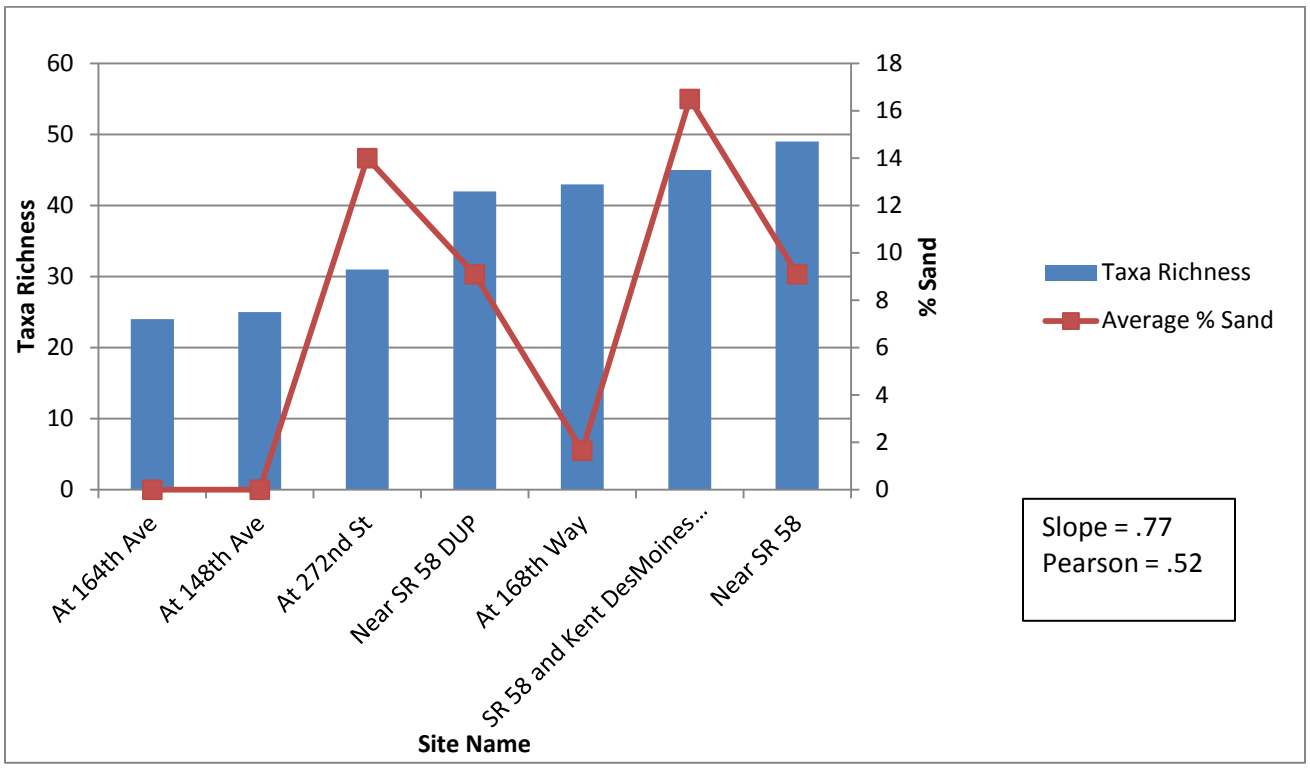

Figure D7. The relationship between % sand and taxa richness

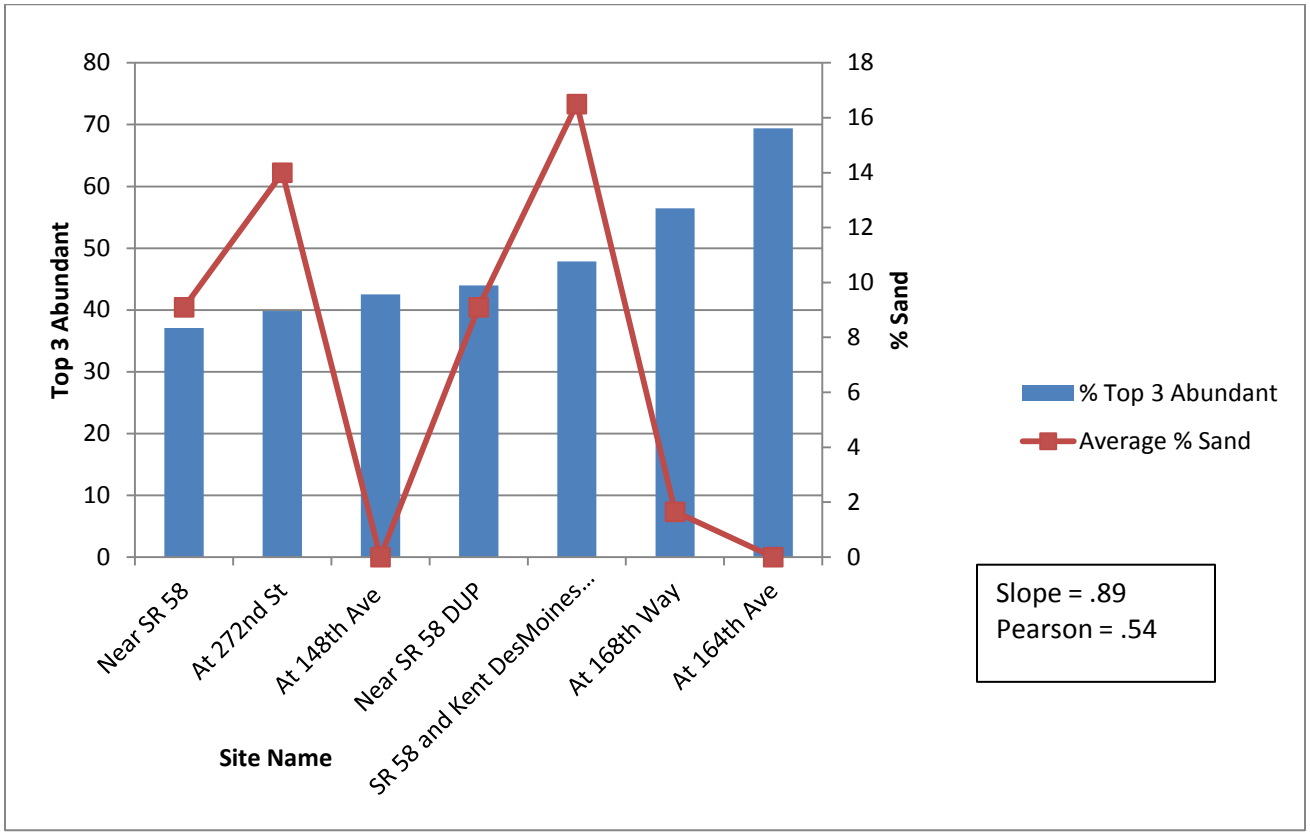

Figure D8. The relationship between % sand and % top 3 abundant

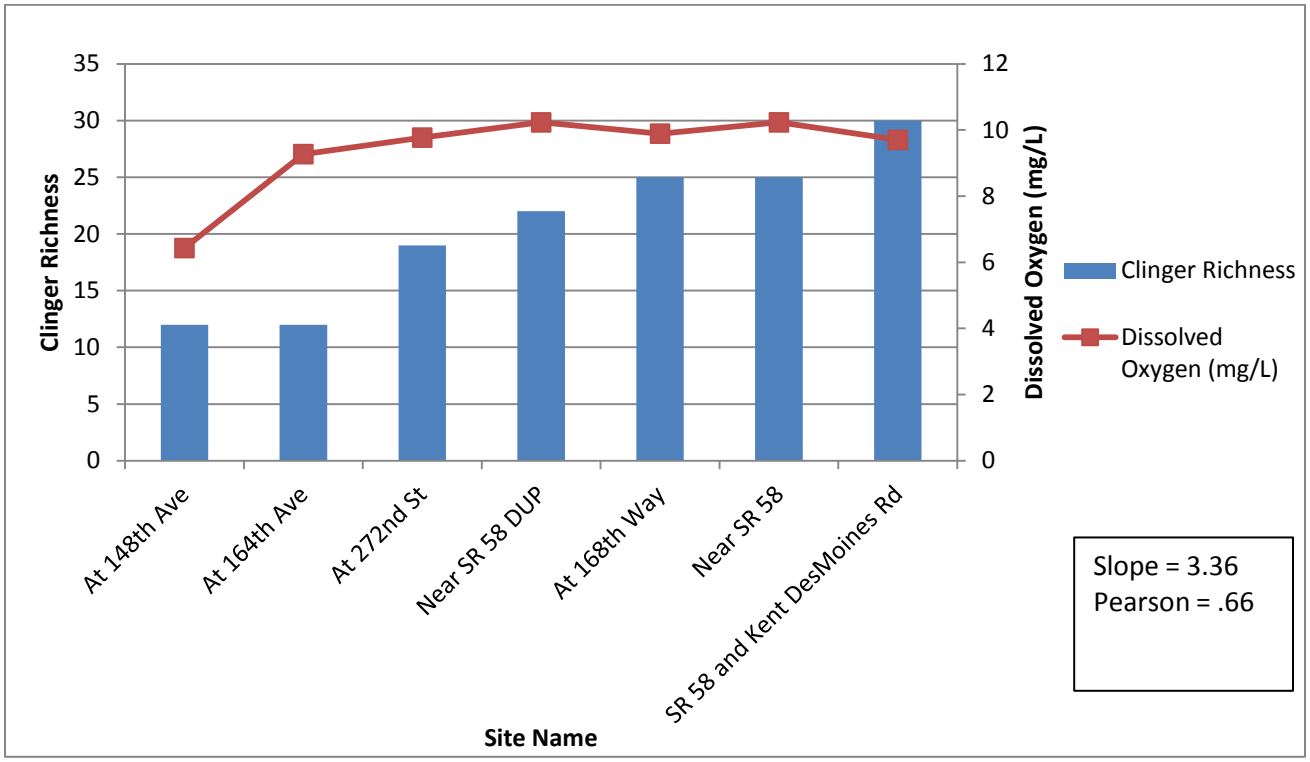

Figure D9. The relationship between dissolved oxygen and clinger richness

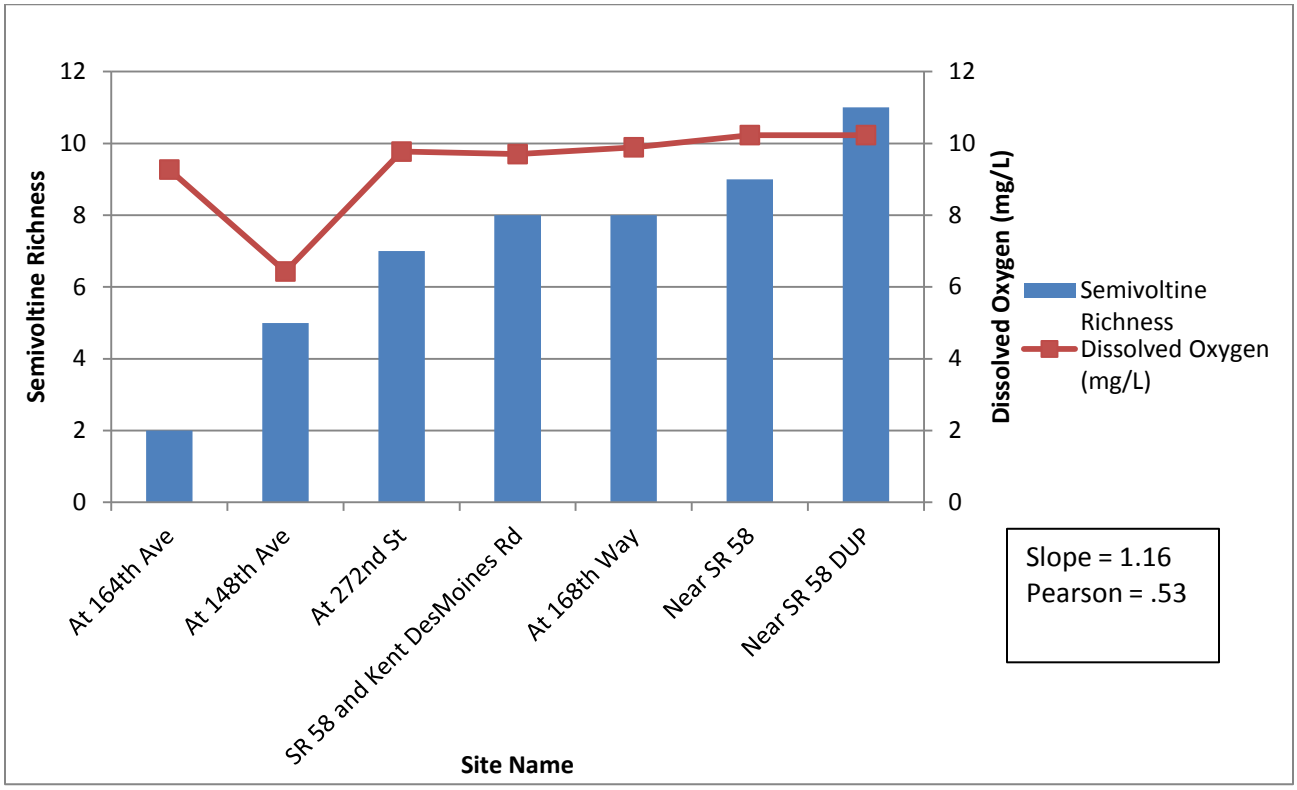

Figure D10. The relationship between dissolved oxygen and semivoltine richness

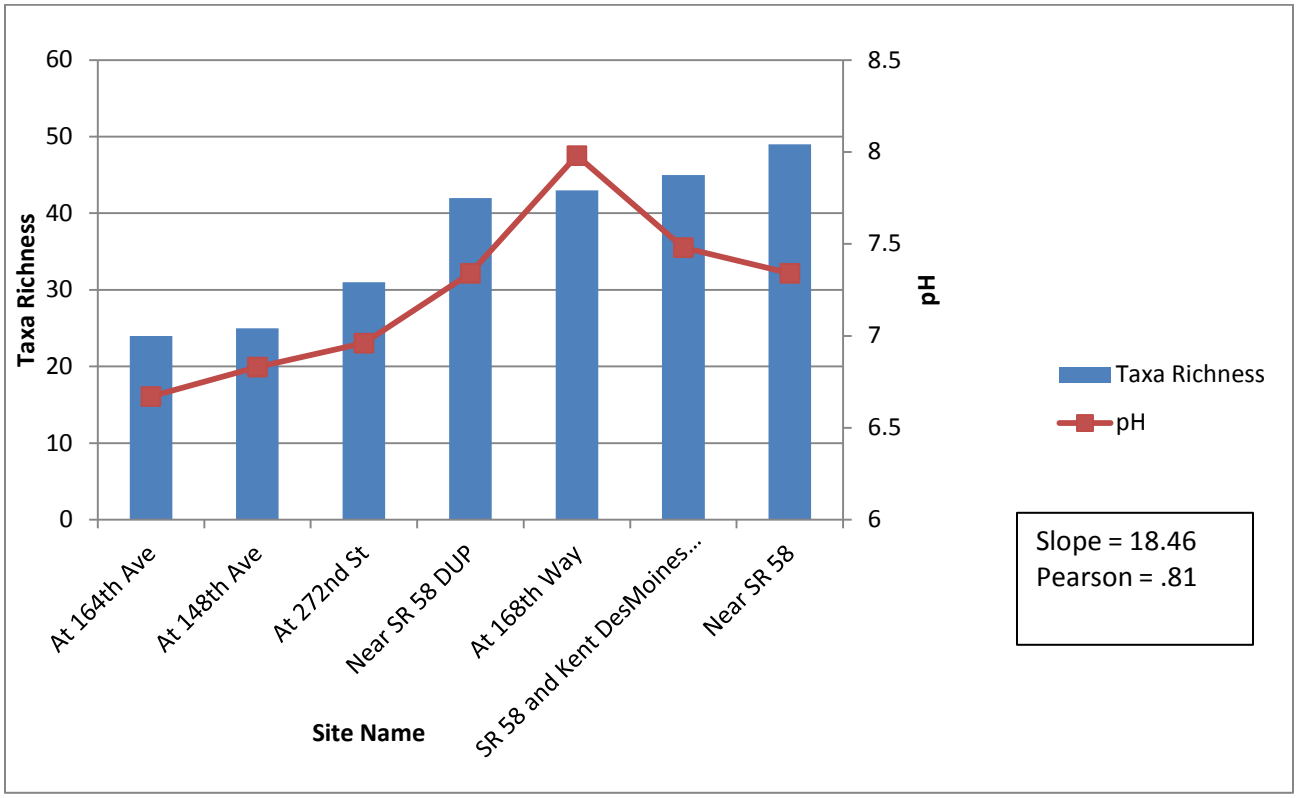

Figure D11. The relationship between pH and taxa richness

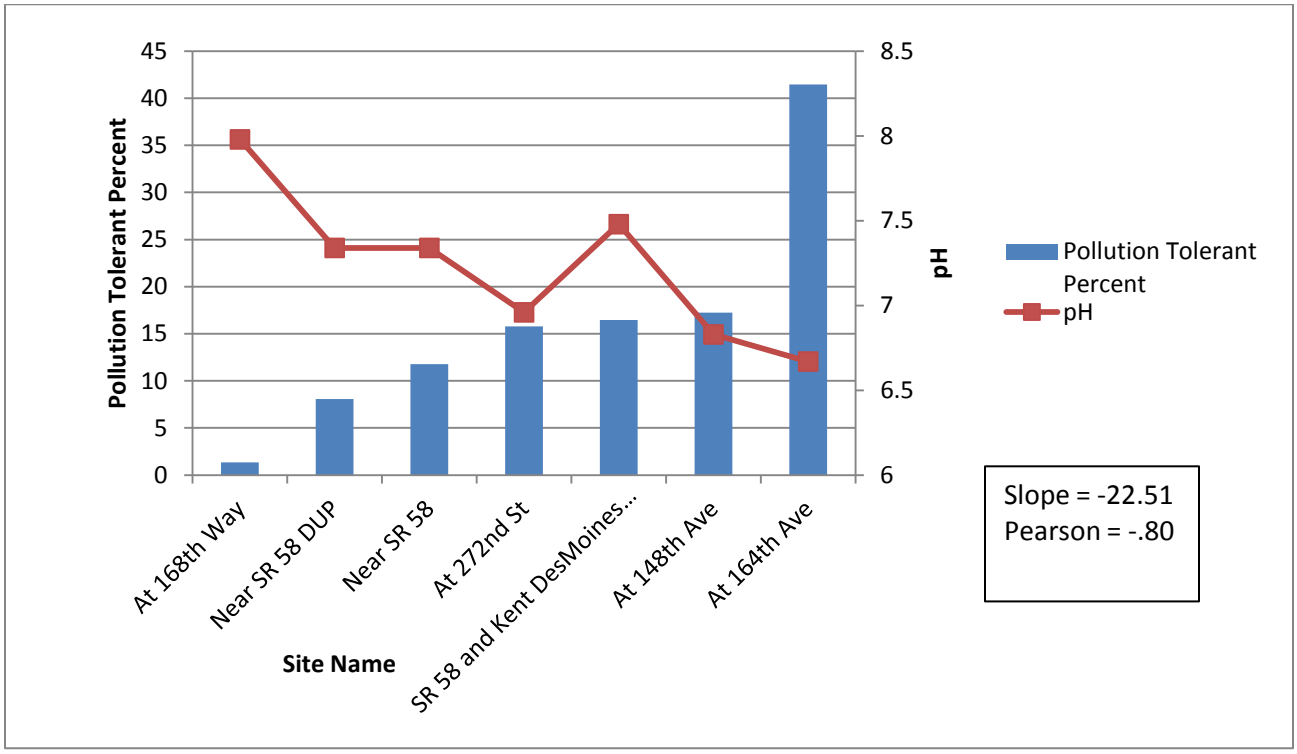

Figure D12. The relationship between pH and pollution tolerant %

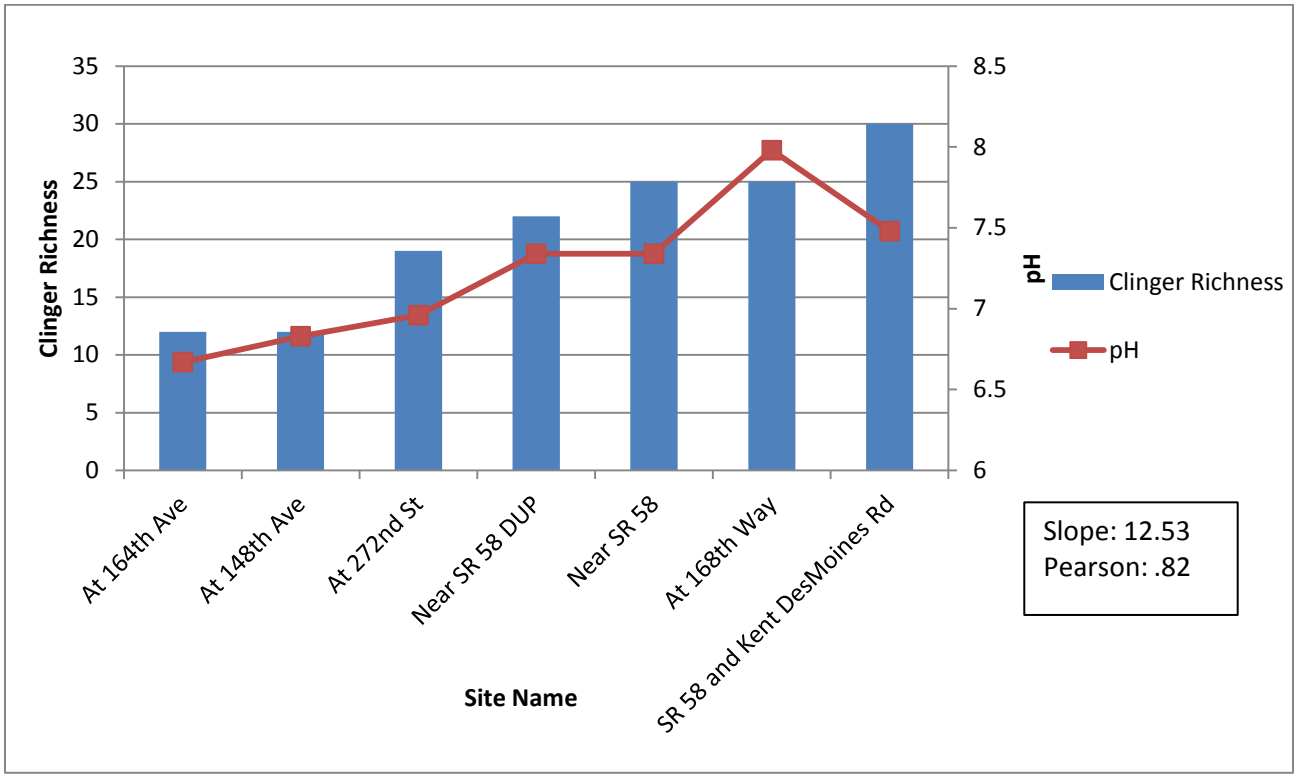

Figure D13. The relationship between pH and clinger richness

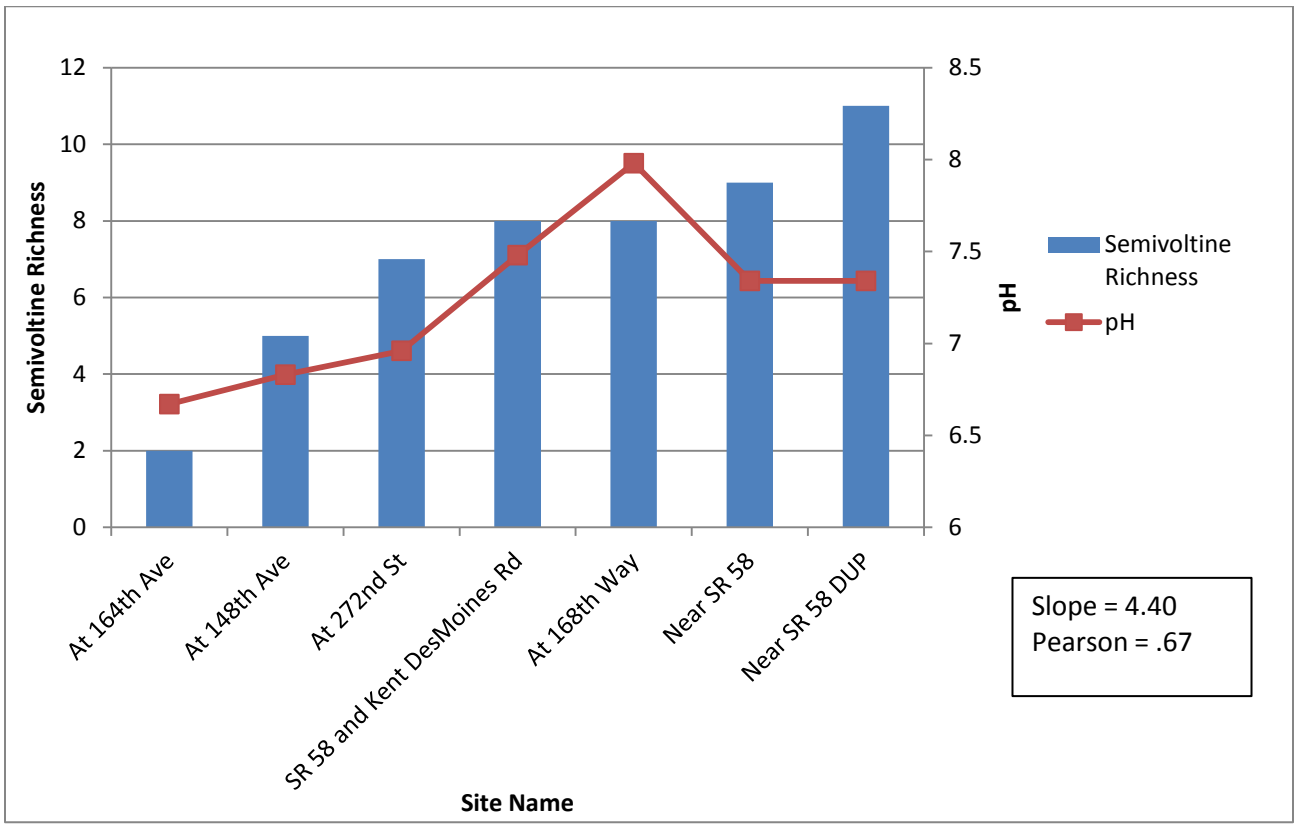

Figure D14. The relationship between pH and semivoltine richess

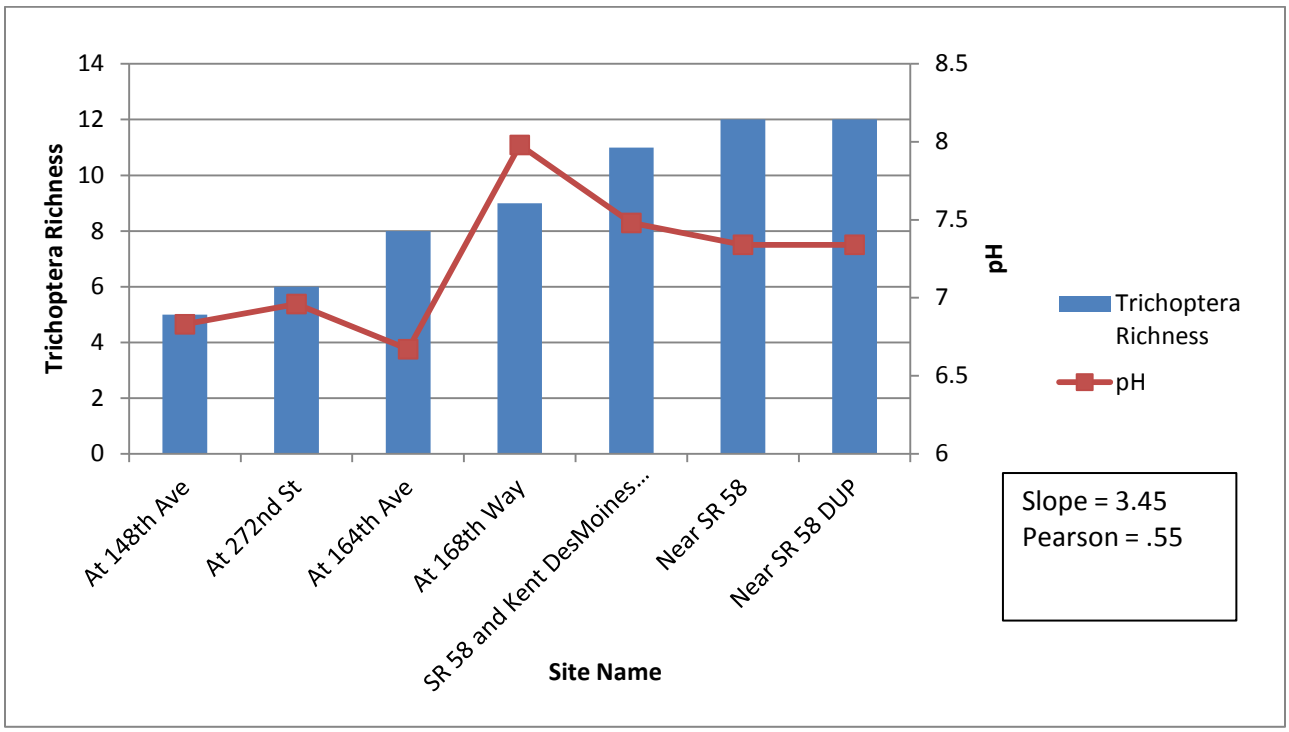

Figure D15. The relationship between pH and trichoptera richness

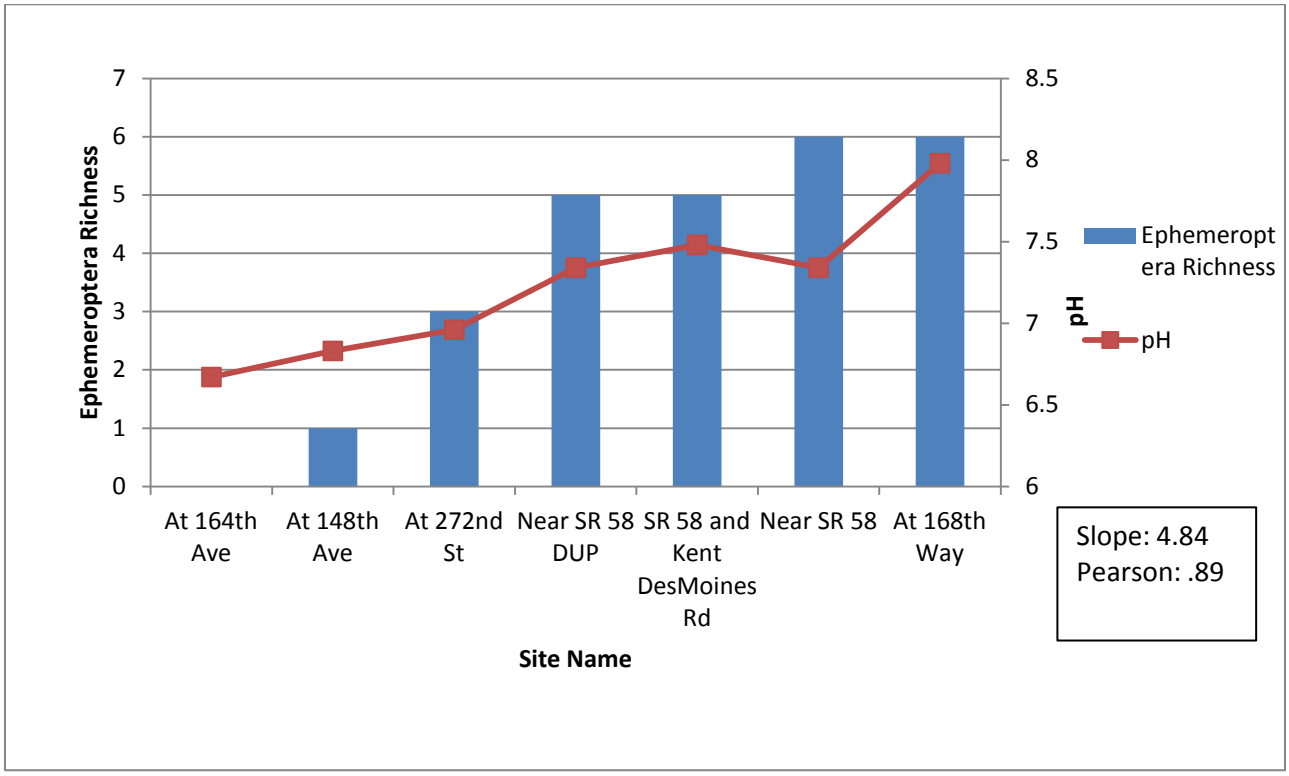

Figure D16. The relationship between pH and ephemeroptera richness

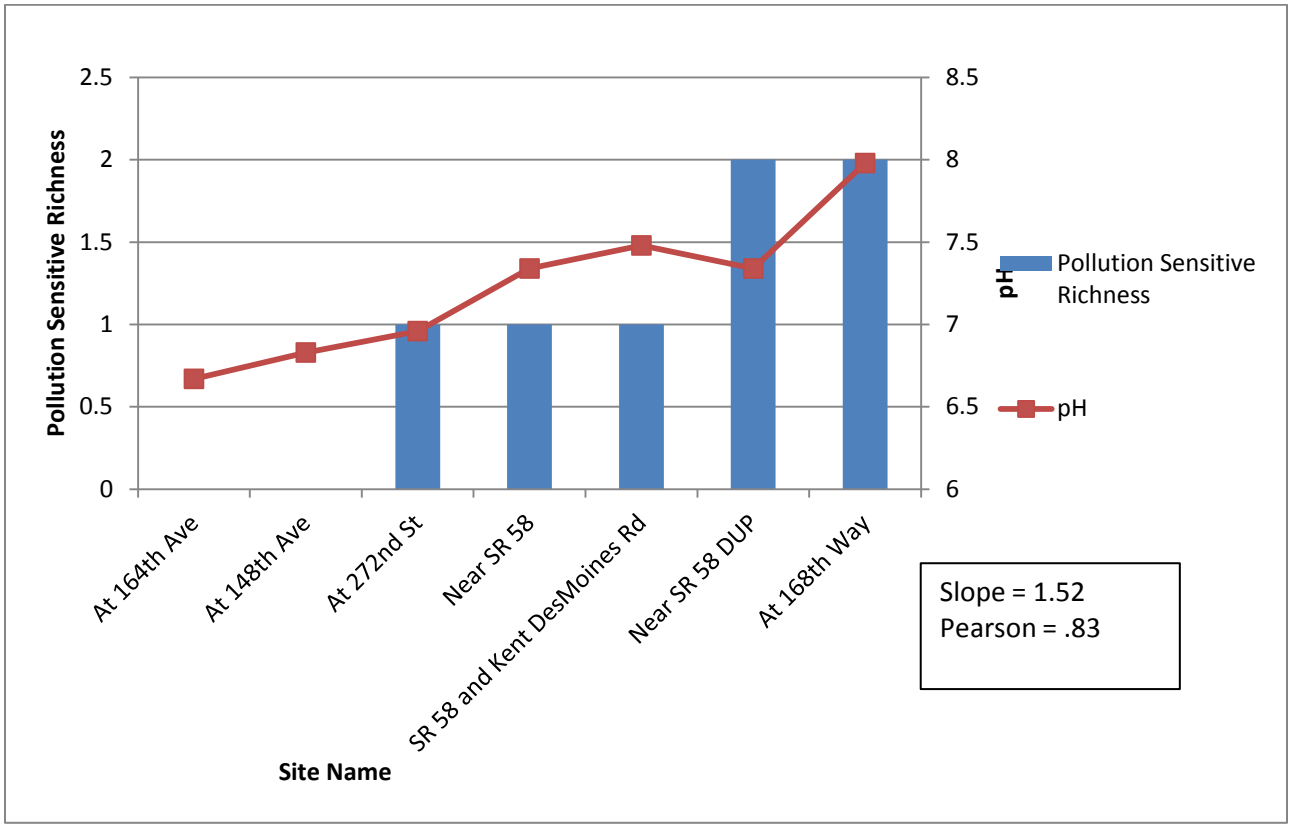

Figure D17. The relationship between pH and polluant sensitive richness

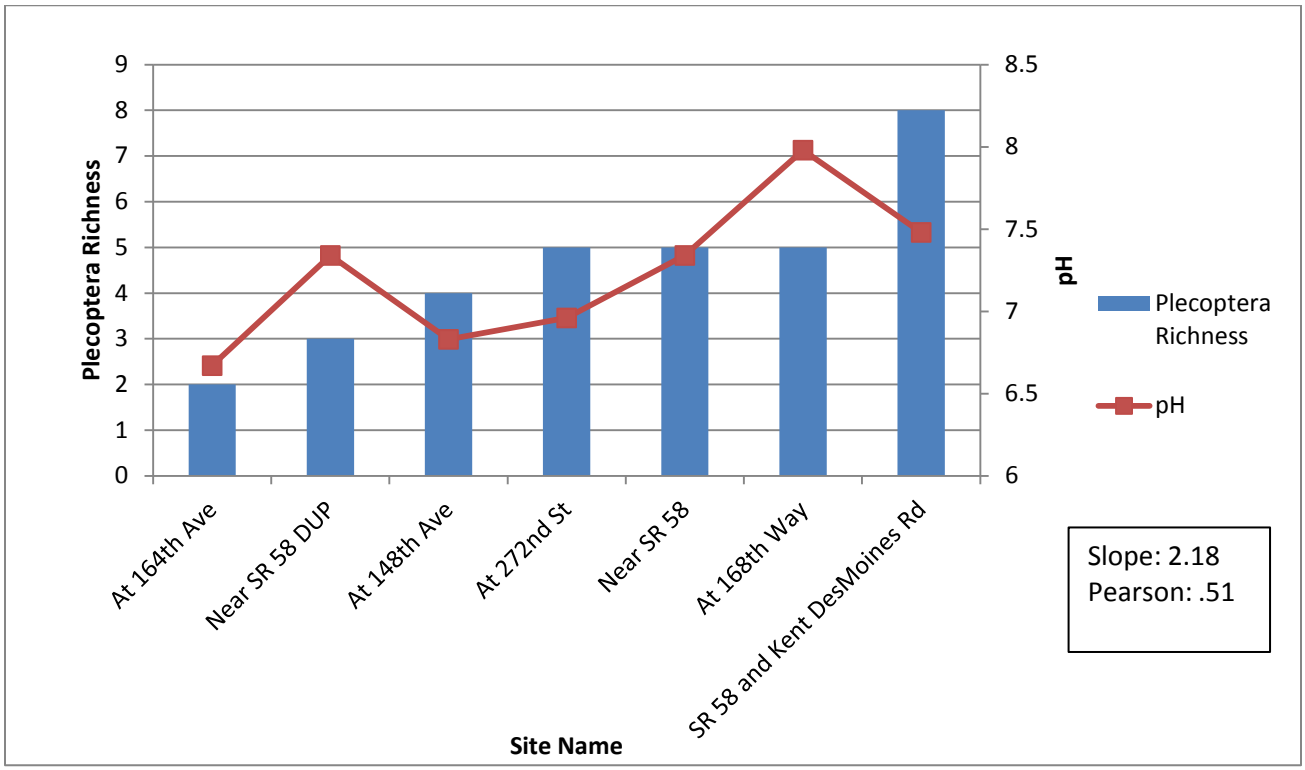

Figure D18. The relationship between pH and plecoptera richness

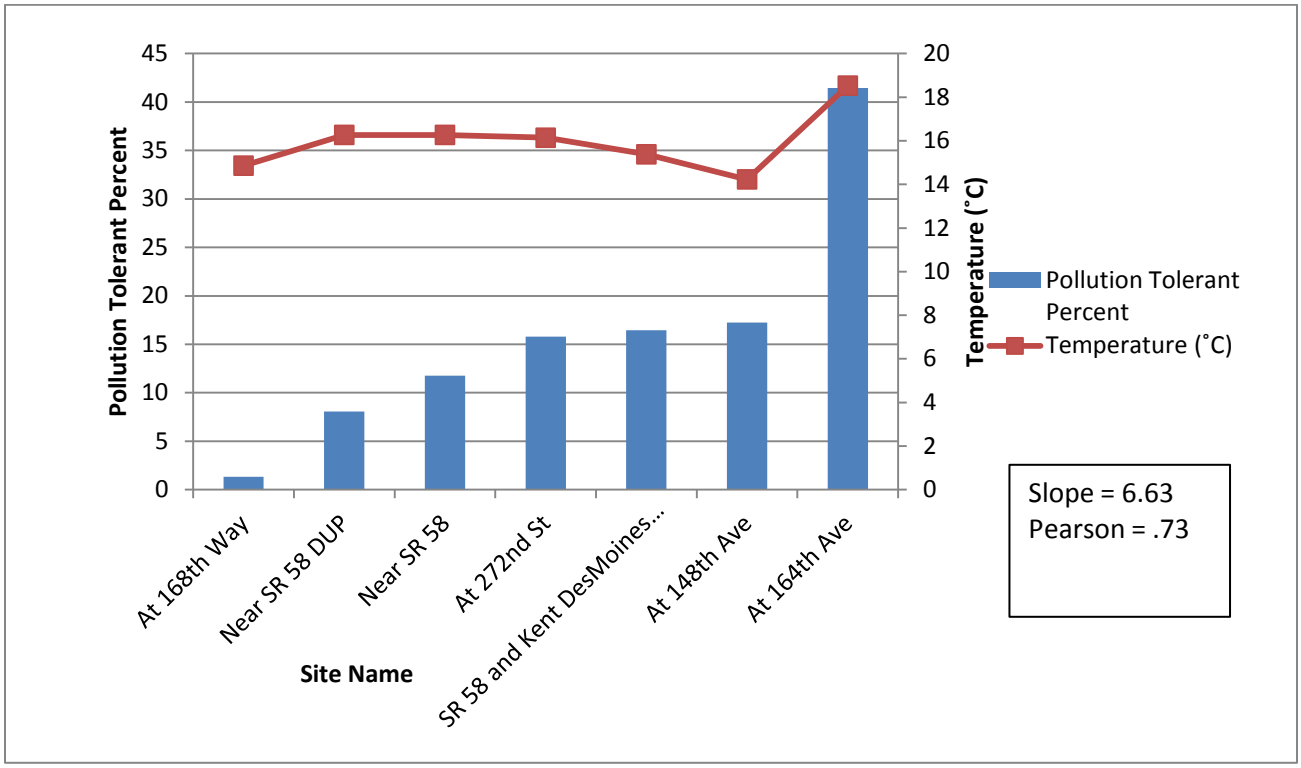

Figure D19. The relationship between temperature and pollution tolerant percent

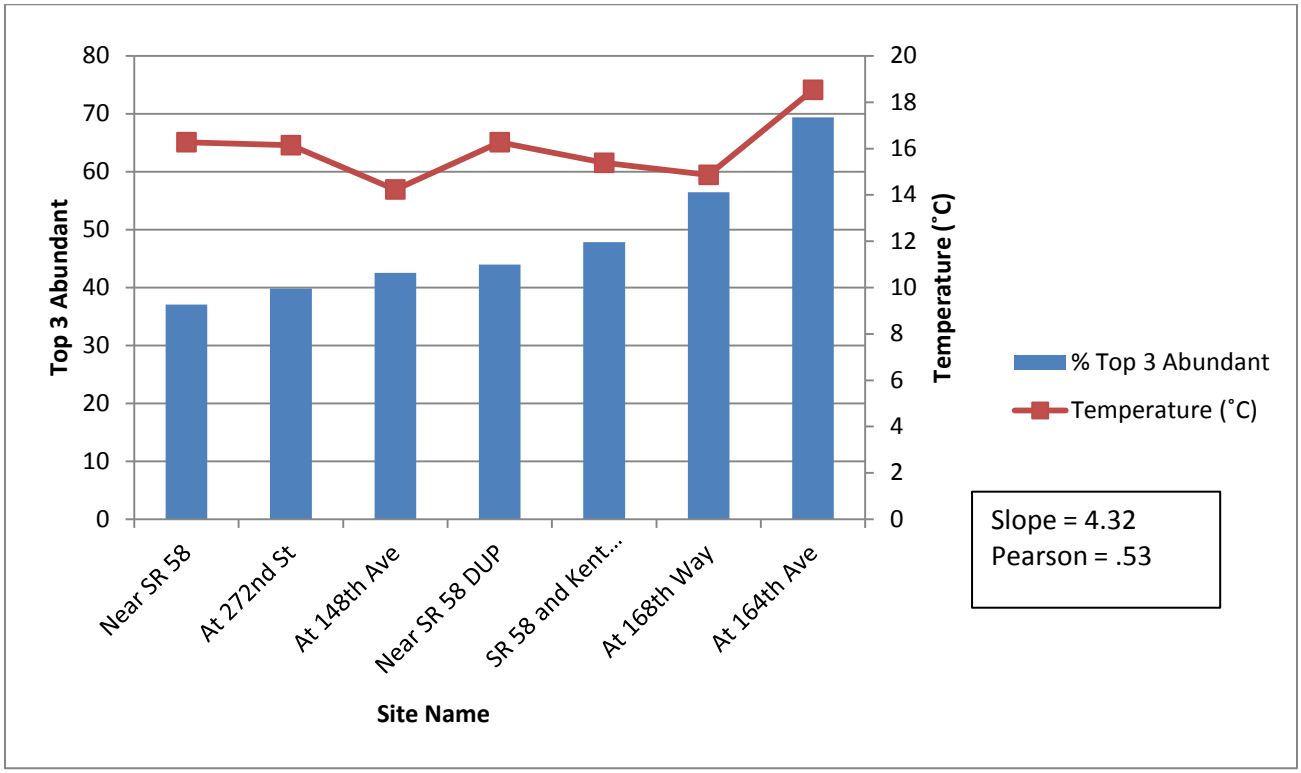

Figure D20. The relationship between temperature and % top 3 abundant

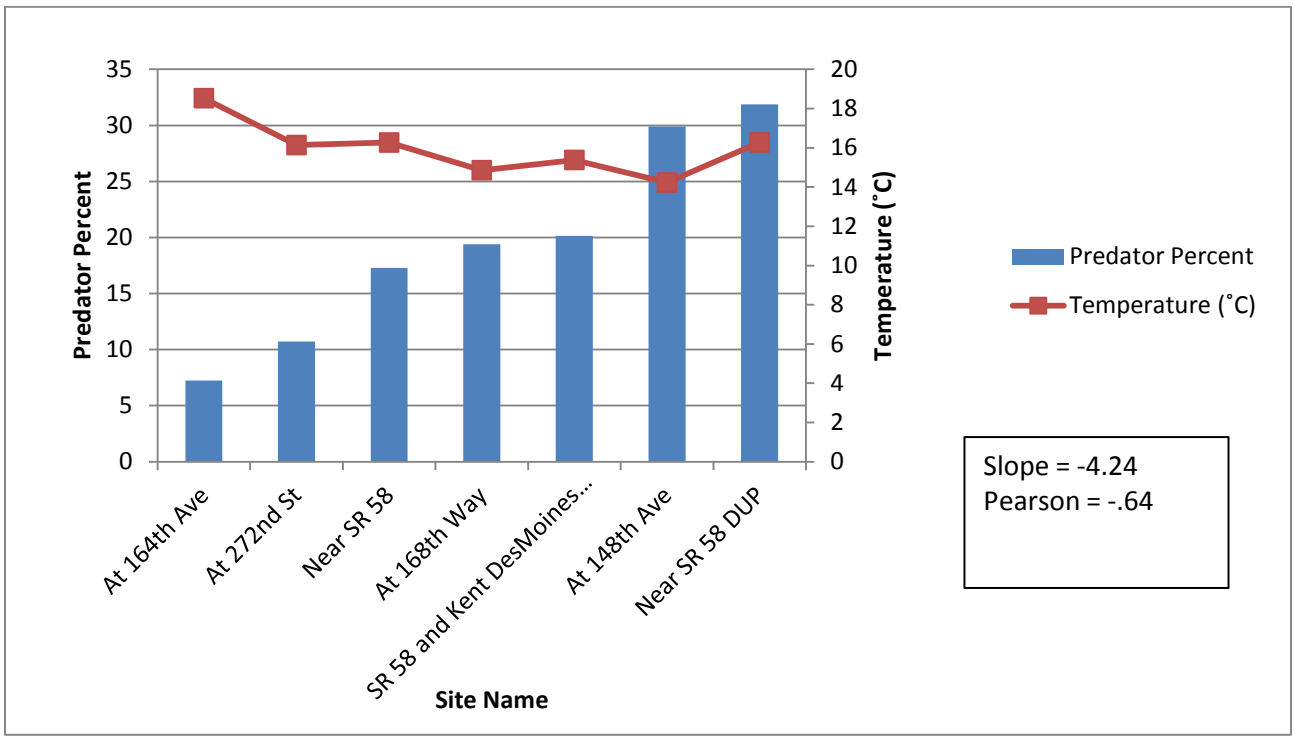

Figure D21. The relationship between temperature and predator percent

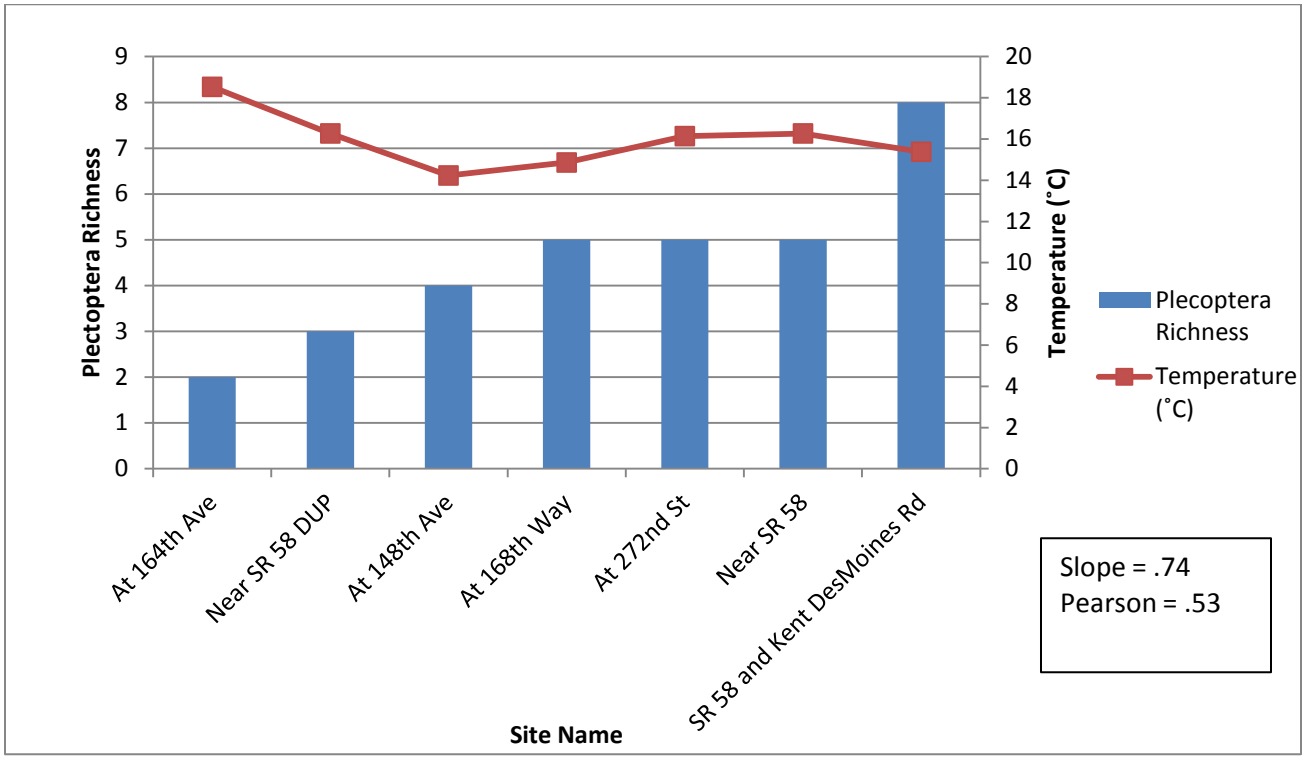

Figure D22. The relationship between temperature and plecoptera richness

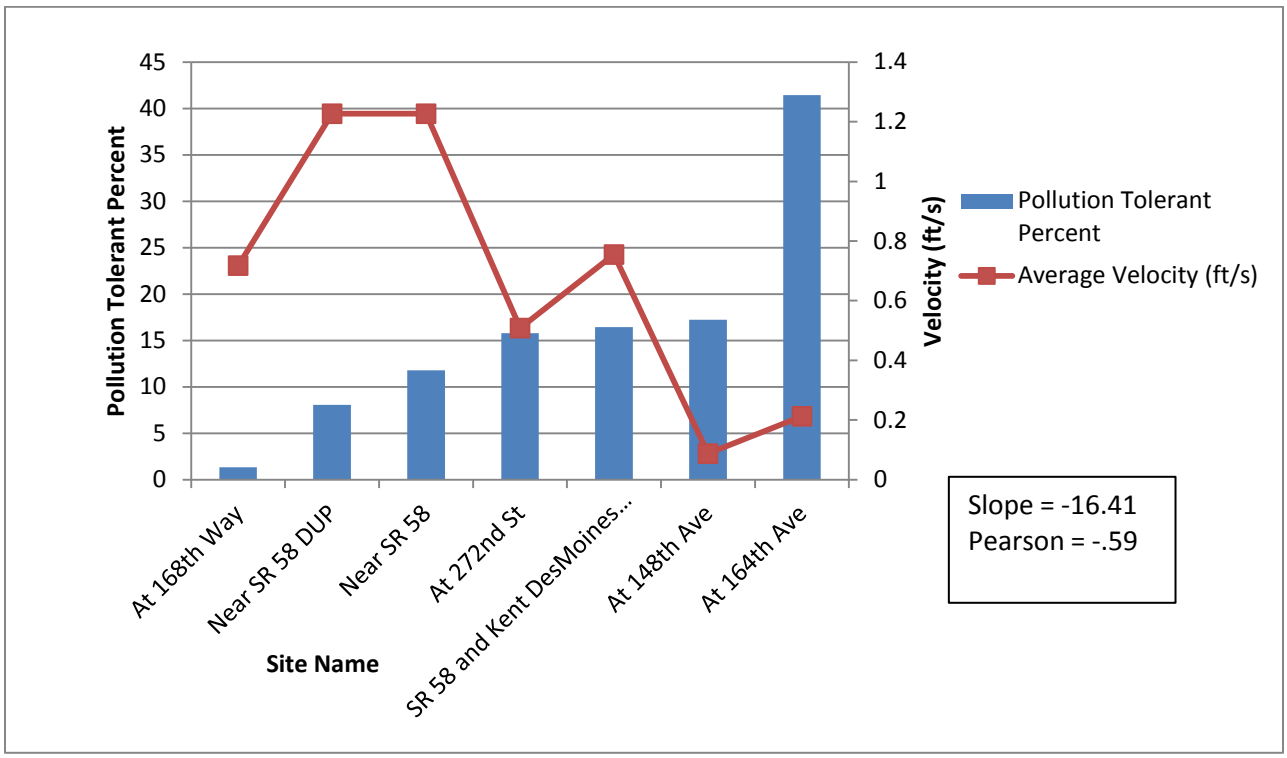

Figure D23. The relationship between velocity and pollution tolerant percent

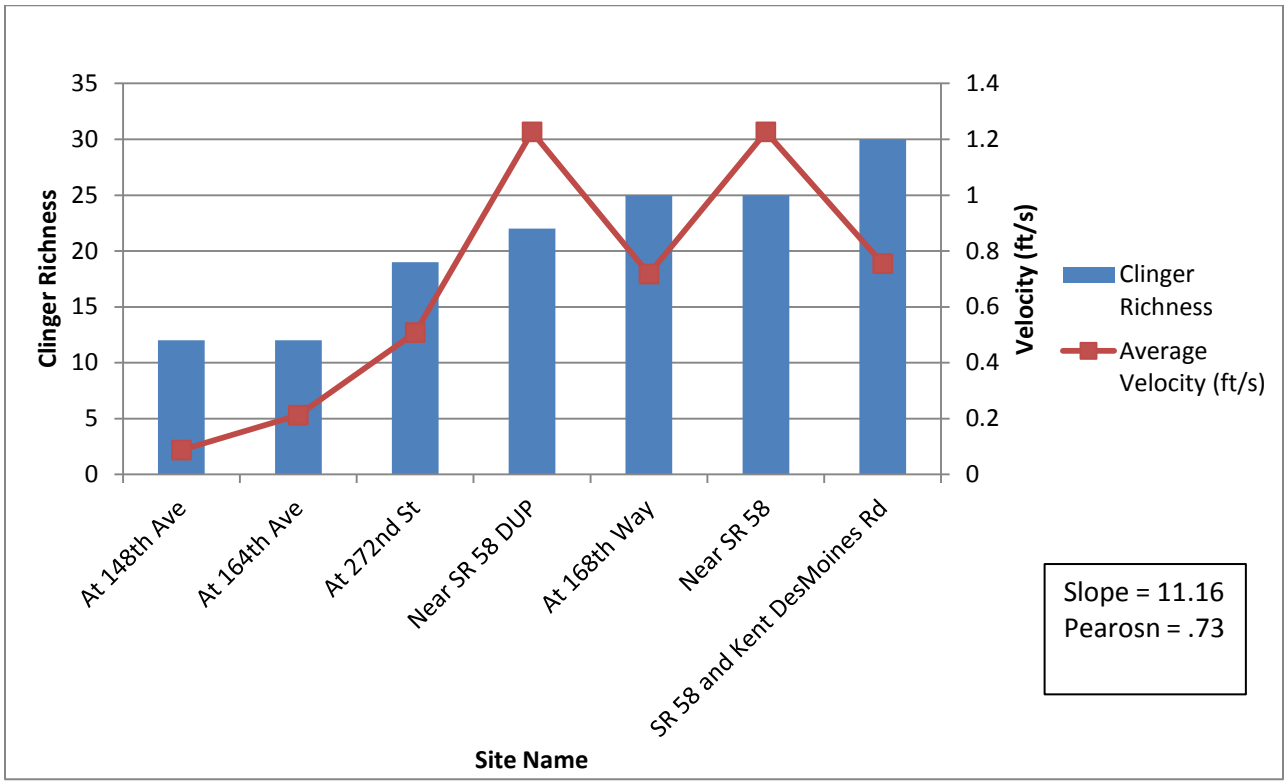

Figure D24. The relationship between velocity and clinger richness

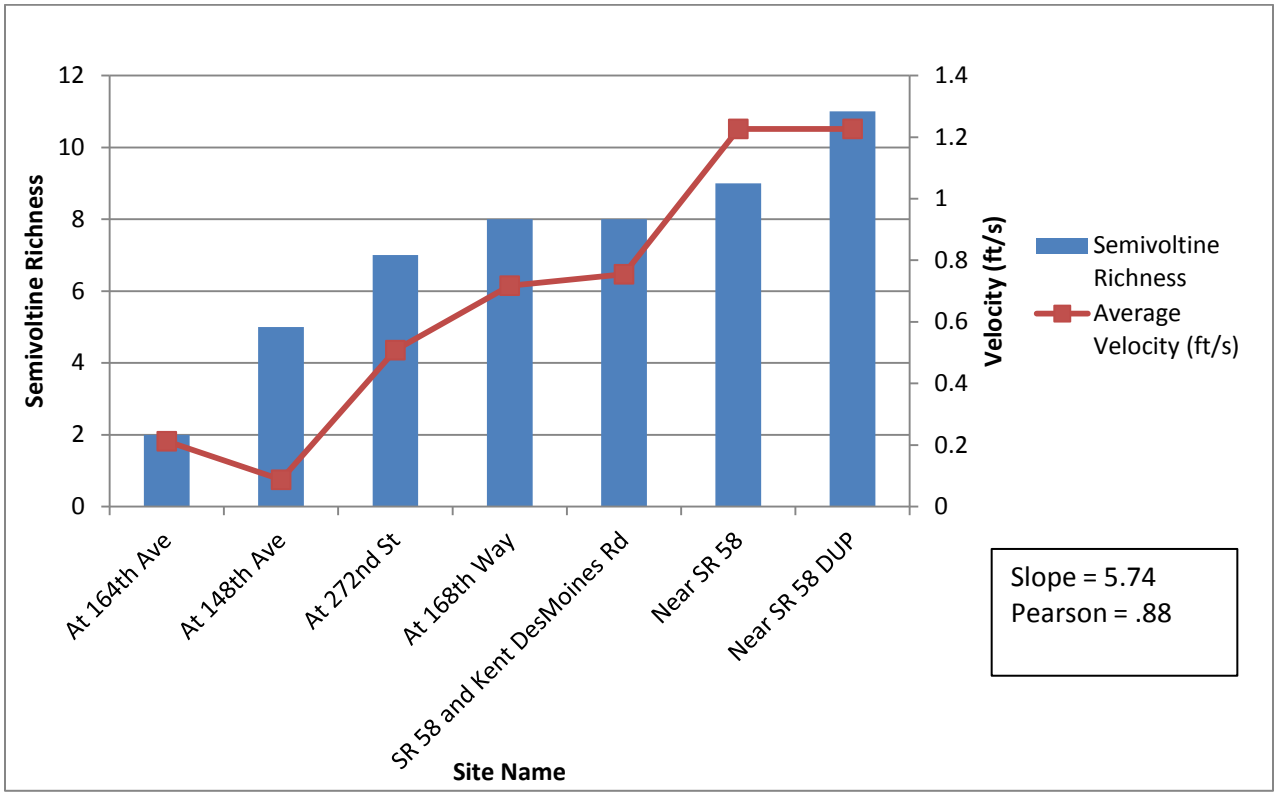

Figure D25. The relationship between velocity and semivoltine richness

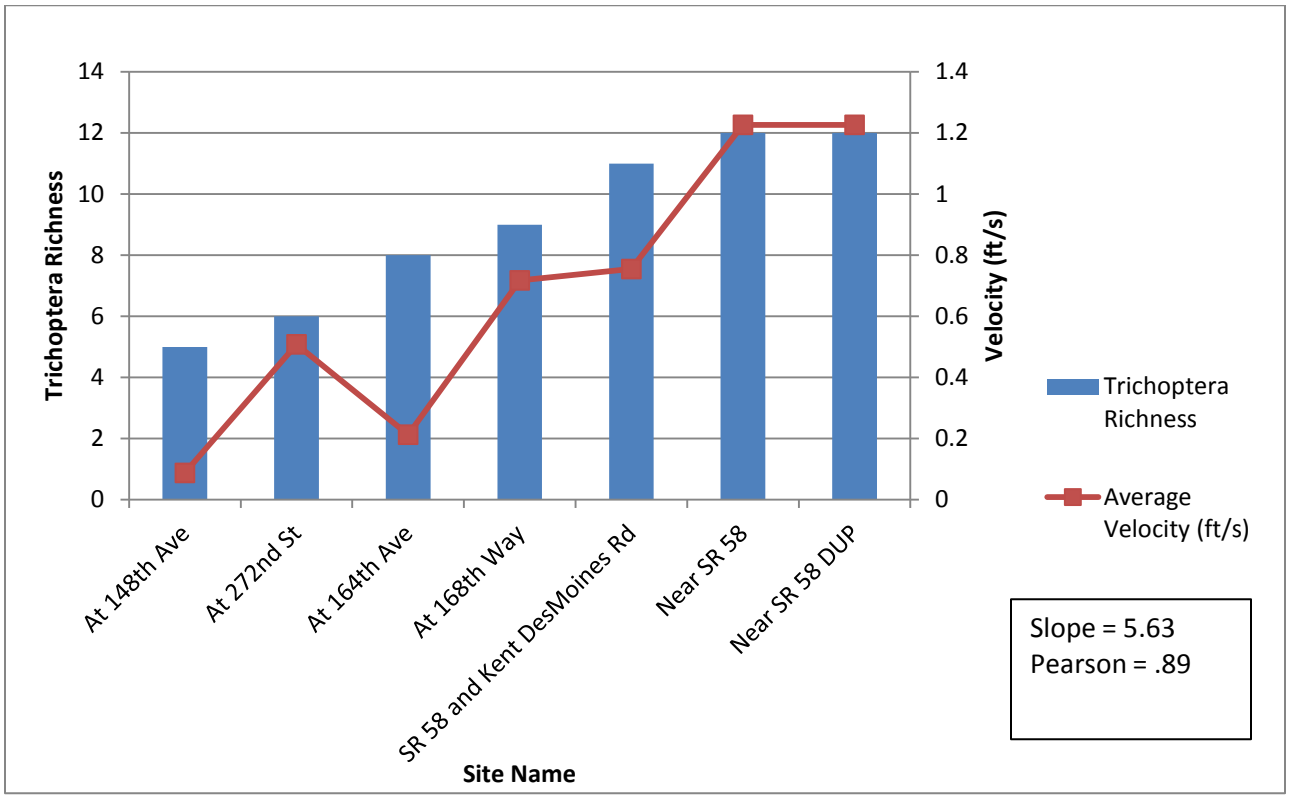

Figure D26. The relationship between velocity and trichoptera richness

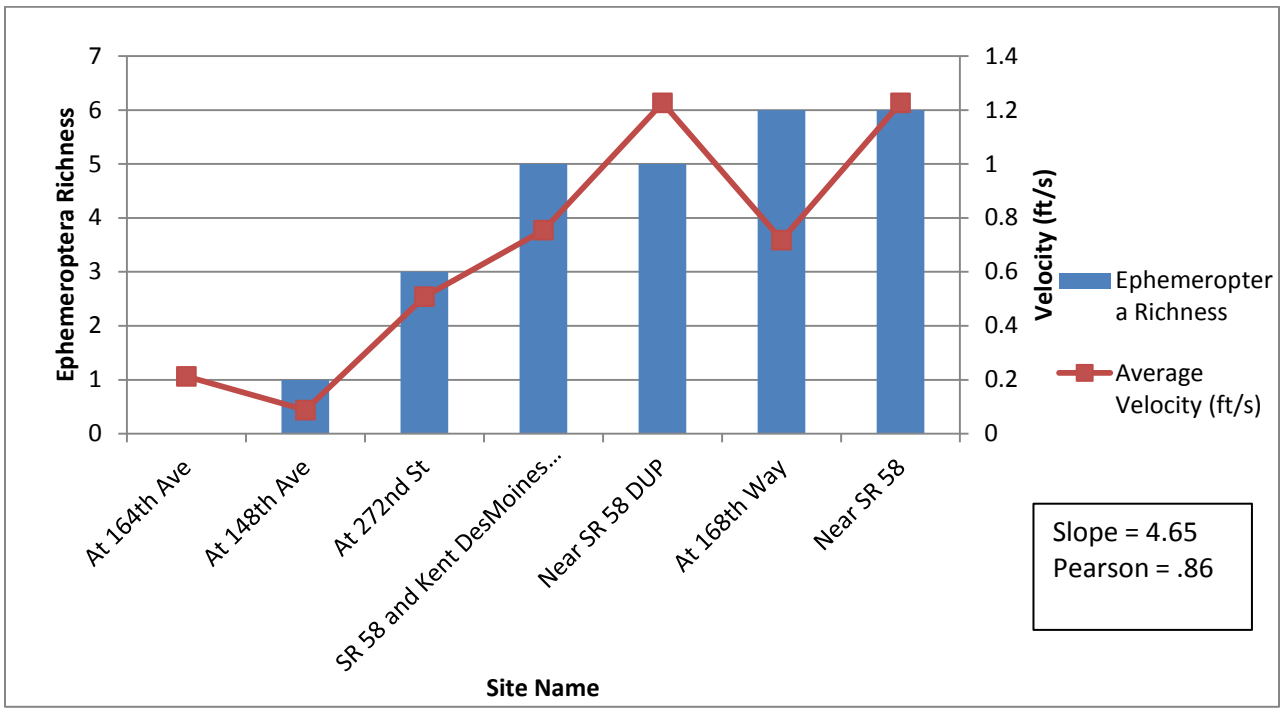

Figure D27. The relationship between velocity and ephemeroptera richness

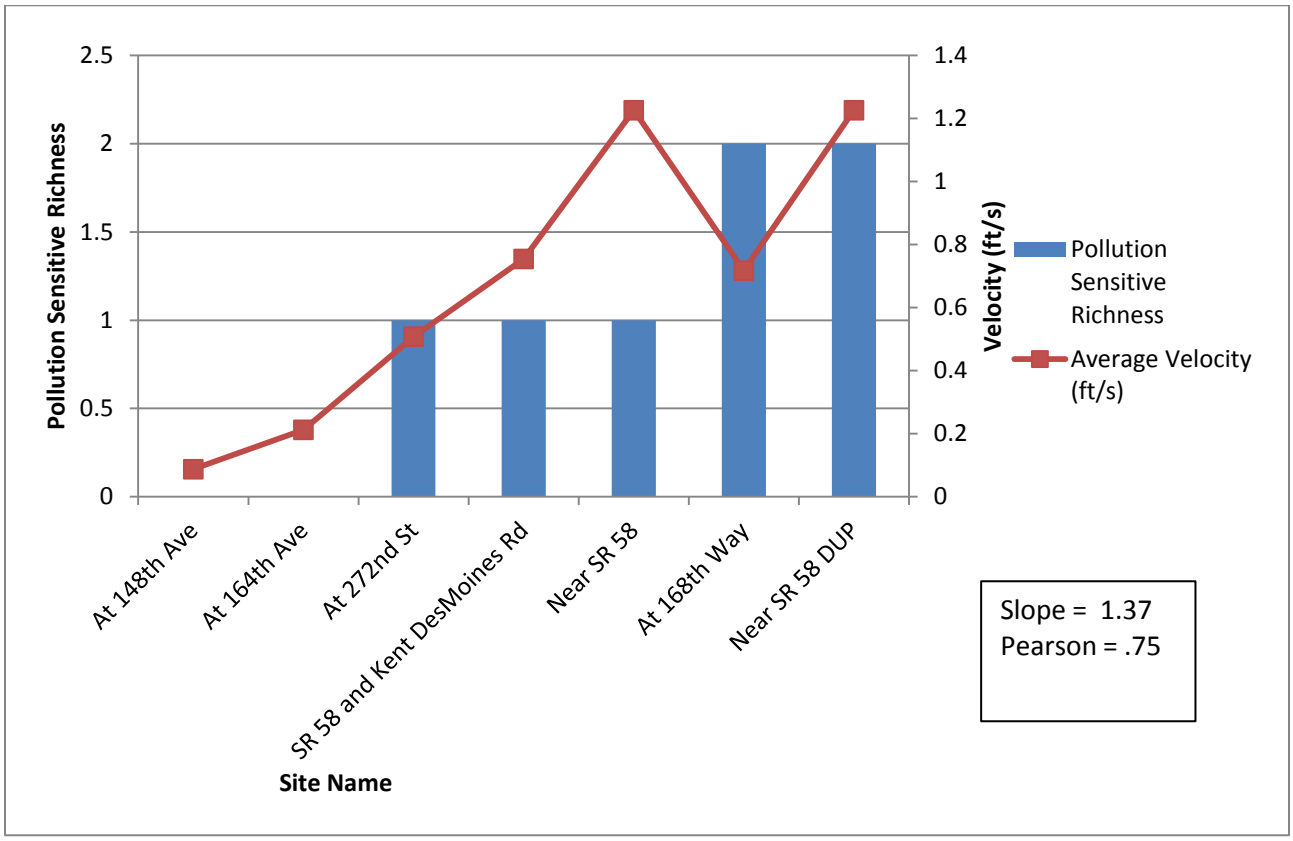

Figure D28. The relationship between velocity and pollutant sensitive richness

Soos Creek: Periphyton-Stressor Relationships

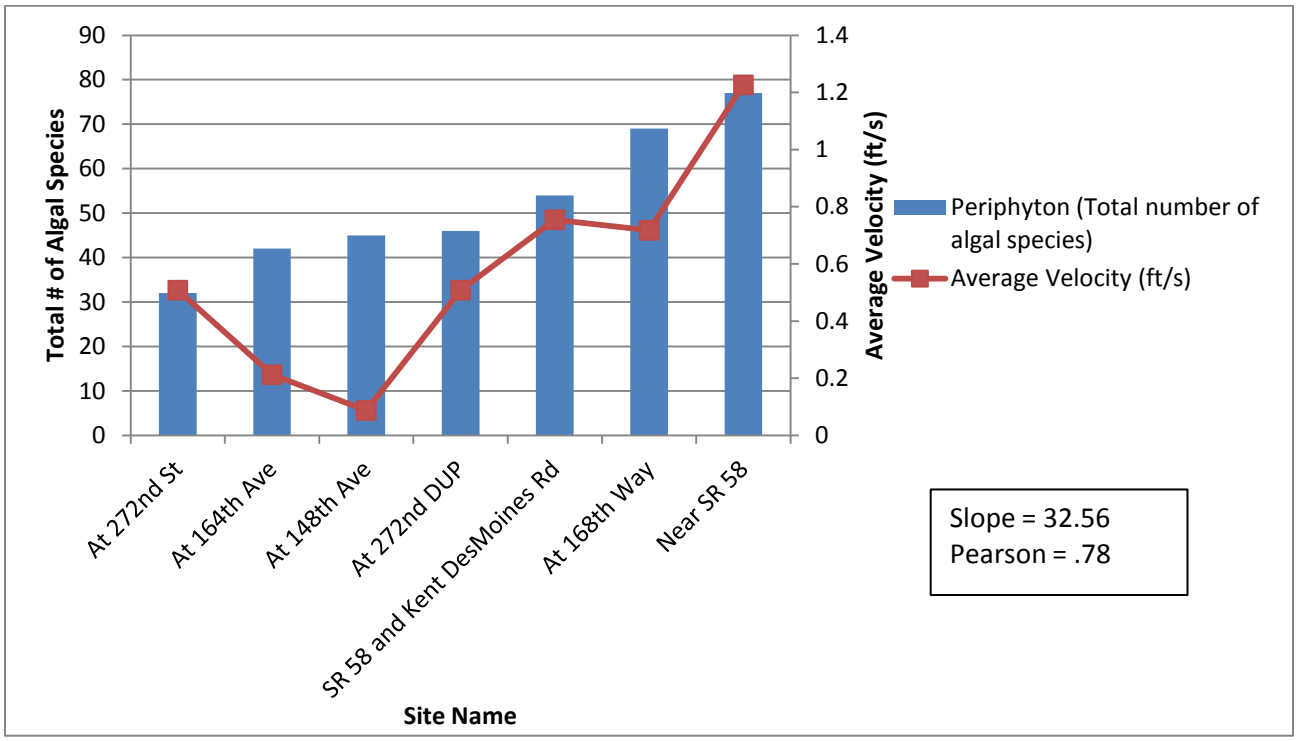

Figure D29. The relationship between periphyton and velocity

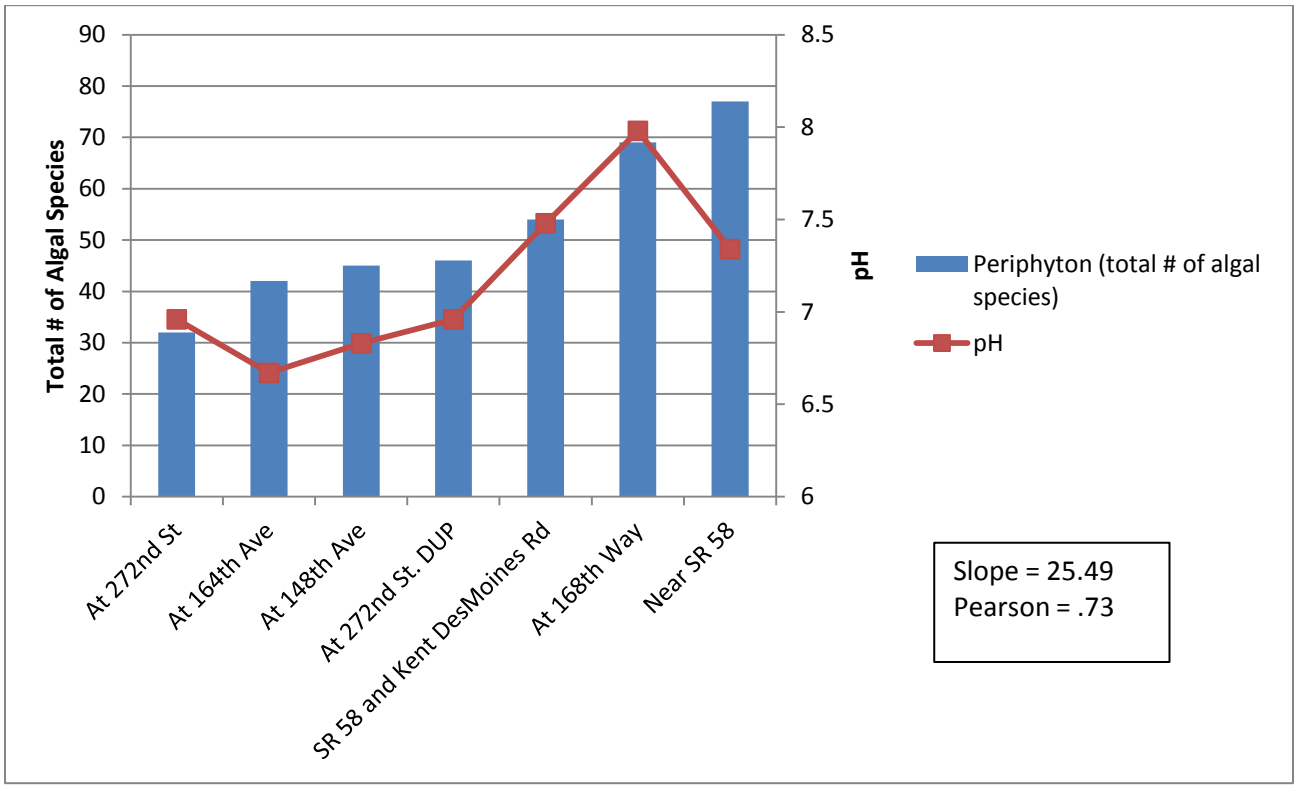

Figure D30. The Relationship Between Periphyton and pH

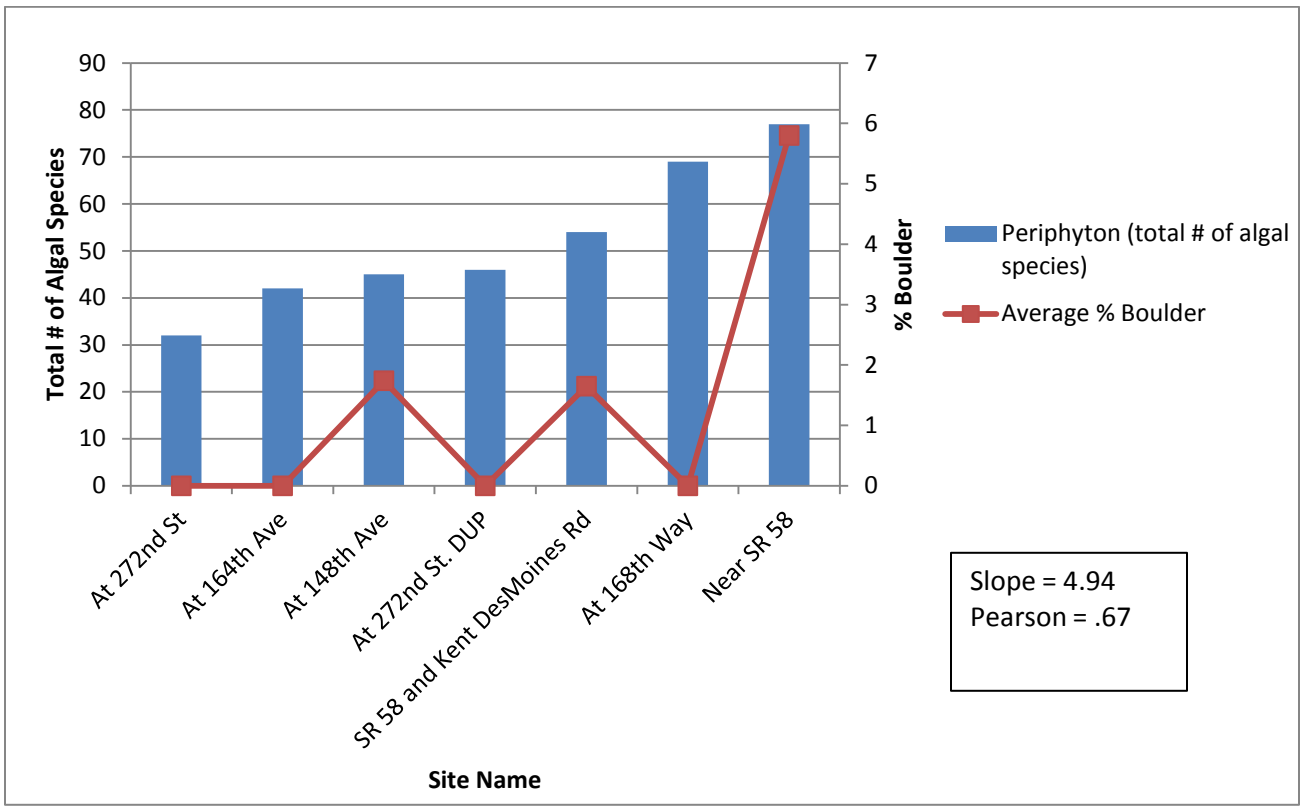

Figure D31. The Relationship Between Periphyton and % Boulder

Appendix E. Photos

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Photo 1: At 148th Ave SE BS-1

Photo 2: At 164th Ave LS-1

Photo 3: At 168th Way C-1

Photo 4: At 168th Way C-1

Photo 5: Baker Creek SQ-2 Lower

Photo 6: Baker Creek SQ-2 Upper

Photo 7: Covington CC-2 Crossing Near Kent Black Diamond Road

Photo 8: Squalicum SQ-1 At West Street

Photo 9: Squalicum SQ-3 Below Sunset Pond

Photo 10: Squalicum SQ-4 Below Hannegan Road

Photo 11: Squalicum SQ-5 Above SR 542

Photo 12: Squalicum SQ-6 Upper Squalicum

Appendix F. Sampling Design and Methods

In the Squalicum and Soos Creek watersheds, candidate sites were identified that are used for measuring the intensity and effect of stormwater impacts and as demonstration locations for determining utility of using multiple biological indicators. Using multiple indicators is advantageous to identify:

- Specific pollutants from stormwater input.
- Impacts on stream temperature and dissolved oxygen from stormwater input.
- Habitat where toxics are transported and increase exposure potential of aquatic life (BMI, periphyton).

Sites were selected in several types of stream reaches with a range of characteristics beginning with those considered to be like high-quality western Washington streams (assessed using the RIVPACS predictor variables). High-quality and stormwater-impaired sites were compared to find differences (or combination of differences) that are attributed to stormwater impact.
The study sites and design for sampling (at discrete sites) are described and illustrated with maps. The proposed discrete sites for sampling were field-verified before final location. Site locations were monumented using a global positioning system unit.

Sampling Locations

Tetra Tech biological sampling locations are listed in Table F-1 for Squalicum Creek and in Table F-2 for Soos Creek.

Table F-1. Biomonitoring sites in the Squalicum Creek drainage for identifying response to stormwater impacts

Drainage	Site name	Site abbreviation	Latitude	Longitude
Squalicum Creek	Upper Squalicum	SQ-6	48.801360	-122.390144
Squalicum Creek	Above SR542	SQ-5	48.800451	-122.408164
Squalicum Creek	Below Hannegan Rd	SQ-4	48.784126	-122.439607
Squalicum Creek	Above Cornwall Park	SQ-3	48.775324	-122.465137
Squalicum Creek	Baker Creek	SQ-2	48.776980	-122.490842
Squalicum Creek	At West Street	SQ-1	48.765875	-122.500094

Table F-2. Biomonitoring sites in the Soos Creek drainage used for identifying response to stormwater impacts

Drainage	Site name	Site abbreviation	Latitude	Longitude
Soos Creek	At 148th Ave SE	BS-1	47.386341	-122.144080
Soos Creek	Near SR 58	BS-2	47.317578	-122.147453
Soos Creek	At 272nd St.	BS-3	47.213010	-122.073078
Soos Creek	At 168th Way SE	CC-1	47.3193	-122.1193
Soos Creek	SR 58 Crossing nr Kent-Black Diamond Road SE	CC-2	47.3122	-122.0965
Soos Creek	At 164th Ave SE	LS-1	47.4001	-122.1226

The locations of the proposed bioassessment monitoring sites in the Squalicum Creek drainage are shown in Figure F-1. Not all the existing biomonitoring sites examined from historical records are in the Soos Creek drainage, but they have been considered to acknowledge past work in the area. The locations of proposed bioassessment monitoring sites in the Soos Creek drainage and Covington Creek drainage are shown in Figure F-2. Each proposed site was chosen to reflect stormwater influence from several land use types on biota in the adjacent stream channel. The sites represent response reaches where impacts from stormwater are more readily detected through examining the biological community.

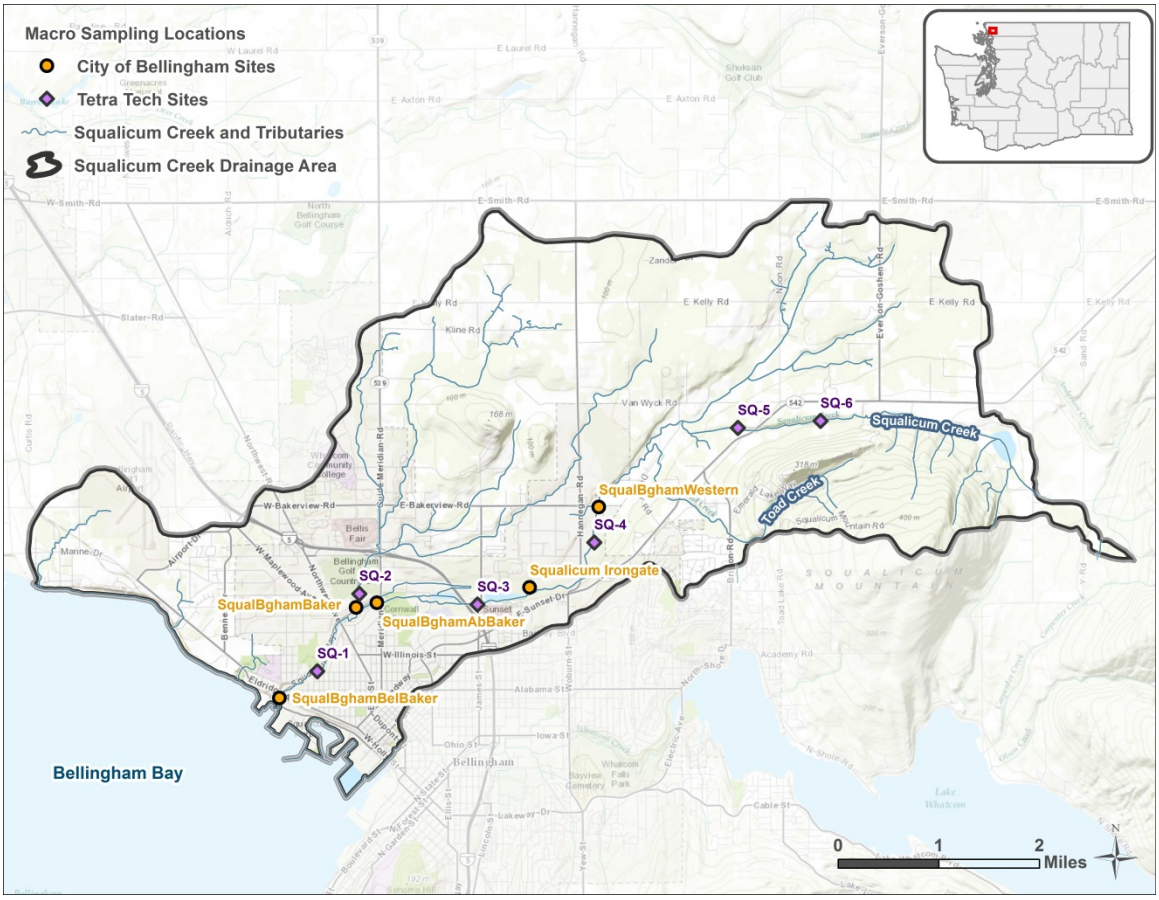

Figure F-1. Existing biomonitoring sites (Bellingham) and the 2012 biomonitoring sites (TetraTech) in the Squalicum Creek drainage used for identifying response to stormwater impacts.

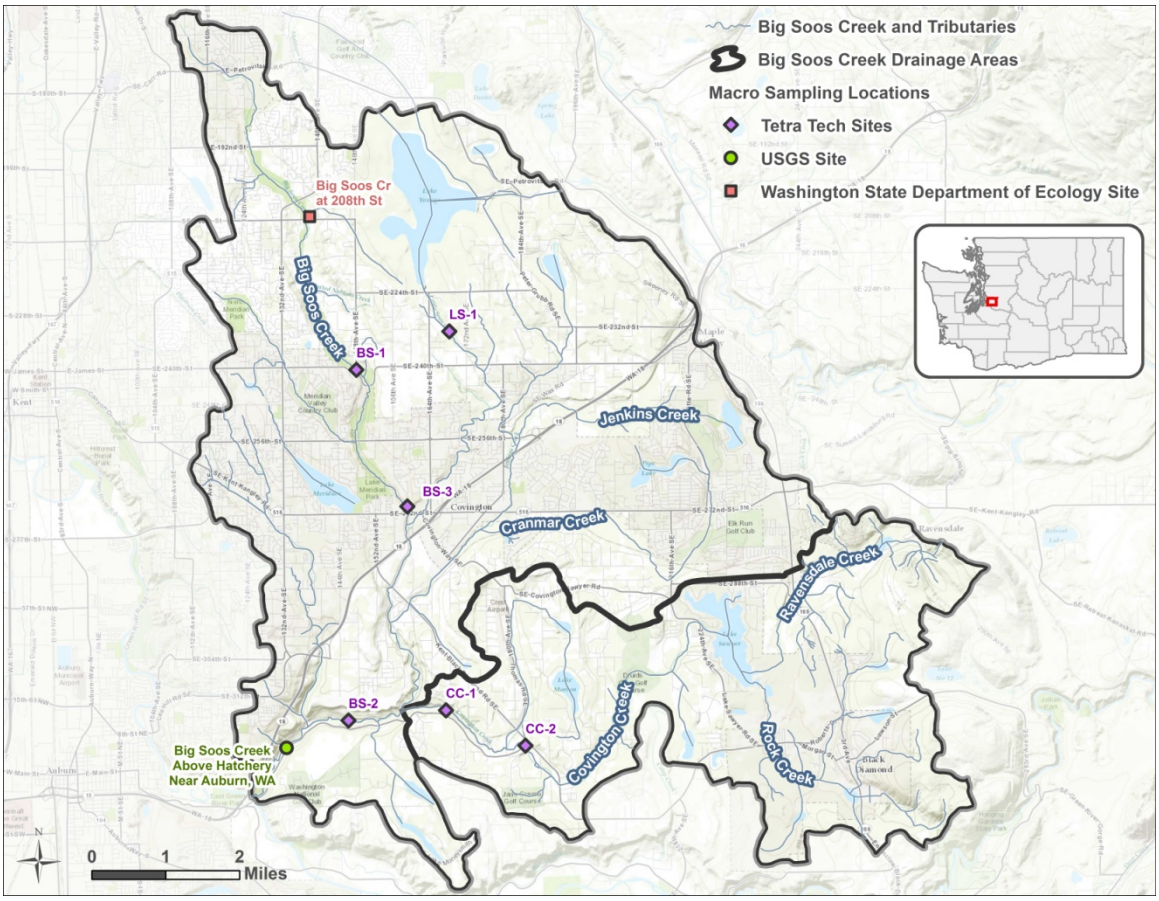

Figure F-2. Existing biomonitoring sites (USGS) and 2012 biomonitoring sites (Tetra Tech) in the Soos Creek and Covington Creek drainages used for identifying response to stormwater impacts.

The sampling design and rationale for this project should provide information that can be used to help fill data gaps in modeling and enhance the predictive capacity so that management actions are more likely to be effective. The monitoring strategy addresses the effect that potential sources of nonpoint stormwater contributions have in reducing dissolved oxygen concentrations, and it explains how much each of the identified factors that diminish dissolved oxygen has on this continuing water quality impairment.

Squalicum Creek

The Upper Squalicum (SQ-6) site was accessed near a downstream bridge used by local homeowners. The surrounding area was developed for hobby farms and riding stables. The stream braids into multiple channels that appear to be stable with mature vegetation on each island. Signs of severe bank erosion exist along with sand bags and other stabilizing structures to mitigate erosion. These structures reach the edge of the stream, which shows signs of sedimentation. The horse hobby farms appear to affect upstream substrate stability with access to the stream as a crossing or as destabilizing riparian areas and vegetation growth.

Sampling the reach above SR 542 site (SQ-5) was through a deep stream corridor; the channel is incised well below easy access from the nearest roads. Canopy cover is heavy, and ambient air temperature is cool compared to open areas above the creek channel. A variety of substrate types and good wood recruitment are in the channel. Some signs of access with pathways to the stream were identified, but it is one of the least disturbed sites relative to others visited in this drainage.

The reach below Hannegan Road (SQ-4) is a restoration area that Western Washington University is constructing, and it is at an intermediate stage in riparian vegetation growth and in-stream habitat development. Instream wood had been placed to encourage reappearance of regular pool-riffle habitat and to reduce water energy during storm events where streamflow rises rapidly. The riparian vegetation is dense, but increased human activity, because of easy access to this reach, could impair biological communities.

Squalicum Creek above Cornwall Park (SQ-3) is below Bug Lake (an artificial lake formed after Interstate 5 was constructed) and in a fairly isolated field setting. Limited access to the stream corridor is maintained by wire fencing and locked gates, although access to this reach is upstream from Cornwall Park. The substrate is dominated by fines with origin explained by proximity to Bug Lake. The riparian area is densely vegetated, with grasses dominating in fields surrounding both sides of this reach. A large wildlife presence (white-tailed deer) was observed during the daytime visit to this site.

Baker Creek (SQ-2), a tributary of Squalicum Creek, enters near the bottom of the drainage (above SQ-1). The wetted width is very narrow compared to the bankfull width. This is a result of massive streambank failure. Most of the substrate size in the reach is intermediate to small, and the sediments that could be sampled were highly mobile. The stream is incised and is 75 ft below the surrounding structures (large multifamily residential apartments) and a golf course bordering the upstream portion of the reach. The riffle habitat with large substrate particles is infrequent in the reach, both upstream and downstream of the established sampling area.

Squalicum Creek at West Street (SQ-1) is the lowest location for biological assessment. This reach is bordered by a moderate to high volume of traffic from both local residential and industrial users. This is a main access route to industrial areas on the waterfront in addition to upgradient suburban areas. From visual surveys, the stream channel appears to be stable with a variety of substrate sizes. The stream channel does not have good wood recruitment, but it shows some signs of groundwater inflow from the hillslope that borders one side of the channel. One of the side channels has significantly cooler water than the main (thalweg) channel. Riparian growth is not dense, but it is effective in shading most of the stream.

Soos Creek

At the 148th Ave (BS-1) site is a small, shallow channel of the Big Soos Creek running under the Soos Creek Trail. The channel runs under a walking bridge and contains woody debris, silt/clay/ muck, and a few larger cobbles. At the time of sampling, surface sheens and a slight anoxic sediment odor were noted, and a silt fence was partially in the stream. Samples were taken above and below the walking bridge.

Sampling at the Near SR 58 (BS-2) site took place immediately off of SR 58 where Covington Creek runs along the busy highway. This site has rock riprap to prevent erosion. Much reed canary grass lines the channel. The Big Soos Creek channel here is large, with a wetted width of 25.75 ft, and fast-moving with an average velocity of 1.23 ft/sec. It has many substrate sizes.

Stormwater sampling at the 272nd St (BS-3) site was conducted in the Big Soos Creek channel and is accessible near the parking lot of Covington Holistic Medicine. The channel has an average of 14 ft wetted width and a large amount of canopy cover (98.90 percent). The channel runs through a culvert under 272nd Street, a busy highway. Sampling was performed above the culvert.

The creek at the 168th Way (CC-1) site runs underneath a tall road bridge and was accessed by climbing down the bank to the channel of Covington Creek. The channel has a moderate amount of high canopy cover (72.80 percent), is wide, with a wetted width of 22.32 ft, and has a variety of substrate sizes.

Sampling at the SR 58 near Kent-Black Diamond Road (CC-2) site was accessed on the side of SR 58 where the road meets Kent-Black Diamond Road. This channel of Covington Creek was sampled upstream of where the channel runs under SR 58 (via low bridge). The channel has a large amount of canopy cover and a flat bank with a large wetted width of 22.5 ft.

Sampling at the 164th Ave SE (LS-1) site was accessed along 164th Avenue near 224th Street. This channel of the Little Soos Creek runs from Lake Youngs, under 164th Avenue through a culvert. Sampling occurred downstream of the culvert. A large amount of canopy cover is at this site (93.01 percent), and it has an extremely large bankfull width (more than 100 ft), with one sloping bank and one flat. Much woody debris and downed trees were in the stream.

Sampling Procedures

Information from several sites in the Squalicum Creek and Soos Creek drainages was needed to determine conditions that reflect biological response to stormwater impacts. Data were collected that describe in-stream biological conditions, water quality, and physical habitat condition. Available stream assessment data from Bellingham, Ecology, and USGS describe recent past biological conditions in both drainages. Data were used to determine sampling locations to contrast those reaches unaffected by stormwater impacts and those where pollutants have altered components of the biological community. In order to effectively use data from past monitoring programs to make decisions about current project sampling locations, water quality parameters measured to describe biological communities, physical habitat, and water quality conditions must be similar. The protocols used in this study are consistent with those described in Ecology (2010). Revisions to individual protocols are further described in this section.

Quality Assurance: Comparison of Replicate Samples at Squalicum Creek Sites

As part of the quality assurance (QA) plan for this project, replicate samples were collected: several from select sites at Squalicum Creek and one from Soos Creek. Two sets of samples were collected from each of two sites (Upper Squalicum Creek and Squalicum Creek at West Street) by an experienced Tetra Tech benthic ecologist and by an experienced Ecology benthic biologist. A single set of replicate samples was collected from Soos Creek near SR 58. Condition assessments were compared by using the multi-metric index and the predictive model (RIVPACS) scores. The component biometric expressions were also compared from the multi-metric index to identify where differences in scoring, and potentially, differences in assessment would have occurred.

Any differences identified using the index scores and the biometric scores are an indication of the potential benthic sampling error associated with collection methods. The magnitude of error between collection sets was further considered when interpreting biological results from all the sites from Squalicum and Soos Creeks.

Results of Replicate Sample Comparisons

Taxa identities from samples collected separately by Tetra Tech and Ecology were similar. Differences between the replicate samples were because of densities of individual taxa, and these explained differences for biometrics. The influence of density differences between the two replicate data sets effect the results for individual biometrics. The RIVPACS scores are affected more by the presence (or absence) of individual taxa collected in each of the replicate samples. Differences between the two collection efforts are illustrated in Appendix C graphs describing relationships between biological response and physicochemical parameters. Ecology and Tetra Tech results are color-coded for easy visual comparison.

Summary of Sampled Stream Reach Characteristics

Assessment protocols were selected to measure effects on stream condition either directly or indirectly. Some of the processes by which stormwater affects biological communities are difficult to measure, so we use surrogate parameters that respond in the same way. Table F-3 lists such parameters measured in this study. The mechanisms for how stormwater affects stream condition and biological communities are summarized in Tetra Tech (2012b).

Table F-3. Summary of parameters measured at each stream reach in Squalicum Creek and Soos Creek

Parameter	Protocol reference	Relationship to stormwater input (Tetra Tech 2012b)
Biological condition		
Periphyton	Ecology 2010	a. Response variable
BMI	Ecology 2010	a. Response variable
Water quality		
Temperature	Ecology 2010	a. Mixing zone exposure
Dissolved oxygen	Ecology 2010	a. Mixing zone exposure
Conductivity	Ecology 2010	a. Mixing zone exposure
pH	Ecology 2010; 2012a	a. Mixing zone exposure
Physical habitat		
Riffle pebble count and embeddedness	Ecology 2010; 2012a	a. Substrate size b. Substrate deposition
Bankfull width	Ecology 2010; 2012a	a. Water velocity
Wetted width	Ecology 2010; 2012a	a. Water velocity
Bank stability	Ecology 2010; 2012a	a. Water velocity b. Substrate movement
Slope	Ecology 2010; 2012a	a. Substrate movement b. Substrate size c. Residence time
Canopy cover	Ecology 2010; 2012a	a. Habitat association
Current velocity	Ecology 2010; 2012a	a. Water velocity b. Substrate deposition c. Residence time
Stream discharge	Ecology 2010; 2012a	a. Mixing zone exposure b. Habitat association
Laboratory parameter		
Chlorophyll *a*	Ecology 2010; 2012a	a. Suspended contaminated sediment b. Residence time c. Substrate size
Sediment contaminants • Metals • Pesticides/PCBs • BNAs (Base/Neutral/Acids Semivolatiles)	Ecology 2010; 2012a	a. Suspended contaminated sediment b. Mixing zone exposure c. Substrate deposition

Summary of Potential Stormwater Impacts

Several factors that affect biological communities explain mechanisms for changes from stormwater input to streams. These factors are summarized by the following general mechanisms:

- Flow variation
- Factors influencing toxics exposure potential
- Point of toxics exposure

The specific measureable elements influenced by stormwater input to a stream reach are categorized by the preceding list. Each factor is grouped in Table F-4 and described in terms of negative effect of stormwater input on the BMI/periphyton community. Bioassessments were coupled with potential stressors from each of the above categories (e.g., flow variation, toxics exposure potential, and point of toxics exposure) and confirmed by those expectations described in Table F-4. Biological community condition from impaired sites associated with suspected stormwater input were compared against reference sites conditions.

Stormwater impacts and biological response outlined in Table F-4 are environmental hypotheses tested by using data generated in this study. Biological responses related to presence of any of the stressors in Table F-4 were further examined as physical and chemical factors that could be managed through an implementation strategy in the TMDL.

Table F-4. Changes in streams following stormwater input and how they are harmful to aquatic life

Stormwater impact		Rationale	Response
Flow Variation	**Substrate Movement** Is substrate size subject to transport and at what intensity of stormwater input?	Large pulses of stormwater discharge can mobilize large quantities of substrate. Fine substrate moved by stormwater smothers usable habitat for periphyton growth or reduces size of viable periphyton patches.	*Negative*—with high-intensity stormwater input. Salmon spawning habitat could be affected; buried eggs, dislodged eggs, dewatered sand bars during critical low-flow period.
	Substrate Size Are substrate size changes a result of stormwater input?	Stable substrate presents better colonization potential.	*Negative*—mobilization or rolling movement reduces habitable substrate. Salmon spawning habitat could be dominated by *fines*.
	Water Velocity Do changes in water velocity patterns following stormwater input affect BMI communities?	Velocity changes at select habitat following stormwater input changes morphological characteristics of the channel.	*Negative*—increase/decrease beyond a pre-storm event velocity range will affect living space for BMI. Changes availability and quality of salmon spawning and rearing habitat.
	Flow Volume Do seasonally significant volume changes affect BMI communities?	Changes in flow volume (excessively high in winter or critically low in summer) change timing and duration for usable habitat conditions (e.g., channel condition, BMI community, and salmon presence).	*Negative*—during critical low flow, increases likelihood of low dissolved oxygen, higher temps, etc. High volumes—increased volume affects living space for BMI and periphyton. Poor salmon rearing habitat during the critical low-flow period.
Factors Influencing Toxics Exposure Potential	**Sediment/Water Column** In which media do toxics aggregate and present exposure potential?	Stormwater toxics associated with one or more media might increase mortality in BMI community. Stormwater sequestered in periphyton community might present a toxic food base for *scraper* macroinvertebrate taxa.	*Negative*—higher concentrations in one or more of the aquatic media (e.g., sediment, pore water, surface water, or periphyton) decrease survivability in the BMI community. Salmon rearing habitat will be affected by potential for increased exposure of juveniles. Salmon spawning habitat with metals exposure results in increased egg mortality.

Stormwater impact		Rationale	Response
	Residence Time Are toxics resident in media for extended periods?	Identity of toxics and characteristic association with specific types of media can increase mortality in the BMI community.	*Negative*—toxics associated with organic/inorganic media will present long-term effects on the BMI community. Resident metals in salmon spawning and rearing habitat increased potential for bioaccumulation and increased mortality.
	Habitat Association Are there characteristic habitats in a candidate watershed where toxics aggregate in harmful levels?	Among the variety of morphological settings in a stream, some types of habitat are vulnerable to concentration and increase exposure potential for BMIs. Periphyton growth on hard substrates might sequester metals from stormwater and transfer effects to the BMI community.	*Negative*—if stormwater input decreases the area of suitable habitat (e.g., increasing fines, increasing toxics with fines), expected BMI taxa presence will decline. Toxics aggregation in salmon rearing and summer stream refugia results in increased mortality.
Point of Toxics Exposure	**Mixing Zone Exposure** Is there a mixing zone and does toxics exposure present a greater effect on BMI?	Mixing zones downstream of stormwater input could have substantial impacts on BMI communities but with diminishing effects outside the mixing zone.	*Positive*—a defined mixing zone is expected to have some effect on aquatic life, but BMI conditions outside the zone will improve dramatically.
	Suspended Contaminated Sediment Is suspended material carrying a high toxics load?	Sediment transport invokes a *drifting* behavior in many sensitive BMI species. Worse, if the suspension contains toxics, the BMI drifters suffer increased exposure.	*Negative*—suspended sediment will encourage drifting behavior in the more valuable component of a BMI community and could expose aquatic life to high concentrations of stormwater toxics. Contaminated sediments, once deposited in slackwater, will increase mortality of salmon eggs.
	Substrate Deposition Are contaminated toxics redistributed routinely?	Stormwater input might have a broad influence on changes to substrate composition and make colonization difficult for endemic species when the shift extends over broad spatial areas of the stream bottom.	*Negative*—increased fines and toxics associated with fines broadcast over a large spatial area will reduce the ability of sensitive BMI species from recolonizing. Rearing salmon will be exposed to increased potential for bioaccumulation of toxics where extensive contaminated sediments occur.

Steps in Analysis and Interpretation of Data

Several steps were identified in the technical approach (Tetra Tech 2012) for use in organizing, analyzing, and interpreting data. Figure F-3 illustrates the steps that were implemented and analytical tools used to determine relationships between physical and chemical water quality characteristics with biological response conditions. Identifying these relationships was a component of Part 3. Identify Pollutant in Figure F-3. Examining biometric responses and relationships to stressors was the initial step in using the Causal Analysis Diagnosis/Decision Information System (CADDIS) approach.

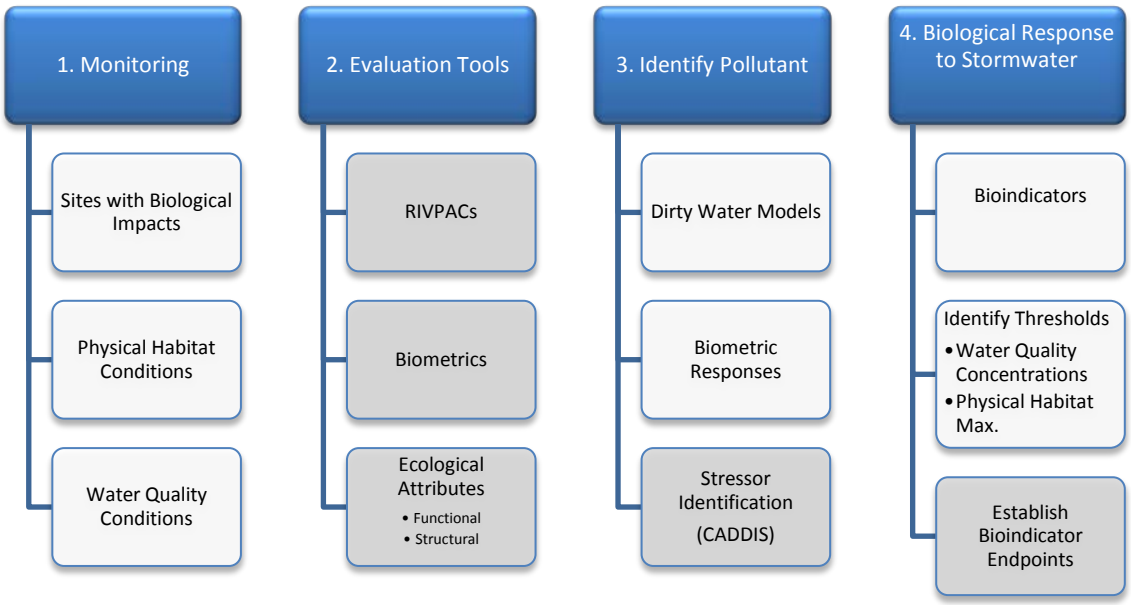

Figure F-3. Biological information and analytical tools used to identify the biological response resulting from exposure to stormwater stressors.

Although several tools serve as the *building blocks* for integrating biological information with water quality-based indicators, exploring relationships between physicochemical and biological information was completed (Figure F-4).

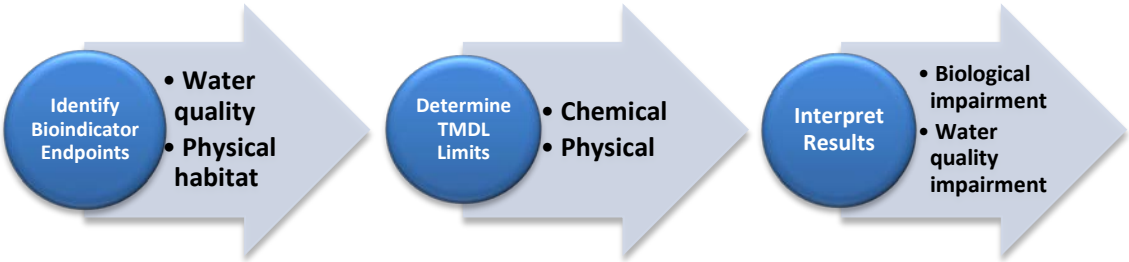

Figure F-4. The process for combining biological and water quality information.

Interpreting Biological Information

Biological impairments on the 303(d) list are often included in Category 2 or Category 4C. These categories acknowledge that direct measurements of aquatic life conditions are not meeting expectations. Without companion environmental information that could identify specific pollutant(s) responsible for the impairment, Ecology developed and uses a stepwise process for identifying and systematically eliminating potential causes for impaired biological condition (Ecology 2010). EPA originally developed the CADDIS approach (EPA 2000) for identifying specific pollutants that likely cause the impairment; Ecology adopted the approach.

BIBI and RIVPACS Evaluation

Identifying stressors and stressor groups (chemicals or physical elements in the aquatic environment that have the same effect on biological response) is the next step after 303(d) listing by biological impairment of a stream segment. Specific parameters measured in this project were identified from several sources: the 303(d) listings, local monitoring effort, existing monitoring data that detected high concentrations of toxics, and specific physical or chemical characteristics known to impair habitat and biota from nearby, similar streams. A simple outline of the CADDIS process is provided in Figure F-5 and is described in greater detail in Ecology's adaptation (Ecology 2010) of EPA CADDIS Guidance (EPA 2000). The intent for using this process is to confidently identify pollutant(s) causing biological impairment and, through a series of management actions, use strategies to abate pollution problems and restore healthy biological conditions.

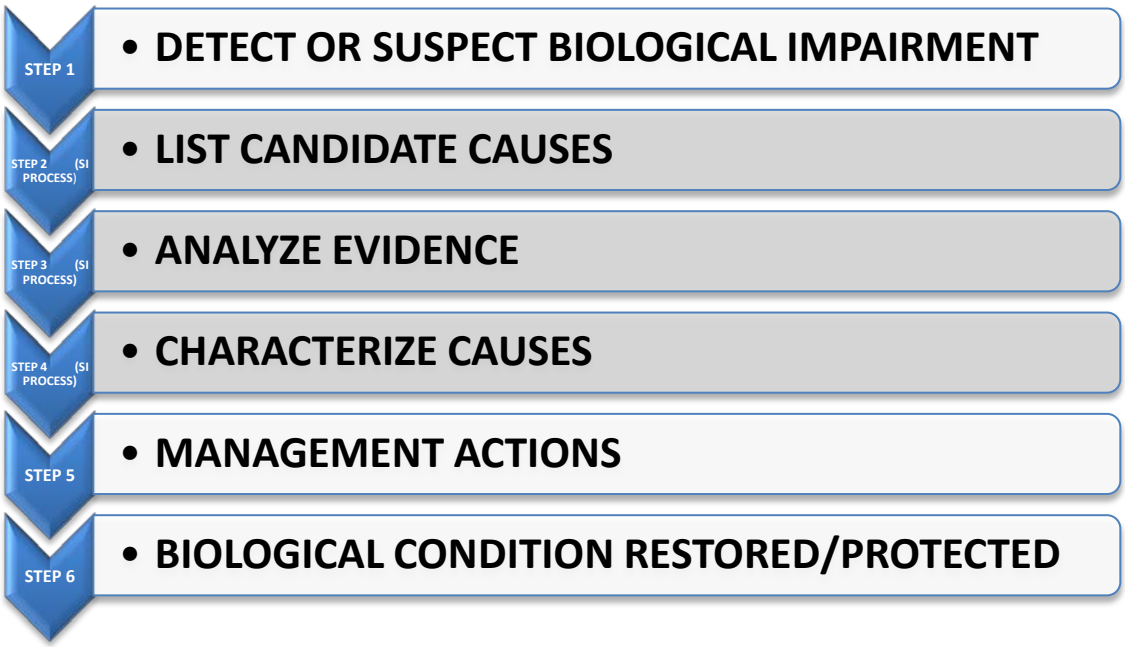

Figure F-5. Steps in the Stressor Identification process that identify probable cause(s) for biological impairment.

This process for diagnosing and identifying stormwater stressor effects on biological communities in western Washington is an effective approach for documenting past and present conditions in a watershed. The organization of information can be used for future evaluations and for modifying assessment tools in managing stormwater. When important information is accessible, it will be used to make decisions on managing growing impacts in a watershed over time.

Exploring Relationships between Physical Parameters and Biological Condition

Data from the Soos and Squalicum Creek field forms (Appendix A) were entered into spreadsheets. An average for each physical or chemical parameter measured at a site was then calculated, using replicate data from each riffle. Taxonomic data received from the laboratory were sorted into separate biometrics: pollution tolerance, clinger richness, percent ephemeroptera, plecoptera, trichoptera (EPT), taxa richness, semivoltine (long-lived taxa), pollution tolerant percent, predator percent, and top three abundant. Graphs were constructed using physical parameters that related to biological condition and were tested and considered for further evaluation of stormwater impacts when:

(1) The Pearson product-moment correlation coefficient was greater than 0.50

(2) If the correlation parameters showed a significant relationship (p greater than 0.80).

Pearson product-moment values (r) greater than or equal to 0.50 were identified for further analysis and for identifying stormwater impacts (e.g., physical habitat or water quality). Interpretation of each relationship was compared with stormwater runoff diagrams to indicate how stormwater-specific processes might influence biological conditions.

Biometrics Used to Analyze Stressors

Biological responses in BMI and periphyton communities to physical habitat parameters (i.e., stressors) were identified, and a series of graphs was constructed to explore correlations in stream corridors and to visually display the relationships (Appendices C and D). The physical habitat conditions related to biological response were further examined to identify how stormwater effects on terrestrial, instream, or both conditions explain the relationship. The series of graphs establishing relationships between stressors and biological response was further examined against stormwater mechanisms. This comparison was used to identify how response of physicochemical conditions from stormwater input could affect biological response.

Table F-5 lists the biometrics that were assembled using results from the review of likely relationships between biological responses to stormwater impacts.

Table F-5. Biometric definitions and responses to stormwater impairments

Biometric	Definition	Predicted response to impairment
Taxa Richness	A measure of the number of kinds of organisms (taxa) in a collection.	Decrease—portions of the community taxa list will be absent in the presence of stormwater impacts.
Percent (%) Pollution Tolerant taxa	Organisms that are tolerant of pollutants and are not affected as readily as other taxa.	Maintains or Increases—number of pollution-tolerant taxa usually increase in the presence of increasing pollution.
Clinger Richness	Number of taxa constructing fixed retreats or adaptations for attachment to surfaces in flowing water.	Decrease—substrate instability resulting from *flashy* flow patterns will destabilize substrate preferred by *clingers*.
Semivoltine Richness	Number of long-lived organisms found in a collection.	Decrease—hydrologically stable environment is preferred habitat for long-lived organisms.
Percent (%) Top 3 Abundant	Proportion of the top three most abundant taxa collected in a sample.	Increase—taxa tolerant to physical and chemical changes will become dominant at a site.
Ephemeroptera	Number of mayfly taxa.	Decrease—a pollution-sensitive order of taxa with the exception of the family Baetidae.
Plecoptera	Number of stonefly taxa.	Decrease—a pollution-sensitive order of taxa.
Trichoptera	Number of caddisfly taxa.	Decrease—a generally pollution-sensitive order of taxa with the exception of the family Limnephilidae.
Percent Predator	Proportion of the *predator* functional feeding group represented in a sample.	Decrease—*predator* taxa representation generally declines in the presence of change to physical habitat; also sensitive to chemical pollutants.
Percent (%) Pollutant Sensitive taxa	Organisms that are intolerant of pollutants and are affected more easily than other taxa.	Decrease—a community dominated by a greater portion of pollution-sensitive taxa indicates absence of stormwater impacts.
Total # of Algal Species	Total number of algal species found in a collection.	Decrease or Maintains—physical substrate disturbance or increase in turbidity from stormwater impacts reduces the number of taxa in the periphyton community.
Metals Tolerance Index	Taxa present are tolerant of exposure to high concentrations of metals in the substrate and in surface water at the boundary layer above the substrate.	Increases—the Metals Tolerance Index value increases (scale from 0 to 10) as effects from exposure to metals increase.
% Sediment Tolerant taxa	Proportion of *sediment-tolerant* taxa (taxa tolerant to sedimentation) in a sample.	Increase—stormwater input to streams includes fine sediments that fill in spaces between coarse substrates and reduces the living space of more sensitive taxa.
% EPT	Proportion of mayflies, stoneflies, and caddisflies collected from a site. They represent pollution-sensitive species.	Decrease—pollution-sensitive taxa belonging to this group declines, and representation in the community declines.
% Dominant Taxa	Measures the dominance of the single most abundant taxon. Can be calculated as dominant 2, 3, 4, or 5 taxa.	Increase—pollution-tolerant taxa increase in the presence of stormwater pollution, individual taxa outcompete more sensitive taxa in the presence of physicochemical stressors.
% Clinger	Proportion of taxa constructing fixed retreats or adaptations for attachment to surfaces in flowing water.	Decrease—substrate instability resulting from *flashy* flow patterns de-stabilize substrate preferred by *clingers*.
% Scraper and Shredder	Proportion of taxa in a community that belong to two functional feeding groups; harvest algae by scraping hard substrate surfaces and the other processing leaves conditioned by microbial activity.	Decrease—stormwater affects substrate stability and cover surfaces with fine sediment, periphyton growth is diminished and *scrapers* density declines; detritus transported rapidly from a reach are not available to *shredders* for processing.

Table F-6. Select diatom metrics and predicted response of metric to increasing stressors

	Category	Metric	Definition	Predicted response to impairment
General indicators of overall stream health	General measure water quality and habitat	Total # of Algal Species	Number species in a sample	Decrease
		Shannon Diversity Index	Function of both the number of species in a sample and the distribution of individuals	Increase
		Pollution Tolerance Percent	The percent of species abundance and pollution tolerance rating within a sample	Increase
		Total chlorophyll *a* in slurry	Concentration of chlorophyll *a* in a sample	Decrease
		Dominant Taxa Percent	Percent of dominance of the single most abundant taxon	Increase
	Metal indicator metrics	Metals Tolerance Taxa Percent	Percent abundance metal tolerant taxa	Increase
		Percent acidophilous	Occur in water with a pH < 7	Increase

Additional parameters describing the intensity and magnitude of stormwater characteristics affecting biological condition were generated from another study (Ecology 2012). These parameters were examined as companion information to biologically impaired sites to determine if hydrologic characterization of Squalicum Creek is consistent with other related stressors.

Exploring Biometric Relationships to Sediment Toxics

Squalicum Creek sediment toxics samples were analyzed and data were generated by Rhithron Associates. The toxics data results were compared to biometrics at each site in a correlation analysis, and results were analyzed for statistically significant relationships (Pearson product-moment correlation; correlation coefficient greater than 0.50 and p less than or equal to 0.20). Toxics data analyzed from sediment samples from Squalicum Creek bioassessment sites and included metals, pesticides, PCBs, and DDT. A more detailed list of the toxics elements analyzed for this project is in the *Quality Assurance Project Plan for Bioassessment Monitoring and Analysis to Support Stormwater TMDL Development* (Ecology 2012).

BMI use hard substrate in streams as living space, both on the surface of the substrate and interstitial spaces. Substrate dominated by fines sequesters a variety of pollutants, especially where (1) organic material is aggregated within the substrate matrix, and (2) fine particles like silt/clay/muck are found in interstitial spaces. Specific toxics selection was based on detectable concentrations from site samples. Many of the analytes were not detectable at a site, so they were not used in further analysis for toxics that might have been transferred in stormwater.

Analyzing Biological Relationships to Flow

In Squalicum and Soos Creeks, flow and average current velocity were estimated at the base of each reach. They were compared against several biological community expressions including structural and functional biometrics (components of a multi-metric index), a multi-metric index score, and a RIVPACS score. The last two community-level condition scores summarize all information about benthic macroinvertebrate community and express the condition as one number. Relationships between flow and average current velocity at a site and biological expressions (biometrics) or community condition scores were described by correlation analysis. Results that showed some relationship between a biometric (response to stormwater impacts) and a stressor (physical or chemical variable) were identified by examining the Pearson product-moment correlation (correlation coefficient greater than 0.50). The relationship was further evaluated for significance if it met a criterion of p less than or equal to 0.20.

A relationship between biological response and streamflow acknowledges an obvious effect on stream channels during a stormwater runoff event that partially explains alteration of physical habitat and subsequent impairments to the biological community. However, these flows were measured at the time of biological assessments during the low-flow portion of the year. Any relationships with biological condition might have been related to stream size and stream ability to ameliorate impacts from stormwater input during storm events. The results from any relationship(s) identified between instantaneous flow and current biological condition are a forecast of a stream to shield the biological community from stormwater impacts during these types of climatic events. The correlation between average stream velocity and biological condition were used to indicate how aggregation of substrate types under different current velocity regimes might promote dominance of a substrate category (e.g., fine gravel with moderate flow velocities, silt/clay/muck with low flow velocities). The dominance of a substrate type would explain why a site is more suitable for colonization by BMI (and periphyton) and why distribution of substrate sizes with dominance of finer particles sequesters greater concentrations of toxics.

Exploring Biological Relationships to Development Intensity

The extent of development in the Squalicum and Soos Creek drainages was expressed as a Landscape Development Intensity Index (LDI). A higher LDI value indicates the potential for greater impact on stream communities and aquatic resources, in general. Impervious surfaces with urban or industrial land uses have the greatest effect on aquatic resources, especially during storm events. The values for LDI were calculated for fragments of the landscape above each assessment site thought to potentially affect aquatic resources in the stream. An LDI was calculated for each site and was compared against several biological community expressions including structural and functional biometrics (these are components of a multi-metric index), a multi-metric index score, and a RIVPACS score. The last two community-level condition scores summarize all information about benthic macroinvertebrate community and express condition as a single number. Relationships between LDI at a site and biological expressions (biometrics) or community condition scores were described by correlation analysis. Results that showed some relationship between a biometric (response to stormwater impacts) and a stressor (physical or chemical variable) were identified by examining the Pearson product-moment correlation (correlation coefficient greater than 0.50). The relationship was further evaluated for significance if it met a criterion of p less than or equal to 0.20.

A relationship between biological response and land use development indicates that stormwater runoff has an effect on stream channels that explains changes to physical habitat from flashy flows and input of toxics that could impair the biological community. This is a high-level relationship that confirms the order of land uses that cause impairment to stream channels and biological communities.

Linking Biological Response to Stormwater

Stormwater affects receiving water through several pathways that are dependent on surrounding landscape (e.g., forested, suburban, or commercial). Factors such as flow variation, exposure to toxics, and the place where aquatic organisms are exposed to toxics depend on how changes from stormwater delivery to a receiving stream occur. Stormwater impacts are one of several types of disturbances to biological communities in streams throughout the year. Some of the most severe impacts occur in the wet season (usually beginning in October and ending in March of each year in western Washington). Storms during the dry season (April through September in western Washington) generally have smaller precipitation volumes (rainfall volume per unit time) and have more time between successive storm events.

This study evaluated biological communities in two drainages for any signs of impacts from previous storm events (wet and dry seasons). The challenge was to determine if detectable effects on BMI and periphyton communities were due to stormwater-related events or other types of chronic and land-use related events. The approach was to develop conceptual diagrams for each type of dominant land use surrounding the 2012 assessment sites, in this case forested, suburban, and commercial. The conceptual diagrams describe the differences in how stormwater events assimilate or facilitate some of the damaging effects on streams in three distinct land uses, including physical habitat and water quality impairments.

Linking stormwater effects on biological impairment used the CADDIS framework as a guide to develop steps:

- Identifying Candidate Causes
- Analyzing Evidence
- Characterizing Causes

Figure F-6 describes how results from the CADDIS framework application (using biological indicators) in this project relate to the TMDL process for Squalicum and Soos Creeks.

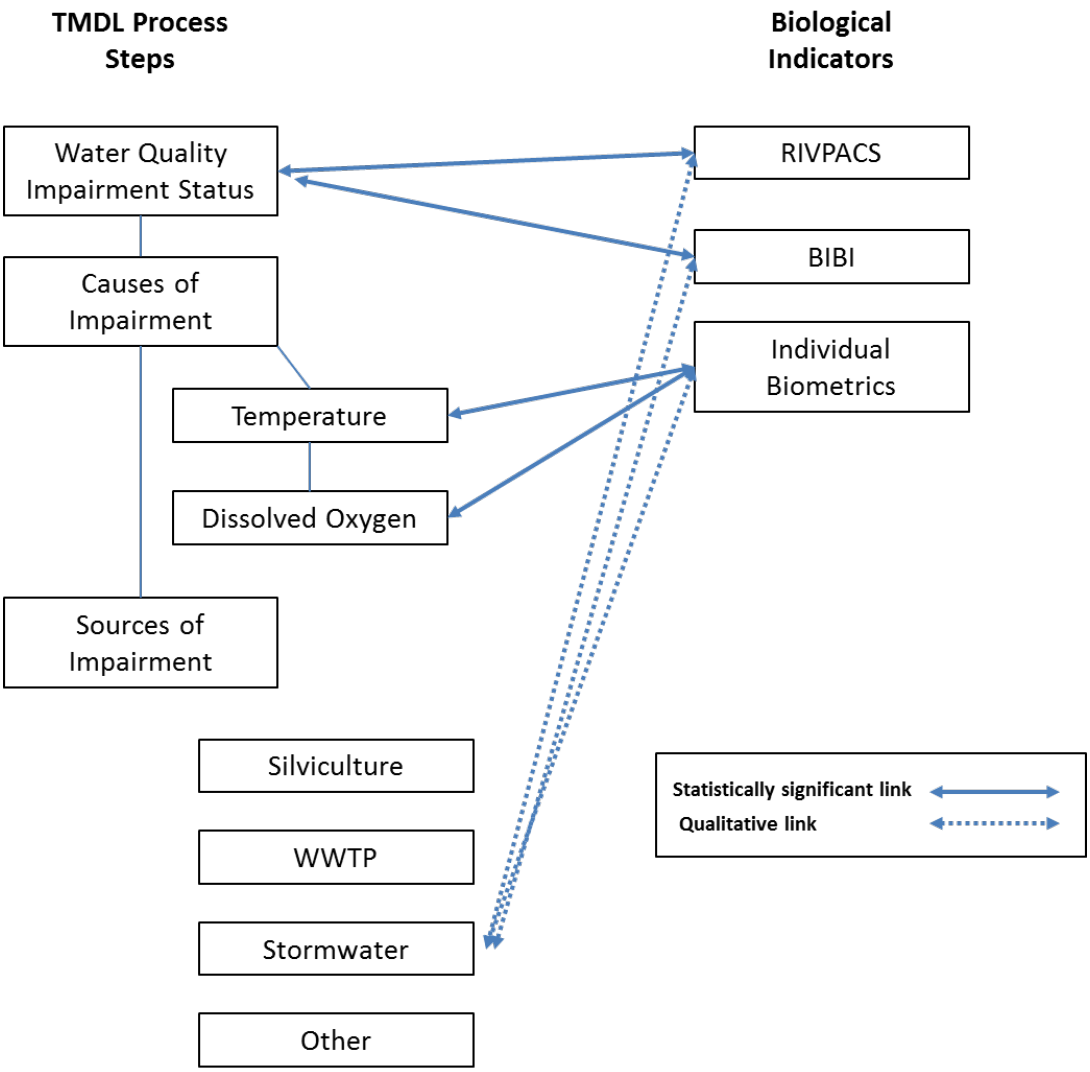

Figure F-6. Relationship between the TMDL process and use of biological Indicators that identify impacts from stormwater.

Measuring Improvements from TMDL Implementation

Developing biological endpoints (or *triggers*) used to identify pollutants for a TMDL is unique to a drainage. Just as TMDLs are drainage-specific, biological endpoints related to stressor(s) are unique to a drainage setting and the combination of factors that might promote exposure of aquatic communities to deleterious physical and chemical conditions. Biological expectations based on the RIVPACS model and a multi-metric index (BIBI) represent stream condition expectations over broad spatial areas and are measured against site-specific conditions. Stressors were identified relative to stormwater input, and recommendations were made that would improve instream conditions suspected of causing biological impairment.

Some of the biological community characteristics associated with stormwater effects on streams result from the following:

1. Flow Variation
   a. Substrate movement
   b. Substrate size
   c. Water velocity
2. Factors Influencing Toxics Exposure Potential
   a. Sediment/water column
   b. Residence time
   c. Habitat association
3. Point of Toxics Exposure
   a. Mixing zone exposure
   b. Suspended contaminated sediment
   c. Substrate deposition

The elements listed above were used to aggregate physical habitat, water quality, and biological parameters from field sampling results and from landscape descriptors (e.g., land use/land cover) into groups and determine if any of these stormwater-related factors (in the list above) were responsible for biological impairments at a site.

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