

Site Description

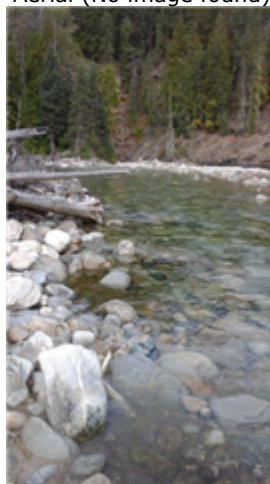
Study Name	CBWQ-Slocan
Site	NJLEM03
Sampling Date	Sep 25 2017
Know Your Watershed Basin	Slocan
Province / Territory	British Columbia
Terrestrial Ecological Classification	Montane Cordillera EcoZone Columbia Mountains and Highlands EcoRegion
Coordinates (decimal degrees)	49.70167 N, 117.41972 W
Altitude	1794
Local Basin Name	Lemon Creek
	Slocan
Stream Order	4



Figure 1. Location Map

Across Reach (No image found)

Aerial (No image found)



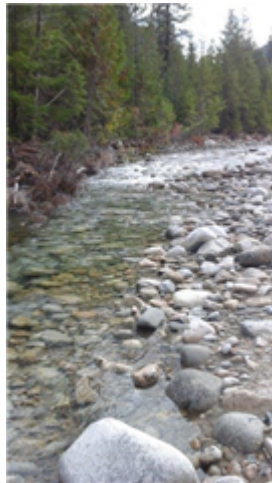
Down Stream

Field Sheet (No image found)

Miscellaneous (No image found)



Substrate



Up Stream

Cabin Assessment Results

Reference Model Summary					
Model	Columbia-Okanagan Preliminary March 2010				
Analysis Date	January 30, 2018				
Taxonomic Level	Family				
Predictive Model Variables	Depth-Avg Latitude Longitude Reg-Ice Reg-SlopeLT30%				
Reference Groups	1	2	3	4	5
Number of Reference Sites	9	43	17	12	33
Group Error Rate	22.2%	24.5%	22.2%	25.0%	32.4%
Overall Model Error Rate	26.4%				
Probability of Group Membership	2.1%	2.6%	7.8%	79.0%	8.5%
CABIN Assessment of NJLEM03 on Sep 25, 2017	Mildly Divergent				

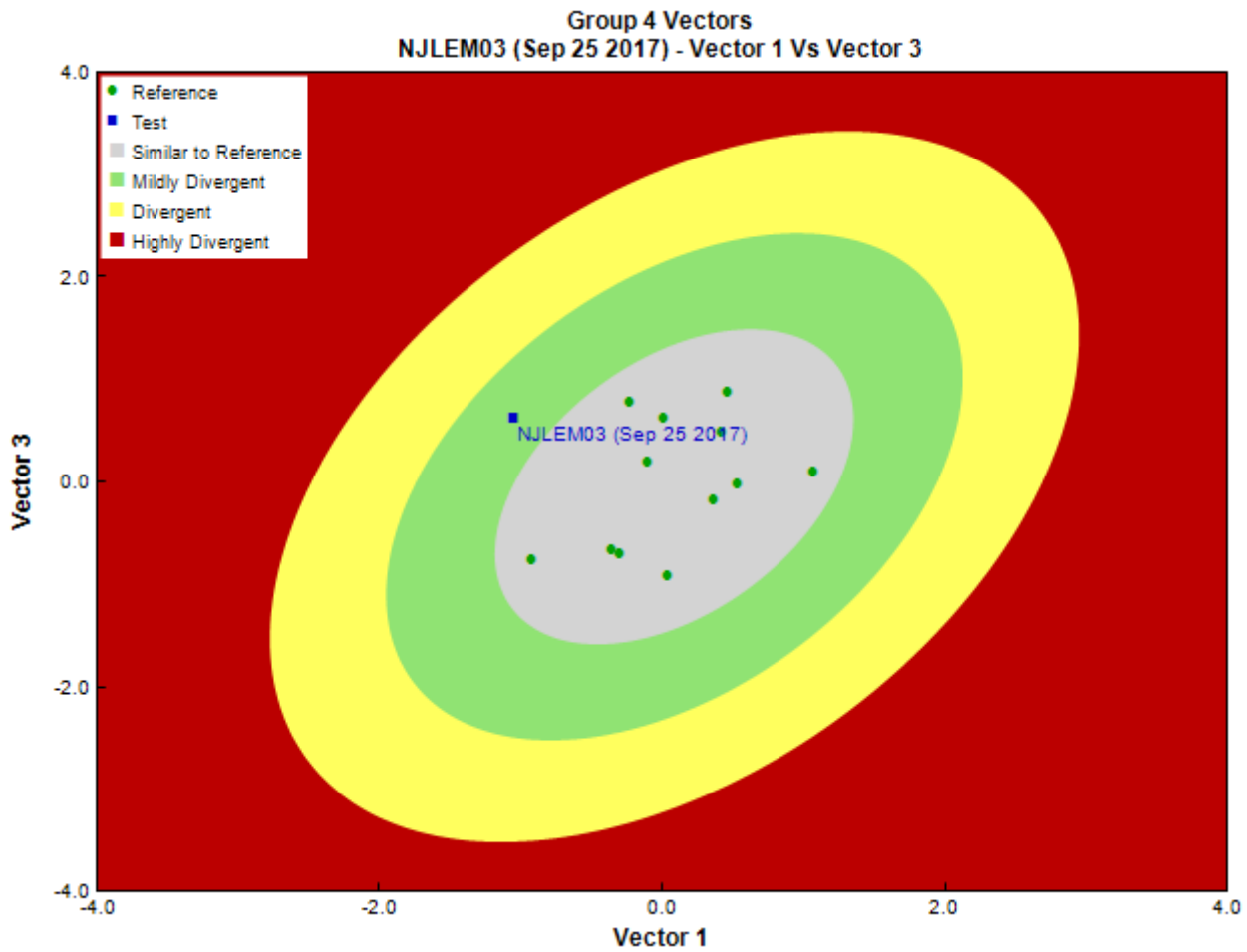


Figure 3. CABIN ordination assessment of the test site with the predicted group of reference sites. Each axis represents the relative abundance of the entire benthic invertebrate community with different organisms weighted differently on each axis.

Sample Information

Sampling Device	Kick Net
Mesh Size	400
Sampling Time	3
Taxonomist	Pina Viola, Consultant
Date Taxonomy Completed	December 03, 2017
	Marchant Box
Sub-Sample Proportion	36/100

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
Annelida	Oligochaeta	Enchytraeida	Enchytraeidae	1	2.8
		Tubificida	Naididae	4	11.1
Arthropoda	Insecta	Coleoptera	Aturidae	3	8.3
			Hydryphantidae	1	2.8
			Hygrobatidae	25	69.5
			Lebertiidae	4	11.1
			Sperchontidae	2	5.6
			Torrenticolidae	3	8.4
			Dytiscidae	1	2.8
			Elmidae	2	5.6
			Ceratopogonidae	1	2.8
			Chironomidae	32	88.9
			Empididae	12	33.4
			Psychodidae	8	22.2
			Simuliidae	1	2.8

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
			Tipulidae	1	2.8
		Ephemeroptera	Ameletidae	21	58.3
			Baetidae	61	169.4
			Ephemerellidae	13	36.1
			Heptageniidae	44	122.3
			Leptophlebiidae	24	66.7
		Plecoptera	Chloroperlidae	6	16.7
			Nemouridae	5	13.9
			Perlodidae	1	2.8
		Trichoptera	Brachycentridae	1	2.8
			Hydropsychidae	19	52.7
			Hydroptilidae	1	2.8
			Lepidostomatidae	28	77.8
			Rhyacophilidae	4	11.1
			Total	329	914.3

Metrics

Name	NJLEM03	Predicted Group Reference Mean \pm SD
Bray-Curtis Distance	0.51	0.4 \pm 0.1
Biotic Indices		
Hilsenhoff Family index (North-West)	4.3	3.2 \pm 0.3
Intolerant taxa	--	
Long-lived taxa	2.0	2.1 \pm 1.0
Tolerant individuals (%)	0.3	0.8 \pm 0.3
Functional Measures		
% Filterers	6.4	2.2 \pm 1.8
% Gatherers	36.5	38.4 \pm 12.4
% Predatores	35.0	19.0 \pm 8.5
% Scrapers	35.3	63.2 \pm 19.7
% Shredder	11.2	27.6 \pm 15.2
No. Clinger Taxa	24.0	23.2 \pm 6.3
Number Of Individuals		
% Chironomidae	9.7	7.4 \pm 6.4
% Coleoptera	0.9	1.5 \pm 3.9
% Diptera + Non-insects	29.8	10.8 \pm 7.6
% Ephemeroptera	49.5	51.7 \pm 18.8
% Ephemeroptera that are Baetidae	37.4	40.6 \pm 30.0
% EPT Individuals	69.3	87.7 \pm 7.4
% Odonata	0.0	0.0 \pm 0.0
% of 2 dominant taxa	31.9	57.9 \pm 14.2
% of 5 dominant taxa	57.8	81.6 \pm 7.9
% of dominant taxa	18.5	39.8 \pm 14.9
% Plecoptera	3.6	31.4 \pm 15.4
% Tribe Tanyatarisini	--	
% Trichoptera that are Hydropsychida	35.8	27.0 \pm 26.2
% Tricoptera	16.1	4.5 \pm 2.8
No. EPT individuals/Chironomids+EPT Individuals	0.9	0.9 \pm 0.1
Total Abundance	913.9	587.4 \pm 299.1
Richness		
Chironomidae taxa (genus level only)	1.0	1.0 \pm 0.0
Coleoptera taxa	2.0	0.4 \pm 0.5
Diptera taxa	6.0	3.3 \pm 1.0
Ephemeroptera taxa	5.0	3.8 \pm 0.8
EPT Individuals (Sum)	633.3	526.0 \pm 285.8
EPT taxa (no)	13.0	13.3 \pm 2.7
Odonata taxa	0.0	0.0 \pm 0.0
Pielou's Evenness	0.8	0.7 \pm 0.1
Plecoptera taxa	3.0	6.3 \pm 1.1
Shannon-Wiener Diversity	2.7	1.9 \pm 0.4
Simpson's Diversity	0.9	0.8 \pm 0.1
Simpson's Evenness	0.4	0.3 \pm 0.1

Metrics

Name	NJLEM03	Predicted Group Reference Mean \pm SD
Total No. of Taxa	29.0	19.3 \pm 3.7
Trichoptera taxa	5.0	3.2 \pm 1.4

Frequency and Probability of Taxa Occurrence

Reference Model Taxa	Frequency of Occurrence in Reference Sites					Probability Of Occurrence at NJLEM03
	Group 1	Group 2	Group 3	Group 4	Group 5	
Baetidae	100%	100%	100%	100%	97%	1.00
Capniidae	78%	55%	50%	92%	68%	0.85
Chironomidae	100%	100%	100%	100%	95%	1.00
Chloroperlidae	78%	88%	94%	100%	100%	0.99
Ephemereididae	78%	100%	100%	100%	100%	1.00
Heptageniidae	100%	100%	100%	100%	100%	1.00
Hydropsychidae	11%	92%	78%	92%	86%	0.88
Nemouridae	100%	100%	100%	100%	100%	1.00
Perlidae	11%	84%	33%	100%	3%	0.84
Perlodidae	78%	78%	89%	92%	81%	0.90
Rhyacophilidae	100%	92%	100%	100%	95%	0.99
Taeniopterygidae	89%	49%	100%	92%	97%	0.92

RIVPACS Ratios

RIVPACS : Expected taxa P>0.50	13.78
RIVPACS : Observed taxa P>0.50	12.00
RIVPACS : O:E (p > 0.5)	0.87
RIVPACS : Expected taxa P>0.70	11.36
RIVPACS : Observed taxa P>0.70	9.00
RIVPACS : O:E (p > 0.7)	0.79

Habitat Description

Variable	NJLEM03	Predicted Group Reference Mean \pm SD
Channel		
Depth-Avg (cm)	39.7	23.6 \pm 11.1
Depth-BankfullMinusWetted (cm)	29.60	51.38 \pm 29.42
Depth-Max (cm)	54.2	34.6 \pm 12.3
Macrophyte (PercentRange)	0	0 \pm 0
Reach-%CanopyCoverage (PercentRange)	1.00	1.33 \pm 0.78
Reach-%Logging (PercentRange)	0	0 \pm 0
Reach-DomStreamsideVeg (Category(1-4))	4	4 \pm 1
Reach-Pools (Binary)	1	1 \pm 0
Reach-Rapids (Binary)	1	0 \pm 0
Reach-Riffles (Binary)	1	1 \pm 0
Reach-StraightRun (Binary)	1	1 \pm 1
Slope (m/m)	0.0200000	0.0546683 \pm 0.0376269
Veg-Coniferous (Binary)	1	1 \pm 0
Veg-Deciduous (Binary)	1	1 \pm 0
Veg-GrassesFerns (Binary)	1	1 \pm 0
Veg-Shrubs (Binary)	1	1 \pm 0
Velocity-Avg (m/s)	0.67	0.48 \pm 0.22
Velocity-Max (m/s)	0.98	0.76 \pm 0.36
Width-Bankfull (m)	30.0	13.4 \pm 9.9
Width-Wetted (m)	9.6	8.5 \pm 5.8
XSEC-VelMethod (Category(1-3))	1	1 \pm 0
Landcover		
Reg-Ice (%)	0.00000	0.02487 \pm 0.06034
Substrate Data		
%Bedrock (%)	0	0 \pm 0
%Boulder (%)	14	9 \pm 9
%Cobble (%)	59	51 \pm 15
%Gravel (%)	7	3 \pm 3

Habitat Description

Variable	NJLEM03	Predicted Group Reference Mean \pm SD
%Pebble (%)	19	37 \pm 20
%Sand (%)	0	0 \pm 0
%Silt+Clay (%)	0	0 \pm 0
D50 (cm)	11.00	15.12 \pm 14.26
Dg (cm)	9.6	8.2 \pm 2.8
Dominant-1st (Category(0-9))	6	7 \pm 1
Dominant-2nd (Category(0-9))	7	7 \pm 1
Embeddedness (Category(1-5))	4	5 \pm 1
PeriphytonCoverage (Category(1-5))	2	1 \pm 0
SurroundingMaterial (Category(0-9))	7	4 \pm 1
Topography		
Reg-SlopeLT30% (%)	15.22000	18.88386 \pm 9.29866
Water Chemistry		
Ag (mg/L)	0.0000200	0.0000050
Al (mg/L)	0.0064000	0.0049000
As (mg/L)	0.0001000	0.0002700
B (mg/L)	0.0250000	0.0500000
Ba (mg/L)	0.0105000	0.0682000
Be (mg/L)	0.0001000	0.0000100
Bi (mg/L)	0.0005000	0.0000050
Ca (mg/L)	13.8000000	21.1083333 \pm 16.8005659
Cd (mg/L)	0.0000050	0.0000050
Co (mg/L)	0.0002000	0.0000100
Cr (6) (μ g/L)	1.0000000	0.0000000 \pm 0.0000000
Cu (mg/L)	0.0005000	0.0001000
Fe (mg/L)	0.0100000	0.0080000
General-Alkalinity (mg/L)	45.7000000	71.7000000 \pm 53.9231440
General-DO (mg/L)	11.0000000	11.4175000 \pm 0.7986708
General-Hardness (mg/L)	40.0000000	84.2750000 \pm 70.6251066
General-pH (pH)	7.4	7.9 \pm 0.4
General-SolidsTSS (mg/L)	4.0000000	0.8849836 \pm 1.2378575
General-SpCond (μ S/cm)	82.9000000	168.9833333 \pm 123.7858182
General-TempAir (Degrees Celsius)	11.0	26.0
General-TempWater (Degrees Celsius)	7.0000000	7.3183333 \pm 2.7240839
General-Turbidity (NTU)	0.1500000	0.2020000
HCO3 (mg/L)	55.8000000	0.0000000 \pm 0.0000000
Hg (ng/L)	10.0000000	0.0000000 \pm 0.0000000
K (mg/L)	0.7350000	0.6141667 \pm 0.4056971
Li (mg/L)	0.0020000	0.0011000
Mg (mg/L)	1.3700000	7.6666667 \pm 7.9748848
Mn (mg/L)	0.0010000	0.0006100
Mo (mg/L)	0.0024000	0.0006900
Na (mg/L)	1.5100000	1.5383333 \pm 1.2751459
Ni (mg/L)	0.0010000	0.0003000
Pb (mg/L)	0.0002000	0.0000520
Phosphorus-OrthoP (mg/L)	0.0050000	0.0002727 \pm 0.0004671
Phosphorus-TP (mg/L)	0.0050000	0.0045833 \pm 0.0049992
S (mg/L)	3.0000000	5.0000000
Sb (mg/L)	0.0005000	0.0000700
Se (mg/L)	0.0001000	0.0001200
Si (mg/L)	3.8500000	3.1516667 \pm 1.2277017
Sn (mg/L)	2.5000000	0.0000100
SO4 (mg/L)	3.1000000	17.2250000 \pm 25.9966125
Sr (mg/L)	0.1070000	0.0443000
Ti (mg/L)	0.0050000	0.0005000
Tl (mg/L)	0.0000100	0.0000020
U (mg/L)	0.0030800	0.0011700
V (mg/L)	0.0050000	0.0002000
Zn (mg/L)	0.0050000	0.0010000
Zr (mg/L)	0.0001000	0.0000000 \pm 0.0000000