

Site Description

Study Name	CBWQ-Slocan
Site	NJSLO01
Sampling Date	Sep 21 2011
Know Your Watershed Basin	Slocan
Province / Territory	British Columbia
Terrestrial Ecological Classification	Montane Cordillera EcoZone Columbia Mountains and Highlands EcoRegion
Coordinates (decimal degrees)	49.43000 N, 117.53300 W
Altitude	1748
Local Basin Name	Slocan
	Columbia
Stream Order	5



Figure 1. Location Map



Across Reach
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	September 05, 2017
Taxonomic Level	Family

Cabin Assessment Results

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	25.6%	4.4%	5.4%	62.1%	2.5%
CABIN Assessment of NJSLO01 on Sep 21, 2011	Mildly Divergent				

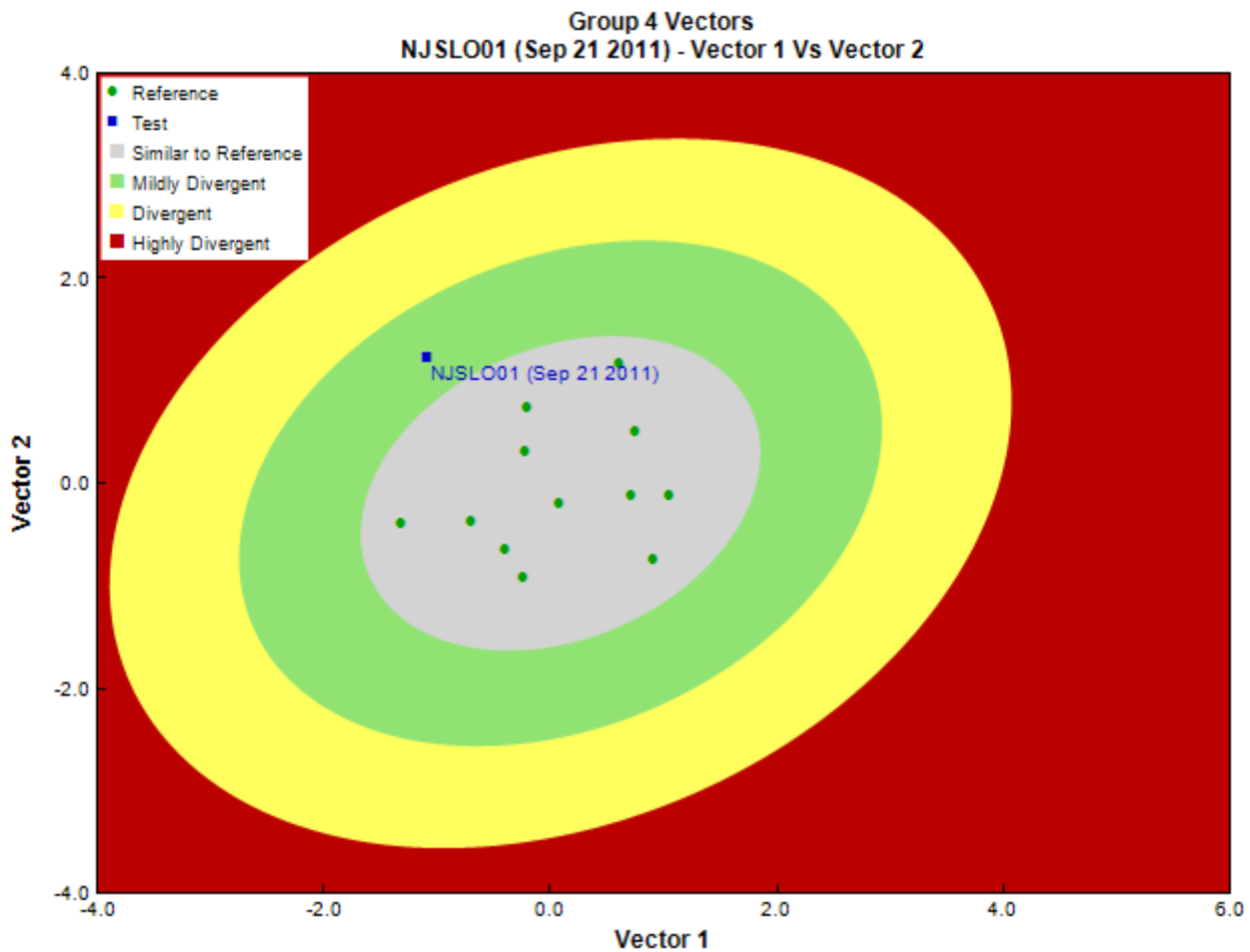


Figure 3. CABIN ordination assessment of the test site with the predicted group of reference sites. Each axis represents the relative abundance of the entire benthic invertebrate community with different organisms weighted differently on each axis.

Sample Information

Sampling Device	Kick Net
Mesh Size	400
Sampling Time	3
Taxonomist	Eco Analyts, EcoAnalysts
Date Taxonomy Completed	January 17, 2012
	Marchant Box
Sub-Sample Proportion	41/100

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
Arthropoda	Arachnida			46	112.2
	Insecta	Coleoptera	Elmidae	38	92.7
		Diptera	Chironomidae	40	97.6
			Empididae	4	9.8
			Simuliidae	4	9.8
			Tipulidae	2	4.9
		Ephemeroptera	Baetidae	47	114.6
			Ephemerellidae	13	31.7
			Heptageniidae	2	4.9
		Plecoptera	Chloroperlidae	2	4.9
			Nemouridae	2	4.9
			Perlidae	3	7.3
			Perlodidae	23	56.1
			Pteronarcyidae	1	2.4
		Trichoptera	Brachycentridae	2	4.9
			Glossosomatidae	38	92.7
			Hydropsychidae	73	178.0
			Lepidostomatidae	44	107.3
			Rhyacophilidae	2	4.9
			Total	386	941.6

Metrics

Name	NJSLO01	Predicted Group Reference Mean \pm SD
Bray-Curtis Distance	0.69	0.4 \pm 0.1
Biotic Indices		
Hilsenhoff Family index (North-West)	3.4	3.2 \pm 0.3
Intolerant taxa	--	
Long-lived taxa	2.0	2.1 \pm 1.0
Tolerant individuals (%)	--	0.8 \pm 0.3
Functional Measures		
% Filterers	20.5	2.2 \pm 1.8
% Gatherers	25.6	38.4 \pm 12.4
% Predatores	39.1	19.0 \pm 8.5
% Scrapers	34.2	63.2 \pm 19.7
% Shredder	23.1	27.6 \pm 15.2
No. Clinger Taxa	15.0	23.2 \pm 6.3
Number Of Individuals		
% Chironomidae	11.8	7.4 \pm 6.4
% Coleoptera	11.2	1.5 \pm 3.9
% Diptera + Non-insects	14.7	10.8 \pm 7.6
% Ephemeroptera	18.2	51.7 \pm 18.8
% Ephemeroptera that are Baetidae	75.8	40.6 \pm 30.0
% EPT Individuals	74.1	87.7 \pm 7.4
% Odonata	0.0	0.0 \pm 0.0
% of 2 dominant taxa	35.3	57.9 \pm 14.2
% of 5 dominant taxa	71.2	81.6 \pm 7.9
% of dominant taxa	21.5	39.8 \pm 14.9
% Plecoptera	9.1	31.4 \pm 15.4
% Tribe Tanyatarisini	--	
% Trichoptera that are Hydropsychida	45.9	27.0 \pm 26.2
% Tricoptera	46.8	4.5 \pm 2.8
No. EPT individuals/Chironomids+EPT Individuals	0.9	0.9 \pm 0.1
Total Abundance	941.3	587.4 \pm 299.1
Richness		
Chironomidae taxa (genus level only)	1.0	1.0 \pm 0.0
Coleoptera taxa	1.0	0.4 \pm 0.5
Diptera taxa	4.0	3.3 \pm 1.0
Ephemeroptera taxa	3.0	3.8 \pm 0.8
EPT Individuals (Sum)	614.5	526.0 \pm 285.8
EPT taxa (no)	13.0	13.3 \pm 2.7
Odonata taxa	0.0	0.0 \pm 0.0

Metrics

Name	NJSLO01	Predicted Group Reference Mean \pm SD
Pielou's Evenness	0.8	0.7 \pm 0.1
Plecoptera taxa	5.0	6.3 \pm 1.1
Shannon-Wiener Diversity	2.3	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
Total No. of Taxa	18.0	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 NJSLO01
	Group 1	Group 2	Group 3	Group 4	Group 5	
Baetidae	100%	100%	100%	100%	97%	1.00
Capniidae	78%	55%	50%	92%	68%	0.84
Chironomidae	100%	100%	100%	100%	95%	1.00
Chloroperlidae	78%	88%	94%	100%	100%	0.93
Ephemerellidae	78%	100%	100%	100%	100%	0.94
Heptageniidae	100%	100%	100%	100%	100%	1.00
Hydropsychidae	11%	92%	78%	92%	86%	0.70
Nemouridae	100%	100%	100%	100%	100%	1.00
Perlidae	11%	84%	33%	100%	3%	0.70
Perlodidae	78%	78%	89%	92%	81%	0.87
Rhyacophilidae	100%	92%	100%	100%	95%	1.00
Taeniopterygidae	89%	49%	100%	92%	97%	0.90

RIVPACS Ratios

RIVPACS : Expected taxa P>0.50	14.32
RIVPACS : Observed taxa P>0.50	12.00
RIVPACS : O:E (p > 0.5)	0.84
RIVPACS : Expected taxa P>0.70	10.88
RIVPACS : Observed taxa P>0.70	10.00
RIVPACS : O:E (p > 0.7)	0.92

Habitat Description

Variable	NJSLO01	Predicted Group Reference Mean \pm SD
Bedrock Geology		
Alluvium (%)	0.00000	0.00000 \pm 0.00000
Intrusive (%)	56.80740	11.07346 \pm 28.63466
Metamorphic (%)	24.93025	17.96649 \pm 35.53463
Sedimentary (%)	17.39867	70.96005 \pm 44.90394
Ultramafic (%)	0.00000	0.00000 \pm 0.00000
Volcanic (%)	0.86368	0.00000 \pm 0.00000
Channel		
Depth-Avg (cm)	58.6	23.6 \pm 11.1
Depth-Max (cm)	69.0	34.6 \pm 12.3
Macrophyte (PercentRange)	1	0 \pm 0
Reach-%CanopyCoverage (PercentRange)	1.00	1.33 \pm 0.78
Reach-Pools (Binary)	0	1 \pm 0
Reach-Rapids (Binary)	1	0 \pm 0
Reach-Riffles (Binary)	1	1 \pm 0
Reach-StraightRun (Binary)	1	1 \pm 1
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)	0.66	0.48 \pm 0.22
Velocity-Max (m/s)	1.25	0.76 \pm 0.36
Width-Bankfull (m)	30.0	13.4 \pm 9.9
Width-Wetted (m)	25.0	8.5 \pm 5.8

Habitat Description

Variable	NJSLO01	Predicted Group Reference Mean \pm SD
Climate		
Precip01_JAN (mm)	132.89474	104.85000 \pm 26.28129
Precip02_FEB (mm)	108.33333	83.66667 \pm 27.10278
Precip03_MAR (mm)	98.15789	77.23611 \pm 27.15950
Precip04_APR (mm)	132.89474	104.85000 \pm 26.28129
Precip05_MAY (mm)	82.47368	71.65833 \pm 17.81753
Precip06_JUN (mm)	91.70175	78.56667 \pm 15.58521
Precip07_JUL (mm)	73.33333	64.39167 \pm 10.41611
Precip08_AUG (mm)	69.92982	60.53056 \pm 10.43373
Precip09_SEP (mm)	67.14035	56.91944 \pm 10.91783
Precip10_OCT (mm)	82.21053	65.08056 \pm 14.41229
Precip11_NOV (mm)	130.33333	105.93889 \pm 25.04104
Precip12_DEC (mm)	145.94737	116.84444 \pm 29.80954
PrecipTotal_ANNUAL (mm)	1162.75439	952.64722 \pm 226.04690
Temp01_JANMax (Degrees Celsius)	-4.40351	-4.39167 \pm 2.51268
Temp01_JANmin (Degrees Celsius)	-10.36842	-11.40833 \pm 3.53951
Temp02_FEBmax (Degrees Celsius)	-1.82456	-1.70000 \pm 2.12945
Temp02_FEBmin (Degrees Celsius)	-8.54386	-9.17500 \pm 3.33361
Temp03_MARmax (Degrees Celsius)	1.68421	2.50556 \pm 2.87525
Temp03_MARmin (Degrees Celsius)	-5.98246	-6.14167 \pm 2.98556
Temp04_APRmax (Degrees Celsius)	6.26316	7.12222 \pm 3.48771
Temp04_APRmin (Degrees Celsius)	-2.64912	-2.71667 \pm 2.22785
Temp05_MAYmax (Degrees Celsius)	11.14035	12.03889 \pm 3.55434
Temp05_MAYmin (Degrees Celsius)	0.82456	1.04722 \pm 2.08663
Temp06_JUNMax (Degrees Celsius)	14.75439	15.72500 \pm 3.40030
Temp06_JUNMin (Degrees Celsius)	3.96491	4.00278 \pm 2.41085
Temp07_JULmax (Degrees Celsius)	18.61404	19.56111 \pm 3.47275
Temp07_JULmin (Degrees Celsius)	6.43860	6.35833 \pm 2.28332
Temp08_AUGmax (Degrees Celsius)	18.57895	19.52222 \pm 3.51100
Temp08_AUGmin (Degrees Celsius)	6.29825	6.19167 \pm 2.34422
Temp09_SEPmax (Degrees Celsius)	13.38596	14.04444 \pm 3.03456
Temp09_SEPmin (Degrees Celsius)	2.29825	2.04722 \pm 2.37208
Temp10_OCTmax (Degrees Celsius)	6.03509	6.88889 \pm 2.71577
Temp10_OCTmin (Degrees Celsius)	-1.26316	-1.46111 \pm 1.64316
Temp11_NOVmax (Degrees Celsius)	-1.17544	-0.79722 \pm 2.43512
Temp11_NOVmin (Degrees Celsius)	-6.33333	-6.68056 \pm 2.97163
Temp12_DECmax (Degrees Celsius)	-4.59649	-4.66389 \pm 2.69757
Temp12_DECmin (Degrees Celsius)	-10.03509	-10.65833 \pm 3.71739
TempANNUALmax (Degrees Celsius)	6.24561	6.96389 \pm 3.06157
TempANNUALmean (Degrees Celsius)	1.77193	2.25278 \pm 2.66574
TempANNUALmin (Degrees Celsius)	-1.82456	-2.18056 \pm 2.41152
Hydrology		
Drainage-Area (km ²)	3425.62950	124.42081 \pm 200.99192
Perimeter (Km)	549.09302	64.71360 \pm 56.15436
StreamDensity (m/km ²)	2190.93040	2246.06682 \pm 604.89962
StreamLength (m)	7505315.81	302226.63 \pm 500983.26
Landcover		
Natl-AnnCrops (%)	0.00000	0.00000 \pm 0.00000
Natl-Barren (%)	0.00000	0.00000 \pm 0.00000
Natl-BroadleafDense (%)	0.00000	0.00000 \pm 0.00000
Natl-BroadleafOpen (%)	2.85345	1.19263 \pm 2.03874
Natl-BroadleafSparse (%)	0.00000	0.00000 \pm 0.00000
Natl-Coniferous (%)	0.00000	0.00000 \pm 0.00000
Natl-ConiferousDense (%)	0.48215	0.64845 \pm 0.37668
Natl-ConiferousOpen (%)	52.58342	54.62780 \pm 18.30692
Natl-ConiferousSparse (%)	1.36876	0.94121 \pm 1.53621
Natl-Deciduous (%)	0.00000	0.00000 \pm 0.00000
Natl-Developed (%)	0.06762	0.00000 \pm 0.00000
Natl-ExposedLand (%)	17.02159	13.20054 \pm 11.11850
Natl-Grassland (%)	1.03581	1.87556 \pm 1.68508
Natl-Herb (%)	6.93168	5.75738 \pm 2.89836
Natl-MixedForest (%)	0.00000	0.00000 \pm 0.00000

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Variable	NJSLO01	Predicted Group Reference Mean \pm SD
Natl-MixedwoodDense (%)	0.00000	0.00000 \pm 0.00000
Natl-MixedwoodOpen (%)	0.09444	0.04060 \pm 0.10208
Natl-MixedwoodSparse (%)	0.00000	0.00000 \pm 0.00000
Natl-PerennCropsPast (%)	0.00000	0.00000 \pm 0.00000
Natl-Rock/Rubble (%)	0.59550	1.56403 \pm 2.75979
Natl-Shrubland (%)	0.00000	0.00000 \pm 0.00000
Natl-ShrubLow (%)	1.76236	4.98298 \pm 3.22579
Natl-ShrubTall (%)	0.00000	0.00000 \pm 0.00000
Natl-SnowIce (%)	0.16345	0.08491 \pm 0.15475
Natl-Water (%)	2.70893	0.22916 \pm 0.36834
Natl-Wetland (%)	0.00000	0.00000 \pm 0.00000
Natl-WetlandHerb (%)	0.08869	0.12918 \pm 0.35193
Natl-WetlandShrub (%)	0.01338	0.00000 \pm 0.00000
Natl-WetlandTreed (%)	0.00345	0.00000 \pm 0.00000
Reg-Ice (%)	0.06580	0.02487 \pm 0.06034
Sediment Chemistry		
Ag (ppm)	0.025	0.000
Al (ppm)	24600.000	0.005
As (ppm)	2.500	0.000
Ba (ppm)	22.600	0.068
Be (ppm)	0.200	0.000
Bi (ppm)	0.050	0.000
Ca (ppm)	111000.000	21.108 \pm 16.801
Cd (ppm)	0.250	0.000
Co (ppm)	2.000	0.000
Cr (ppm)	5.000	0.000
Cu (ppm)	2.500	0.000
Fe (ppm)	75000.000	0.008
Hg (ppm)	0.050	0.000 \pm 0.000
K (ppm)	4600.000	0.614 \pm 0.406
Li (ppm)	6.000	0.001
Mg (ppm)	13000.000	7.667 \pm 7.975
Mn (ppm)	123.000	0.001
Mo (ppm)	0.200	0.001
Na (ppm)	1000.000	1.538 \pm 1.275
Ni (ppm)	3.900	0.000
Pb (ppm)	2.800	0.000
Sb (ppm)	0.050	0.000
Se (ppm)	0.250	0.000
Sn (ppm)	0.100	0.000
Sr (ppm)	13.000	0.044
Ti (ppm)	205.000	0.001
Tl (ppm)	0.025	0.000
TP (ppm)	307.000	0.000 \pm 0.000
U (ppm)	0.830	0.001
V (ppm)	14.000	0.000
Y (ppm)	65.000	0.000 \pm 0.000
Zr (ppm)	0.250	0.000 \pm 0.000
Substrate Data		
%Bedrock (%)	0	0 \pm 0
%Boulder (%)	4	9 \pm 9
%Cobble (%)	59	51 \pm 15
%Gravel (%)	0	3 \pm 3
%Pebble (%)	37	37 \pm 20
%Sand (%)	0	0 \pm 0
%Silt+Clay (%)	0	0 \pm 0
D50 (cm)	8.00	15.12 \pm 14.26
Dg (cm)	7.8	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

Habitat Description

Variable	NJSLO01	Predicted Group Reference Mean \pm SD
Topography		
ElevationMax (m)	3015.00000	2634.66667 \pm 309.54023
ElevationMin (m)	457.00000	913.41667 \pm 271.25180
ElevationStdev (m)	501.21029	349.02363 \pm 92.12445
Reg-SlopeLT30% (%)	22.30900	18.88386 \pm 9.29866
Slope30-50% (%)	28.01461	29.00215 \pm 6.33837
Slope50-60% (%)	13.73378	13.91808 \pm 1.91315
SlopeAvg (%)	49.22843	52.79851 \pm 8.68755
SlopeGT60% (%)	32.28474	35.47207 \pm 13.39684
SlopeLT30% (%)	25.96687	21.60770 \pm 8.54172
SlopeMax (%)	574.77527	298.94390 \pm 146.30679
SlopeMin (%)	0.00000	0.19777 \pm 0.29213
SlopeStdev (%)	27.85578	26.57529 \pm 4.62351
Water Chemistry		
General-Alkalinity (mg/L)	40.5000000	71.7000000 \pm 53.9231440
General-DO (mg/L)	12.0000000	11.4175000 \pm 0.7986708
General-pH (pH)	6.1	7.9 \pm 0.4
General-SpCond (μS/cm)	87.9000000	168.9833333 \pm 123.7858182
General-TempAir (Degrees Celsius)	24.0	26.0
General-TempWater (Degrees Celsius)	14.1200000	7.3183333 \pm 2.7240839
General-Turbidity (NTU)	0.3500000	0.2020000
Nitrogen-NO2 (mg/L)	0.0025000	0.0027500 \pm 0.0062831
Nitrogen-NO2+NO3 (mg/L)	0.0600000	0.0690000
Nitrogen-NO3 (mg/L)	0.0600000	0.0546667 \pm 0.0498148
Phosphorus-OrthoP (mg/L)	0.0025000	0.0002727 \pm 0.0004671