

Site Description

Study Name	CBWQ-Slocan
Site	NJGOS01
Sampling Date	Sep 22 2010
Know Your Watershed Basin	Slocan
Province / Territory	British Columbia
Terrestrial Ecological Classification	Montane Cordillera EcoZone Columbia Mountains and Highlands EcoRegion
Coordinates (decimal degrees)	49.43917 N, 117.55907 W
Altitude	1597
Local Basin Name	Goose Cr
	Columbia
Stream Order	4



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	0.0%	93.0%	3.8%	3.0%	0.1%
CABIN Assessment of NJGOS01 on Sep 22, 2010	Similar to Reference				

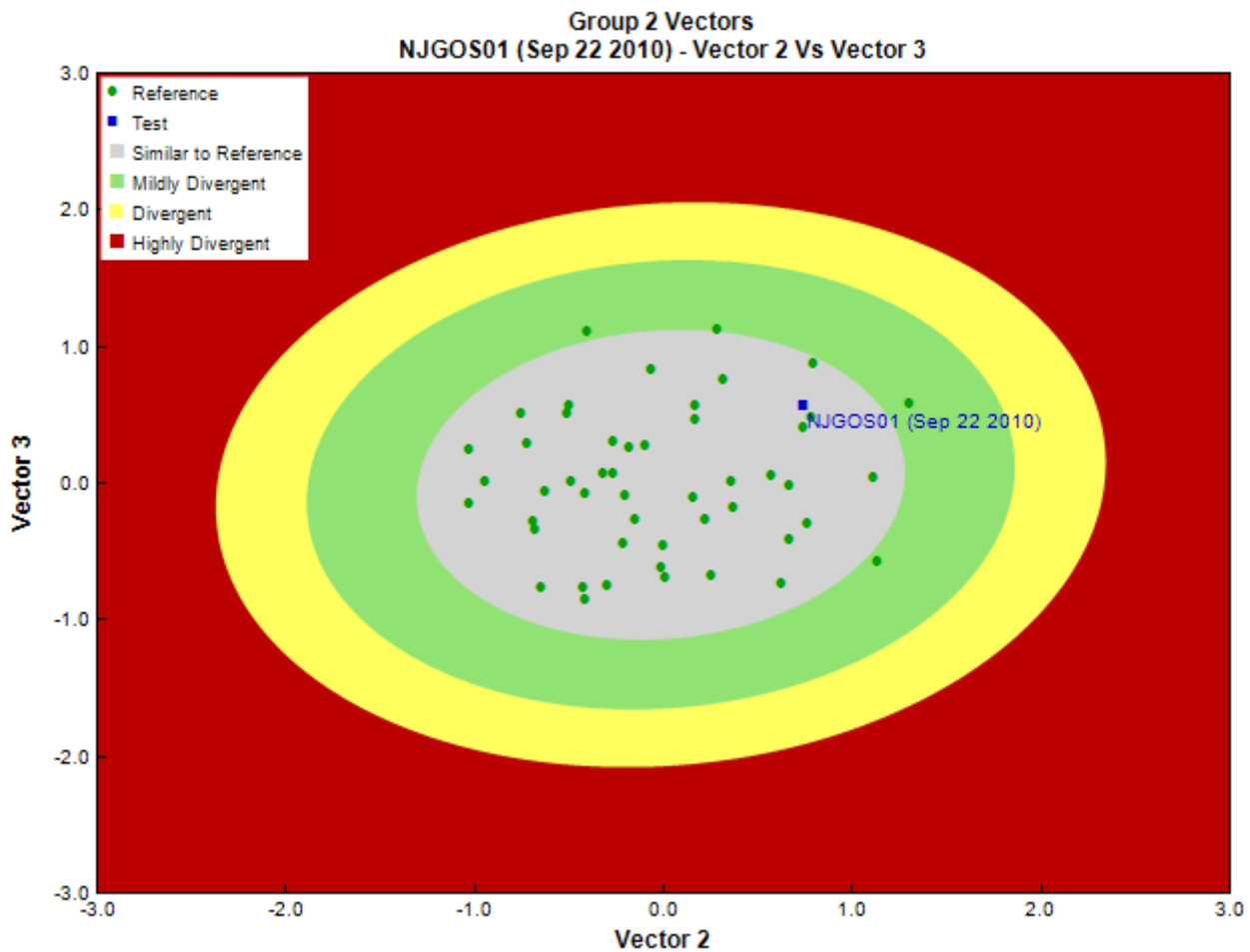


Figure 3. CABIN ordination assessment of the test site with the predicted group of reference sites. Each axis represents the relative abundance of the entire benthic invertebrate community with different organisms weighted differently on each axis.

Sample Information

Sampling Device	Kick Net
Mesh Size	400
Sampling Time	3
Taxonomist	Gary Lester, Ecoanalysts Inc.
Date Taxonomy Completed	September 22, 2010
	Marchant Box
Sub-Sample Proportion	13/100

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count				
Annelida	Oligochaeta	Enchytraeida	Enchytraeidae	2	15.4				
		Tubificida	Naididae	19	146.2				
Arthropoda	Arachnida	Trombidiformes	Hydryphantidae	4	30.8				
			Hygrobatidae	1	7.7				
			Lebertiidae	6	46.2				
			Torrenticolidae	10	76.9				
	Insecta	Coleoptera	Elmidae	18	138.5				
			Diptera	2	15.4				
				Chironomidae	50	384.6			
				Empididae	2	15.4			
				Simuliidae	1	7.7			
				Tipulidae	3	23.1			
				Ephemeroptera	Baetidae	23	176.9		
					Ephemerellidae	107	823.1		
						Heptageniidae	24	184.6	
						Leptophlebiidae	5	38.5	
						Plecoptera	Nemouridae	15	115.4
							Perlodidae	3	23.1
		Trichoptera	Pteronarcyidae			2	15.4		
			Brachycentridae			1	7.7		
			Glossosomatidae			1	7.7		
			Hydropsychidae			9	69.2		
			Hydroptilidae	1	7.7				
			Lepidostomatidae	1	7.7				
				Rhyacophilidae	5	38.5			
				Total	327	2,515.7			

Metrics

Name	NJGOS01	Predicted Group Reference Mean \pm SD
Bray-Curtis Distance	0.49	0.5 \pm 0.1
Biotic Indices		
Hilsenhoff Family index (North-West)	3.1	3.3 \pm 0.5
Intolerant taxa	--	1.0 \pm 0.0
Long-lived taxa	1.0	3.7 \pm 1.9
Tolerant individuals (%)	--	1.3 \pm 1.5
Functional Measures		
% Filterers	3.4	4.5 \pm 4.6
% Gatherers	68.2	46.7 \pm 12.1
% Predatores	28.4	22.1 \pm 11.2
% Scrapers	22.0	53.4 \pm 16.1
% Shredder	12.2	27.8 \pm 12.7
No. Clinger Taxa	15.0	25.5 \pm 6.3
Number Of Individuals		
% Chironomidae	15.9	8.7 \pm 10.4
% Coleoptera	5.7	5.7 \pm 8.6
% Diptera + Non-insects	31.7	15.7 \pm 11.6
% Ephemeroptera	50.5	45.6 \pm 14.3
% Ephemeroptera that are Baetidae	14.5	44.5 \pm 20.4
% EPT Individuals	62.5	78.6 \pm 14.0
% Odonata	0.0	0.0 \pm 0.0
% of 2 dominant taxa	49.8	49.3 \pm 10.6
% of 5 dominant taxa	70.8	76.4 \pm 9.1
% of dominant taxa	34.0	30.6 \pm 8.9
% Plecoptera	6.3	23.2 \pm 13.6
% Tribe Tanyatarisini	--	
% Trichoptera that are Hydropsychida	50.0	27.4 \pm 25.1
% Tricoptera	5.7	9.8 \pm 7.1
No. EPT individuals/Chironomids+EPT Individuals	0.8	0.9 \pm 0.1
Total Abundance	2515.4	3018.4 \pm 2496.0
Richness		

Metrics

Name	NJGOS01	Predicted Group Reference Mean \pm SD
Chironomidae taxa (genus level only)	1.0	1.0 \pm 0.1
Coleoptera taxa	1.0	0.8 \pm 0.7
Diptera taxa	5.0	3.8 \pm 1.4
Ephemeroptera taxa	4.0	4.3 \pm 0.6
EPT Individuals (Sum)	1515.4	2266.9 \pm 1692.6
EPT taxa (no)	13.0	14.0 \pm 2.7
Odonata taxa	0.0	0.0 \pm 0.0
Pielou's Evenness	0.7	0.7 \pm 0.1
Plecoptera taxa	3.0	5.3 \pm 1.7
Shannon-Wiener Diversity	2.3	2.2 \pm 0.3
Simpson's Diversity	0.8	0.8 \pm 0.1
Simpson's Evenness	0.2	0.3 \pm 0.1
Total No. of Taxa	25.0	21.8 \pm 4.8
Trichoptera taxa	6.0	4.5 \pm 1.5

Frequency and Probability of Taxa Occurrence

Reference Model Taxa	Frequency of Occurrence in Reference Sites					Probability Of Occurrence at NJGOS01
	Group 1	Group 2	Group 3	Group 4	Group 5	
Baetidae	100%	100%	100%	100%	97%	1.00
Chironomidae	100%	100%	100%	100%	95%	1.00
Chloroperlidae	78%	88%	94%	100%	100%	0.88
Elmidae	0%	86%	50%	50%	5%	0.83
Ephemerellidae	78%	100%	100%	100%	100%	1.00
Heptageniidae	100%	100%	100%	100%	100%	1.00
Hydropsychidae	11%	92%	78%	92%	86%	0.91
Leptophlebiidae	0%	90%	11%	33%	3%	0.85
Nemouridae	100%	100%	100%	100%	100%	1.00
Perlidae	11%	84%	33%	100%	3%	0.82
Perlodidae	78%	78%	89%	92%	81%	0.78
Rhyacophilidae	100%	92%	100%	100%	95%	0.92
Torrenticolidae	11%	86%	11%	17%	11%	0.81

RIVPACS Ratios

RIVPACS : Expected taxa P>0.50	18.11
RIVPACS : Observed taxa P>0.50	17.00
RIVPACS : O:E (p > 0.5)	0.94
RIVPACS : Expected taxa P>0.70	11.81
RIVPACS : Observed taxa P>0.70	11.00
RIVPACS : O:E (p > 0.7)	0.93

Habitat Description

Variable	NJGOS01	Predicted Group Reference Mean \pm SD
Bedrock Geology		
Alluvium (%)	0.00000	0.35019 \pm 1.57957
Intrusive (%)	93.29676	38.47891 \pm 37.43781
Metamorphic (%)	6.70324	18.30802 \pm 31.64814
Sedimentary (%)	0.00000	27.06556 \pm 35.27962
Ultramafic (%)	0.00000	0.00401 \pm 0.02776
Volcanic (%)	0.00000	15.79332 \pm 25.94101
Channel		
Depth-Avg (cm)	19.9	18.0 \pm 7.8
Depth-BankfullMinusWetted (cm)	34.00	52.85 \pm 27.13
Depth-Max (cm)	30.0	23.9 \pm 10.9
Macrophyte (PercentRange)	1	0 \pm 1
Reach-%CanopyCoverage (PercentRange)	1.00	2.37 \pm 1.20
Reach-%Logging (PercentRange)	3	0 \pm 0
Reach-DomStreamsideVeg (Category (1-4))	2	3 \pm 1
Reach-Pools (Binary)	0	1 \pm 0

Habitat Description

Variable	NJGOS01	Predicted Group Reference Mean \pm SD
Reach-Rapids (Binary)	0	0 \pm 0
Reach-Riffles (Binary)	1	1 \pm 0
Reach-StraightRun (Binary)	1	1 \pm 0
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)	0.45	0.35 \pm 0.17
Velocity-Max (m/s)	0.66	0.49 \pm 0.22
Width-Bankfull (m)	20.7	10.4 \pm 7.4
Width-Wetted (m)	15.1	5.6 \pm 3.7
XSEC-VelMethod (Category (1-3))	1	2 \pm 1
Climate		
Precip01_JAN (mm)	126.00000	81.47047 \pm 35.20275
Precip02_FEB (mm)	107.00000	65.66698 \pm 29.19106
Precip03_MAR (mm)	101.00000	58.35127 \pm 26.58828
Precip04_APR (mm)	126.00000	81.47047 \pm 35.20275
Precip05_MAY (mm)	92.00000	63.34988 \pm 14.97909
Precip06_JUN (mm)	96.00000	69.14147 \pm 14.59973
Precip07_JUL (mm)	72.00000	54.44728 \pm 11.94186
Precip08_AUG (mm)	68.00000	51.57730 \pm 11.68151
Precip09_SEP (mm)	66.00000	47.67378 \pm 13.13706
Precip10_OCT (mm)	78.00000	52.16713 \pm 21.59297
Precip11_NOV (mm)	125.00000	81.75742 \pm 35.32603
Precip12_DEC (mm)	141.00000	90.32297 \pm 36.08654
PrecipTotal_ANNUAL (mm)	1158.00000	772.44527 \pm 255.72743
Temp01_JANMax (Degrees Celsius)	-4.00000	-3.37090 \pm 1.49863
Temp01_JANmin (Degrees Celsius)	-10.00000	-10.49459 \pm 1.79438
Temp02_FEBmax (Degrees Celsius)	-2.00000	-0.57452 \pm 1.44723
Temp02_FEBmin (Degrees Celsius)	-9.00000	-8.42703 \pm 1.64036
Temp03_MARmax (Degrees Celsius)	1.00000	3.12925 \pm 2.32321
Temp03_MARmin (Degrees Celsius)	-6.00000	-5.50804 \pm 1.70878
Temp04_APRmax (Degrees Celsius)	6.00000	7.96831 \pm 2.90525
Temp04_APRmin (Degrees Celsius)	-3.00000	-2.11456 \pm 1.53933
Temp05_MAYmax (Degrees Celsius)	11.00000	12.59416 \pm 3.03418
Temp05_MAYmin (Degrees Celsius)	0.00000	1.10761 \pm 1.48840
Temp06_JUNMax (Degrees Celsius)	14.00000	16.26020 \pm 3.04103
Temp06_JUNMin (Degrees Celsius)	4.00000	4.34060 \pm 1.59755
Temp07_JULmax (Degrees Celsius)	18.00000	19.99784 \pm 2.98893
Temp07_JULmin (Degrees Celsius)	7.00000	6.68707 \pm 1.50784
Temp08_AUGmax (Degrees Celsius)	18.00000	19.88203 \pm 2.98805
Temp08_AUGmin (Degrees Celsius)	6.00000	6.60034 \pm 1.49681
Temp09_SEPmax (Degrees Celsius)	13.00000	15.00959 \pm 2.72415
Temp09_SEPmin (Degrees Celsius)	2.00000	2.53046 \pm 1.35863
Temp10_OCTmax (Degrees Celsius)	6.00000	7.86008 \pm 2.25227
Temp10_OCTmin (Degrees Celsius)	-1.00000	-1.03881 \pm 1.02336
Temp11_NOVmax (Degrees Celsius)	-1.00000	0.06401 \pm 1.60290
Temp11_NOVmin (Degrees Celsius)	-6.00000	-5.88590 \pm 1.72037
Temp12_DECmax (Degrees Celsius)	-5.00000	-3.51268 \pm 1.54963
Temp12_DECmin (Degrees Celsius)	-10.00000	-9.74443 \pm 1.75768
TempANNUALmax (Degrees Celsius)	6.00000	7.66280 \pm 2.34917
TempANNUALmean (Degrees Celsius)	2.00000	2.66373 \pm 1.75457
TempANNUALmin (Degrees Celsius)	-2.00000	-1.55489 \pm 1.29635
Hydrology		
Drainage-Area (km ²)	84.91718	120.15520 \pm 156.34507
Perimeter (Km)	61.63105	73.54528 \pm 45.71924
StreamDensity (m/km ²)	1825.13229	1876.24064 \pm 506.52423
StreamLength (m)	154985.09	237532.09 \pm 321793.78
Landcover		
Natl-AnnCrops (%)	0.00000	0.00068 \pm 0.00479
Natl-Barren (%)	0.00000	0.00000 \pm 0.00000
Natl-BroadleafDense (%)	0.00000	0.00288 \pm 0.01695

Habitat Description

Variable	NJGOS01	Predicted Group Reference Mean \pm SD
Natl-BroadleafOpen (%)	1.17692	3.22025 \pm 3.93337
Natl-BroadleafSparse (%)	0.00000	0.05623 \pm 0.18673
Natl-Coniferous (%)	0.00000	0.00000 \pm 0.00000
Natl-ConiferousDense (%)	0.70968	9.84810 \pm 8.09809
Natl-ConiferousOpen (%)	74.96221	60.67486 \pm 15.67333
Natl-ConiferousSparse (%)	0.00859	0.63143 \pm 0.83590
Natl-Deciduous (%)	0.00000	0.00000 \pm 0.00000
Natl-Developed (%)	0.00000	0.00276 \pm 0.01063
Natl-ExposedLand (%)	6.75019	4.04930 \pm 6.04778
Natl-Grassland (%)	0.00000	0.94826 \pm 3.07450
Natl-Herb (%)	3.43976	6.97580 \pm 4.84794
Natl-MixedForest (%)	0.00000	0.00000 \pm 0.00000
Natl-MixedwoodDense (%)	0.00000	0.00000 \pm 0.00000
Natl-MixedwoodOpen (%)	0.00000	2.53336 \pm 4.19462
Natl-MixedwoodSparse (%)	0.00000	0.00000 \pm 0.00000
Natl-PerennCropsPast (%)	0.00000	0.00000 \pm 0.00000
Natl-Rock/Rubble (%)	0.00000	0.80304 \pm 4.44694
Natl-Shrubland (%)	0.00000	0.00000 \pm 0.00000
Natl-ShrubLow (%)	9.65021	6.02525 \pm 3.72888
Natl-ShrubTall (%)	0.00000	0.11588 \pm 0.81115
Natl-SnowIce (%)	0.00000	0.16875 \pm 0.99747
Natl-Water (%)	0.02023	0.42594 \pm 0.89498
Natl-Wetland (%)	0.00000	0.00000 \pm 0.00000
Natl-WetlandHerb (%)	0.05908	0.03236 \pm 0.06982
Natl-WetlandShrub (%)	0.03976	0.05636 \pm 0.09937
Natl-WetlandTreed (%)	0.00000	0.10971 \pm 0.21983
Reg-Ice (%)	0.00000	0.00000 \pm 0.00000
Substrate Data		
%Bedrock (%)	0	0 \pm 1
%Boulder (%)	2	10 \pm 9
%Cobble (%)	74	56 \pm 12
%Gravel (%)	2	5 \pm 5
%Pebble (%)	22	27 \pm 13
%Sand (%)	0	1 \pm 3
%Silt+Clay (%)	0	1 \pm 1
D50 (cm)	9.00	13.08 \pm 14.78
Dg (cm)	8.5	10.8 \pm 15.3
Dominant-1st (Category(0-9))	6	7 \pm 1
Dominant-2nd (Category(0-9))	7	6 \pm 1
Embeddedness (Category(1-5))	4	4 \pm 1
PeriphytonCoverage (Category(1-5))	3	2 \pm 1
SurroundingMaterial (Category(0-9))	3	3 \pm 1
Topography		
ElevationMax (m)	2265.00000	2134.20408 \pm 321.45042
ElevationMin (m)	477.00000	753.95918 \pm 280.87289
ElevationStdev (m)	461.59479	264.36445 \pm 85.50507
Reg-SlopeLT30% (%)	65.02718	56.46157 \pm 21.18067
Slope30-50% (%)	24.67968	26.07460 \pm 7.88363
Slope50-60% (%)	4.88055	7.33846 \pm 3.98933
SlopeAvg (%)	26.18491	33.03264 \pm 10.18224
SlopeGT60% (%)	4.22110	11.60303 \pm 10.29853
SlopeLT30% (%)	66.21867	54.98391 \pm 18.66092
SlopeMax (%)	126.77668	187.01305 \pm 78.76238
SlopeMin (%)	0.00000	0.05345 \pm 0.18372
SlopeStdev (%)	16.33763	19.94845 \pm 5.16411
Water Chemistry		
General-Alkalinity (mg/L)	20.5000000	74.2090909 \pm 49.2896792
General-Conductivity (μ S/cm)	47.7000000	132.6597826 \pm 97.7882987
General-DO (mg/L)	11.0000000	10.7197872 \pm 0.8550553
General-pH (pH)	7.6	7.9 \pm 0.4
General-TempAir (Degrees Celsius)	15.0	16.9 \pm 5.3
General-TempWater (Degrees Celsius)	9.0000000	9.5837917 \pm 2.8075507

Habitat Description

Variable	NJGOS01	Predicted Group Reference Mean \pmSD
General-Turbidity (NTU)	0.6500000	0.3928571 \pm 0.4025218