Site Description

Study Name	CBWQ-Central Kootenay
Site	NGJOS03
Sampling Date	Sep 19 2011
Know Your Watershed Basin	Central Kootenay
Province / Territory	British Columbia
Terrestrial Ecological Classification	Montane Cordillera EcoZone Southern Rocky Mountain Trench EcoRegion
Coordinates (decimal degrees)	49.57722 N, 115.75861 W
Altitude	2841
Local Basin Name	Joseph Creek
	St. Mary River
Stream Order	3

Figure 1. Location Map

Across Reach
Aerial (No image found)

Down Stream

Field Sheet

Miscellaneous (No image found)

Substrate

Up Stream

Cabin Assessment Results

Reference Model Summary	
Model	Columbia-Okanagan Preliminary March 2010
Analysis Date	July 29, 2013
Taxonomic Level	Family
Predictive Model Variables	Depth-Avg Latitude Longitude Reg-Ice 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%	47.7%	50.7%	1.4%	0.1%
CABIN Assessment of NGJOS03 on Sep 19, 2011	Mildly Divergent				

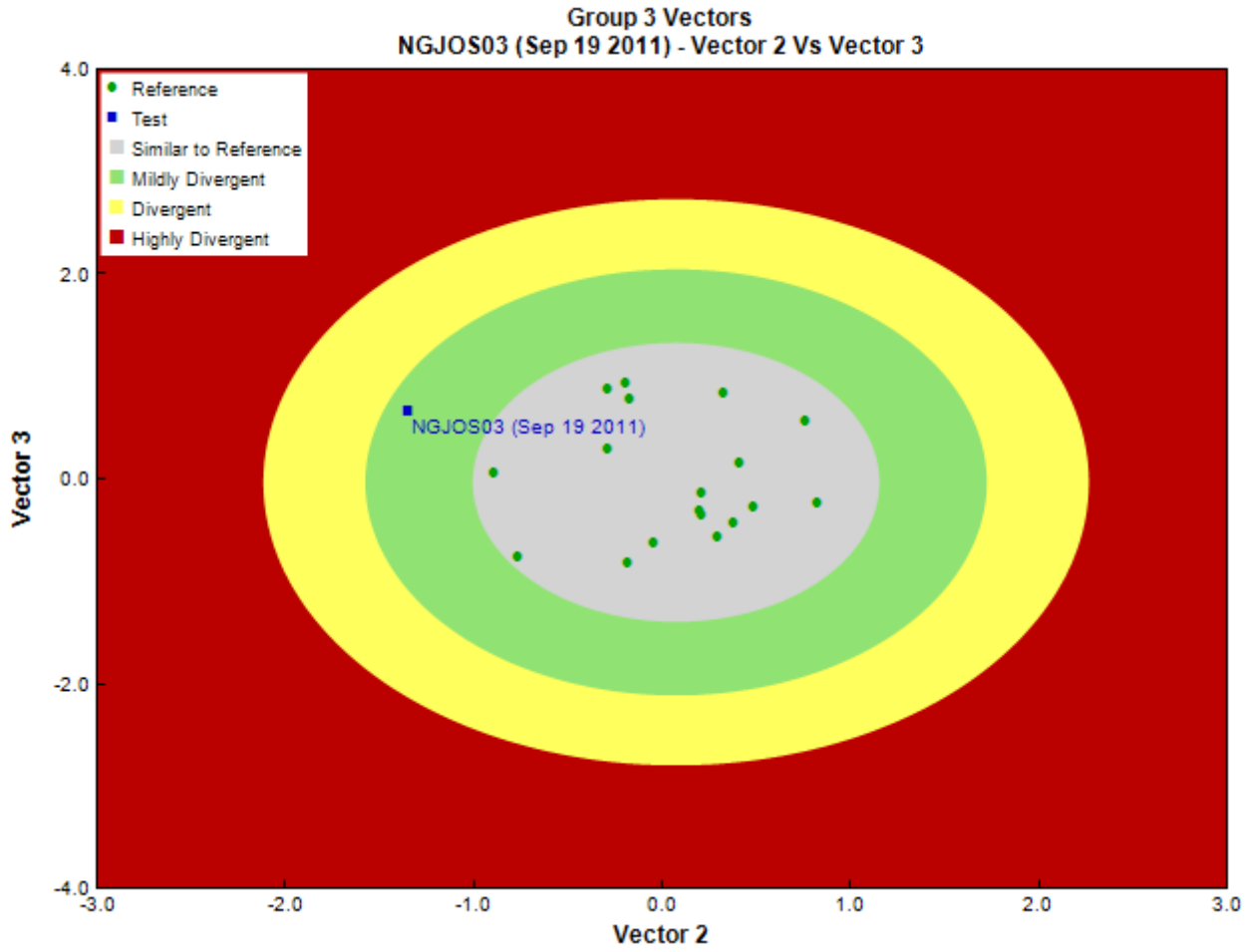

Figure 3. CABIN ordination assessment of the test site with the predicted group of reference sites. Each axis represents the relative abundance of the entire benthic invertebrate community with different organisms weighted differently on each axis.

Sample Information

Sampling Device	Kick Net
Mesh Size	400
Sampling Time	3
Taxonomist	Eco Analsyts, EcoAnalysts
Date Taxonomy Completed	January 27, 2012
	Marchant Box
Sub-Sample Proportion	4/100

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
Arthropoda	Insecta	Coleoptera	Elmidae	59	1,475.0
		Diptera	Chironomidae	12	300.0
			Empididae	1	25.0
			Simuliidae	2	50.0
			Tipulidae	2	50.0
		Ephemeroptera	Baetidae	39	975.0
			Ephemerellidae	100	2,500.0
			Heptageniidae	7	175.0
		Plecoptera	Nemouridae	6	150.0
			Perlidae	13	325.0
			Perlodidae	14	350.0
		Trichoptera	Brachycentridae	18	450.0
			Glossosomatidae	4	100.0
			Hydropsychidae	14	350.0
			Lepidostomatidae	31	775.0

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
			Rhyacophilidae	1	25.0
Mollusca	Bivalvia	Veneroida	Pisidiidae	1	25.0
			Total	324	8,100.0

Metrics

Name	NGJOS03	Predicted Group Reference Mean ±SD
Bray-Curtis Distance	0.77	0.4 ± 0.2
Number Of Individuals		
% Chironomidae	3.7	8.2 ± 13.6
% Ephemeroptera	45.1	43.5 ± 15.9
% Ephemeroptera that are Baetidae	26.7	33.9 ± 27.7
% of 2 dominant taxa	49.1	59.2 ± 10.0
% of dominant taxa	30.9	39.7 ± 10.9
% Plecoptera	10.2	34.8 ± 17.8
% Tricoptera	21.0	6.9 ± 8.6
No. EPT individuals/Chironomids+EPT Individuals	1.0	0.9 ± 0.1
Total Abundance	8100.0	5757.3 ± 4889.9
Richness		
Ephemeroptera taxa	3.0	3.4 ± 0.5
EPT taxa (no)	11.0	11.5 ± 1.2
Plecoptera taxa	3.0	5.3 ± 0.9
Shannon-Wiener Diversity	2.2	1.9 ± 0.3
Simpson's Diversity	0.8	0.8 ± 0.1
Total No. of Taxa	17.0	17.1 ± 2.4
Trichoptera taxa	5.0	2.8 ± 1.0

Frequency and Probability of Taxa Occurrence

Reference Model Taxa	Frequency of Occurrence in Reference Sites					Probability Of Occurrence at NGJOS03
	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%	0.91
Ephemerellidae	78%	100%	100%	100%	100%	1.00
Heptageniidae	100%	100%	100%	100%	100%	1.00
Hydropsychidae	11%	92%	78%	92%	86%	0.85
Nemouridae	100%	100%	100%	100%	100%	1.00
Perlodidae	78%	78%	89%	92%	81%	0.84
Psychodidae	22%	65%	94%	8%	11%	0.79
Rhyacophilidae	100%	92%	100%	100%	95%	0.96
Taeniopterygidae	89%	49%	100%	92%	97%	0.76

RIVPACS Ratios

RIVPACS : Expected taxa P>0.50	13.49
RIVPACS : Observed taxa P>0.50	11.00
RIVPACS : O:E (p > 0.5)	0.82
RIVPACS : Expected taxa P>0.70	10.10
RIVPACS : Observed taxa P>0.70	8.00
RIVPACS : O:E (p > 0.7)	0.79

Habitat Description

Variable	NGJOS03	Predicted Group Reference Mean ±SD
Channel		
Depth-Avg (cm)	16.4	22.5 ± 10.5
Depth-BankfullMinusWetted (cm)	37.00	26.00 ± 4.24
Depth-Max (cm)	22.5	32.9 ± 17.9
Macrophyte (PercentRange)	0	0 ± 0
Reach-%CanopyCoverage (PercentRange)	1.00	0.94 ± 0.80

Habitat Description

Variable	NGJOS03	Predicted Group Reference Mean ±SD
Reach-DomStreamsideVeg (Category (1-4))	2	3 ± 1
Reach-Pools (Binary)	0	0 ± 1
Reach-Rapids (Binary)	0	0 ± 1
Reach-Riffles (Binary)	1	1 ± 0
Reach-StraightRun (Binary)	1	1 ± 0
Slope (m/m)	0.0120000	0.0235102 ± 0.0284557
Veg-Coniferous (Binary)	1	1 ± 0
Veg-Deciduous (Binary)	1	1 ± 0
Veg-GrassesFerns (Binary)	1	1 ± 0
Veg-Shrubs (Binary)	1	1 ± 0
Velocity-Avg (m/s)	0.57	0.51 ± 0.25
Velocity-Max (m/s)	0.77	0.75 ± 0.28
Width-Bankfull (m)	4.2	15.6 ± 12.8
Width-Wetted (m)	3.4	10.2 ± 7.0
XSEC-VelMethod (Category (1-3))	1	2 ± 1
Landcover		
Reg-Ice (%)	0.00000	0.46949 ± 1.15785
Substrate Data		
%Bedrock (%)	0	0 ± 0
%Boulder (%)	0	6 ± 7
%Cobble (%)	59	61 ± 27
%Gravel (%)	0	1 ± 2
%Pebble (%)	41	31 ± 28
%Sand (%)	0	0 ± 0
%Silt+Clay (%)	0	1 ± 3
D50 (cm)	7.65	79.45 ± 47.98
Dg (cm)	7.5	73.9 ± 48.0
Dominant-1st (Category(0-9))	6	6 ± 2
Dominant-2nd (Category(0-9))	5	6 ± 2
Embeddedness (Category(1-5))	4	4 ± 1
PeriphytonCoverage (Category(1-5))	2	2 ± 1
Topography		
SlopeLT30% (%)	85.87000	27.92073 ± 14.83033
Water Chemistry		
Ag (mg/L)	0.0250000	0.0000004 ± 0.0000014
Al (mg/L)	5400.0000000	0.0059500 ± 0.0039700
As (mg/L)	0.9000000	0.0002175 ± 0.0001795
Ba (mg/L)	21.7000000	0.0639025 ± 0.0450861
Be (mg/L)	0.2000000	0.0000025 ± 0.0000062
Bi (mg/L)	0.0500000	0.0000004 ± 0.0000014
Ca (mg/L)	4100.0000000	38.6142857 ± 14.8464843
Cd (mg/L)	0.0250000	0.0000059 ± 0.0000067
Co (mg/L)	4.3000000	0.0000043 ± 0.0000057
Cr (mg/L)	7.0000000	0.0000833 ± 0.0001403
Cu (mg/L)	3.4000000	0.0001875 ± 0.0001434
Fe (mg/L)	10700.0000000	0.0090000
General-Alkalinity (mg/L)	150.0000000	121.5944444 ± 36.7225924
General-DO (mg/L)	10.0000000	10.4922222 ± 0.8833463
General-pH (pH)	8.8	8.0 ± 0.6
General-SpCond (µS/cm)	338.8000000	214.2437500 ± 77.1891440
General-TempAir (Degrees Celsius)	10.0	10.5 ± 4.2
General-TempWater (Degrees Celsius)	11.0000000	6.8794444 ± 1.7335020
General-Turbidity (NTU)	11.5000000	0.0000000 ± 0.0000000
Hg (ng/L)	0.0250000	0.0000000 ± 0.0000000
K (mg/L)	300.0000000	0.6471429 ± 0.7154652
Li (mg/L)	7.0000000	0.0011817 ± 0.0004768
Mg (mg/L)	5200.0000000	9.8814286 ± 6.1601202
Mn (mg/L)	137.0000000	0.0011426 ± 0.0016097
Mo (mg/L)	0.0500000	0.0024883 ± 0.0065339
Na (mg/L)	50.0000000	2.6357143 ± 3.7712414
Ni (mg/L)	6.5000000	0.0000808 ± 0.0000811
Nitrogen-NO2 (mg/L)	0.0070000	0.0023889 ± 0.0063351

Habitat Description

Variable	NGJOS03	Predicted Group Reference Mean ±SD
Nitrogen-NO2+NO3 (mg/L)	0.3700000	0.0130000 ± 0.0088111
Nitrogen-NO3 (mg/L)	0.3600000	0.0245003 ± 0.0229452
Pb (mg/L)	5.7000000	0.0000224 ± 0.0000176
Phosphorus-OrthoP (mg/L)	0.0090000	0.0035000 ± 0.0018292
Sb (mg/L)	0.0500000	0.0000361 ± 0.0000135
Se (mg/L)	0.2500000	0.0004382 ± 0.0004486
Sn (mg/L)	0.0500000	0.0000167 ± 0.0000078
Sr (mg/L)	6.8000000	0.1159167 ± 0.0982749
Ti (mg/L)	104.0000000	0.0009000
Tl (mg/L)	0.0250000	0.0000038 ± 0.0000064
U (mg/L)	0.2200000	0.0005298 ± 0.0003220
V (mg/L)	8.0000000	0.0001642 ± 0.0001203
Zn (mg/L)	30.0000000	0.0004083 ± 0.0008361
Zr (mg/L)	0.2500000	0.0000000 ± 0.0000000