

Site Description

Study Name	CBWQ-Central Kootenay
Site	NGJOS05
Sampling Date	Sep 14 2014
Know Your Watershed Basin	Central Kootenay
Province / Territory	British Columbia
Terrestrial Ecological Classification	Montane Cordillera EcoZone Southern Rocky Mountain Trench EcoRegion
Coordinates (decimal degrees)	49.52982 N, 115.74411 W
Altitude	2952
Local Basin Name	Joseph Cr
	Columbia
Stream Order	3



Figure 1. Location Map



Across Reach
Aerial (No image found)



Down Stream

A photograph of a field sheet form held by a yellow binder. The form contains handwritten information: Field Crew: Steve, Location: [unclear], Site Code: H-105-05, Sampling Date: (DDMMYYYY) 14/09/2014. There is a checkbox for Occupational Health & Safety: Site Inspection Sheet completed. The PRIMARY SITE DATA section includes CABIN Study Name: CABIN, Local Basin Name: St Mary, River/Stream Name: Joseph, and Stream Order: (map scale 1:50,000) 3. The Geographical Description/Notes section has checkboxes for Surrounding Land Use: Forest, Field/Pasture, Agriculture, and Residential/Urban, with the last one checked. Information Source is noted as Visual, Local Knowledge.

Field Sheet

Miscellaneous (No image found)



Substrate



Up Stream

Cabin Assessment Results

Reference Model Summary					
Model	Columbia-Okanagan Preliminary March 2010				
Analysis Date	February 10, 2015				
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%	26.5%	22.2%	25.0%	32.4%
Overall Model Error Rate	25.7%				
Probability of Group Membership	2.1%	14.0%	80.3%	2.4%	1.1%
CABIN Assessment of NGJOS05 on Sep 14, 2014	Divergent				

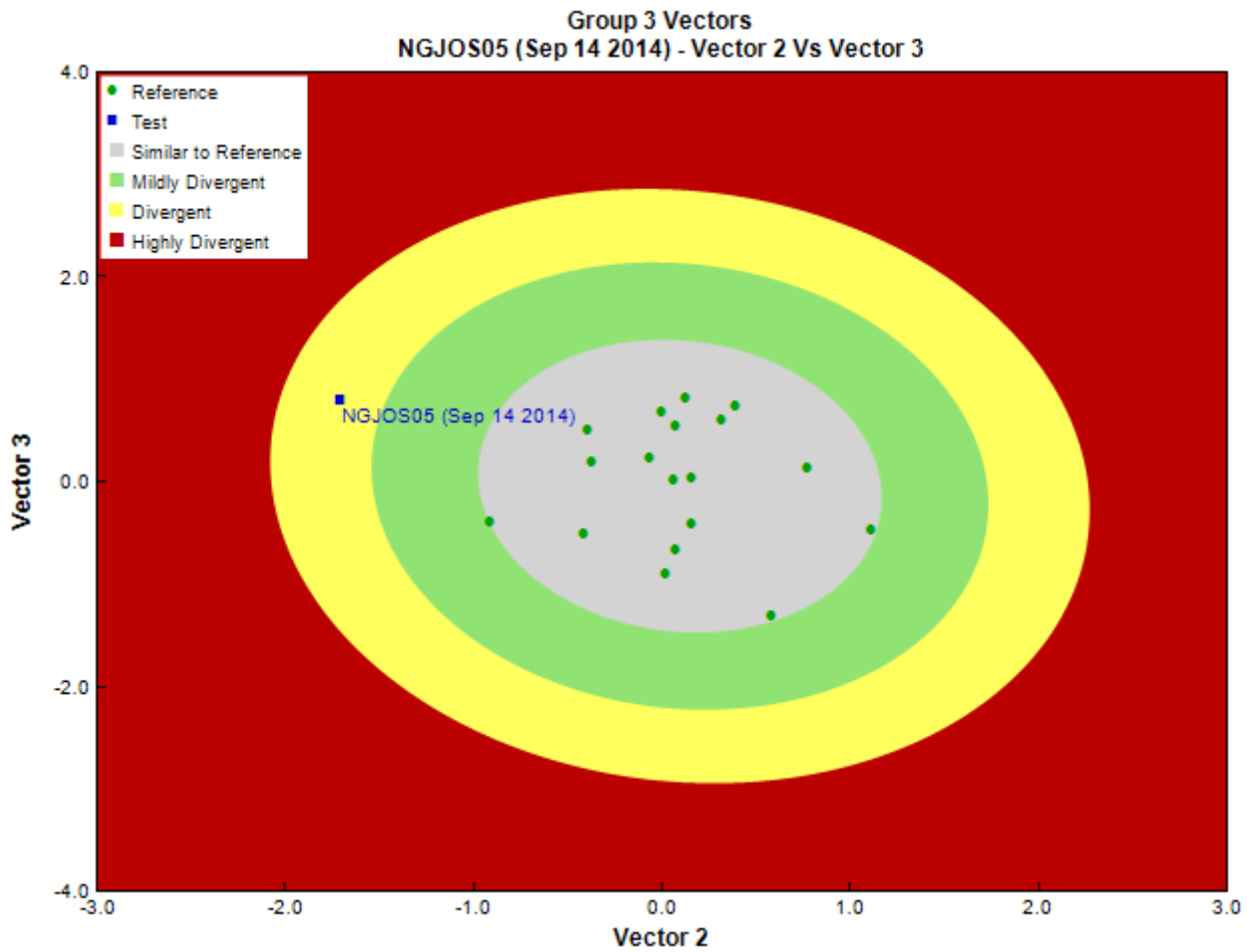


Figure 3. CABIN ordination assessment of the test site with the predicted group of reference sites. Each axis represents the relative abundance of the entire benthic invertebrate community with different organisms weighted differently on each axis.

Sample Information

Sampling Device	Kick Net
Mesh Size	400
Sampling Time	3
Taxonomist	Pina Viola, Consultant
Date Taxonomy Completed	November 09, 2014
	Marchant Box
Sub-Sample Proportion	10/100

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count	
Annelida	Oligochaeta	Lumbriculida	Lumbriculidae	1	10.0	
		Tubificida		1	10.0	
Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	1	10.0	
			Torrenticolidae	1	10.0	
	Insecta	Coleoptera	Elmidae	31	310.0	
			Chironomidae	10	100.0	
			Simuliidae	2	20.0	
			Tipulidae	2	20.0	
		Ephemeroptera	Baetidae	2	20.0	
			Ephemerellidae	30	300.0	
				Heptageniidae	1	10.0
		Plecoptera	Perlidae	5	50.0	
			Perlodidae	1	10.0	
		Trichoptera			1	10.0
	Brachycentridae		13	130.0		

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
			Glossosomatidae	3	30.0
			Hydropsychidae	134	1,340.0
			Lepidostomatidae	70	700.0
	Malacostraca	Amphipoda	Gammaridae	1	10.0
			Total	310	3,100.0

Metrics

Name	NGJOS05	Predicted Group Reference Mean \pm SD
Bray-Curtis Distance	0.84	0.4 \pm 0.2
Number Of Individuals		
% Chironomidae	3.2	8.2 \pm 13.6
% Ephemeroptera	10.7	43.5 \pm 15.9
% Ephemeroptera that are Baetidae	6.1	33.9 \pm 27.7
% EPT Individuals	83.8	85.3 \pm 14.4
% of 2 dominant taxa	66.0	59.2 \pm 10.0
% of dominant taxa	43.4	39.7 \pm 10.9
% Plecoptera	1.9	34.8 \pm 17.8
% Trichoptera	71.2	6.9 \pm 8.6
No. EPT individuals/Chironomids+EPT Individuals	1.0	0.9 \pm 0.1
Total Abundance	3090.0	5757.3 \pm 4889.9
Richness		
Ephemeroptera taxa	3.0	3.4 \pm 0.5
EPT taxa (no)	9.0	11.5 \pm 1.2
Plecoptera taxa	2.0	5.3 \pm 0.9
Shannon-Wiener Diversity	1.7	1.9 \pm 0.3
Simpson's Diversity	0.7	0.8 \pm 0.1
Total No. of Taxa	18.0	17.1 \pm 2.4
Trichoptera taxa	4.0	2.8 \pm 1.0

Frequency and Probability of Taxa Occurrence

Reference Model Taxa	Frequency of Occurrence in Reference Sites					Probability Of Occurrence at NGJOS05
	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%	0.93
Ephemerellidae	78%	100%	100%	100%	100%	1.00
Heptageniidae	100%	100%	100%	100%	100%	1.00
Hydropsychidae	11%	92%	78%	92%	86%	0.79
Nemouridae	100%	100%	100%	100%	100%	1.00
Perlodidae	78%	78%	89%	92%	81%	0.87
Psychodidae	22%	65%	94%	8%	11%	0.86
Rhyacophilidae	100%	92%	100%	100%	95%	0.99
Taeniopterygidae	89%	49%	100%	92%	97%	0.92

RIVPACS Ratios

RIVPACS : Expected taxa P>0.50	13.54
RIVPACS : Observed taxa P>0.50	7.00
RIVPACS : O:E (p > 0.5)	0.52
RIVPACS : Expected taxa P>0.70	10.36
RIVPACS : Observed taxa P>0.70	6.00
RIVPACS : O:E (p > 0.7)	0.58

Habitat Description

Variable	NGJOS05	Predicted Group Reference Mean \pm SD
Channel		
Depth-Avg (cm)	33.8	22.5 \pm 10.5
Depth-Max (cm)	36.0	32.9 \pm 17.9

Habitat Description

Variable	NGJOS05	Predicted Group Reference Mean \pm SD
Discharge (m ³ /s)	6.580	0.000 \pm 0.000
Macrophyte (PercentRange)	0	0 \pm 0
Reach-%CanopyCoverage (PercentRange)	4.00	0.94 \pm 0.80
Reach-Pools (Binary)	0	0 \pm 1
Reach-Rapids (Binary)	0	0 \pm 1
Reach-Riffles (Binary)	1	1 \pm 0
Reach-StraightRun (Binary)	1	1 \pm 0
Slope (m/m)	0.0100000	0.0235102 \pm 0.0284557
Veg-Coniferous (Binary)	0	1 \pm 0
Veg-Deciduous (Binary)	1	1 \pm 0
Veg-GrassesFerns (Binary)	0	1 \pm 0
Veg-Shrubs (Binary)	1	1 \pm 0
Velocity-Avg (m/s)	0.60	0.51 \pm 0.25
Velocity-Max (m/s)	0.70	0.75 \pm 0.28
Width-Bankfull (m)	5.2	15.6 \pm 12.8
Width-Wetted (m)	3.3	10.2 \pm 7.0
Landcover		
Reg-Ice (%)	0.00000	0.46949 \pm 1.15785
Substrate Data		
%Bedrock (%)	0	0 \pm 0
%Boulder (%)	3	6 \pm 7
%Cobble (%)	59	61 \pm 27
%Gravel (%)	3	1 \pm 2
%Pebble (%)	35	31 \pm 28
%Sand (%)	0	0 \pm 0
%Silt+Clay (%)	0	1 \pm 3
D50 (cm)	7.40	79.45 \pm 47.98
Dg (cm)	7.1	73.9 \pm 48.0
Dominant-1st (Category(0-9))	6	6 \pm 2
Dominant-2nd (Category(0-9))	5	6 \pm 2
Embeddedness (Category(1-5))	4	4 \pm 1
PeriphytonCoverage (Category(1-5))	1	2 \pm 1
Topography		
SlopeLT30% (%)	84.23220	27.92073 \pm 14.83033
Water Chemistry		
Ag (mg/L)	0.0760000	0.0000004 \pm 0.0000014
Al (mg/L)	7180.0000000	0.0059500 \pm 0.0039700
As (mg/L)	2.4500000	0.0002175 \pm 0.0001795
Ba (mg/L)	30.6000000	0.0639025 \pm 0.0450861
Be (mg/L)	0.2000000	0.0000025 \pm 0.0000062
Bi (mg/L)	0.1200000	0.0000004 \pm 0.0000014
Ca (mg/L)	6150.0000000	38.6142857 \pm 14.8464843
Cd (mg/L)	0.2030000	0.0000059 \pm 0.0000067
Co (mg/L)	5.0800000	0.0000043 \pm 0.0000057
CO3 (mg/L)	1.9200000	0.0000000 \pm 0.0000000
Cr (mg/L)	20.1000000	0.0000833 \pm 0.0001403
Cu (mg/L)	10.9000000	0.0001875 \pm 0.0001434
Fe (mg/L)	13100.0000000	0.0090000
General-Alkalinity (mg/L)	178.0000000	121.5944444 \pm 36.7225924
General-DO (mg/L)	9.0000000	10.4922222 \pm 0.8833463
General-pH (pH)	8.5	8.0 \pm 0.6
General-SpCond (μ S/cm)	354.1000000	214.2437500 \pm 77.1891440
General-TempAir (Degrees Celsius)	19.0	10.5 \pm 4.2
General-TempWater (Degrees Celsius)	10.0000000	6.8794444 \pm 1.7335020
General-Turbidity (NTU)	4.9700000	0.0000000 \pm 0.0000000
HCO3 (mg/L)	213.0000000	0.0000000 \pm 0.0000000
Hg (ng/L)	0.0250000	0.0000000 \pm 0.0000000
K (mg/L)	469.0000000	0.6471429 \pm 0.7154652
Li (mg/L)	10.8000000	0.0011817 \pm 0.0004768
Mg (mg/L)	7310.0000000	9.8814286 \pm 6.1601202
Mn (mg/L)	156.0000000	0.0011426 \pm 0.0016097
Mo (mg/L)	0.2000000	0.0024883 \pm 0.0065339

Habitat Description

Variable	NGJOS05	Predicted Group Reference Mean \pmSD
Na (mg/L)	50.000000	2.6357143 \pm 3.7712414
Ni (mg/L)	10.100000	0.000808 \pm 0.000811
Nitrogen-NO2 (mg/L)	0.006100	0.0023889 \pm 0.0063351
Nitrogen-NO2+NO3 (mg/L)	0.151000	0.0130000 \pm 0.0088111
Nitrogen-NO3 (mg/L)	0.144000	0.0245003 \pm 0.0229452
Pb (mg/L)	90.800000	0.0000224 \pm 0.0000176
Phosphorus-OrthoP (mg/L)	0.005700	0.0035000 \pm 0.0018292
Phosphorus-TP (mg/L)	0.025700	0.0032778 \pm 0.0061816
Sb (mg/L)	0.520000	0.0000361 \pm 0.0000135
Se (mg/L)	0.250000	0.0004382 \pm 0.0004486
Sn (mg/L)	92.400000	0.0000167 \pm 0.0000078
Sr (mg/L)	9.730000	0.1159167 \pm 0.0982749
Ti (mg/L)	161.000000	0.0009000
Tl (mg/L)	0.250000	0.0000038 \pm 0.0000064
U (mg/L)	0.337000	0.0005298 \pm 0.0003220
V (mg/L)	10.600000	0.0001642 \pm 0.0001203
Zn (mg/L)	93.200000	0.0004083 \pm 0.0008361
Zr (mg/L)	1.380000	0.0000000 \pm 0.0000000