

**Site Description**

<b>Study Name</b>	CBWQ-East Shore
<b>Site</b>	NJCRA01
<b>Sampling Date</b>	Sep 12 2016
<b>Know Your Watershed Basin</b>	Lower Kootenay
<b>Province / Territory</b>	British Columbia
<b>Terrestrial Ecological Classification</b>	Montane Cordillera EcoZone Columbia Mountains and Highlands EcoRegion
<b>Coordinates (decimal degrees)</b>	49.67244 N, 116.81494 W
<b>Altitude</b>	1653
<b>Local Basin Name</b>	Crawford Creek
	Kootenay
<b>Stream Order</b>	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	
<b>Model</b>	Columbia-Okanagan Preliminary March 2010
<b>Analysis Date</b>	April 18, 2018
<b>Taxonomic Level</b>	Family

**Cabin Assessment Results**

<b>Predictive Model Variables</b>	Depth-Avg Latitude Longitude Reg-Ice Reg-SlopeLT30%				
<b>Reference Groups</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Number of Reference Sites</b>	9	43	17	12	33
<b>Group Error Rate</b>	22.2%	24.5%	22.2%	25.0%	32.4%
<b>Overall Model Error Rate</b>	26.4%				
<b>Probability of Group Membership</b>	0.9%	1.3%	14.7%	74.8%	8.3%
<b>CABIN Assessment of NJCRA01 on Sep 12, 2016</b>	Mildly Divergent				

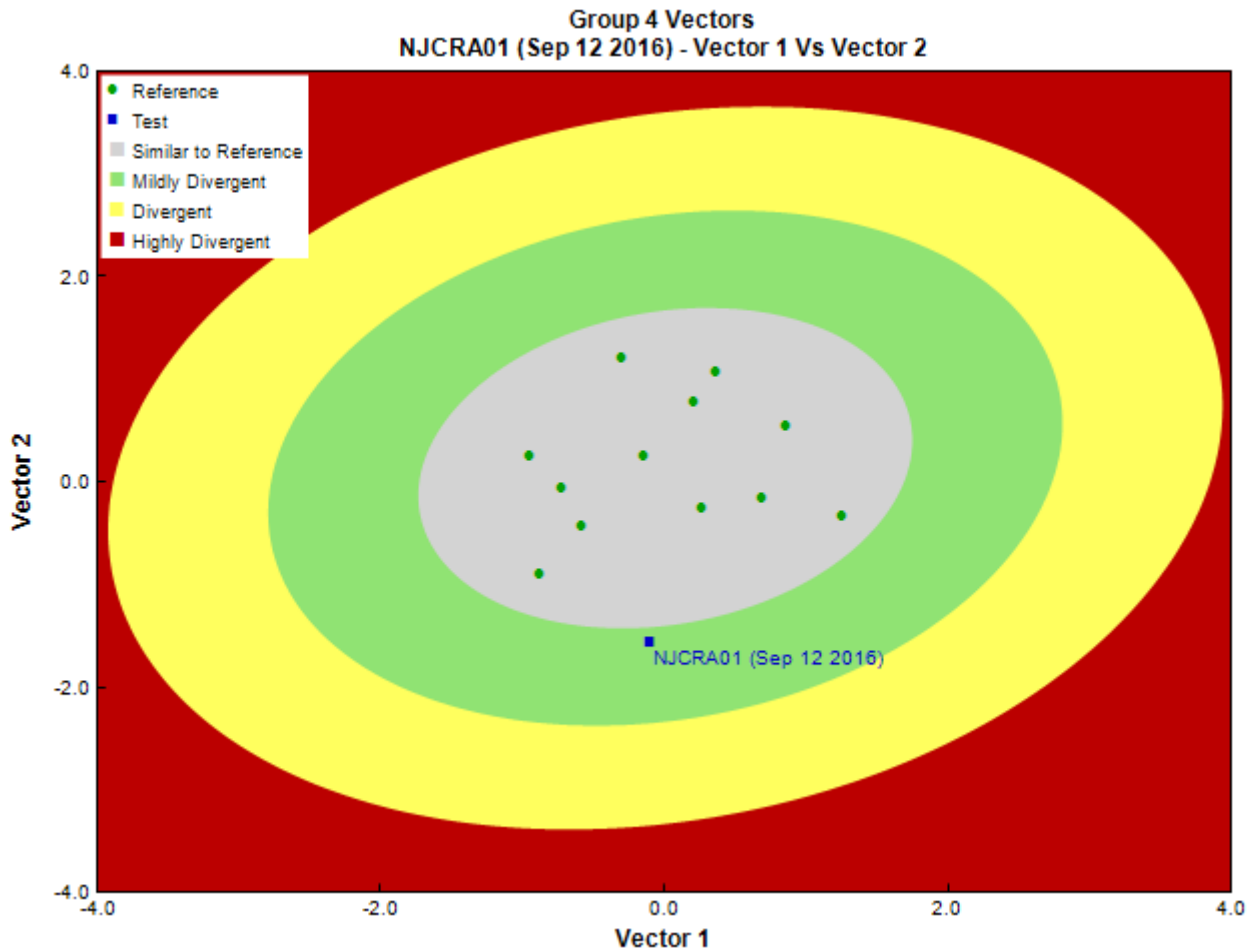


Figure 3. CABIN ordination assessment of the test site with the predicted group of reference sites. Each axis represents the relative abundance of the entire benthic invertebrate community with different organisms weighted differently on each axis.

**Sample Information**

<b>Sampling Device</b>	Kick Net
<b>Mesh Size</b>	400
<b>Sampling Time</b>	3
<b>Taxonomist</b>	Pina Viola, Consultant
<b>Date Taxonomy Completed</b>	September 12, 2016
	Marchant Box
<b>Sub-Sample Proportion</b>	16/100

## Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
Annelida	Clitellata	Tubificida	Naididae	6	37.5
Arthropoda	Arachnida	Trombidiformes		1	6.3
			Lebertiidae	2	12.5
			Sperchontidae	3	18.8
			Torrenticolidae	14	87.6
	Insecta	Diptera	Chironomidae	132	825.0
			Empididae	4	25.0
			Psychodidae	1	6.3
			Tipulidae	10	62.5
		Ephemeroptera	Baetidae	119	743.8
			Ephemerebellidae	10	62.6
			Heptageniidae	12	75.1
			Leptophlebiidae	4	25.0
		Plecoptera	Nemouridae	3	18.8
			Perlodidae	2	12.5
			Taeniopterygidae	2	12.5
		Trichoptera	Apataniidae	2	12.5
			Brachycentridae	1	6.3
			Glossosomatidae	1	6.3
			Hydropsychidae	2	12.5
			Rhyacophilidae	2	12.5
			Uenoidae	1	6.3
			Total	334	2,088.2

## Metrics

Name	NJCRA01	Predicted Group Reference Mean $\pm$ SD
<b>Bray-Curtis Distance</b>	0.76	0.4 $\pm$ 0.1
<b>Biotic Indices</b>		
<b>Hilsenhoff Family index (North-West)</b>	4.7	3.3 $\pm$ 0.4
<b>Intolerant taxa</b>	--	
<b>Long-lived taxa</b>	--	2.1 $\pm$ 1.1
<b>Tolerant individuals (%)</b>	--	0.8 $\pm$ 0.3
<b>Functional Measures</b>		
<b>% Filterers</b>	--	
<b>% Gatherers</b>	51.5	41.1 $\pm$ 16.0
<b>% Predatores</b>	48.5	20.7 $\pm$ 14.1
<b>% Scrapers</b>	41.6	55.8 $\pm$ 22.6
<b>% Shredder</b>	5.4	27.1 $\pm$ 15.4
<b>No. Clinger Taxa</b>	20.0	23.6 $\pm$ 7.2
<b>Number Of Individuals</b>		
<b>% Chironomidae</b>	39.6	11.7 $\pm$ 12.7
<b>% Coleoptera</b>	0.0	1.4 $\pm$ 3.6
<b>% Diptera + Non-insects</b>	51.7	15.6 $\pm$ 14.0
<b>% Ephemeroptera</b>	43.5	47.7 $\pm$ 20.1
<b>% Ephemeroptera that are Baetidae</b>	82.1	38.7 $\pm$ 28.0
<b>% EPT Individuals</b>	48.3	83.0 $\pm$ 13.5
<b>% Odonata</b>	--	0.0 $\pm$ 0.0
<b>% of 2 dominant taxa</b>	75.4	57.3 $\pm$ 13.7
<b>% of 5 dominant taxa</b>	86.2	81.2 $\pm$ 8.1
<b>% of dominant taxa</b>	39.6	39.3 $\pm$ 14.3
<b>% Plecoptera</b>	2.1	30.3 $\pm$ 15.6
<b>% Tribe Tanyatarisini</b>	--	
<b>% Trichoptera that are Hydropsychida</b>	22.2	29.4 $\pm$ 27.7
<b>% Tricoptera</b>	2.7	5.0 $\pm$ 2.9
<b>No. EPT individuals/Chironomids+EPT Individuals</b>	0.5	0.9 $\pm$ 0.1
<b>Total Abundance</b>	2087.5	933.4 $\pm$ 922.0
<b>Richness</b>		
<b>Chironomidae taxa (genus level only)</b>	1.0	1.0 $\pm$ 0.0
<b>Coleoptera taxa</b>	0.0	0.5 $\pm$ 0.6
<b>Diptera taxa</b>	4.0	3.3 $\pm$ 1.3
<b>Ephemeroptera taxa</b>	4.0	4.0 $\pm$ 0.8

**Metrics**

Name	NJCRA01	Predicted Group Reference Mean $\pm$ SD
<b>EPT Individuals (Sum)</b>	1006.3	693.9 $\pm$ 519.8
<b>EPT taxa (no)</b>	13.0	13.5 $\pm$ 2.9
<b>Odonata taxa</b>	--	0.0 $\pm$ 0.0
<b>Pielou's Evenness</b>	0.6	0.7 $\pm$ 0.1
<b>Plecoptera taxa</b>	3.0	6.3 $\pm$ 1.3
<b>Shannon-Wiener Diversity</b>	1.7	2.0 $\pm$ 0.4
<b>Simpson's Diversity</b>	0.7	0.8 $\pm$ 0.1
<b>Simpson's Evenness</b>	0.2	0.3 $\pm$ 0.1
<b>Total No. of Taxa</b>	21.0	20.0 $\pm$ 4.8
<b>Trichoptera taxa</b>	6.0	3.3 $\pm$ 1.5

**Frequency and Probability of Taxa Occurrence**

Reference Model Taxa	Frequency of Occurrence in Reference Sites					Probability Of Occurrence at NJCRA01
	Group 1	Group 2	Group 3	Group 4	Group 5	
Baetidae	100%	100%	100%	100%	97%	1.00
Capniidae	78%	55%	50%	92%	68%	0.83
Chironomidae	100%	100%	100%	100%	95%	1.00
Chloroperlidae	78%	88%	94%	100%	100%	0.99
EphemereIIDae	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%	0.81
Perlodidae	78%	78%	89%	92%	81%	0.90
Rhyacophilidae	100%	92%	100%	100%	95%	0.99
Taeniopterygidae	89%	49%	100%	92%	97%	0.93

**RIVPACS Ratios**

<b>RIVPACS : Expected taxa P&gt;0.50</b>	13.69
<b>RIVPACS : Observed taxa P&gt;0.50</b>	12.00
<b>RIVPACS : O:E (p &gt; 0.5)</b>	0.88
<b>RIVPACS : Expected taxa P&gt;0.70</b>	11.33
<b>RIVPACS : Observed taxa P&gt;0.70</b>	9.00
<b>RIVPACS : O:E (p &gt; 0.7)</b>	0.79

**Habitat Description**

Variable	NJCRA01	Predicted Group Reference Mean $\pm$ SD
<b>Channel</b>		
<b>Depth-Avg (cm)</b>	36.3	23.6 $\pm$ 11.1
<b>Depth-BankfullMinusWetted (cm)</b>	64.00	51.38 $\pm$ 29.42
<b>Depth-Max (cm)</b>	49.0	34.6 $\pm$ 12.3
<b>Discharge (m<sup>3</sup>/s)</b>	2.740	0.000 $\pm$ 0.000
<b>Macrophyte (PercentRange)</b>	1	0 $\pm$ 0
<b>Reach-%CanopyCoverage (PercentRange)</b>	1.00	1.33 $\pm$ 0.78
<b>Reach-%Logging (PercentRange)</b>	0	0 $\pm$ 0
<b>Reach-DomStreamsideVeg (Category(1-4))</b>	2	4 $\pm$ 1
<b>Reach-Pools (Binary)</b>	1	1 $\pm$ 0
<b>Reach-Riffles (Binary)</b>	1	1 $\pm$ 0
<b>Reach-StraightRun (Binary)</b>	1	1 $\pm$ 1
<b>Slope (m/m)</b>	0.0150000	0.0546683 $\pm$ 0.0376269
<b>Veg-Coniferous (Binary)</b>	1	1 $\pm$ 0
<b>Veg-Deciduous (Binary)</b>	1	1 $\pm$ 0
<b>Veg-GrassesFerns (Binary)</b>	1	1 $\pm$ 0
<b>Veg-Shrubs (Binary)</b>	1	1 $\pm$ 0
<b>Velocity-Avg (m/s)</b>	0.44	0.48 $\pm$ 0.22
<b>Velocity-Max (m/s)</b>	0.75	0.76 $\pm$ 0.36
<b>Width-Bankfull (m)</b>	20.0	13.4 $\pm$ 9.9
<b>Width-Wetted (m)</b>	15.5	8.5 $\pm$ 5.8

## Habitat Description

Variable	NJCRA01	Predicted Group Reference Mean $\pm$ SD
XSEC-VelInstrumentDirect (Category(1-3))	3	0 $\pm$ 0
XSEC-VelMethod (Category(1-3))	3	1 $\pm$ 0
<b>Landcover</b>		
Reg-Ice (%)	0.00000	0.02487 $\pm$ 0.06034
<b>Substrate Data</b>		
%Bedrock (%)	0	0 $\pm$ 0
%Boulder (%)	5	9 $\pm$ 9
%Cobble (%)	92	51 $\pm$ 15
%Gravel (%)	0	3 $\pm$ 3
%Pebble (%)	3	37 $\pm$ 20
%Sand (%)	0	0 $\pm$ 0
%Silt+Clay (%)	0	0 $\pm$ 0
D50 (cm)	13.50	15.12 $\pm$ 14.26
Dg (cm)	13.2	8.2 $\pm$ 2.8
Dominant-1st (Category(0-9))	7	7 $\pm$ 1
Dominant-2nd (Category(0-9))	6	7 $\pm$ 1
Embeddedness (Category(1-5))	4	5 $\pm$ 1
PeriphytonCoverage (Category(1-5))	2	1 $\pm$ 0
SurroundingMaterial (Category(0-9))	2	4 $\pm$ 1
<b>Topography</b>		
Reg-SlopeLT30% (%)	15.66263	18.88386 $\pm$ 9.29866
<b>Water Chemistry</b>		
Ag (mg/L)	0.0000100	0.0000050
Al (mg/L)	0.0054000	0.0049000
As (mg/L)	0.0001300	0.0002700
B (mg/L)	0.0250000	0.0500000
Ba (mg/L)	0.0215000	0.0682000
Be (mg/L)	0.0000500	0.0000100
Bi (mg/L)	0.0000500	0.0000050
Ca (mg/L)	0.0182000	21.1083333 $\pm$ 16.8005659
Cd (mg/L)	0.0000050	0.0000050
Chloride-Dissolved (mg/L)	0.2500000	0.9750000 $\pm$ 2.6309780
Co (mg/L)	0.0025000	0.0000100
CO3 (mg/L)	0.2500000	0.0000000 $\pm$ 0.0000000
Cr (mg/L)	0.0005000	0.0001000
Cu (mg/L)	0.0025000	0.0001000
Fe (mg/L)	0.0120000	0.0080000
General-Alkalinity (mg/L)	60.9000000	71.7000000 $\pm$ 53.9231440
General-Conductivity ( $\mu$ S/cm)	74.0000000	121.8083333 $\pm$ 87.6800844
General-DO (mg/L)	13.0000000	11.4175000 $\pm$ 0.7986708
General-Hardness (mg/L)	63.5000000	84.2750000 $\pm$ 70.6251066
General-pH (pH)	13.0	7.9 $\pm$ 0.4
General-SolidsTSS (mg/L)	2.0000000	0.8849836 $\pm$ 1.2378575
General-SpCond ( $\mu$ S/cm)	107.0000000	168.9833333 $\pm$ 123.7858182
General-TempAir (Degrees Celsius)	10.0	26.0
General-TempWater (Degrees Celsius)	8.5000000	7.3183333 $\pm$ 2.7240839
General-Turbidity (NTU)	0.2400000	0.2020000
HCO3 (mg/L)	74.3000000	0.0000000 $\pm$ 0.0000000
Hg (ng/L)	5.0000000	0.0000000 $\pm$ 0.0000000
K (mg/L)	0.0005290	0.6141667 $\pm$ 0.4056971
Li (mg/L)	0.0025000	0.0011000
Mg (mg/L)	0.0044000	7.6666667 $\pm$ 7.9748848
Mn (mg/L)	0.0011000	0.0006100
Mo (mg/L)	0.0005000	0.0006900
Na (mg/L)	0.0011200	1.5383333 $\pm$ 1.2751459
Ni (mg/L)	0.0005000	0.0003000
Nitrogen-NH4+ (mg/L)	0.0990000	0.0000000 $\pm$ 0.0000000
Nitrogen-NO2 (mg/L)	0.0025000	0.0027500 $\pm$ 0.0062831
Nitrogen-NO3 (mg/L)	0.0310000	0.0546667 $\pm$ 0.0498148
Nitrogen-TN (mg/L)	0.1030000	0.0883333 $\pm$ 0.0521943
Pb (mg/L)	0.0001000	0.0000520
Phosphorus-OrthoP (mg/L)	0.0025000	0.0002727 $\pm$ 0.0004671

**Habitat Description**

<b>Variable</b>	<b>NJCRA01</b>	<b>Predicted Group Reference Mean <math>\pm</math>SD</b>
<b>Phosphorus-TP (mg/L)</b>	0.0025000	0.0045833 $\pm$ 0.0049992
<b>S (mg/L)</b>	0.0015000	5.0000000
<b>Sb (mg/L)</b>	0.0002500	0.0000700
<b>Se (mg/L)</b>	0.0000500	0.0001200
<b>Si (mg/L)</b>	2.9100000	3.1516667 $\pm$ 1.2277017
<b>Sn (mg/L)</b>	0.0025000	0.0000100
<b>SO4 (mg/L)</b>	8.4100000	17.2250000 $\pm$ 25.9966125
<b>Sr (mg/L)</b>	0.0659000	0.0443000
<b>Ti (mg/L)</b>	0.0025000	0.0005000
<b>Tl (mg/L)</b>	0.0000250	0.0000020
<b>U (mg/L)</b>	0.0002100	0.0011700
<b>V (mg/L)</b>	0.0025000	0.0002000
<b>Zn (mg/L)</b>	0.0025000	0.0010000
<b>Zr (mg/L)</b>	0.0025000	0.0000000 $\pm$ 0.0000000