

**Site Description**

<b>Study Name</b>	CBWQ-Upper Columbia
<b>Site</b>	NABIR02
<b>Sampling Date</b>	Sep 19 2016
<b>Know Your Watershed Basin</b>	Upper Columbia
<b>Province / Territory</b>	British Columbia
<b>Terrestrial Ecological Classification</b>	Montane Cordillera EcoZone Southern Rocky Mountain Trench EcoRegion
<b>Coordinates (decimal degrees)</b>	51.15869 N, 116.80200 W
<b>Altitude</b>	2660
<b>Local Basin Name</b>	Birchlands Creek
	Upper Columbia
<b>Stream Order</b>	3



Figure 1. Location Map



Across Reach



Down Stream

A photograph of a handwritten field sheet. The text on the sheet includes:  
- "Training Field Sheet Page 1 of 6"  
- "Field Crew: R. Deull, Cassia Street, Anelle Lukom" Site Code: NABIRO2  
- "Sampling Date (D/M/Y): 19 / 09 / 2016" QA/QC site:  Yes  No  
- "RS: Site Inspection Sheet Completed   
- "Primary Site Data" CABIN Study Name: Columbia Basin  
- "Local Basin name: Columbia" Ecoregion:  
- "Stream Name: Birchlands Creek" Stream Order (map scale 1:50,000):  
- "Geographical description notes:"

Field Sheet

Miscellaneous (No image found)



Substrate



Up Stream

**Cabin Assessment Results**

<b>Reference Model Summary</b>					
<b>Model</b>	Columbia-Okanagan Preliminary March 2010				
<b>Analysis Date</b>	February 27, 2017				
<b>Taxonomic Level</b>	Family				
<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>	0.1%	0.3%	16.0%	11.2%	72.5%
<b>CABIN Assessment of NABIRO2 on Sep 19, 2016</b>	Similar to Reference				

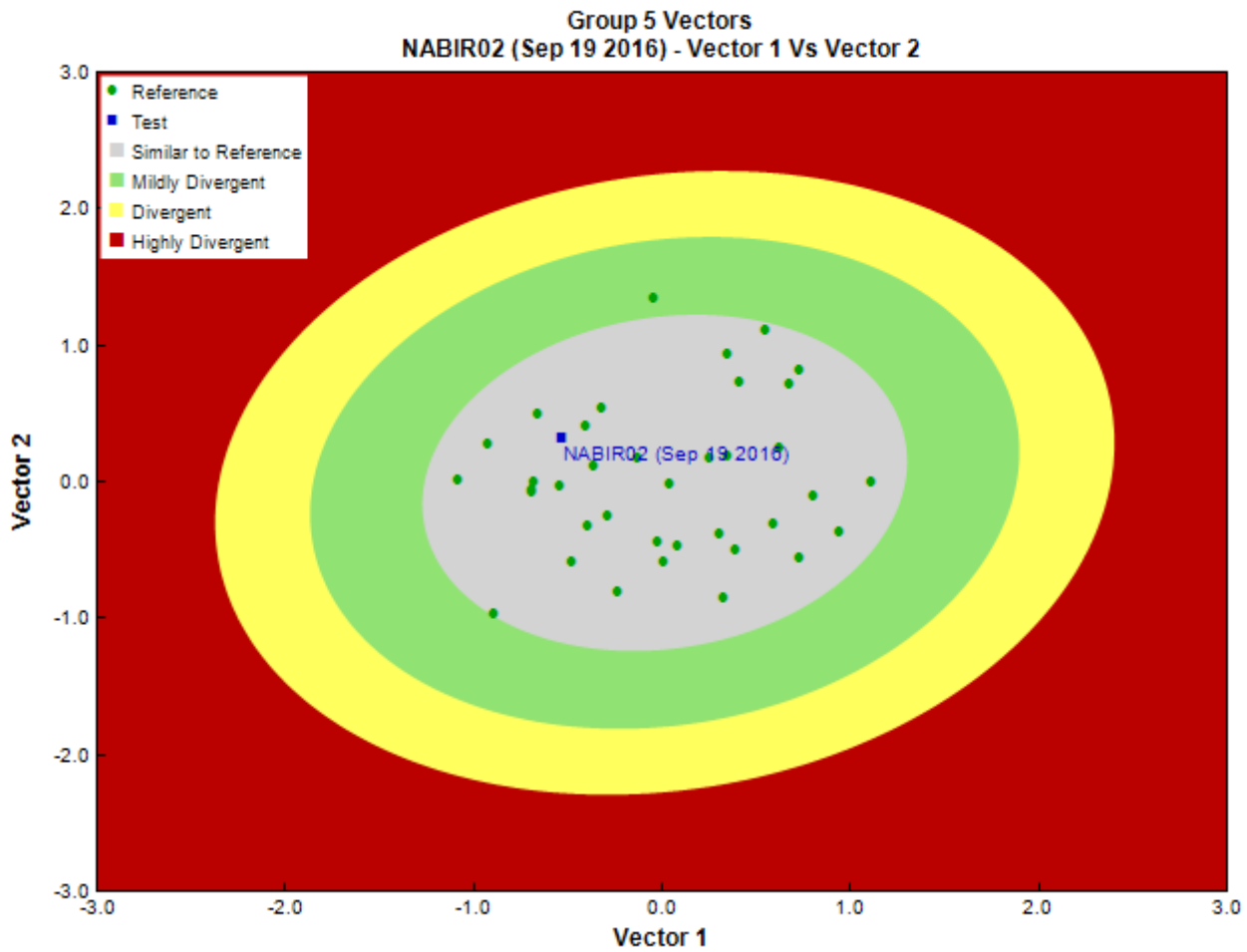


Figure 3. CABIN ordination assessment of the test site with the predicted group of reference sites. Each axis represents the relative abundance of the entire benthic invertebrate community with different organisms weighted differently on each axis.

**Sample Information**

<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>	October 13, 2016
	Marchant Box
<b>Sub-Sample Proportion</b>	14/100

**Community Structure**

Phylum	Class	Order	Family	Raw Count	Total Count
Arthropoda	Arachnida	Sarcoptiformes		1	7.1
		Insecta	Coleoptera	Curculionidae	1
	Diptera		Chironomidae	11	78.6
			Empididae	1	7.1
			Simuliidae	3	21.4
	Ephemeroptera		Ameletidae	1	7.1
			Baetidae	13	92.9
			Heptageniidae	56	400.0
			Plecoptera	Capniidae	5
	Chloroperlidae			24	171.4
	Leuctridae			2	14.3
	Nemouridae			47	335.7
	Perlodidae			6	42.9
	Taeniopterygidae			143	1,021.4
	Trichoptera	Hydropsychidae	4	28.6	

## Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
			Lepidostomatidae	1	7.1
			Rhyacophilidae	1	7.1
			Total	320	2,285.5

## Metrics

Name	NABIR02	Predicted Group Reference Mean $\pm$ SD
<b>Bray-Curtis Distance</b>	0.36	0.4 $\pm$ 0.1
<b>Biotic Indices</b>		
<b>Hilsenhoff Family index (North-West)</b>	2.5	2.8 $\pm$ 0.3
<b>Intolerant taxa</b>	--	1.0 $\pm$ 0.0
<b>Long-lived taxa</b>	--	1.0 $\pm$ 0.0
<b>Tolerant individuals (%)</b>	--	0.3
<b>Functional Measures</b>		
<b>% Filterers</b>	2.2	1.7 $\pm$ 1.7
<b>% Gatherers</b>	70.6	50.6 $\pm$ 14.6
<b>% Predatores</b>	15.6	15.3 $\pm$ 9.0
<b>% Scrapers</b>	74.7	67.2 $\pm$ 16.8
<b>% Shredder</b>	62.2	38.1 $\pm$ 18.2
<b>No. Clinger Taxa</b>	18.0	19.8 $\pm$ 3.4
<b>Number Of Individuals</b>		
<b>% Chironomidae</b>	3.4	4.6 $\pm$ 5.0
<b>% Coleoptera</b>	0.3	0.0 $\pm$ 0.0
<b>% Diptera + Non-insects</b>	4.7	6.3 $\pm$ 5.3
<b>% Ephemeroptera</b>	21.9	44.9 $\pm$ 17.3
<b>% Ephemeroptera that are Baetidae</b>	18.6	26.1 $\pm$ 20.5
<b>% EPT Individuals</b>	95.0	93.7 $\pm$ 5.3
<b>% Odonata</b>	0.0	0.0 $\pm$ 0.0
<b>% of 2 dominant taxa</b>	62.4	60.2 $\pm$ 11.4
<b>% of 5 dominant taxa</b>	88.7	84.5 $\pm$ 5.9
<b>% of dominant taxa</b>	44.8	39.3 $\pm$ 12.3
<b>% Plecoptera</b>	71.2	42.9 $\pm$ 17.2
<b>% Tribe Tanyatarisini</b>	--	
<b>% Trichoptera that are Hydropsychida</b>	66.7	27.4 $\pm$ 27.1
<b>% Tricoptera</b>	1.9	5.8 $\pm$ 5.7
<b>No. EPT individuals/Chironomids+EPT Individuals</b>	1.0	1.0 $\pm$ 0.1
<b>Total Abundance</b>	2285.7	2163.6 $\pm$ 1274.4
<b>Richness</b>		
<b>Chironomidae taxa (genus level only)</b>	1.0	0.9 $\pm$ 0.2
<b>Coleoptera taxa</b>	1.0	0.1 $\pm$ 0.2
<b>Diptera taxa</b>	3.0	2.4 $\pm$ 1.0
<b>Ephemeroptera taxa</b>	3.0	3.7 $\pm$ 0.5
<b>EPT Individuals (Sum)</b>	2164.3	2023.9 $\pm$ 1195.7
<b>EPT taxa (no)</b>	12.0	12.3 $\pm$ 1.9
<b>Odonata taxa</b>	0.0	0.0 $\pm$ 0.0
<b>Pielou's Evenness</b>	0.6	0.7 $\pm$ 0.1
<b>Plecoptera taxa</b>	6.0	5.5 $\pm$ 1.1
<b>Shannon-Wiener Diversity</b>	1.7	1.9 $\pm$ 0.3
<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>	16.0	16.0 $\pm$ 3.0
<b>Trichoptera taxa</b>	3.0	3.2 $\pm$ 1.0

## Frequency and Probability of Taxa Occurrence

Reference Model Taxa	Frequency of Occurrence in Reference Sites					Probability Of Occurrence at NABIR02
	Group 1	Group 2	Group 3	Group 4	Group 5	
Baetidae	100%	100%	100%	100%	97%	0.98
Chironomidae	100%	100%	100%	100%	95%	0.96
Chloroperlidae	78%	88%	94%	100%	100%	0.99
Ephemerellidae	78%	100%	100%	100%	100%	1.00
Heptageniidae	100%	100%	100%	100%	100%	1.00

### Frequency and Probability of Taxa Occurrence

Reference Model Taxa	Frequency of Occurrence in Reference Sites					Probability Of Occurrence at NABIR02
	Group 1	Group 2	Group 3	Group 4	Group 5	
Hydropsychidae	11%	92%	78%	92%	86%	0.86
Nemouridae	100%	100%	100%	100%	100%	1.00
Perlodidae	78%	78%	89%	92%	81%	0.84
Rhyacophilidae	100%	92%	100%	100%	95%	0.96
Taeniopterygidae	89%	49%	100%	92%	97%	0.97

### RIVPACS Ratios

RIVPACS : Expected taxa P>0.50	12.53
RIVPACS : Observed taxa P>0.50	13.00
RIVPACS : O:E (p > 0.5)	1.04
RIVPACS : Expected taxa P>0.70	9.55
RIVPACS : Observed taxa P>0.70	9.00
RIVPACS : O:E (p > 0.7)	0.94

### Habitat Description

Variable	NABIR02	Predicted Group Reference Mean $\pm$ SD
<b>Channel</b>		
Depth-Avg (cm)	7.0	21.5 $\pm$ 9.7
Depth-BankfullMinusWetted (cm)	39.50	38.14 $\pm$ 36.11
Depth-Max (cm)	8.0	31.0 $\pm$ 16.5
Macrophyte (PercentRange)	0	0 $\pm$ 0
Reach-%CanopyCoverage (PercentRange)	1.00	1.54 $\pm$ 1.28
Reach-%Logging (PercentRange)	0	0 $\pm$ 0
Reach-DomStreamsideVeg (Category (1-4))	3	3 $\pm$ 1
Reach-Pools (Binary)	1	1 $\pm$ 0
Reach-Riffles (Binary)	1	1 $\pm$ 0
Reach-StraightRun (Binary)	1	0 $\pm$ 1
Slope (m/m)	0.0260000	0.0581357 $\pm$ 0.0554952
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)	0.71	0.51 $\pm$ 0.27
Velocity-Max (m/s)	0.89	0.78 $\pm$ 0.40
Width-Bankfull (m)	15.4	13.7 $\pm$ 16.4
Width-Wetted (m)	4.2	9.0 $\pm$ 13.1
XSEC-VelMethod (Category (1-3))	1	2 $\pm$ 1
<b>Landcover</b>		
Reg-Ice (%)	0.00000	3.06094 $\pm$ 5.65390
<b>Substrate Data</b>		
%Bedrock (%)	0	1 $\pm$ 1
%Boulder (%)	2	3 $\pm$ 3
%Cobble (%)	62	64 $\pm$ 17
%Gravel (%)	6	2 $\pm$ 2
%Pebble (%)	30	31 $\pm$ 16
%Sand (%)	0	0 $\pm$ 0
%Silt+Clay (%)	0	0 $\pm$ 0
D50 (cm)	8.20	19.61 $\pm$ 30.65
Dg (cm)	7.0	20.3 $\pm$ 30.8
Dominant-1st (Category(0-9))	6	7 $\pm$ 1
Dominant-2nd (Category(0-9))	5	6 $\pm$ 1
Embeddedness (Category(1-5))	3	4 $\pm$ 1
PeriphytonCoverage (Category(1-5))	1	2 $\pm$ 1
SurroundingMaterial (Category(0-9))	3	3 $\pm$ 1
<b>Topography</b>		
Reg-SlopeLT30% (%)	21.53373	16.26604 $\pm$ 8.50298
<b>Water Chemistry</b>		
Ag (mg/L)	0.0100000	0.0000025 $\pm$ 0.0000029
Al (mg/L)	5.6000000	0.0068250 $\pm$ 0.0065408

## Habitat Description

Variable	NABIR02	Predicted Group Reference Mean $\pm$ SD
As (mg/L)	0.0500000	0.0007150 $\pm$ 0.0011508
B (mg/L)	25.0000000	0.0333333 $\pm$ 0.0288675
Ba (mg/L)	145.0000000	0.1105900 $\pm$ 0.0816788
Be (mg/L)	0.0500000	0.0000050 $\pm$ 0.0000058
Bi (mg/L)	0.5000000	0.0000025 $\pm$ 0.0000029
Ca (mg/L)	46.9000000	23.0705882 $\pm$ 17.1292507
Cd (mg/L)	0.0050000	0.0000025 $\pm$ 0.0000029
Chloride-Dissolved (mg/L)	1.4000000	0.4147059 $\pm$ 0.6325189
Co (mg/L)	0.2500000	0.0000108 $\pm$ 0.0000045
CO3 (mg/L)	4.7300000	0.0000000 $\pm$ 0.0000000
Cr (mg/L)	0.5000000	0.0000500 $\pm$ 0.0000577
Cu (mg/L)	0.2500000	0.0003225 $\pm$ 0.0003721
Fe (mg/L)	5.0000000	0.0050000 $\pm$ 0.0028284
General-Alkalinity (mg/L)	167.0000000	68.5944444 $\pm$ 52.1098452
General-DO (mg/L)	10.0000000	11.0635135 $\pm$ 0.9899052
General-Hardness (mg/L)	200.0000000	88.7500000 $\pm$ 65.9614844
General-pH (pH)	8.7	7.7 $\pm$ 0.7
General-SolidsTSS (mg/L)	2.0000000	2.8140173 $\pm$ 7.8143482
General-SpCond ( $\mu$ S/cm)	249.1000000	160.3567568 $\pm$ 118.4083015
General-TempAir (Degrees Celsius)	9.5	10.5 $\pm$ 0.7
General-TempWater (Degrees Celsius)	8.5000000	5.5262162 $\pm$ 1.8860693
General-Turbidity (NTU)	2.1600000	0.1015000 $\pm$ 0.0459619
HCO3 (mg/L)	194.0000000	0.0000000 $\pm$ 0.0000000
Hg (ng/L)	0.0050000	0.0000000 $\pm$ 0.0000000
K (mg/L)	0.5430000	0.3252941 $\pm$ 0.2988993
Li (mg/L)	2.5000000	0.0009650 $\pm$ 0.0007595
Mg (mg/L)	20.2000000	7.6670588 $\pm$ 6.3323257
Mn (mg/L)	0.5000000	0.0003198 $\pm$ 0.0001463
Mo (mg/L)	2.6000000	0.0006200 $\pm$ 0.0004410
Na (mg/L)	0.7630000	0.8885294 $\pm$ 0.7285025
Ni (mg/L)	0.5000000	0.0001300 $\pm$ 0.0001937
Nitrogen-NH3 (mg/L)	0.0590000	0.0119375 $\pm$ 0.0293336
Nitrogen-NO2 (mg/L)	0.0025000	0.0074306 $\pm$ 0.0217095
Nitrogen-NO2+NO3 (mg/L)	0.0910000	0.0315000 $\pm$ 0.0316491
Nitrogen-NO3 (mg/L)	0.0910000	0.0699722 $\pm$ 0.0547511
Nitrogen-TDN (mg/L)	0.18	0.00 $\pm$ 0.00
Pb (mg/L)	0.1000000	0.0000215 $\pm$ 0.0000198
Phosphorus-OrthoP (mg/L)	0.0025000	0.0008750 $\pm$ 0.0012583
Phosphorus-TDP (mg/L)	0.0025000	0.0012500 $\pm$ 0.0015000
S (mg/L)	10.2000000	11.5000000 $\pm$ 12.0208153
Sb (mg/L)	0.2500000	0.0000270 $\pm$ 0.0000061
Se (mg/L)	0.0500000	0.0000450 $\pm$ 0.0000614
Si (mg/L)	2550.0000000	1.8247059 $\pm$ 0.6920511
Sn (mg/L)	2.5000000	0.0000050 $\pm$ 0.0000058
Sr (mg/L)	78.6000000	0.0823000 $\pm$ 0.1023104
Ti (mg/L)	2.5000000	0.0005000 $\pm$ 0.0000000
Tl (mg/L)	0.0250000	0.0000020 $\pm$ 0.0000028
U (mg/L)	1.2600000	0.0004868 $\pm$ 0.0003873
V (mg/L)	2.5000000	0.0002425 $\pm$ 0.0003161
Zn (mg/L)	2.5000000	0.0005500 $\pm$ 0.0006403
Zr (mg/L)	0.2500000	0.0000000 $\pm$ 0.0000000