

**Site Description**

<b>Study Name</b>	CBWQ-Salmo
<b>Site</b>	NESHP01
<b>Sampling Date</b>	Sep 20 2016
<b>Know Your Watershed Basin</b>	Central Columbia
<b>Province / Territory</b>	British Columbia
<b>Terrestrial Ecological Classification</b>	Montane Cordillera EcoZone Selkirk-Bitterroot Foothills EcoRegion
<b>Coordinates (decimal degrees)</b>	49.14128 N, 117.25862 W
<b>Altitude</b>	2198
<b>Local Basin Name</b>	Sheep Creek
	Columbia Basin
<b>Stream Order</b>	4

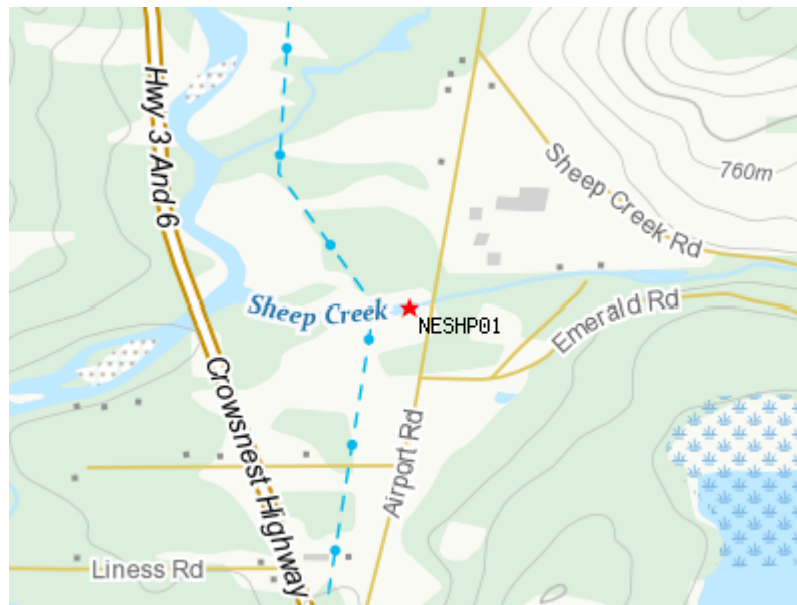


Figure 1. Location Map



Across Reach



Down Stream  
 Field Sheet (No image found)  
 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>	0.0%	100.0%	0.0%	0.0%	0.0%
<b>CABIN Assessment of NESHP01 on Sep 20, 2016</b>	Similar to Reference				

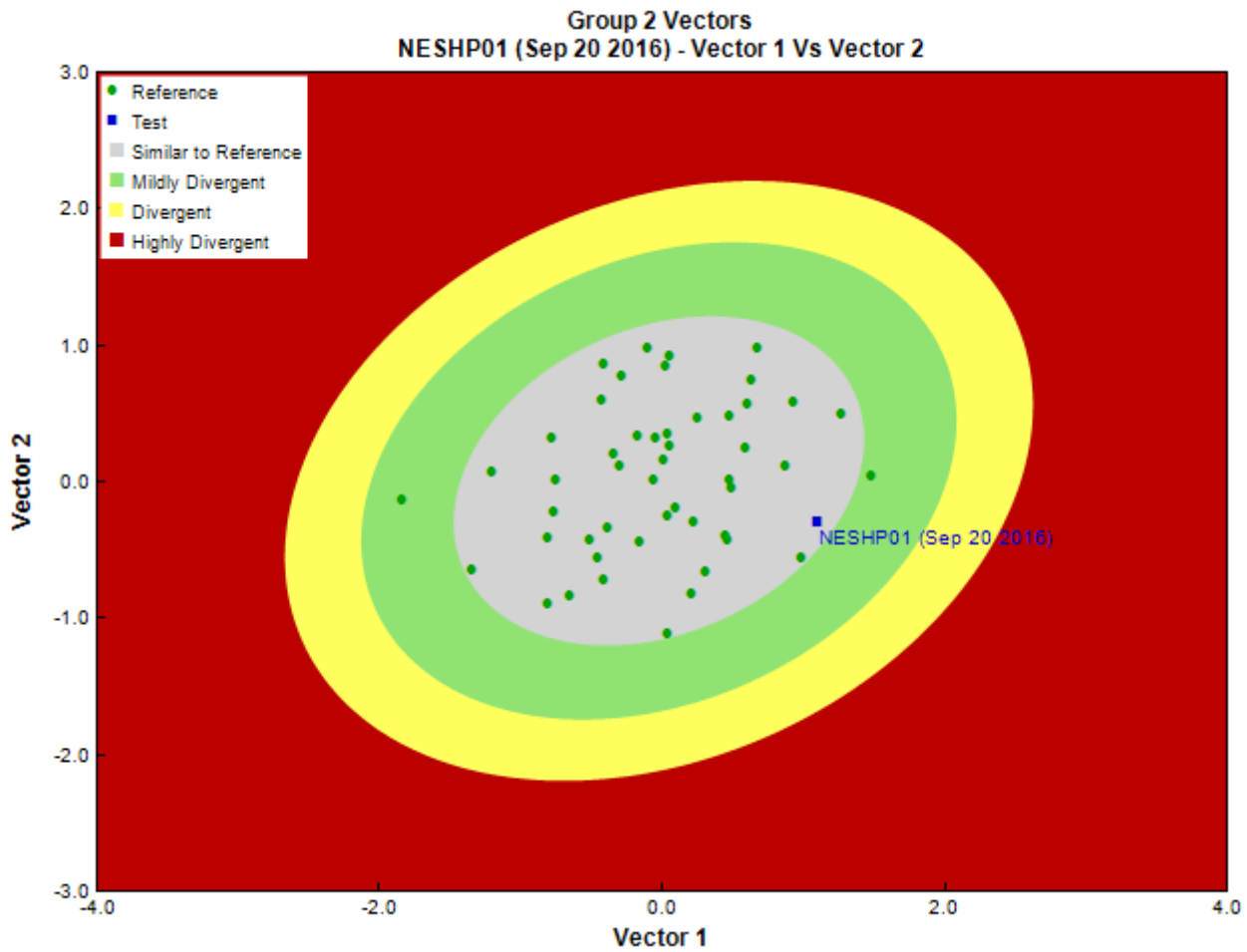


Figure 3. CABIN ordination assessment of the test site with the predicted group of reference sites. Each axis represents the relative abundance of the entire benthic invertebrate community with different organisms weighted differently on each axis.

**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 22, 2016
	Marchant Box
<b>Sub-Sample Proportion</b>	8/100

**Community Structure**

Phylum	Class	Order	Family	Raw Count	Total Count
Annelida	Oligochaeta			3	37.5
		Lumbriculida	Lumbriculidae	1	12.5
Arthropoda	Arachnida	Trombidiformes		1	12.5
			Hydryphantidae	3	37.5
			Hygrobatidae	2	25.0
			Lebertiidae	8	100.0
			Sperchontidae	5	62.5
			Torrenticolidae	18	225.0
	Insecta	Coleoptera	Dytiscidae	1	12.5
			Elmidae	20	250.0
		Diptera	Ceratopogonidae	1	12.5
			Chironomidae	82	1,025.0
			Psychodidae	16	200.0
			Tipulidae	10	125.0
		Ephemeroptera	Ameletidae	7	87.5

## Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
			Baetidae	10	125.0
			Ephemerelellidae	40	500.0
			Heptageniidae	80	1,000.0
			Leptophlebiidae	9	112.5
		Plecoptera	Capniidae	1	12.5
			Chloroperlidae	1	12.5
			Nemouridae	2	25.0
			Perlodidae	2	25.0
		Trichoptera	Brachycentridae	24	300.0
			Glossosomatidae	2	25.0
			Hydropsychidae	1	12.5
			Hydroptilidae	1	12.5
			Lepidostomatidae	22	275.0
			Limnephilidae	2	25.0
			Rhyacophilidae	3	37.5
			Total	378	4,725.0

## Metrics

Name	NESHPO1	Predicted Group Reference Mean $\pm$ SD
Bray-Curtis Distance	0.67	0.5 $\pm$ 0.1
<b>Biotic Indices</b>		
Hilsenhoff Family index (North-West)	4.1	3.3 $\pm$ 0.5
Intolerant taxa	--	1.0 $\pm$ 0.0
Long-lived taxa	4.0	3.7 $\pm$ 1.9
Tolerant individuals (%)	0.3	1.3 $\pm$ 1.5
<b>Functional Measures</b>		
% Filterers	6.6	4.5 $\pm$ 4.6
% Gatherers	56.6	46.7 $\pm$ 12.1
% Predatores	33.6	22.1 $\pm$ 11.2
% Scrapers	31.0	53.4 $\pm$ 16.1
% Shredder	21.4	27.8 $\pm$ 12.7
No. Clinger Taxa	26.0	25.5 $\pm$ 6.3
<b>Number Of Individuals</b>		
% Chironomidae	21.9	8.7 $\pm$ 10.4
% Coleoptera	5.6	5.7 $\pm$ 8.6
% Diptera + Non-insects	39.0	15.7 $\pm$ 11.6
% Ephemeroptera	39.0	45.6 $\pm$ 14.3
% Ephemeroptera that are Baetidae	6.8	44.5 $\pm$ 20.4
% EPT Individuals	55.3	78.6 $\pm$ 14.0
% Odonata	0.0	0.0 $\pm$ 0.0
% of 2 dominant taxa	43.3	49.3 $\pm$ 10.6
% of 5 dominant taxa	66.3	76.4 $\pm$ 9.1
% of dominant taxa	21.9	30.6 $\pm$ 8.9
% Plecoptera	1.6	23.2 $\pm$ 13.6
% Tribe Tanyatarisini	--	
% Trichoptera that are Hydropsychida	1.8	27.4 $\pm$ 25.1
% Tricoptera	14.7	9.8 $\pm$ 7.1
No. EPT individuals/Chironomids+EPT Individuals	0.7	0.9 $\pm$ 0.1
Total Abundance	4725.0	3018.4 $\pm$ 2496.0
<b>Richness</b>		
Chironomidae taxa (genus level only)	1.0	1.0 $\pm$ 0.1
Coleoptera taxa	2.0	0.8 $\pm$ 0.7
Diptera taxa	4.0	3.8 $\pm$ 1.4
Ephemeroptera taxa	5.0	4.3 $\pm$ 0.6
EPT Individuals (Sum)	2587.5	2266.9 $\pm$ 1692.6
EPT taxa (no)	16.0	14.0 $\pm$ 2.7
Odonata taxa	0.0	0.0 $\pm$ 0.0
Pielou's Evenness	0.8	0.7 $\pm$ 0.1
Plecoptera taxa	4.0	5.3 $\pm$ 1.7
Shannon-Wiener Diversity	2.5	2.2 $\pm$ 0.3
Simpson's Diversity	0.9	0.8 $\pm$ 0.1

**Metrics**

Name	NESHP01	Predicted Group Reference Mean $\pm$ SD
Simpson's Evenness	0.3	0.3 $\pm$ 0.1
Total No. of Taxa	28.0	21.8 $\pm$ 4.8
Trichoptera taxa	7.0	4.5 $\pm$ 1.5

**Frequency and Probability of Taxa Occurrence**

Reference Model Taxa	Frequency of Occurrence in Reference Sites					Probability Of Occurrence at NESHP01
	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%	0.86
Ephemereilidae	78%	100%	100%	100%	100%	1.00
Heptageniidae	100%	100%	100%	100%	100%	1.00
Hydropsychidae	11%	92%	78%	92%	86%	0.92
Leptophlebiidae	0%	90%	11%	33%	3%	0.90
Nemouridae	100%	100%	100%	100%	100%	1.00
Perlidae	11%	84%	33%	100%	3%	0.84
Perlodidae	78%	78%	89%	92%	81%	0.78
Rhyacophilidae	100%	92%	100%	100%	95%	0.92
Torrenticolidae	11%	86%	11%	17%	11%	0.86

**RIVPACS Ratios**

RIVPACS : Expected taxa P>0.50	17.84
RIVPACS : Observed taxa P>0.50	21.00
RIVPACS : O:E (p > 0.5)	1.18
RIVPACS : Expected taxa P>0.70	11.94
RIVPACS : Observed taxa P>0.70	12.00
RIVPACS : O:E (p > 0.7)	1.01

**Habitat Description**

Variable	NESHP01	Predicted Group Reference Mean $\pm$ SD
<b>Channel</b>		
Depth-Avg (cm)	25.8	18.0 $\pm$ 7.8
Depth-BankfullMinusWetted (cm)	192.00	52.85 $\pm$ 27.13
Depth-Max (cm)	40.0	23.9 $\pm$ 10.9
Macrophyte (PercentRange)	1	0 $\pm$ 1
Reach-%CanopyCoverage (PercentRange)	1.00	2.37 $\pm$ 1.20
Reach-DomStreamsideVeg (Category (1-4))	2	3 $\pm$ 1
Reach-Pools (Binary)	1	1 $\pm$ 0
Reach-Riffles (Binary)	1	1 $\pm$ 0
Reach-StraightRun (Binary)	1	1 $\pm$ 0
Slope (m/m)	0.0250000	0.0325815 $\pm$ 0.0231391
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)	0.50	0.35 $\pm$ 0.17
Velocity-Max (m/s)	0.69	0.49 $\pm$ 0.22
Width-Bankfull (m)	19.0	10.4 $\pm$ 7.4
Width-Wetted (m)	15.0	5.6 $\pm$ 3.7
XSEC-VelInstrumentDirect (Category (1-3))	3	3 $\pm$ 0
XSEC-VelMethod (Category (1-3))	3	2 $\pm$ 1
<b>Landcover</b>		
Reg-Ice (%)	0.00000	0.00000 $\pm$ 0.00000
<b>Substrate Data</b>		
%Bedrock (%)	0	0 $\pm$ 1
%Boulder (%)	11	10 $\pm$ 9
%Cobble (%)	31	56 $\pm$ 12

## Habitat Description

Variable	NESHPO1	Predicted Group Reference Mean $\pm$ SD
%Gravel (%)	9	5 $\pm$ 5
%Pebble (%)	41	27 $\pm$ 13
%Sand (%)	0	1 $\pm$ 3
%Silt+Clay (%)	8	1 $\pm$ 1
D50 (cm)	5.00	13.08 $\pm$ 14.78
Dg (cm)	3.9	10.8 $\pm$ 15.3
Dominant-1st (Category(0-9))	6	7 $\pm$ 1
Dominant-2nd (Category(0-9))	5	6 $\pm$ 1
Embeddedness (Category(1-5))	5	4 $\pm$ 1
PeriphytonCoverage (Category(1-5))	2	2 $\pm$ 1
SurroundingMaterial (Category(0-9))	2	3 $\pm$ 1
<b>Topography</b>		
Reg-SlopeLT30% (%)	2644.62500	56.46157 $\pm$ 21.18067
<b>Water Chemistry</b>		
Ag (mg/L)	0.0000100	0.0000071 $\pm$ 0.0000039
Al (mg/L)	0.0137000	0.0203857 $\pm$ 0.0252665
As (mg/L)	0.0001200	0.0005171 $\pm$ 0.0007540
B (mg/L)	0.0250000	0.0500000 $\pm$ 0.0000000
Ba (mg/L)	0.0228000	0.0389286 $\pm$ 0.0177357
Be (mg/L)	0.0000500	0.0000114 $\pm$ 0.0000038
Bi (mg/L)	0.0005000	0.0000071 $\pm$ 0.0000039
Ca (mg/L)	17.3000000	22.5624250 $\pm$ 16.5307245
Cd (mg/L)	0.0000950	0.0000051 $\pm$ 0.0000029
Chloride-Dissolved (mg/L)	0.5000000	2.1658537 $\pm$ 5.6687900
Co (mg/L)	0.0002500	0.0000191 $\pm$ 0.0000250
CO3 (mg/L)	0.2500000	0.0000000 $\pm$ 0.0000000
Cr (mg/L)	0.0005000	0.0001429 $\pm$ 0.0000787
Cu (mg/L)	0.0002500	0.0005714 $\pm$ 0.0006419
Fe (mg/L)	0.0050000	0.1625000 $\pm$ 0.2029396
General-Alkalinity (mg/L)	46.7000000	74.2090909 $\pm$ 49.2896792
General-DO (mg/L)	11.0000000	10.7197872 $\pm$ 0.8550553
General-Hardness (mg/L)	54.5000000	76.7627907 $\pm$ 51.6191365
General-pH (pH)	8.2	7.9 $\pm$ 0.4
General-SolidsTSS (mg/L)	2.0000000	1.2584331 $\pm$ 1.5004996
General-TempAir (Degrees Celsius)	12.0	16.9 $\pm$ 5.3
General-TempWater (Degrees Celsius)	8.0000000	9.5837917 $\pm$ 2.8075507
General-Turbidity (NTU)	0.4500000	0.3928571 $\pm$ 0.4025218
HCO3 (mg/L)	56.9000000	0.0000000 $\pm$ 0.0000000
Hg (ng/L)	5.0000000	0.0000000 $\pm$ 0.0000000
K (mg/L)	0.5430000	1.3021622 $\pm$ 0.6781926
Li (mg/L)	0.0025000	0.0007150 $\pm$ 0.0007595
Mg (mg/L)	2.7100000	4.8150000 $\pm$ 3.9874418
Mn (mg/L)	0.0005000	0.0048270 $\pm$ 0.0093216
Mo (mg/L)	0.0005000	0.0003543 $\pm$ 0.0001658
Na (mg/L)	0.8630000	3.8905405 $\pm$ 3.6065003
Ni (mg/L)	0.0005000	0.0002171 $\pm$ 0.0003655
Nitrogen-NO2 (mg/L)	0.0025000	0.0061486 $\pm$ 0.0067934
Nitrogen-NO2+NO3 (mg/L)	0.0490000	0.0178069 $\pm$ 0.0412372
Nitrogen-NO3 (mg/L)	0.0490000	0.0258108 $\pm$ 0.0256957
Nitrogen-TN (mg/L)	0.1150000	0.0969231 $\pm$ 0.0788454
Pb (mg/L)	0.0001000	0.0000217 $\pm$ 0.0000292
Phosphorus-OrthoP (mg/L)	0.0063000	0.0078875 $\pm$ 0.0114003
Phosphorus-TP (mg/L)	0.0095000	0.0119104 $\pm$ 0.0123605
S (mg/L)	1.5000000	3.0000000 $\pm$ 0.0000000
Sb (mg/L)	0.0002500	0.0000327 $\pm$ 0.0000172
Se (mg/L)	0.0001600	0.0003229 $\pm$ 0.0001776
Si (mg/L)	4.3800000	5.8577273 $\pm$ 3.4465676
Sn (mg/L)	0.0025000	0.0000100 $\pm$ 0.0000071
Sr (mg/L)	0.0545000	0.0810571 $\pm$ 0.0366920
Ti (mg/L)	0.0025000	0.0010000 $\pm$ 0.0002828
Tl (mg/L)	0.0000250	0.0000013 $\pm$ 0.0000010
U (mg/L)	0.0004100	0.0001454 $\pm$ 0.0001004

**Habitat Description**

<b>Variable</b>	<b>NESHP01</b>	<b>Predicted Group Reference Mean <math>\pm</math>SD</b>
<b>V (mg/L)</b>	0.0025000	0.0002957 $\pm$ 0.0001416
<b>Zn (mg/L)</b>	0.0054000	0.0005857 $\pm$ 0.0003388
<b>Zr (mg/L)</b>	0.0002500	0.0000000 $\pm$ 0.0000000