Site Description

Study Name	CBWQ-Salmo
Site	NESHP01
Sampling Date	Sep 12 2017
Know Your Watershed Basin	Central Columbia
Province / Territory	British Columbia
Terrestrial Ecological Classification	Montane Cordillera EcoZone Selkirk-Bitterroot Foothills EcoRegion
Coordinates (decimal degrees)	49.14128 N, 117.25862 W
Altitude	2198
Local Basin Name	Sheep Creek
	Columbia Basin
Stream Order	4

Figure 1. Location Map

Across Reach
Aerial (No image found)
Down Stream (No image found)
Field Sheet (No image found)
Miscellaneous (No image found)
Substrate (No image found)
Up Stream (No image found)

Cabin Assessment Results

Reference Model Summary	
Model	Columbia-Okanagan Preliminary March 2010
Analysis Date	January 30, 2018
Taxonomic Level	Family

Cabin Assessment Results

Predictive Model Variables	Depth-Avg Latitude Longitude Reg-Ice Reg-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	0.1%	7.6%	8.0%	81.9%	2.4%
CABIN Assessment of NESHP01 on Sep 12, 2017	Mildly Divergent				

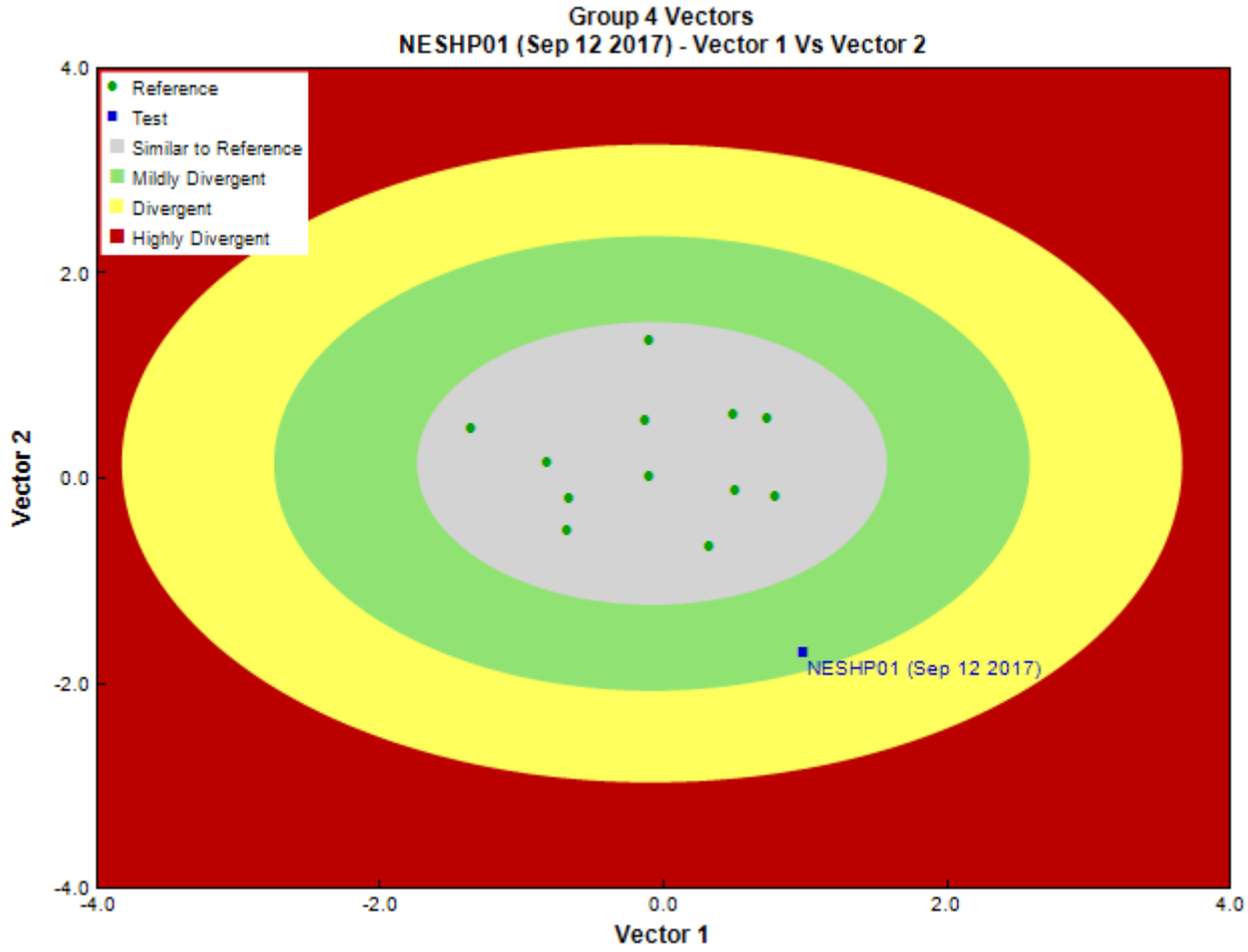

Figure 3. CABIN ordination assessment of the test site with the predicted group of reference sites. Each axis represents the relative abundance of the entire benthic invertebrate community with different organisms weighted differently on each axis.

Sample Information

Sampling Device	Kick Net
Mesh Size	400
Sampling Time	3
Taxonomist	Pina Viola, Consultant
Date Taxonomy Completed	December 19, 2017
	Marchant Box
Sub-Sample Proportion	8/100

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
Annelida	Oligochaeta	Tubificida	Naididae	4	50.0
Arthropoda	Arachnida	Trombidiformes		4	50.0
			Hydryphantidae	2	25.0
			Hygrobatidae	1	12.5
			Lebertiidae	4	50.0
			Sperchontidae	1	12.5
			Torrenticolidae	43	537.5
	Insecta	Coleoptera	Elmidae	16	200.0
		Diptera	Ceratopogonidae	3	37.5
			Chironomidae	177	2,212.5
			Psychodidae	15	187.5
			Tipulidae	4	50.0
		Ephemeroptera	Ameletidae	9	112.5
			Baetidae	12	150.0
			Ephemerellidae	12	150.0
			Heptageniidae	41	512.5
			Leptophlebiidae	5	62.5
		Plecoptera	Capniidae	1	12.5
			Chloroperlidae	1	12.5
			Nemouridae	2	25.0
		Trichoptera		1	12.5
			Brachycentridae	5	62.5
			Hydropsychidae	3	37.5
			Hydroptilidae	2	25.0
			Lepidostomatidae	7	87.5
			Limnephilidae	1	12.5
			Rhyacophilidae	1	12.5
			Total	377	4,712.5

Metrics

Name	NESHP01	Predicted Group Reference Mean ±SD
Bray-Curtis Distance	0.86	0.4 ± 0.1
Biotic Indices		
Hilsenhoff Family index (North-West)	5.2	3.2 ± 0.3
Intolerant taxa	--	
Long-lived taxa	3.0	2.1 ± 1.0
Tolerant individuals (%)	--	0.8 ± 0.3
Functional Measures		
% Filterers	2.1	2.2 ± 1.8
% Gatherers	67.6	38.4 ± 12.4
% Predatores	62.6	19.0 ± 8.5
% Scrapers	20.2	63.2 ± 19.7
% Shredder	9.5	27.6 ± 15.2
No. Clinger Taxa	26.0	23.2 ± 6.3
Number Of Individuals		
% Chironomidae	47.6	7.4 ± 6.4
% Coleoptera	4.3	1.5 ± 3.9
% Diptera + Non-insects	68.3	10.8 ± 7.6
% Ephemeroptera	21.2	51.7 ± 18.8
% Ephemeroptera that are Baetidae	15.2	40.6 ± 30.0
% EPT Individuals	27.4	87.7 ± 7.4
% Odonata	0.0	0.0 ± 0.0
% of 2 dominant taxa	59.1	57.9 ± 14.2
% of 5 dominant taxa	78.5	81.6 ± 7.9
% of dominant taxa	47.6	39.8 ± 14.9
% Plecoptera	1.1	31.4 ± 15.4
% Tribe Tanyatarisini	--	
% Trichoptera that are Hydropsychida	15.8	27.0 ± 26.2
% Tricoptera	5.1	4.5 ± 2.8
No. EPT individuals/Chironomids+EPT Individuals	0.4	0.9 ± 0.1
Total Abundance	4712.5	587.4 ± 299.1

Metrics

Name	NESHP01	Predicted Group Reference Mean ±SD
Richness		
Chironomidae taxa (genus level only)	1.0	1.0 ± 0.0
Coleoptera taxa	1.0	0.4 ± 0.5
Diptera taxa	4.0	3.3 ± 1.0
Ephemeroptera taxa	5.0	3.8 ± 0.8
EPT Individuals (Sum)	1275.0	526.0 ± 285.8
EPT taxa (no)	14.0	13.3 ± 2.7
Odonata taxa	0.0	0.0 ± 0.0
Pielou's Evenness	0.6	0.7 ± 0.1
Plecoptera taxa	3.0	6.3 ± 1.1
Shannon-Wiener Diversity	2.0	1.9 ± 0.4
Simpson's Diversity	0.7	0.8 ± 0.1
Simpson's Evenness	0.2	0.3 ± 0.1
Total No. of Taxa	25.0	19.3 ± 3.7
Trichoptera taxa	6.0	3.2 ± 1.4

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
Capniidae	78%	55%	50%	92%	68%	0.85
Chironomidae	100%	100%	100%	100%	95%	1.00
Chloroperlidae	78%	88%	94%	100%	100%	0.99
Ephemerellidae	78%	100%	100%	100%	100%	1.00
Heptageniidae	100%	100%	100%	100%	100%	1.00
Hydropsychidae	11%	92%	78%	92%	86%	0.90
Nemouridae	100%	100%	100%	100%	100%	1.00
Perlidae	11%	84%	33%	100%	3%	0.91
Perlodidae	78%	78%	89%	92%	81%	0.90
Rhyacophilidae	100%	92%	100%	100%	95%	0.99
Taeniopterygidae	89%	49%	100%	92%	97%	0.89

RIVPACS Ratios

RIVPACS : Expected taxa P>0.50	14.41
RIVPACS : Observed taxa P>0.50	12.00
RIVPACS : O:E (p > 0.5)	0.83
RIVPACS : Expected taxa P>0.70	11.43
RIVPACS : Observed taxa P>0.70	9.00
RIVPACS : O:E (p > 0.7)	0.79

Habitat Description

Variable	NESHP01	Predicted Group Reference Mean ±SD
Channel		
Depth-Avg (cm)	25.3	23.6 ± 11.1
Depth-BankfullMinusWetted (cm)	105.00	51.38 ± 29.42
Depth-Max (cm)	31.0	34.6 ± 12.3
Macrophyte (PercentRange)	0	0 ± 0
Reach-%CanopyCoverage (PercentRange)	1.00	1.33 ± 0.78
Reach-DomStreamsideVeg (Category(1-4))	3	4 ± 1
Reach-Pools (Binary)	1	1 ± 0
Reach-Riffles (Binary)	1	1 ± 0
Reach-StraightRun (Binary)	1	1 ± 1
Slope (m/m)	0.0150000	0.0546683 ± 0.0376269
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)	0.27	0.48 ± 0.22

Habitat Description

Variable	NESHP01	Predicted Group Reference Mean ±SD
Velocity-Max (m/s)	0.42	0.76 ± 0.36
Width-Bankfull (m)	20.0	13.4 ± 9.9
Width-Wetted (m)	17.0	8.5 ± 5.8
XSEC-VelInstrumentDirect (Category(1-3))	3	0 ± 0
XSEC-VelMethod (Category(1-3))	3	1 ± 0
Landcover		
Reg-Ice (%)	0.00000	0.02487 ± 0.06034
Substrate Data		
%Bedrock (%)	0	0 ± 0
%Boulder (%)	7	9 ± 9
%Cobble (%)	63	51 ± 15
%Gravel (%)	1	3 ± 3
%Pebble (%)	29	37 ± 20
%Sand (%)	0	0 ± 0
%Silt+Clay (%)	0	0 ± 0
D50 (cm)	9.30	15.12 ± 14.26
Dg (cm)	9.0	8.2 ± 2.8
Dominant-1st (Category(0-9))	6	7 ± 1
Dominant-2nd (Category(0-9))	7	7 ± 1
Embeddedness (Category(1-5))	5	5 ± 1
PeriphytonCoverage (Category(1-5))	3	1 ± 0
SurroundingMaterial (Category(0-9))	2	4 ± 1
Topography		
Reg-SlopeLT30% (%)	19.60983	18.88386 ± 9.29866
Water Chemistry		
CO3 (mg/L)	0.5000000	0.0000000 ± 0.0000000
General-Alkalinity (mg/L)	69.9000000	71.7000000 ± 53.9231440
General-DO (mg/L)	10.0700000	11.4175000 ± 0.7986708
General-pH (pH)	8.2	7.9 ± 0.4
General-SolidsTSS (mg/L)	2.0000000	0.8849836 ± 1.2378575
General-SpCond (µS/cm)	148.1000000	168.9833333 ± 123.7858182
General-TempAir (Degrees Celsius)	15.0	26.0
General-TempWater (Degrees Celsius)	12.1000000	7.3183333 ± 2.7240839
General-Turbidity (NTU)	0.3000000	0.2020000
HCO3 (mg/L)	85.2000000	0.0000000 ± 0.0000000
Phosphorus-OrthoP (mg/L)	0.0062000	0.0002727 ± 0.0004671
Phosphorus-TP (mg/L)	0.0082000	0.0045833 ± 0.0049992