Site Description

Study Name	CBWQ-Salmo
Site	NESHP02
Sampling Date	Sep 23 2014
Know Your Watershed Basin	Central Columbia
Province / Territory	British Columbia
Terrestrial Ecological Classification	Montane Cordillera EcoZone Columbia Mountains and Highlands EcoRegion
Coordinates (decimal degrees)	49.13353 N, 117.16692 W
Altitude	2821
Local Basin Name	Sheep Creek
	Columbia Basin
Stream Order	4

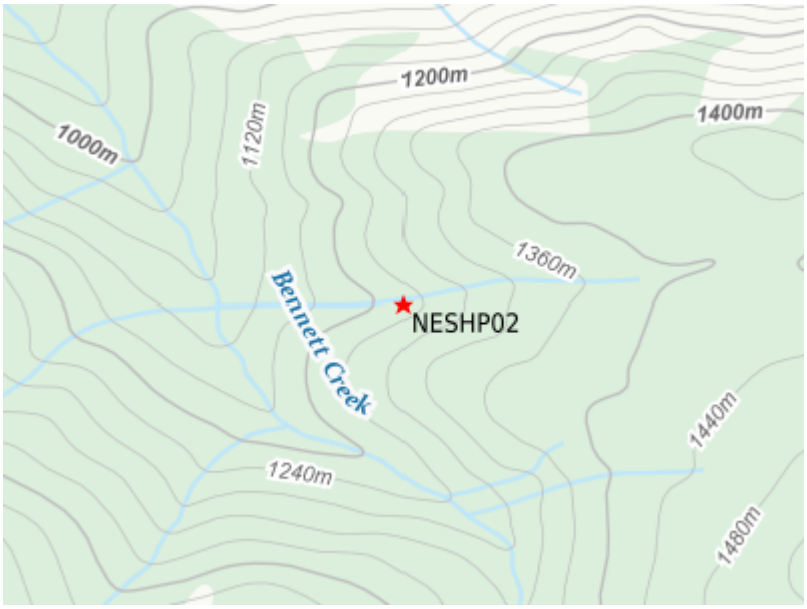

Figure 1. Location Map

Across Reach (No image found)
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	December 12, 2017
Taxonomic Level	Family
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%	4.0%	7.2%	86.2%	2.5%
CABIN Assessment of NESHP02 on Sep 23, 2014	Mildly Divergent				

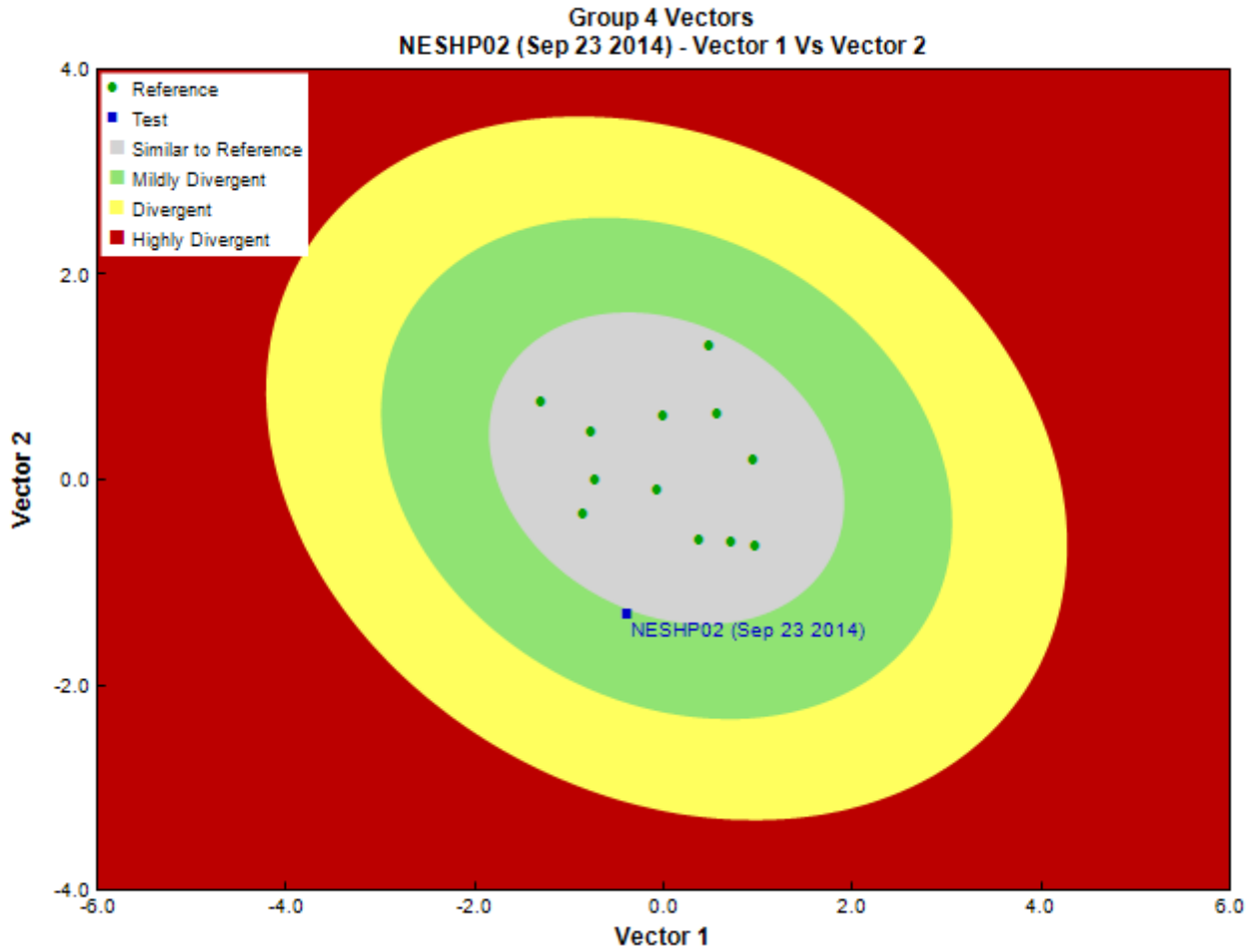

Figure 3. CABIN ordination assessment of the test site with the predicted group of reference sites. Each axis represents the relative abundance of the entire benthic invertebrate community with different organisms weighted differently on each axis.

Sample Information

Sampling Device	Kick Net
Mesh Size	400
Sampling Time	3
Taxonomist	-
Date Taxonomy Completed	-
	-
Sub-Sample Proportion	16/100

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
Annelida	Oligochaeta	Enchytraeida	Enchytraeidae	1	6.3
Arthropoda	Arachnida	Trombidiformes	Hydryphantidae	1	6.3
			Hygrobatidae	1	6.3
			Lebertiidae	1	6.3
			Sperchontidae	3	18.8
			Torrenticolidae	12	75.0
	Insecta	Coleoptera	Dytiscidae	1	6.3
			Elmidae	6	37.5
		Diptera	Ceratopogonidae	1	6.3
			Chironomidae	41	256.3
			Empididae	1	6.3
			Psychodidae	2	12.5
		Ephemeroptera	Ameletidae	1	6.3
			Baetidae	24	150.0
			Ephemerellidae	20	125.0

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
			Heptageniidae	32	200.1
			Leptophlebiidae	6	37.6
		Plecoptera	Capniidae	3	18.8
			Chloroperlidae	2	12.5
			Nemouridae	10	62.5
			Perlidae	1	6.3
			Perlodidae	4	25.1
			Taeniopterygidae	32	200.0
		Trichoptera		3	18.8
			Apataniidae	1	6.3
			Brachycentridae	1	6.3
			Glossosomatidae	99	618.8
			Hydropsychidae	3	18.8
			Lepidostomatidae	1	6.3
			Limnephilidae	5	31.3
			Rhyacophilidae	7	43.8
			Uenoidae	13	81.3
			Total	339	2,120.1

Metrics

Name	NESHP02	Predicted Group Reference Mean ±SD
Bray-Curtis Distance	0.63	0.4 ± 0.1
Biotic Indices		
Hilsenhoff Family index (North-West)	2.3	3.2 ± 0.3
Intolerant taxa	--	
Long-lived taxa	3.0	2.1 ± 1.0
Tolerant individuals (%)	0.3	0.8 ± 0.3
Functional Measures		
% Filterers	1.2	2.2 ± 1.8
% Gatherers	40.1	38.4 ± 12.4
% Predatores	23.3	19.0 ± 8.5
% Scrapers	63.4	63.2 ± 19.7
% Shredder	17.4	27.6 ± 15.2
No. Clinger Taxa	28.0	23.2 ± 6.3
Number Of Individuals		
% Chironomidae	12.2	7.4 ± 6.4
% Coleoptera	2.1	1.5 ± 3.9
% Diptera + Non-insects	19.0	10.8 ± 7.6
% Ephemeroptera	24.7	51.7 ± 18.8
% Ephemeroptera that are Baetidae	28.9	40.6 ± 30.0
% EPT Individuals	78.9	87.7 ± 7.4
% Odonata	--	0.0 ± 0.0
% of 2 dominant taxa	41.7	57.9 ± 14.2
% of 5 dominant taxa	67.9	81.6 ± 7.9
% of dominant taxa	29.5	39.8 ± 14.9
% Plecoptera	15.5	31.4 ± 15.4
% Tribe Tanyatarisini	--	
% Trichoptera that are Hydropsychida	2.3	27.0 ± 26.2
% Tricoptera	38.7	4.5 ± 2.8
No. EPT individuals/Chironomids+EPT Individuals	0.9	0.9 ± 0.1
Total Abundance	2118.8	587.4 ± 299.1
Richness		
Chironomidae taxa (genus level only)	1.0	1.0 ± 0.0
Coleoptera taxa	2.0	0.4 ± 0.5
Diptera taxa	4.0	3.3 ± 1.0
Ephemeroptera taxa	5.0	3.8 ± 0.8
EPT Individuals (Sum)	1656.3	526.0 ± 285.8
EPT taxa (no)	19.0	13.3 ± 2.7
Odonata taxa	--	0.0 ± 0.0
Pielou's Evenness	0.7	0.7 ± 0.1
Plecoptera taxa	6.0	6.3 ± 1.1

Metrics

Name	NESHP02	Predicted Group Reference Mean ±SD
Shannon-Wiener Diversity	2.5	1.9 ± 0.4
Simpson's Diversity	0.9	0.8 ± 0.1
Simpson's Evenness	0.2	0.3 ± 0.1
Total No. of Taxa	31.0	19.3 ± 3.7
Trichoptera taxa	8.0	3.2 ± 1.4

Frequency and Probability of Taxa Occurrence

Reference Model Taxa	Frequency of Occurrence in Reference Sites					Probability Of Occurrence at NESHP02
	Group 1	Group 2	Group 3	Group 4	Group 5	
Baetidae	100%	100%	100%	100%	97%	1.00
Capniidae	78%	55%	50%	92%	68%	0.87
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%	0.92
Perlodidae	78%	78%	89%	92%	81%	0.91
Rhyacophilidae	100%	92%	100%	100%	95%	1.00
Taeniopterygidae	89%	49%	100%	92%	97%	0.91

RIVPACS Ratios

RIVPACS : Expected taxa P>0.50	14.47
RIVPACS : Observed taxa P>0.50	15.00
RIVPACS : O:E (p > 0.5)	1.04
RIVPACS : Expected taxa P>0.70	11.49
RIVPACS : Observed taxa P>0.70	12.00
RIVPACS : O:E (p > 0.7)	1.04

Habitat Description

Variable	NESHP02	Predicted Group Reference Mean ±SD
Channel		
Depth-Avg (cm)	29.2	23.6 ± 11.1
Depth-Max (cm)	46.0	34.6 ± 12.3
Macrophyte (PercentRange)	0	0 ± 0
Reach-%CanopyCoverage (PercentRange)	0.00	1.33 ± 0.78
Reach-Pools (Binary)	1	1 ± 0
Reach-Rapids (Binary)	1	0 ± 0
Reach-Riffles (Binary)	1	1 ± 0
Reach-StraightRun (Binary)	1	1 ± 1
Slope (m/m)	0.0250000	0.0546683 ± 0.0376269
Veg-Coniferous (Binary)	1	1 ± 0
Veg-Deciduous (Binary)	1	1 ± 0
Veg-GrassesFerns (Binary)	0	1 ± 0
Veg-Shrubs (Binary)	1	1 ± 0
Velocity-Avg (m/s)	0.30	0.48 ± 0.22
Velocity-Max (m/s)	0.73	0.76 ± 0.36
Width-Bankfull (m)	19.0	13.4 ± 9.9
Width-Wetted (m)	13.0	8.5 ± 5.8
Landcover		
Reg-Ice (%)	0.00000	0.02487 ± 0.06034
Substrate Data		
%Bedrock (%)	0	0 ± 0
%Boulder (%)	23	9 ± 9
%Cobble (%)	43	51 ± 15
%Gravel (%)	9	3 ± 3
%Pebble (%)	25	37 ± 20

Habitat Description

Variable	NESHP02	Predicted Group Reference Mean ±SD
%Sand (%)	0	0 ± 0
%Silt+Clay (%)	0	0 ± 0
D50 (cm)	13.60	15.12 ± 14.26
Dg (cm)	10.9	8.2 ± 2.8
Dominant-1st (Category(0-9))	7	7 ± 1
Dominant-2nd (Category(0-9))	8	7 ± 1
Embeddedness (Category(1-5))	4	5 ± 1
PeriphytonCoverage (Category(1-5))	1	1 ± 0
SurroundingMaterial (Category(0-9))	5	4 ± 1
Topography		
Reg-SlopeLT30% (%)	15.64630	18.88386 ± 9.29866
Water Chemistry		
CO3 (mg/L)	0.2500000	0.0000000 ± 0.0000000
General-Alkalinity (mg/L)	43.2000000	71.7000000 ± 53.9231440
General-DO (mg/L)	10.0000000	11.4175000 ± 0.7986708
General-pH (pH)	8.2	7.9 ± 0.4
General-TempAir (Degrees Celsius)	17.3	26.0
General-TempWater (Degrees Celsius)	10.0000000	7.3183333 ± 2.7240839
General-Turbidity (NTU)	0.2300000	0.2020000
HCO3 (mg/L)	52.7000000	0.0000000 ± 0.0000000
Nitrogen-NO2 (mg/L)	0.0025000	0.0027500 ± 0.0062831
Nitrogen-NO2+NO3 (mg/L)	0.0100000	0.0690000
Nitrogen-NO3 (mg/L)	0.0100000	0.0546667 ± 0.0498148
Phosphorus-OrthoP (mg/L)	0.0116000	0.0002727 ± 0.0004671
Phosphorus-TP (mg/L)	0.0144000	0.0045833 ± 0.0049992