

Site Description

Study Name	CBWQ-Salmo
Site	NESHPO3
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)	49.15972 N, 117.09243 W
Altitude	3904
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	0.0%	5.4%	9.3%	82.5%	2.7%	
CABIN Assessment of NESHPO3 on Sep 23, 2014	Similar to Reference					

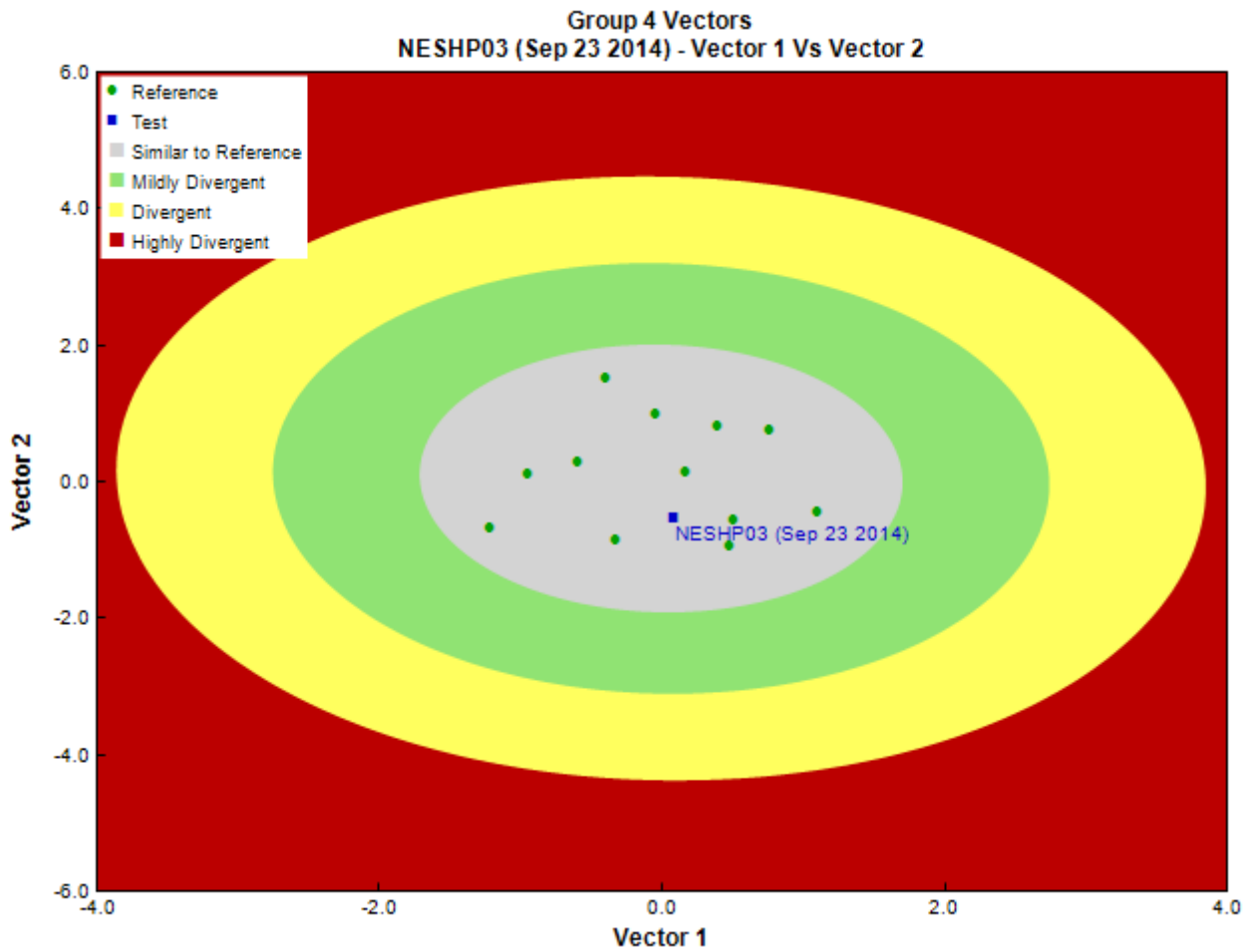


Figure 3. CABIN ordination assessment of the test site with the predicted group of reference sites. Each axis represents the relative abundance of the entire benthic invertebrate community with different organisms weighted differently on each axis.

Sample Information

Sampling Device	Kick Net
Mesh Size	400
Sampling Time	3
Taxonomist	Pina Viola, Consultant
Date Taxonomy Completed	December 19, 2014
	Marchant Box
Sub-Sample Proportion	40/100

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
Annelida	Oligochaeta	Enchytraeida	Enchytraeidae	1	2.5
Arthropoda	Arachnida	Trombidiformes	Hydryphantidae	1	2.5
			Torrenticolidae	2	5.0
	Insecta	Coleoptera	Elmidae	2	5.0
			Diptera	Chironomidae	29
			Empididae	3	7.5
			Tipulidae	1	2.5
		Ephemeroptera	Ameletidae	12	30.0
			Baetidae	28	70.0
			Ephemerellidae	23	57.5
			Heptageniidae	97	242.5
			Leptophlebiidae	1	2.5
		Plecoptera	Capniidae	8	20.0
			Chloroperlidae	9	22.5
			Leuctridae	3	7.5

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
			Nemouridae	16	40.0
			Peltoperlidae	1	2.5
			Perlidae	3	7.5
			Taeniopterygidae	53	132.5
		Trichoptera		2	5.0
			Glossosomatidae	10	25.0
			Hydropsychidae	11	27.5
			Limnephilidae	5	12.5
			Rhyacophilidae	12	30.0
			Uenoidae	1	2.5
			Total	334	835.0

Metrics

Name	NESHPO3	Predicted Group Reference Mean \pm SD
Bray-Curtis Distance	0.36	0.4 \pm 0.1
Biotic Indices		
Hilsenhoff Family index (North-West)	3.0	3.2 \pm 0.3
Intolerant taxa	--	
Long-lived taxa	3.0	2.1 \pm 1.0
Tolerant individuals (%)	--	0.8 \pm 0.3
Functional Measures		
% Filterers	3.3	2.2 \pm 1.8
% Gatherers	44.3	38.4 \pm 12.4
% Predatores	21.0	19.0 \pm 8.5
% Scrapers	61.4	63.2 \pm 19.7
% Shredder	26.6	27.6 \pm 15.2
No. Clinger Taxa	27.0	23.2 \pm 6.3
Number Of Individuals		
% Chironomidae	8.7	7.4 \pm 6.4
% Coleoptera	0.6	1.5 \pm 3.9
% Diptera + Non-insects	11.1	10.8 \pm 7.6
% Ephemeroptera	48.5	51.7 \pm 18.8
% Ephemeroptera that are Baetidae	17.4	40.6 \pm 30.0
% EPT Individuals	88.3	87.7 \pm 7.4
% Odonata	--	0.0 \pm 0.0
% of 2 dominant taxa	45.2	57.9 \pm 14.2
% of 5 dominant taxa	69.3	81.6 \pm 7.9
% of dominant taxa	29.2	39.8 \pm 14.9
% Plecoptera	28.0	31.4 \pm 15.4
% Tribe Tanyatarisini	--	
% Trichoptera that are Hydropsychida	28.2	27.0 \pm 26.2
% Tricoptera	11.7	4.5 \pm 2.8
No. EPT individuals/Chironomids+EPT Individuals	0.9	0.9 \pm 0.1
Total Abundance	835.0	587.4 \pm 299.1
Richness		
Chironomidae taxa (genus level only)	1.0	1.0 \pm 0.0
Coleoptera taxa	1.0	0.4 \pm 0.5
Diptera taxa	3.0	3.3 \pm 1.0
Ephemeroptera taxa	5.0	3.8 \pm 0.8
EPT Individuals (Sum)	732.5	526.0 \pm 285.8
EPT taxa (no)	17.0	13.3 \pm 2.7
Odonata taxa	--	0.0 \pm 0.0
Pielou's Evenness	0.8	0.7 \pm 0.1
Plecoptera taxa	7.0	6.3 \pm 1.1
Shannon-Wiener Diversity	2.4	1.9 \pm 0.4
Simpson's Diversity	0.9	0.8 \pm 0.1
Simpson's Evenness	0.3	0.3 \pm 0.1
Total No. of Taxa	24.0	19.3 \pm 3.7
Trichoptera taxa	5.0	3.2 \pm 1.4

Frequency and Probability of Taxa Occurrence

Reference Model Taxa	Frequency of Occurrence in Reference Sites					Probability Of Occurrence at NESHP03
	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%	0.90
Perlodidae	78%	78%	89%	92%	81%	0.90
Rhyacophilidae	100%	92%	100%	100%	95%	0.99
Taeniopterygidae	89%	49%	100%	92%	97%	0.90

RIVPACS Ratios

RIVPACS : Expected taxa P>0.50	14.40
RIVPACS : Observed taxa P>0.50	15.00
RIVPACS : O:E (p > 0.5)	1.04
RIVPACS : Expected taxa P>0.70	11.44
RIVPACS : Observed taxa P>0.70	11.00
RIVPACS : O:E (p > 0.7)	0.96

Habitat Description

Variable	NESHP03	Predicted Group Reference Mean \pm SD
Channel		
Depth-Avg (cm)	21.8	23.6 \pm 11.1
Depth-Max (cm)	42.0	34.6 \pm 12.3
Macrophyte (PercentRange)	0	0 \pm 0
Reach-%CanopyCoverage (PercentRange)	4.00	1.33 \pm 0.78
Reach-Pools (Binary)	1	1 \pm 0
Reach-Rapids (Binary)	1	0 \pm 0
Reach-Riffles (Binary)	1	1 \pm 0
Reach-StraightRun (Binary)	1	1 \pm 1
Slope (m/m)	0.0250000	0.0546683 \pm 0.0376269
Veg-Coniferous (Binary)	1	1 \pm 0
Veg-Deciduous (Binary)	1	1 \pm 0
Veg-GrassesFerns (Binary)	0	1 \pm 0
Veg-Shrubs (Binary)	1	1 \pm 0
Velocity-Avg (m/s)	0.12	0.48 \pm 0.22
Velocity-Max (m/s)	0.17	0.76 \pm 0.36
Width-Bankfull (m)	10.0	13.4 \pm 9.9
Width-Wetted (m)	7.0	8.5 \pm 5.8
Landcover		
Reg-Ice (%)	0.00000	0.02487 \pm 0.06034
Substrate Data		
%Bedrock (%)	0	0 \pm 0
%Boulder (%)	4	9 \pm 9
%Cobble (%)	37	51 \pm 15
%Gravel (%)	17	3 \pm 3
%Pebble (%)	42	37 \pm 20
%Sand (%)	0	0 \pm 0
%Silt+Clay (%)	0	0 \pm 0
D50 (cm)	5.40	15.12 \pm 14.26
Dg (cm)	4.6	8.2 \pm 2.8
Dominant-1st (Category(0-9))	6	7 \pm 1
Dominant-2nd (Category(0-9))	4	7 \pm 1
Embeddedness (Category(1-5))	5	5 \pm 1
PeriphytonCoverage (Category(1-5))	1	1 \pm 0
SurroundingMaterial (Category(0-9))	1	4 \pm 1
Topography		

Habitat Description

Variable	NESHPO3	Predicted Group Reference Mean \pm SD
Reg-SlopeLT30% (%)	18.05440	18.88386 \pm 9.29866
Water Chemistry		
CO3 (mg/L)	0.2500000	0.0000000 \pm 0.0000000
General-Alkalinity (mg/L)	18.0000000	71.7000000 \pm 53.9231440
General-DO (mg/L)	9.0000000	11.4175000 \pm 0.7986708
General-pH (pH)	7.9	7.9 \pm 0.4
General-TempAir (Degrees Celsius)	15.9	26.0
General-TempWater (Degrees Celsius)	9.6000000	7.3183333 \pm 2.7240839
General-Turbidity (NTU)	0.1700000	0.2020000
HCO3 (mg/L)	21.9000000	0.0000000 \pm 0.0000000
Nitrogen-NO2 (mg/L)	0.0025000	0.0027500 \pm 0.0062831
Nitrogen-NO2+NO3 (mg/L)	0.0100000	0.0690000
Nitrogen-NO3 (mg/L)	0.0100000	0.0546667 \pm 0.0498148
Phosphorus-OrthoP (mg/L)	0.0025000	0.0002727 \pm 0.0004671
Phosphorus-TP (mg/L)	0.0060000	0.0045833 \pm 0.0049992