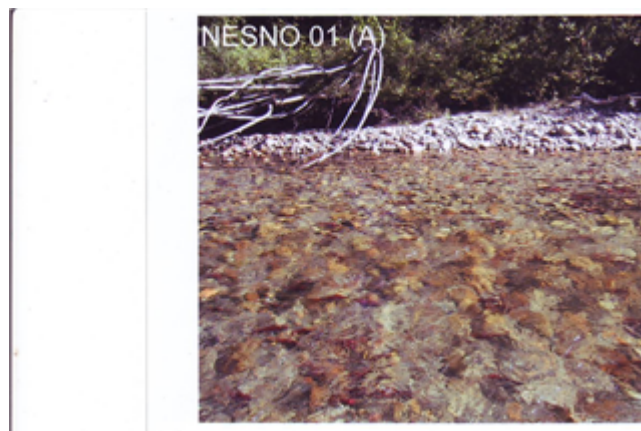


Site Description

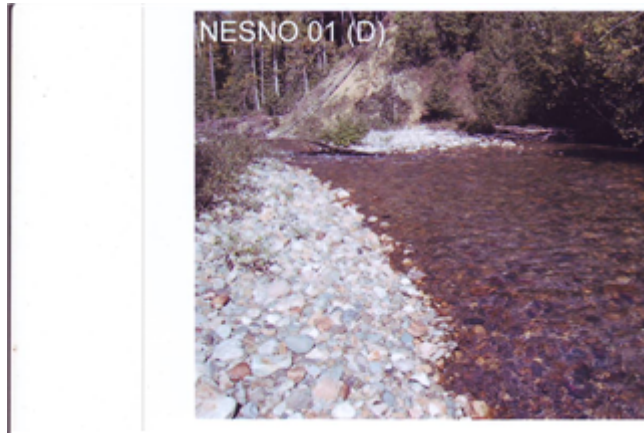
Study Name	CBWQ-Arrow
Site	NESNO01
Sampling Date	Sep 14 2009
Know Your Watershed Basin	Central Columbia
Province / Territory	British Columbia
Terrestrial Ecological Classification	Montane Cordillera EcoZone Columbia Mountains and Highlands EcoRegion
Coordinates (decimal degrees)	49.96696 N, 117.88336 W
Altitude	1670
Local Basin Name	Snow Cr.
	Columbia River
Stream Order	5



Figure 1. Location Map



Across Reach
Aerial (No image found)



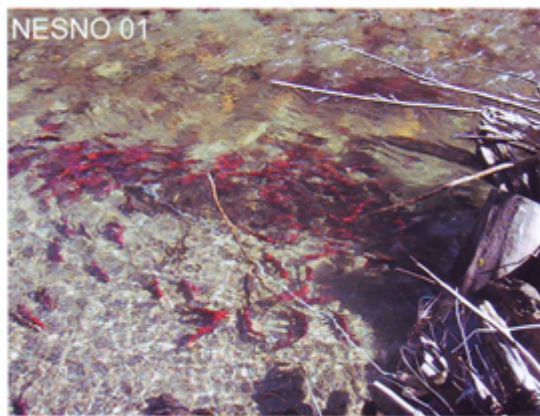
Down Stream



Field Sheet
Miscellaneous (No image found)



Substrate



Up Stream

Cabin Assessment Results

Reference Model Summary					
Model	Columbia-Okanagan Preliminary March 2010				
Analysis Date	August 11, 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	0.9%	3.0%	4.9%	74.2%	16.9%
CABIN Assessment of NESNO01 on Sep 14, 2009	Similar to Reference				

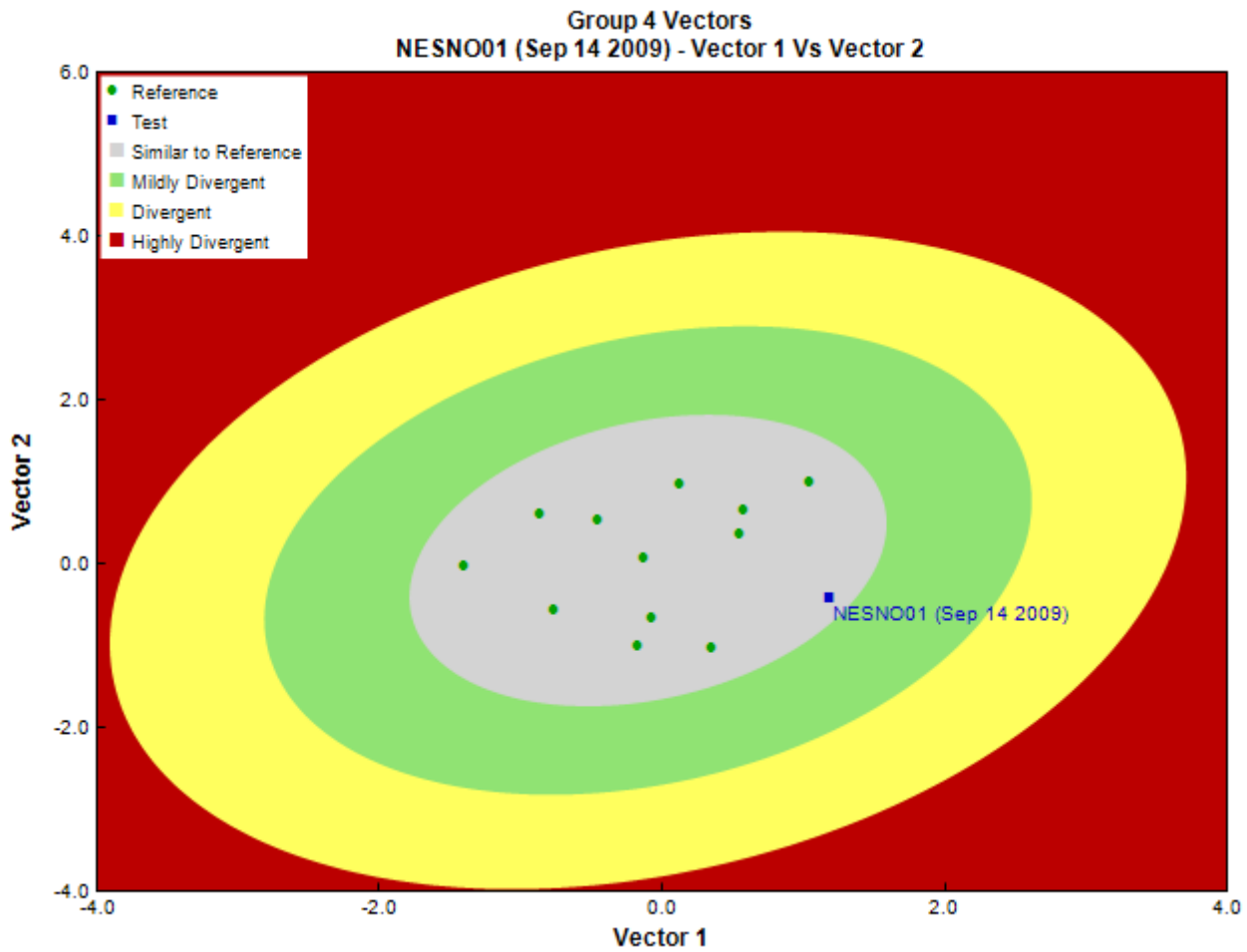


Figure 3. CABIN ordination assessment of the test site with the predicted group of reference sites. Each axis represents the relative abundance of the entire benthic invertebrate community with different organisms weighted differently on each axis.

Sample Information

Sampling Device	Kick Net
Mesh Size	400
Sampling Time	3
Taxonomist	Eco Analsyts, EcoAnalysts
Date Taxonomy Completed	February 26, 2010
	Marchant Box
Sub-Sample Proportion	19/100

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count	
Arthropoda	Arachnida	Sarcoptiformes		1	5.3	
		Trombidiformes	Lebertiidae	1	5.3	
	Insecta	Coleoptera		Sperchontidae	1	5.3
				Elmidae	1	5.3
		Diptera		Chironomidae	5	26.3
				Empididae	1	5.3
				Psychodidae	6	31.6
				Tipulidae	9	47.4
			Ephemeroptera	Ameletidae	3	15.8
				Baetidae	123	647.4
				Ephemerellidae	12	63.2
			Heptageniidae	125	657.9	
				Leptophlebiidae	2	10.5
Plecoptera	Chloroperlidae	7	36.8			
		Perlodidae	1	5.3		

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
			Taeniopterygidae	8	42.1
		Trichoptera	Apataniidae	3	15.8
			Glossosomatidae	7	36.8
			Hydropsychidae	1	5.3
			Lepidostomatidae	2	10.5
			Limnephilidae	2	10.5
			Rhyacophilidae	7	36.8
			Uenoidae	2	10.5
			Total	330	1,737.0

Metrics

Name	NESNO01	Predicted Group Reference Mean \pm SD
Bray-Curtis Distance	0.66	0.4 \pm 0.1
Biotic Indices		
Hilsenhoff Family index (North-West)	3.7	3.2 \pm 0.3
Intolerant taxa	--	
Long-lived taxa	1.0	2.1 \pm 1.0
Tolerant individuals (%)	--	0.8 \pm 0.3
Functional Measures		
% Filterers	0.3	2.2 \pm 1.8
% Gatherers	16.7	38.4 \pm 12.4
% Predatores	7.3	19.0 \pm 8.5
% Scrapers	84.2	63.2 \pm 19.7
% Shredder	7.6	27.6 \pm 15.2
No. Clinger Taxa	14.0	23.2 \pm 6.3
Number Of Individuals		
% Chironomidae	1.5	7.4 \pm 6.4
% Coleoptera	0.3	1.5 \pm 3.9
% Diptera + Non-insects	7.0	10.8 \pm 7.6
% Ephemeroptera	80.6	51.7 \pm 18.8
% Ephemeroptera that are Baetidae	46.4	40.6 \pm 30.0
% EPT Individuals	92.7	87.7 \pm 7.4
% Odonata	--	0.0 \pm 0.0
% of 2 dominant taxa	75.4	57.9 \pm 14.2
% of 5 dominant taxa	84.2	81.6 \pm 7.9
% of dominant taxa	38.0	39.8 \pm 14.9
% Plecoptera	4.9	31.4 \pm 15.4
% Tribe Tanyatarisini	--	
% Trichoptera that are Hydropsychida	4.2	27.0 \pm 26.2
% Tricoptera	7.3	4.5 \pm 2.8
No. EPT individuals/Chironomids+EPT Individuals	1.0	0.9 \pm 0.1
Total Abundance	1736.7	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	4.0	3.3 \pm 1.0
Ephemeroptera taxa	5.0	3.8 \pm 0.8
EPT Individuals (Sum)	1605.2	526.0 \pm 285.8
EPT taxa (no)	15.0	13.3 \pm 2.7
Odonata taxa	--	0.0 \pm 0.0
Pielou's Evenness	0.6	0.7 \pm 0.1
Plecoptera taxa	3.0	6.3 \pm 1.1
Shannon-Wiener Diversity	1.7	1.9 \pm 0.4
Simpson's Diversity	0.7	0.8 \pm 0.1
Simpson's Evenness	0.2	0.3 \pm 0.1
Total No. of Taxa	22.0	19.3 \pm 3.7
Trichoptera taxa	7.0	3.2 \pm 1.4

Frequency and Probability of Taxa Occurrence

Reference Model Taxa	Frequency of Occurrence in Reference Sites					Probability Of Occurrence at NESNO01
	Group 1	Group 2	Group 3	Group 4	Group 5	
Baetidae	100%	100%	100%	100%	97%	1.00
Capniidae	78%	55%	50%	92%	68%	0.84
Chironomidae	100%	100%	100%	100%	95%	0.99
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%	0.89
Nemouridae	100%	100%	100%	100%	100%	1.00
Perlidae	11%	84%	33%	100%	3%	0.79
Perlodidae	78%	78%	89%	92%	81%	0.89
Rhyacophilidae	100%	92%	100%	100%	95%	0.99
Taeniopterygidae	89%	49%	100%	92%	97%	0.92

RIVPACS Ratios

RIVPACS : Expected taxa P>0.50	13.69
RIVPACS : Observed taxa P>0.50	12.00
RIVPACS : O:E (p > 0.5)	0.88
RIVPACS : Expected taxa P>0.70	11.30
RIVPACS : Observed taxa P>0.70	9.00
RIVPACS : O:E (p > 0.7)	0.80

Habitat Description

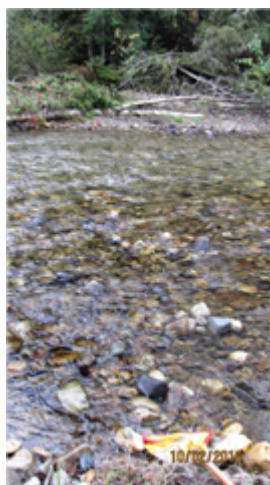
Variable	NESNO01	Predicted Group Reference Mean \pm SD
Bedrock Geology		
Channel		
XSEC-VelMethod (Category (1-3))	1	1 \pm 0
Climate		
Hydrology		
Landcover		
Substrate Data		
Topography		
Water Chemistry		

Site Description

Study Name	CBWQ-Arrow
Site	NESNO01
Sampling Date	Oct 03 2010
Know Your Watershed Basin	Central Columbia
Province / Territory	British Columbia
Terrestrial Ecological Classification	Montane Cordillera EcoZone Columbia Mountains and Highlands EcoRegion
Coordinates (decimal degrees)	49.96696 N, 117.88336 W
Altitude	1670
Local Basin Name	Snow Cr.
	Columbia River
Stream Order	5



Figure 1. Location Map

Across Reach
Aerial (No image found)



Down Stream

A field sheet form with handwritten notes. At the top, the date '0102/20/01' is written. The form includes sections for 'Site Inspection Sheet Completed', 'Study Site Data', 'Location Map Drawing', and 'Notes'. There are checkboxes for 'Vegetation' and 'Soil' with 'Yes' and 'No' options. A hand-drawn map shows a stream with several points marked. A date stamp '08/02/2016' is visible in the bottom right corner.

Field Sheet

Miscellaneous (No image found)



Substrate



Up Stream

Cabin Assessment Results

Reference Model Summary					
Model	Columbia-Okanagan Preliminary March 2010				
Analysis Date	August 11, 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%	3.9%	5.2%	71.9%	18.8%
CABIN Assessment of NESNO01 on Oct 03, 2010	Similar to Reference				

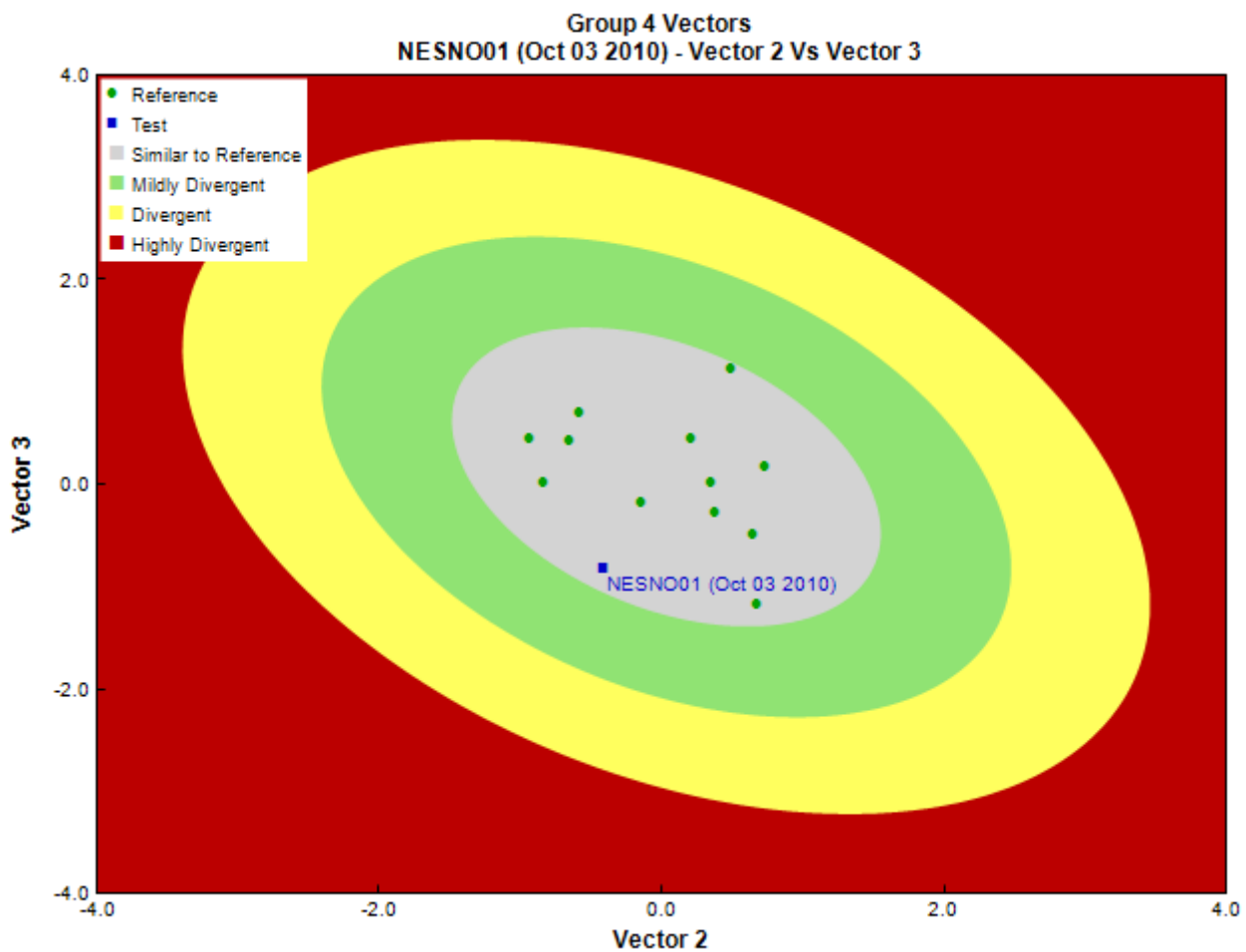


Figure 3. CABIN ordination assessment of the test site with the predicted group of reference sites. Each axis represents the relative abundance of the entire benthic invertebrate community with different organisms weighted differently on each axis.

Sample Information

Sampling Device	Kick Net
Mesh Size	400
Sampling Time	3
Taxonomist	Gary Lester, Ecoanalysts Inc.
Date Taxonomy Completed	March 09, 2011

Sample Information

	Marchant Box
Sub-Sample Proportion	24/100

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
Arthropoda	Arachnida	Trombidiformes	Lebertiidae	5	20.8
			Torrenticolidae	1	4.2
	Insecta	Coleoptera	Elmidae	1	4.2
		Diptera	Ceratopogonidae	1	4.2
			Chironomidae	35	145.8
			Psychodidae	3	12.5
			Tipulidae	4	16.7
		Ephemeroptera	Baetidae	149	620.8
			Ephemerellidae	12	50.0
			Heptageniidae	68	283.3
		Plecoptera	Chloroperlidae	17	70.8
			Nemouridae	5	20.8
			Perlidae	1	4.2
			Perlodidae	7	29.2
			Taeniopterygidae	20	83.3
		Trichoptera	Rhyacophilidae	12	50.0
			Uenoidae	1	4.2
			Total	342	1,425.0

Metrics

Name	NESNO01	Predicted Group Reference Mean \pm SD
Bray-Curtis Distance	0.55	0.4 \pm 0.1
Biotic Indices		
Hilsenhoff Family index (North-West)	3.7	3.2 \pm 0.3
Intolerant taxa	--	
Long-lived taxa	2.0	2.1 \pm 1.0
Tolerant individuals (%)	--	0.8 \pm 0.3
Functional Measures		
% Filterers	--	2.2 \pm 1.8
% Gatherers	28.9	38.4 \pm 12.4
% Predatores	23.1	19.0 \pm 8.5
% Scrapers	75.1	63.2 \pm 19.7
% Shredder	8.8	27.6 \pm 15.2
No. Clinger Taxa	11.0	23.2 \pm 6.3
Number Of Individuals		
% Chironomidae	10.2	7.4 \pm 6.4
% Coleoptera	0.3	1.5 \pm 3.9
% Diptera + Non-insects	14.3	10.8 \pm 7.6
% Ephemeroptera	67.0	51.7 \pm 18.8
% Ephemeroptera that are Baetidae	65.1	40.6 \pm 30.0
% EPT Individuals	85.4	87.7 \pm 7.4
% Odonata	--	0.0 \pm 0.0
% of 2 dominant taxa	63.5	57.9 \pm 14.2
% of 5 dominant taxa	84.5	81.6 \pm 7.9
% of dominant taxa	43.6	39.8 \pm 14.9
% Plecoptera	14.6	31.4 \pm 15.4
% Tribe Tanyatarisini	--	
% Trichoptera that are Hydropsychida	0.0	27.0 \pm 26.2
% Tricoptera	3.8	4.5 \pm 2.8
No. EPT individuals/Chironomids+EPT Individuals	0.9	0.9 \pm 0.1
Total Abundance	1424.9	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	4.0	3.3 \pm 1.0
Ephemeroptera taxa	3.0	3.8 \pm 0.8

Metrics

Name	NESNO01	Predicted Group Reference Mean \pm SD
EPT Individuals (Sum)	1216.6	526.0 \pm 285.8
EPT taxa (no)	10.0	13.3 \pm 2.7
Odonata taxa	--	0.0 \pm 0.0
Pielou's Evenness	0.7	0.7 \pm 0.1
Plecoptera taxa	5.0	6.3 \pm 1.1
Shannon-Wiener Diversity	1.8	1.9 \pm 0.4
Simpson's Diversity	0.8	0.8 \pm 0.1
Simpson's Evenness	0.2	0.3 \pm 0.1
Total No. of Taxa	17.0	19.3 \pm 3.7
Trichoptera taxa	2.0	3.2 \pm 1.4

Frequency and Probability of Taxa Occurrence

Reference Model Taxa	Frequency of Occurrence in Reference Sites					Probability Of Occurrence at NESNO01
	Group 1	Group 2	Group 3	Group 4	Group 5	
Baetidae	100%	100%	100%	100%	97%	0.99
Capniidae	78%	55%	50%	92%	68%	0.84
Chironomidae	100%	100%	100%	100%	95%	0.99
Chloroperlidae	78%	88%	94%	100%	100%	0.99
EphemereIIDae	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%	0.77
Perlodidae	78%	78%	89%	92%	81%	0.89
Rhyacophilidae	100%	92%	100%	100%	95%	0.99
Taeniopterygidae	89%	49%	100%	92%	97%	0.91

RIVPACS Ratios

RIVPACS : Expected taxa P>0.50	13.66
RIVPACS : Observed taxa P>0.50	11.00
RIVPACS : O:E (p > 0.5)	0.81
RIVPACS : Expected taxa P>0.70	11.28
RIVPACS : Observed taxa P>0.70	10.00
RIVPACS : O:E (p > 0.7)	0.89

Habitat Description

Variable	NESNO01	Predicted Group Reference Mean \pm SD
Bedrock Geology		
Channel		
XSEC-VelMethod (Category (1-3))	1	1 \pm 0
Climate		
Hydrology		
Landcover		
Substrate Data		
Topography		
Water Chemistry		

Site Description

Study Name	CBWQ-Arrow
Site	NESNO01
Sampling Date	Oct 10 2011
Know Your Watershed Basin	Central Columbia
Province / Territory	British Columbia
Terrestrial Ecological Classification	Montane Cordillera EcoZone Columbia Mountains and Highlands EcoRegion
Coordinates (decimal degrees)	49.96694 N, 117.88331 W
Altitude	1535
Local Basin Name	Snow Cr.
	Columbia River
Stream Order	5



Figure 1. Location Map



Across Reach
Aerial (No image found)



Down Stream



Field Sheet
Miscellaneous (No image found)



Substrate



Up Stream

Cabin Assessment Results

Reference Model Summary	
Model	Columbia-Okanagan Preliminary March 2010
Analysis Date	August 11, 2017
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%	4.1%	5.3%	71.5%	19.1%
CABIN Assessment of NESNO01 on Oct 10, 2011	Mildly Divergent				

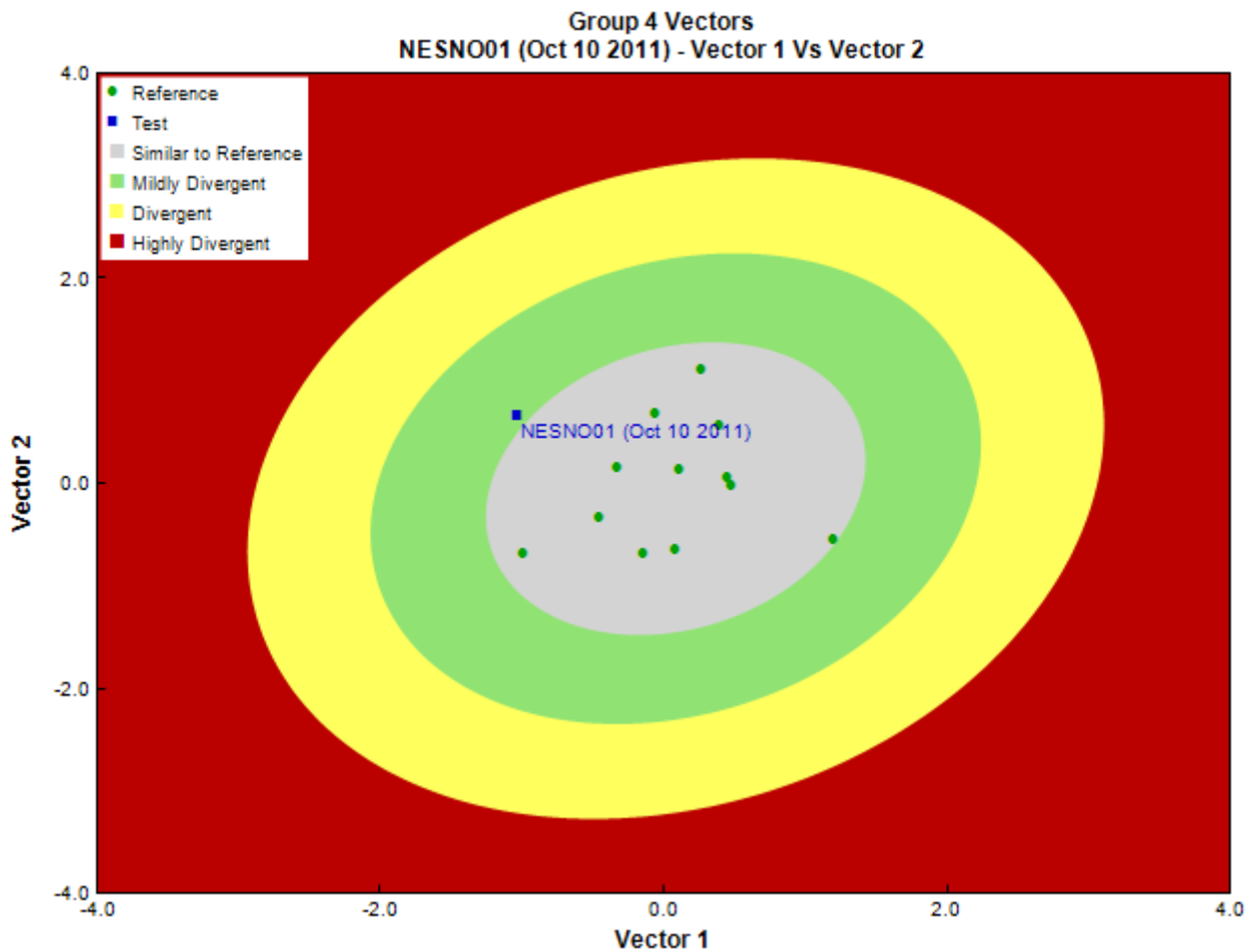


Figure 3. CABIN ordination assessment of the test site with the predicted group of reference sites. Each axis represents the relative abundance of the entire benthic invertebrate community with different organisms weighted differently on each axis.

Sample Information

Sampling Device	Kick Net
Mesh Size	400
Sampling Time	3
Taxonomist	Eco Analyts, EcoAnalysts
Date Taxonomy Completed	January 27, 2012
	Marchant Box
Sub-Sample Proportion	19/100

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
Arthropoda	Arachnida	Trombidiformes	Lebertiidae	7	36.8
	Insecta	Coleoptera	Elmidae	1	5.3
		Diptera	Chironomidae	6	31.6
			Psychodidae	13	68.4
			Tipulidae	4	21.0
		Ephemeroptera	Ameletidae	1	5.3
			Baetidae	68	357.9
			Ephemerellidae	35	184.2
			Heptageniidae	170	894.7
			Leptophlebiidae	1	5.3
		Plecoptera	Chloroperlidae	11	57.9
			Nemouridae	3	15.8
			Perlodidae	5	26.3
			Taeniopterygidae	11	57.9
		Trichoptera	Rhyacophilidae	3	15.8
			Total	339	1,784.2

Metrics

Name	NESNO01	Predicted Group Reference Mean \pm SD
Bray-Curtis Distance	0.65	0.4 \pm 0.1
Biotic Indices		
Hilsenhoff Family index (North-West)	3.8	3.2 \pm 0.3
Intolerant taxa	--	
Long-lived taxa	1.0	2.1 \pm 1.0
Tolerant individuals (%)	--	0.8 \pm 0.3
Functional Measures		
% Filterers	--	2.2 \pm 1.8
% Gatherers	25.4	38.4 \pm 12.4
% Predatores	9.4	19.0 \pm 8.5
% Scrapers	77.0	63.2 \pm 19.7
% Shredder	5.6	27.6 \pm 15.2
No. Clinger Taxa	10.0	23.2 \pm 6.3
Number Of Individuals		
% Chironomidae	1.8	7.4 \pm 6.4
% Coleoptera	0.3	1.5 \pm 3.9
% Diptera + Non-insects	8.8	10.8 \pm 7.6
% Ephemeroptera	81.1	51.7 \pm 18.8
% Ephemeroptera that are Baetidae	24.7	40.6 \pm 30.0
% EPT Individuals	90.9	87.7 \pm 7.4
% Odonata	--	0.0 \pm 0.0
% of 2 dominant taxa	70.2	57.9 \pm 14.2
% of 5 dominant taxa	87.6	81.6 \pm 7.9
% of dominant taxa	50.1	39.8 \pm 14.9
% Plecoptera	8.8	31.4 \pm 15.4
% Tribe Tanyatarisini	--	
% Trichoptera that are Hydropsychida	0.0	27.0 \pm 26.2
% Tricoptera	0.9	4.5 \pm 2.8
No. EPT individuals/Chironomids+EPT Individuals	1.0	0.9 \pm 0.1
Total Abundance	1784.1	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)	1621.0	526.0 \pm 285.8
EPT taxa (no)	10.0	13.3 \pm 2.7
Odonata taxa	--	0.0 \pm 0.0
Pielou's Evenness	0.6	0.7 \pm 0.1
Plecoptera taxa	4.0	6.3 \pm 1.1
Shannon-Wiener Diversity	1.7	1.9 \pm 0.4
Simpson's Diversity	0.7	0.8 \pm 0.1

Metrics

Name	NESNO01	Predicted Group Reference Mean \pm SD
Simpson's Evenness	0.2	0.3 \pm 0.1
Total No. of Taxa	15.0	19.3 \pm 3.7
Trichoptera taxa	1.0	3.2 \pm 1.4

Frequency and Probability of Taxa Occurrence

Reference Model Taxa	Frequency of Occurrence in Reference Sites					Probability Of Occurrence at NESNO01
	Group 1	Group 2	Group 3	Group 4	Group 5	
Baetidae	100%	100%	100%	100%	97%	0.99
Capniidae	78%	55%	50%	92%	68%	0.83
Chironomidae	100%	100%	100%	100%	95%	0.99
Chloroperlidae	78%	88%	94%	100%	100%	0.99
EphemereIIDae	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%	0.77
Perlodidae	78%	78%	89%	92%	81%	0.89
Rhyacophilidae	100%	92%	100%	100%	95%	0.99
Taeniopterygidae	89%	49%	100%	92%	97%	0.91

RIVPACS Ratios

RIVPACS : Expected taxa P>0.50	13.65
RIVPACS : Observed taxa P>0.50	11.00
RIVPACS : O:E (p > 0.5)	0.81
RIVPACS : Expected taxa P>0.70	11.27
RIVPACS : Observed taxa P>0.70	9.00
RIVPACS : O:E (p > 0.7)	0.80

Habitat Description

Variable	NESNO01	Predicted Group Reference Mean \pm SD
Bedrock Geology		
Channel		
XSEC-VelMethod (Category (1-3))	1	1 \pm 0
Climate		
Hydrology		
Landcover		
Substrate Data		
Topography		
Water Chemistry		

Site Description

Study Name	CBWQ-Arrow
Site	NESNO01
Sampling Date	Oct 01 2012
Know Your Watershed Basin	Central Columbia
Province / Territory	British Columbia
Terrestrial Ecological Classification	Montane Cordillera EcoZone Columbia Mountains and Highlands EcoRegion
Coordinates (decimal degrees)	49.96833 N, 117.88336 W
Altitude	1670
Local Basin Name	Snow Cr.
	Columbia River
Stream Order	5



Figure 1. Location Map

Across Reach
Aerial (No image found)



Down Stream

Field Sheet

Field Crew: *Shane H. Damski* Site Code: *RCBA*
Sampling Date: (DDMMYY) *10/15/10*

Occupational Health & Safety Site Inspection Sheet completed

PRIMARY SITE DATA
Cabin Study Name: *Cabin RCBA* Local Basin Name: _____
River/Stream Name: _____ Stream Order (app scale 1-10,000): _____

Select one Test Site Potential Reference Site

Geographical Description/Notes
Surrounding Land Use (check those present) Information Source: *Local*
 Forest Pasture Agriculture Residential/Urban
 Logging Mining Commercial/Industrial Other _____
Upstream Surrounding Land Use (check those present) Information Source: *Local*
 Forest Pasture Agriculture Residential/Urban
 Logging Mining Commercial/Industrial Other _____

Location Data
Latitude: _____ N Longitude: _____ W (SW or SE)
Elevation: (feet or meter) GPS Status: correct coordinates other

Site Location Map Drawing
Hand-drawn map showing stream flow direction and surrounding areas.

10/15/10 Field Sheet, June 2010 Page 1 of 2

Field Sheet

Miscellaneous (No image found)



Substrate



Up Stream

Cabin Assessment Results

Reference Model Summary					
Model	Columbia-Okanagan Preliminary March 2010				
Analysis Date	August 11, 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%	3.8%	5.2%	72.3%	18.6%
CABIN Assessment of NESNO01 on Oct 01, 2012	Mildly Divergent				

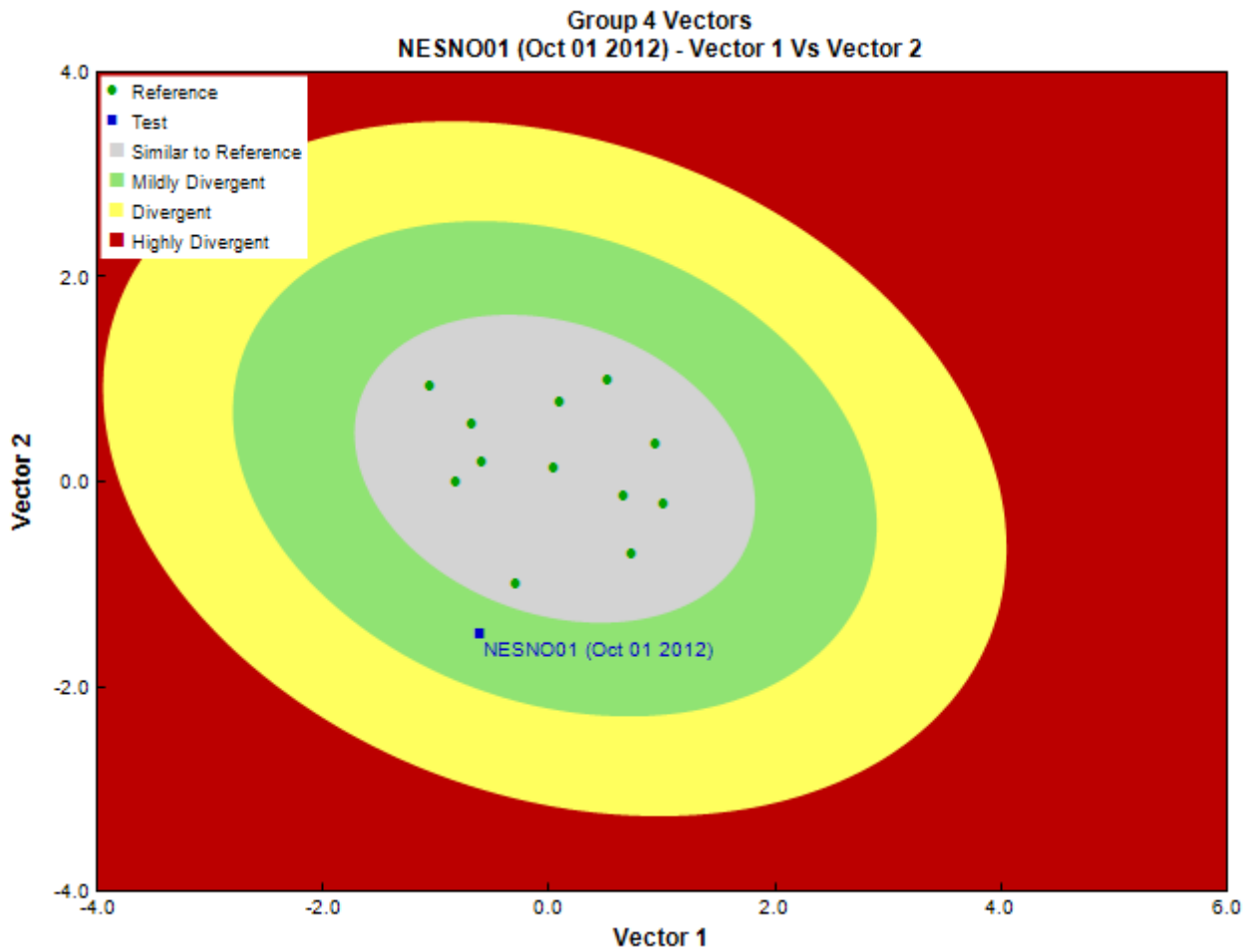


Figure 3. CABIN ordination assessment of the test site with the predicted group of reference sites. Each axis represents the relative abundance of the entire benthic invertebrate community with different organisms weighted differently on each axis.

Sample Information

Sampling Device	Kick Net
Mesh Size	400
Sampling Time	3
Taxonomist	Eco Analsyts, EcoAnalysts
Date Taxonomy Completed	February 13, 2013
	Marchant Box
Sub-Sample Proportion	6/100

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
Arthropoda	Arachnida	Trombidiformes	Lebertiidae	14	233.3
		Insecta	Coleoptera	Elmidae	3
	Diptera			Ceratopogonidae	4
	Chironomidae		Psychodidae	8	133.3
			Tipulidae	4	66.7
	Ephemeroptera		Tipulidae	1	16.7
			Ameletidae	2	33.3
	Plecoptera		Baetidae	26	433.3
			Ephemerellidae	29	483.3
			Heptageniidae	95	1,583.3
			Chloroperlidae	12	200.0
			Leuctridae	2	33.3
			Nemouridae	6	100.0
			Perlodidae	10	166.7
		Taeniopterygidae	100	1,666.7	

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
		Trichoptera	Glossosomatidae	1	16.7
			Hydropsychidae	1	16.7
			Rhyacophilidae	12	200.0
			Total	330	5,500.0

Metrics

Name	NESNO01	Predicted Group Reference Mean \pm SD
Bray-Curtis Distance	0.85	0.4 \pm 0.1
Biotic Indices		
Hilsenhoff Family index (North-West)	3.0	3.2 \pm 0.3
Intolerant taxa	--	
Long-lived taxa	1.0	2.1 \pm 1.0
Tolerant individuals (%)	--	0.8 \pm 0.3
Functional Measures		
% Filterers	0.3	2.2 \pm 1.8
% Gatherers	51.2	38.4 \pm 12.4
% Predatores	18.5	19.0 \pm 8.5
% Scrapers	73.0	63.2 \pm 19.7
% Shredder	33.9	27.6 \pm 15.2
No. Clinger Taxa	12.0	23.2 \pm 6.3
Number Of Individuals		
% Chironomidae	2.4	7.4 \pm 6.4
% Coleoptera	0.9	1.5 \pm 3.9
% Diptera + Non-insects	9.4	10.8 \pm 7.6
% Ephemeroptera	46.1	51.7 \pm 18.8
% Ephemeroptera that are Baetidae	17.1	40.6 \pm 30.0
% EPT Individuals	89.7	87.7 \pm 7.4
% Odonata	--	0.0 \pm 0.0
% of 2 dominant taxa	59.1	57.9 \pm 14.2
% of 5 dominant taxa	80.0	81.6 \pm 7.9
% of dominant taxa	30.3	39.8 \pm 14.9
% Plecoptera	39.4	31.4 \pm 15.4
% Tribe Tanyatarisini	--	
% Trichoptera that are Hydropsychida	7.1	27.0 \pm 26.2
% Tricoptera	4.2	4.5 \pm 2.8
No. EPT individuals/Chironomids+EPT Individuals	1.0	0.9 \pm 0.1
Total Abundance	5499.9	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	4.0	3.3 \pm 1.0
Ephemeroptera taxa	4.0	3.8 \pm 0.8
EPT Individuals (Sum)	4933.3	526.0 \pm 285.8
EPT taxa (no)	12.0	13.3 \pm 2.7
Odonata taxa	--	0.0 \pm 0.0
Pielou's Evenness	0.7	0.7 \pm 0.1
Plecoptera taxa	5.0	6.3 \pm 1.1
Shannon-Wiener Diversity	2.0	1.9 \pm 0.4
Simpson's Diversity	0.8	0.8 \pm 0.1
Simpson's Evenness	0.3	0.3 \pm 0.1
Total No. of Taxa	18.0	19.3 \pm 3.7
Trichoptera taxa	3.0	3.2 \pm 1.4

Frequency and Probability of Taxa Occurrence

Reference Model Taxa	Frequency of Occurrence in Reference Sites					Probability Of Occurrence at NESNO01
	Group 1	Group 2	Group 3	Group 4	Group 5	
Baetidae	100%	100%	100%	100%	97%	0.99
Capniidae	78%	55%	50%	92%	68%	0.84
Chironomidae	100%	100%	100%	100%	95%	0.99
Chloroperlidae	78%	88%	94%	100%	100%	0.99

Frequency and Probability of Taxa Occurrence

Reference Model Taxa	Frequency of Occurrence in Reference Sites					Probability Of Occurrence at NESNO01
	Group 1	Group 2	Group 3	Group 4	Group 5	
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%	0.78
Perlodidae	78%	78%	89%	92%	81%	0.89
Rhyacophilidae	100%	92%	100%	100%	95%	0.99
Taeniopterygidae	89%	49%	100%	92%	97%	0.92

RIVPACS Ratios

RIVPACS : Expected taxa P>0.50	13.66
RIVPACS : Observed taxa P>0.50	13.00
RIVPACS : O:E (p > 0.5)	0.95
RIVPACS : Expected taxa P>0.70	11.28
RIVPACS : Observed taxa P>0.70	10.00
RIVPACS : O:E (p > 0.7)	0.89

Habitat Description

Variable	NESNO01	Predicted Group Reference Mean ±SD
Bedrock Geology		
Channel		
XSEC-VelMethod (Category (1-3))	1	1 ± 0
Climate		
Hydrology		
Landcover		
Substrate Data		
Topography		
Water Chemistry		

Site Description

Study Name	CBWQ-Arrow
Site	NESNO01
Sampling Date	Sep 23 2013
Know Your Watershed Basin	Central Columbia
Province / Territory	British Columbia
Terrestrial Ecological Classification	Montane Cordillera EcoZone Columbia Mountains and Highlands EcoRegion
Coordinates (decimal degrees)	49.96694 N, 117.88306 W
Altitude	1535
Local Basin Name	Snow Cr.
	Columbia River
Stream Order	5



Figure 1. Location Map

Across Reach
Aerial (No image found)



Down Stream



Field Sheet

Miscellaneous (No image found)



Substrate



Up Stream

Cabin Assessment Results

Reference Model Summary					
Model	Columbia-Okanagan Preliminary March 2010				
Analysis Date	August 11, 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	0.2%	0.9%	2.7%	75.8%	20.3%
CABIN Assessment of NESNO01 on Sep 23, 2013	Similar to Reference				

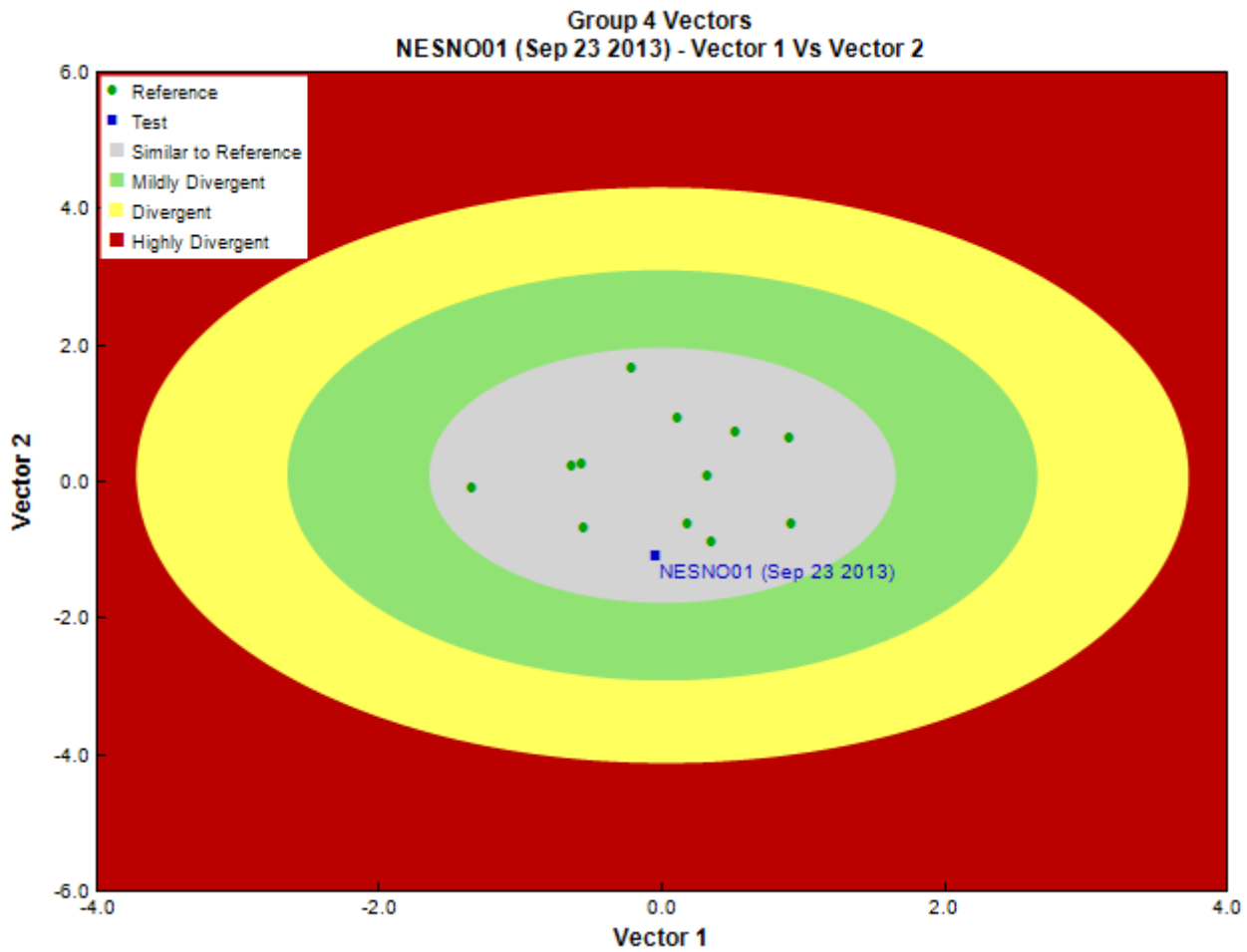


Figure 3. CABIN ordination assessment of the test site with the predicted group of reference sites. Each axis represents the relative abundance of the entire benthic invertebrate community with different organisms weighted differently on each axis.

Sample Information

Sampling Device	Kick Net
Mesh Size	400
Sampling Time	3
Taxonomist	Pina Viola, Consultant
Date Taxonomy Completed	January 11, 2014
	Marchant Box
Sub-Sample Proportion	31/100

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
Arthropoda	Arachnida	Trombidiformes	Lebertiidae	2	6.4
			Insecta	Coleoptera	1
	Diptera	Ephemeroptera	Ceratopogonidae	2	6.4
			Chironomidae	74	238.7
			Psychodidae	12	38.7
			Tipulidae	3	9.6
			Ameletidae	1	3.2
			Baetidae	23	74.1
			Ephemerellidae	30	96.7
			Heptageniidae	120	387.0
			Leptophlebiidae	1	3.2
			Plecoptera	3	9.7
			Capniidae	1	3.2
			Chloroperlidae	12	38.7
			Leuctridae	1	3.2

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
			Nemouridae	4	12.8
			Perlodidae	7	22.5
			Taeniopterygidae	21	67.7
		Trichoptera	Apataniidae	1	3.2
			Rhyacophilidae	3	9.7
			Total	322	1,037.9

Metrics

Name	NESNO01	Predicted Group Reference Mean \pm SD
Bray-Curtis Distance	0.52	0.4 \pm 0.1
Biotic Indices		
Hilsenhoff Family index (North-West)	4.1	3.2 \pm 0.3
Intolerant taxa	--	
Long-lived taxa	1.0	2.1 \pm 1.0
Tolerant individuals (%)	--	0.8 \pm 0.3
Functional Measures		
% Filterers	--	2.2 \pm 1.8
% Gatherers	50.0	38.4 \pm 12.4
% Predatores	31.1	19.0 \pm 8.5
% Scrapers	55.9	63.2 \pm 19.7
% Shredder	9.9	27.6 \pm 15.2
No. Clinger Taxa	24.0	23.2 \pm 6.3
Number Of Individuals		
% Chironomidae	23.2	7.4 \pm 6.4
% Coleoptera	0.3	1.5 \pm 3.9
% Diptera + Non-insects	29.2	10.8 \pm 7.6
% Ephemeroptera	54.9	51.7 \pm 18.8
% Ephemeroptera that are Baetidae	13.1	40.6 \pm 30.0
% EPT Individuals	70.5	87.7 \pm 7.4
% Odonata	--	0.0 \pm 0.0
% of 2 dominant taxa	60.8	57.9 \pm 14.2
% of 5 dominant taxa	84.0	81.6 \pm 7.9
% of dominant taxa	37.6	39.8 \pm 14.9
% Plecoptera	14.4	31.4 \pm 15.4
% Tribe Tanyatarisini	--	
% Trichoptera that are Hydropsychida	0.0	27.0 \pm 26.2
% Tricoptera	1.3	4.5 \pm 2.8
No. EPT individuals/Chironomids+EPT Individuals	0.8	0.9 \pm 0.1
Total Abundance	1038.5	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	4.0	3.3 \pm 1.0
Ephemeroptera taxa	5.0	3.8 \pm 0.8
EPT Individuals (Sum)	725.7	526.0 \pm 285.8
EPT taxa (no)	13.0	13.3 \pm 2.7
Odonata taxa	--	0.0 \pm 0.0
Pielou's Evenness	0.7	0.7 \pm 0.1
Plecoptera taxa	6.0	6.3 \pm 1.1
Shannon-Wiener Diversity	1.9	1.9 \pm 0.4
Simpson's Diversity	0.8	0.8 \pm 0.1
Simpson's Evenness	0.2	0.3 \pm 0.1
Total No. of Taxa	19.0	19.3 \pm 3.7
Trichoptera taxa	2.0	3.2 \pm 1.4

Frequency and Probability of Taxa Occurrence

Reference Model Taxa	Frequency of Occurrence in Reference Sites					Probability Of Occurrence at NESNO01
	Group 1	Group 2	Group 3	Group 4	Group 5	
Baetidae	100%	100%	100%	100%	97%	0.99
Capniidae	78%	55%	50%	92%	68%	0.85

Frequency and Probability of Taxa Occurrence

Reference Model Taxa	Frequency of Occurrence in Reference Sites					Probability Of Occurrence at NESNO01
	Group 1	Group 2	Group 3	Group 4	Group 5	
Chironomidae	100%	100%	100%	100%	95%	0.99
Chloroperlidae	78%	88%	94%	100%	100%	1.00
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%	0.78
Perlodidae	78%	78%	89%	92%	81%	0.89
Rhyacophilidae	100%	92%	100%	100%	95%	0.99
Taeniopterygidae	89%	49%	100%	92%	97%	0.93

RIVPACS Ratios

RIVPACS : Expected taxa P>0.50	13.73
RIVPACS : Observed taxa P>0.50	13.00
RIVPACS : O:E (p > 0.5)	0.95
RIVPACS : Expected taxa P>0.70	11.32
RIVPACS : Observed taxa P>0.70	10.00
RIVPACS : O:E (p > 0.7)	0.88

Habitat Description

Variable	NESNO01	Predicted Group Reference Mean \pm SD
Bedrock Geology		
Channel		
XSEC-VelMethod (Category (1-3))	1	1 \pm 0
Climate		
Hydrology		
Landcover		
Substrate Data		
Topography		
Water Chemistry		

Site Description

Study Name	CBWQ-Arrow
Site	NESNO01
Sampling Date	Sep 21 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)	49.96694 N, 117.88331 W
Altitude	1535
Local Basin Name	Snow Cr.
	Columbia River
Stream Order	5



Figure 1. Location Map

Across Reach
Aerial (No image found)



Down Stream



Field Sheet

Miscellaneous (No image found)



Substrate



Up Stream

Cabin Assessment Results

Reference Model Summary					
Model	Columbia-Okanagan Preliminary March 2010				
Analysis Date	August 11, 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	0.3%	5.1%	6.0%	71.5%	17.1%
CABIN Assessment of NESNO01 on Sep 21, 2014	Mildly Divergent				

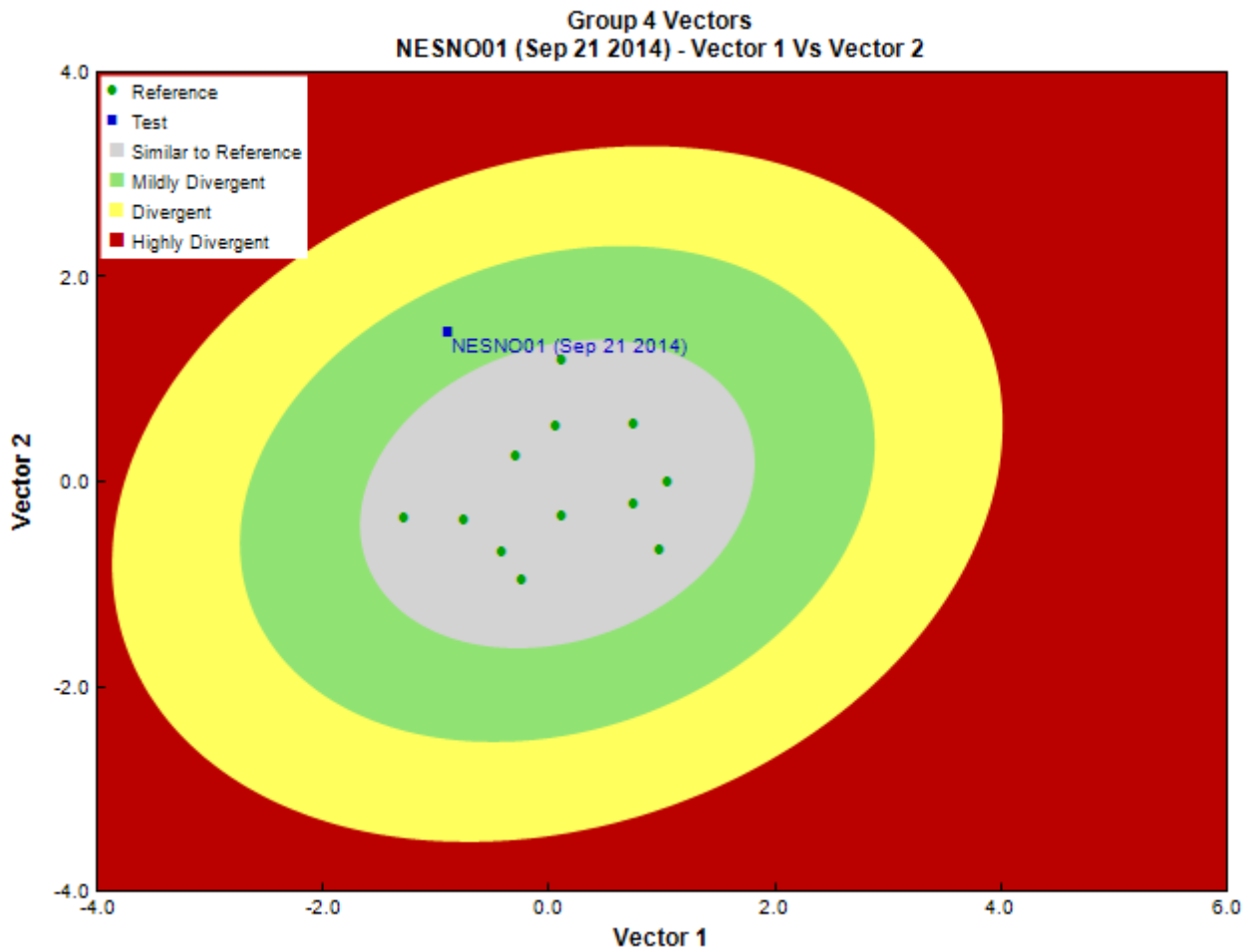


Figure 3. CABIN ordination assessment of the test site with the predicted group of reference sites. Each axis represents the relative abundance of the entire benthic invertebrate community with different organisms weighted differently on each axis.

Sample Information

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

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
Arthropoda	Arachnida	Trombidiformes	Lebertiidae	1	1.0
		Insecta	Coleoptera	Elmidae	1
	Diptera		Ceratopogonidae	1	1.0
			Chironomidae	4	4.0
	Tipulidae		1	1.0	
	Ephemeroptera		Ameletidae	2	2.0
			Baetidae	22	22.0
			Ephemerellidae	5	5.0
			Heptageniidae	35	35.0
	Leptophlebiidae		6	6.0	
	Plecoptera		Capniidae	3	3.0
		Chloroperlidae	28	28.0	
		Perlodidae	1	1.0	
		Taeniopterygidae	2	2.0	
	Trichoptera			1	1.0

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
			Apataniidae	3	3.0
			Uenoidae	1	1.0
			Total	117	117.0

Metrics

Name	NESNO01	Predicted Group Reference Mean \pm SD
Bray-Curtis Distance	0.7	0.4 \pm 0.1
Biotic Indices		
Hilsenhoff Family index (North-West)	2.9	3.2 \pm 0.3
Intolerant taxa	--	
Long-lived taxa	1.0	2.1 \pm 1.0
Tolerant individuals (%)	--	0.8 \pm 0.3
Functional Measures		
% Filterers	--	2.2 \pm 1.8
% Gatherers	43.6	38.4 \pm 12.4
% Predatores	29.9	19.0 \pm 8.5
% Scrapers	79.5	63.2 \pm 19.7
% Shredder	8.5	27.6 \pm 15.2
No. Clinger Taxa	16.0	23.2 \pm 6.3
Number Of Individuals		
% Chironomidae	3.4	7.4 \pm 6.4
% Coleoptera	0.9	1.5 \pm 3.9
% Diptera + Non-insects	6.0	10.8 \pm 7.6
% Ephemeroptera	60.3	51.7 \pm 18.8
% Ephemeroptera that are Baetidae	31.4	40.6 \pm 30.0
% EPT Individuals	93.1	87.7 \pm 7.4
% Odonata	--	0.0 \pm 0.0
% of 2 dominant taxa	54.3	57.9 \pm 14.2
% of 5 dominant taxa	82.8	81.6 \pm 7.9
% of dominant taxa	30.2	39.8 \pm 14.9
% Plecoptera	29.3	31.4 \pm 15.4
% Tribe Tanyatarisini	--	
% Trichoptera that are Hydropsychida	0.0	27.0 \pm 26.2
% Trichoptera	3.4	4.5 \pm 2.8
No. EPT individuals/Chironomids+EPT Individuals	1.0	0.9 \pm 0.1
Total Abundance	117.0	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)	108.0	526.0 \pm 285.8
EPT taxa (no)	11.0	13.3 \pm 2.7
Odonata taxa	--	0.0 \pm 0.0
Pielou's Evenness	0.7	0.7 \pm 0.1
Plecoptera taxa	4.0	6.3 \pm 1.1
Shannon-Wiener Diversity	2.0	1.9 \pm 0.4
Simpson's Diversity	0.8	0.8 \pm 0.1
Simpson's Evenness	0.3	0.3 \pm 0.1
Total No. of Taxa	16.0	19.3 \pm 3.7
Trichoptera taxa	2.0	3.2 \pm 1.4

Frequency and Probability of Taxa Occurrence

Reference Model Taxa	Frequency of Occurrence in Reference Sites					Probability Of Occurrence at NESNO01
	Group 1	Group 2	Group 3	Group 4	Group 5	
Baetidae	100%	100%	100%	100%	97%	1.00
Capniidae	78%	55%	50%	92%	68%	0.83
Chironomidae	100%	100%	100%	100%	95%	0.99
Chloroperlidae	78%	88%	94%	100%	100%	0.99
Ephemerellidae	78%	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 NESNO01
	Group 1	Group 2	Group 3	Group 4	Group 5	
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%	0.78
Perlodidae	78%	78%	89%	92%	81%	0.89
Rhyacophilidae	100%	92%	100%	100%	95%	0.99
Taeniopterygidae	89%	49%	100%	92%	97%	0.91

RIVPACS Ratios

RIVPACS : Expected taxa P>0.50	13.64
RIVPACS : Observed taxa P>0.50	10.00
RIVPACS : O:E (p > 0.5)	0.73
RIVPACS : Expected taxa P>0.70	11.27
RIVPACS : Observed taxa P>0.70	8.00
RIVPACS : O:E (p > 0.7)	0.71

Habitat Description

Variable	NESNO01	Predicted Group Reference Mean ±SD
Bedrock Geology		
Channel		
XSEC-VelMethod (Category (1-3))	1	1 ± 0
Climate		
Hydrology		
Landcover		
Substrate Data		
Topography		
Water Chemistry		