

Site Description

Study Name	CBWQ-Slocan
Site	NJWIL01
Sampling Date	Oct 16 2009
Know Your Watershed Basin	Slocan
Province / Territory	British Columbia
Terrestrial Ecological Classification	Montane Cordillera EcoZone Columbia Mountains and Highlands EcoRegion
Coordinates (decimal degrees)	50.02917 N, 117.40861 W
Altitude	1824
Local Basin Name	Wilson Cr
	Columbia
Stream Order	6



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	September 15, 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%	2.9%	10.9%	66.1%	19.7%	
CABIN Assessment of NJWIL01 on Oct 16, 2009	Mildly Divergent					

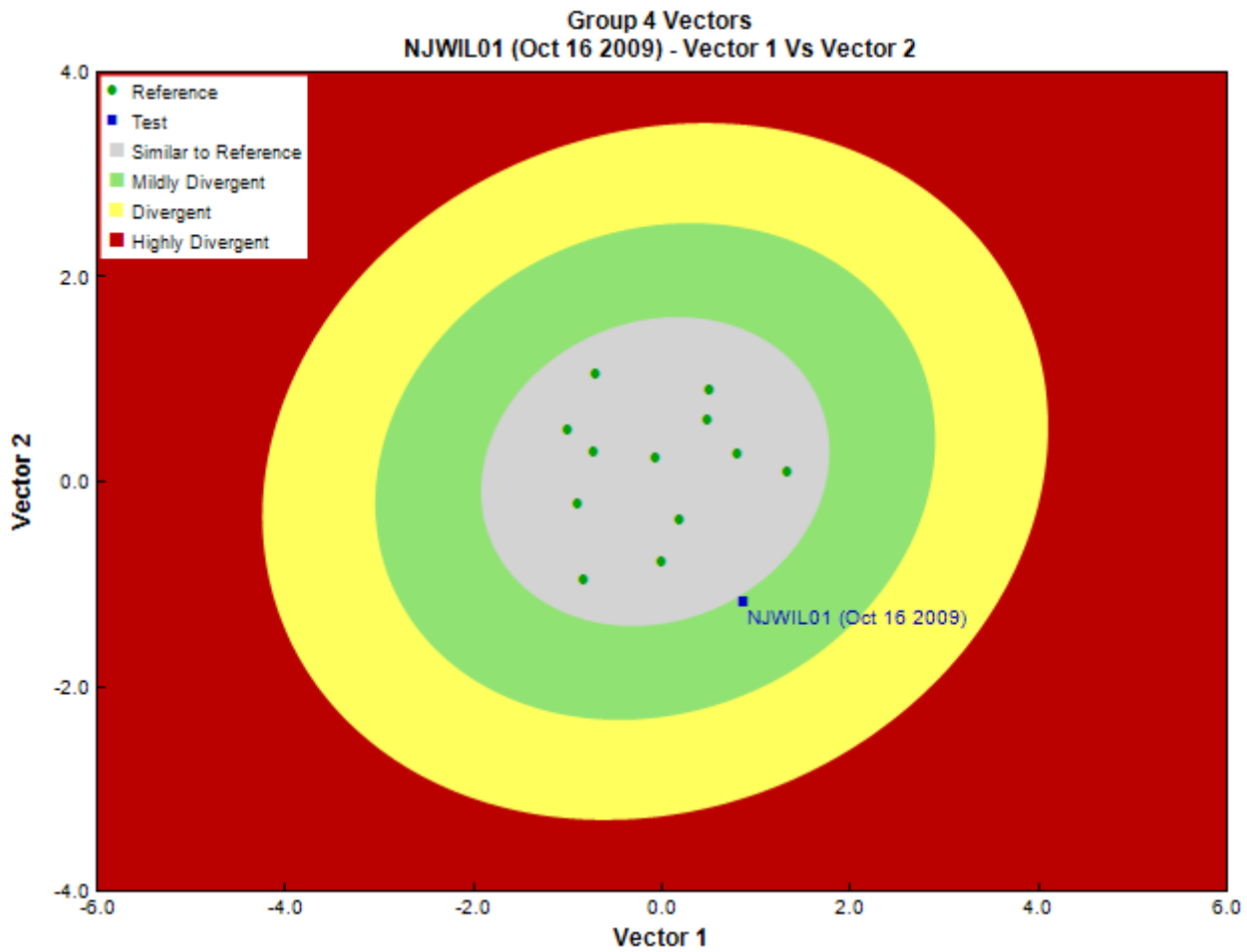


Figure 3. CABIN ordination assessment of the test site with the predicted group of reference sites. Each axis represents the relative abundance of the entire benthic invertebrate community with different organisms weighted differently on each axis.

Sample Information

Sampling Device	Kick Net
Mesh Size	400
Sampling Time	3
Taxonomist	Eco Analysts, EcoAnalysts
Date Taxonomy Completed	January 06, 2010
	Marchant Box
Sub-Sample Proportion	100/100

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count	
Arthropoda	Arachnida			3	3.0	
		Insecta	Diptera	Chironomidae	7	7.0
				Tipulidae	1	1.0
			Ephemeroptera	Ameletidae	2	2.0
				Baetidae	113	113.0
				Ephemerellidae	14	14.0
				Heptageniidae	21	21.0
			Plecoptera	Capniidae	1	1.0
				Chloroperlidae	1	1.0
				Nemouridae	1	1.0
				Taeniopterygidae	1	1.0
			Trichoptera	Glossosomatidae	3	3.0
				Limnephilidae	1	1.0
				Uenoidae	2	2.0
				Total	171	171.0

Metrics

Name	NJWIL01	Predicted Group Reference Mean \pm SD
Bray-Curtis Distance	0.5	0.4 \pm 0.1
Biotic Indices		
Hilsenhoff Family index (North-West)	3.6	3.2 \pm 0.3
Intolerant taxa	--	
Long-lived taxa	--	2.1 \pm 1.0
Tolerant individuals (%)	--	0.8 \pm 0.3
Functional Measures		
% Filterers	--	2.2 \pm 1.8
% Gatherers	17.0	38.4 \pm 12.4
% Predatores	4.7	19.0 \pm 8.5
% Scrapers	83.0	63.2 \pm 19.7
% Shredder	2.9	27.6 \pm 15.2
No. Clinger Taxa	10.0	23.2 \pm 6.3
Number Of Individuals		
% Chironomidae	4.2	7.4 \pm 6.4
% Coleoptera	0.0	1.5 \pm 3.9
% Diptera + Non-insects	4.8	10.8 \pm 7.6
% Ephemeroptera	89.3	51.7 \pm 18.8
% Ephemeroptera that are Baetidae	75.3	40.6 \pm 30.0
% EPT Individuals	95.2	87.7 \pm 7.4
% Odonata	0.0	0.0 \pm 0.0
% of 2 dominant taxa	79.8	57.9 \pm 14.2
% of 5 dominant taxa	94.0	81.6 \pm 7.9
% of dominant taxa	67.3	39.8 \pm 14.9
% Plecoptera	2.4	31.4 \pm 15.4
% Tribe Tanyatarisini	--	
% Trichoptera that are Hydropsychida	0.0	27.0 \pm 26.2
% Tricoptera	3.6	4.5 \pm 2.8
No. EPT individuals/Chironomids+EPT Individuals	1.0	0.9 \pm 0.1
Total Abundance	171.0	587.4 \pm 299.1
Richness		
Chironomidae taxa (genus level only)	1.0	1.0 \pm 0.0
Coleoptera taxa	0.0	0.4 \pm 0.5
Diptera taxa	2.0	3.3 \pm 1.0
Ephemeroptera taxa	4.0	3.8 \pm 0.8
EPT Individuals (Sum)	160.0	526.0 \pm 285.8
EPT taxa (no)	11.0	13.3 \pm 2.7
Odonata taxa	0.0	0.0 \pm 0.0
Pielou's Evenness	0.5	0.7 \pm 0.1
Plecoptera taxa	4.0	6.3 \pm 1.1
Shannon-Wiener Diversity	1.2	1.9 \pm 0.4
Simpson's Diversity	0.5	0.8 \pm 0.1
Simpson's Evenness	0.2	0.3 \pm 0.1
Total No. of Taxa	13.0	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 NJWIL01
	Group 1	Group 2	Group 3	Group 4	Group 5	
Baetidae	100%	100%	100%	100%	97%	0.99
Capniidae	78%	55%	50%	92%	68%	0.81
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%	0.73
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	13.53
RIVPACS : Observed taxa P>0.50	10.00
RIVPACS : O:E (p > 0.5)	0.74
RIVPACS : Expected taxa P>0.70	11.20
RIVPACS : Observed taxa P>0.70	8.00
RIVPACS : O:E (p > 0.7)	0.71

Habitat Description

Variable	NJWIL01	Predicted Group Reference Mean \pm SD
Bedrock Geology		
Alluvium (%)	0.00000	0.00000 \pm 0.00000
Intrusive (%)	55.96531	11.07346 \pm 28.63466
Metamorphic (%)	11.56103	17.96649 \pm 35.53463
Sedimentary (%)	30.79256	70.96005 \pm 44.90394
Ultramafic (%)	0.00000	0.00000 \pm 0.00000
Volcanic (%)	1.68110	0.00000 \pm 0.00000
Channel		
Depth-Avg (cm)	23.8	23.6 \pm 11.1
Depth-Max (cm)	34.0	34.6 \pm 12.3
Macrophyte (PercentRange)	0	0 \pm 0
Reach-%CanopyCoverage (PercentRange)	4.00	1.33 \pm 0.78
Reach-Pools (Binary)	0	1 \pm 0
Reach-Rapids (Binary)	0	0 \pm 0
Reach-Riffles (Binary)	1	1 \pm 0
Reach-StraightRun (Binary)	0	1 \pm 1
Slope (m/m)	0.0170000	0.0546683 \pm 0.0376269
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)	0.48	0.48 \pm 0.22
Velocity-Max (m/s)	0.77	0.76 \pm 0.36
Width-Bankfull (m)	40.0	13.4 \pm 9.9
Width-Wetted (m)	33.0	8.5 \pm 5.8
XSEC-VelMethod (Category (1-3))	1	1 \pm 0
Climate		
Precip01_JAN (mm)	145.00000	104.85000 \pm 26.28129
Precip02_FEB (mm)	117.44444	83.66667 \pm 27.10278
Precip03_MAR (mm)	102.55556	77.23611 \pm 27.15950
Precip04_APR (mm)	145.00000	104.85000 \pm 26.28129
Precip05_MAY (mm)	78.55556	71.65833 \pm 17.81753
Precip06_JUN (mm)	91.88889	78.56667 \pm 15.58521
Precip07_JUL (mm)	77.77778	64.39167 \pm 10.41611
Precip08_AUG (mm)	75.22222	60.53056 \pm 10.43373
Precip09_SEP (mm)	71.44444	56.91944 \pm 10.91783
Precip10_OCT (mm)	91.33333	65.08056 \pm 14.41229
Precip11_NOV (mm)	142.77778	105.93889 \pm 25.04104
Precip12_DEC (mm)	158.33333	116.84444 \pm 29.80954
PrecipTotal_ANNUAL (mm)	1231.33333	952.64722 \pm 226.04690
Temp01_JANMax (Degrees Celsius)	-5.22222	-4.39167 \pm 2.51268
Temp01_JANmin (Degrees Celsius)	-11.33333	-11.40833 \pm 3.53951
Temp02_FEBmax (Degrees Celsius)	-2.33333	-1.70000 \pm 2.12945
Temp02_FEBmin (Degrees Celsius)	-9.33333	-9.17500 \pm 3.33361
Temp03_MARmax (Degrees Celsius)	0.88889	2.50556 \pm 2.87525
Temp03_MARmin (Degrees Celsius)	-6.77778	-6.14167 \pm 2.98556
Temp04_APRmax (Degrees Celsius)	5.44444	7.12222 \pm 3.48771
Temp04_APRmin (Degrees Celsius)	-3.11111	-2.71667 \pm 2.22785
Temp05_MAYmax (Degrees Celsius)	10.44444	12.03889 \pm 3.55434
Temp05_MAYmin (Degrees Celsius)	0.33333	1.04722 \pm 2.08663
Temp06_JUNMax (Degrees Celsius)	14.22222	15.72500 \pm 3.40030
Temp06_JUNMin (Degrees Celsius)	3.44444	4.00278 \pm 2.41085

Habitat Description

Variable	NJWIL01	Predicted Group Reference Mean \pm SD
Temp07_JULmax (Degrees Celsius)	18.00000	19.56111 \pm 3.47275
Temp07_JULmin (Degrees Celsius)	5.77778	6.35833 \pm 2.28332
Temp08_AUGmax (Degrees Celsius)	17.88889	19.52222 \pm 3.51100
Temp08_AUGmin (Degrees Celsius)	5.66667	6.19167 \pm 2.34422
Temp09_SEPmax (Degrees Celsius)	12.66667	14.04444 \pm 3.03456
Temp09_SEPmin (Degrees Celsius)	1.77778	2.04722 \pm 2.37208
Temp10_OCTmax (Degrees Celsius)	5.33333	6.88889 \pm 2.71577
Temp10_OCTmin (Degrees Celsius)	-1.55556	-1.46111 \pm 1.64316
Temp11_NOVmax (Degrees Celsius)	-1.77778	-0.79722 \pm 2.43512
Temp11_NOVmin (Degrees Celsius)	-7.22222	-6.68056 \pm 2.97163
Temp12_DECmax (Degrees Celsius)	-5.44444	-4.66389 \pm 2.69757
Temp12_DECmin (Degrees Celsius)	-11.11111	-10.65833 \pm 3.71739
TempANNUALmax (Degrees Celsius)	5.66667	6.96389 \pm 3.06157
TempANNUALmean (Degrees Celsius)	1.00000	2.25278 \pm 2.66574
TempANNUALmin (Degrees Celsius)	-2.33333	-2.18056 \pm 2.41152
Hydrology		
Drainage-Area (km ²)	583.19479	124.42081 \pm 200.99192
Perimeter (Km)	208.38023	64.71360 \pm 56.15436
StreamDensity (m/km ²)	2598.88970	2246.06682 \pm 604.89962
StreamLength (m)	1515658.94	302226.63 \pm 500983.26
Landcover		
Natl-AnnCrops (%)	0.00000	0.00000 \pm 0.00000
Natl-Barren (%)	0.00000	0.00000 \pm 0.00000
Natl-BroadleafDense (%)	0.00000	0.00000 \pm 0.00000
Natl-BroadleafOpen (%)	4.31810	1.19263 \pm 2.03874
Natl-BroadleafSparse (%)	0.00000	0.00000 \pm 0.00000
Natl-Coniferous (%)	0.00000	0.00000 \pm 0.00000
Natl-ConiferousDense (%)	0.27049	0.64845 \pm 0.37668
Natl-ConiferousOpen (%)	45.17803	54.62780 \pm 18.30692
Natl-ConiferousSparse (%)	1.63053	0.94121 \pm 1.53621
Natl-Deciduous (%)	0.00000	0.00000 \pm 0.00000
Natl-Developed (%)	0.00000	0.00000 \pm 0.00000
Natl-ExposedLand (%)	21.70973	13.20054 \pm 11.11850
Natl-Grassland (%)	2.27104	1.87556 \pm 1.68508
Natl-Herb (%)	10.03165	5.75738 \pm 2.89836
Natl-MixedForest (%)	0.00000	0.00000 \pm 0.00000
Natl-MixedwoodDense (%)	0.00000	0.00000 \pm 0.00000
Natl-MixedwoodOpen (%)	0.15160	0.04060 \pm 0.10208
Natl-MixedwoodSparse (%)	0.00000	0.00000 \pm 0.00000
Natl-PerennCropsPast (%)	0.00000	0.00000 \pm 0.00000
Natl-Rock/Rubble (%)	0.77367	1.56403 \pm 2.75979
Natl-Shrubland (%)	0.00000	0.00000 \pm 0.00000
Natl-ShrubLow (%)	0.76923	4.98298 \pm 3.22579
Natl-ShrubTall (%)	0.00000	0.00000 \pm 0.00000
Natl-SnowIce (%)	0.44097	0.08491 \pm 0.15475
Natl-Water (%)	0.54348	0.22916 \pm 0.36834
Natl-Wetland (%)	0.00000	0.00000 \pm 0.00000
Natl-WetlandHerb (%)	0.02618	0.12918 \pm 0.35193
Natl-WetlandShrub (%)	0.00376	0.00000 \pm 0.00000
Natl-WetlandTreed (%)	0.00000	0.00000 \pm 0.00000
Reg-Ice (%)	0.20860	0.02487 \pm 0.06034
Substrate Data		
%Bedrock (%)	0	0 \pm 0
%Boulder (%)	14	9 \pm 9
%Cobble (%)	83	51 \pm 15
%Gravel (%)	0	3 \pm 3
%Pebble (%)	3	37 \pm 20
%Sand (%)	0	0 \pm 0
%Silt+Clay (%)	0	0 \pm 0
D50 (cm)	15.00	15.12 \pm 14.26
Dg (cm)	15.3	8.2 \pm 2.8
Dominant-1st (Category(0-9))	7	7 \pm 1

Habitat Description

Variable	NJWIL01	Predicted Group Reference Mean \pm SD
Dominant-2nd (Category(0-9))	6	7 \pm 1
Embeddedness (Category(1-5))	4	5 \pm 1
PeriphytonCoverage (Category(1-5))	1	1 \pm 0
SurroundingMaterial (Category(0-9))	1	4 \pm 1
Topography		
ElevationMax (m)	3015.00000	2634.66667 \pm 309.54023
ElevationMin (m)	545.00000	913.41667 \pm 271.25180
ElevationStdev (m)	425.01481	349.02363 \pm 92.12445
Reg-SlopeLT30% (%)	16.65922	18.88386 \pm 9.29866
Slope30-50% (%)	27.28587	29.00215 \pm 6.33837
Slope50-60% (%)	15.58662	13.91808 \pm 1.91315
SlopeAvg (%)	53.64259	52.79851 \pm 8.68755
SlopeGT60% (%)	38.08856	35.47207 \pm 13.39684
SlopeLT30% (%)	19.03895	21.60770 \pm 8.54172
SlopeMax (%)	283.60913	298.94390 \pm 146.30679
SlopeMin (%)	0.00000	0.19777 \pm 0.29213
SlopeStdev (%)	26.27283	26.57529 \pm 4.62351
Water Chemistry		
General-Conductivity (μS/cm)	87.0000000	121.8083333 \pm 87.6800844
General-DO (mg/L)	11.0000000	11.4175000 \pm 0.7986708
General-pH (pH)	8.2	7.9 \pm 0.4
General-SpCond (μS/cm)	125.0000000	168.9833333 \pm 123.7858182
General-TempWater (Degrees Celsius)	11.5000000	7.3183333 \pm 2.7240839
General-Turbidity (NTU)	0.2000000	0.2020000

Site Description

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Province / Territory	British Columbia
Terrestrial Ecological Classification	Montane Cordillera EcoZone Columbia Mountains and Highlands EcoRegion
Coordinates (decimal degrees)	49.43442 N, 117.53873 W
Altitude	
Local Basin Name	Wilson Cr
	Columbia
Stream Order	6



Figure 1. Location Map

Across Reach (No image found)

Aerial (No image found)



Down Stream

Field Sheet (No image found)

Miscellaneous (No image found)



Substrate



Up Stream

Cabin Assessment Results

Reference Model Summary					
Model	Columbia-Okanagan Preliminary March 2010				
Analysis Date	September 15, 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%	5.9%	6.4%	82.4%	5.1%
CABIN Assessment of NJWIL01 on Oct 10, 2011	Similar to Reference				

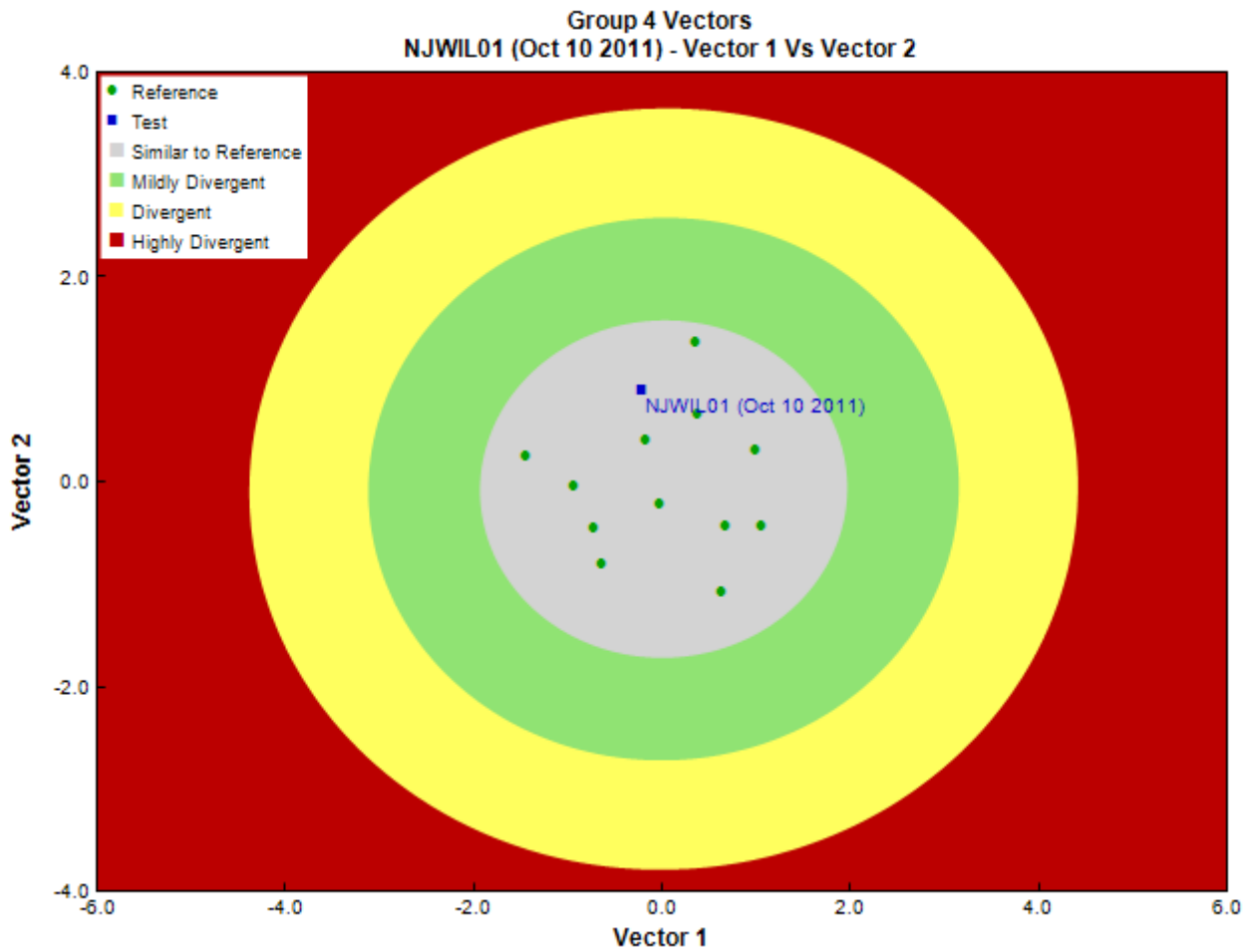


Figure 3. CABIN ordination assessment of the test site with the predicted group of reference sites. Each axis represents the relative abundance of the entire benthic invertebrate community with different organisms weighted differently on each axis.

Sample Information

Sampling Device	Kick Net
Mesh Size	400
Sampling Time	3
Taxonomist	Eco Analsyts, EcoAnalysts
Date Taxonomy Completed	January 18, 2012
	Marchant Box
Sub-Sample Proportion	100/100

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count	
Arthropoda	Arachnida			18	18.0	
		Insecta	Coleoptera	Elmidae	13	13.0
			Diptera	Ceratopogonidae	2	2.0
				Chironomidae	38	38.0
				Empididae	1	1.0
				Simuliidae	2	2.0
				Tipulidae	1	1.0
			Ephemeroptera	Baetidae	109	109.0
				Ephemerellidae	36	36.0
				Heptageniidae	81	81.0
				Leptophlebiidae	4	4.0
			Plecoptera	Capniidae	3	3.0
				Chloroperlidae	9	9.0
				Leuctridae	2	2.0
				Nemouridae	27	27.0

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
			Perlidae	6	6.0
			Perlodidae	10	10.0
			Taeniopterygidae	5	5.0
		Trichoptera	Brachycentridae	2	2.0
			Glossosomatidae	11	11.0
			Hydropsychidae	12	12.0
			Philopotamidae	5	5.0
			Rhyacophilidae	2	2.0
			Total	399	399.0

Metrics

Name	NJWIL01	Predicted Group Reference Mean \pm SD
Bray-Curtis Distance	0.3	0.4 \pm 0.1
Biotic Indices		
Hilsenhoff Family index (North-West)	3.4	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	5.3	2.2 \pm 1.8
% Gatherers	34.3	38.4 \pm 12.4
% Predatores	20.6	19.0 \pm 8.5
% Scrapers	58.1	63.2 \pm 19.7
% Shredder	13.3	27.6 \pm 15.2
No. Clinger Taxa	18.0	23.2 \pm 6.3
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% Coleoptera	3.4	1.5 \pm 3.9
% Diptera + Non-insects	11.5	10.8 \pm 7.6
% Ephemeroptera	60.4	51.7 \pm 18.8
% Ephemeroptera that are Baetidae	47.4	40.6 \pm 30.0
% EPT Individuals	85.0	87.7 \pm 7.4
% Odonata	0.0	0.0 \pm 0.0
% of 2 dominant taxa	49.9	57.9 \pm 14.2
% of 5 dominant taxa	76.4	81.6 \pm 7.9
% of dominant taxa	28.6	39.8 \pm 14.9
% Plecoptera	16.3	31.4 \pm 15.4
% Tribe Tanyatarisini	--	
% Trichoptera that are Hydropsychida	37.5	27.0 \pm 26.2
% Tricoptera	8.4	4.5 \pm 2.8
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Total Abundance	399.0	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	5.0	3.3 \pm 1.0
Ephemeroptera taxa	4.0	3.8 \pm 0.8
EPT Individuals (Sum)	324.0	526.0 \pm 285.8
EPT taxa (no)	16.0	13.3 \pm 2.7
Odonata taxa	0.0	0.0 \pm 0.0
Pielou's Evenness	0.7	0.7 \pm 0.1
Plecoptera taxa	7.0	6.3 \pm 1.1
Shannon-Wiener Diversity	2.3	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	22.0	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 NJWIL01
	Group 1	Group 2	Group 3	Group 4	Group 5	
Baetidae	100%	100%	100%	100%	97%	1.00
Capniidae	78%	55%	50%	92%	68%	0.86
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	13.89
RIVPACS : Observed taxa P>0.50	15.00
RIVPACS : O:E (p > 0.5)	1.08
RIVPACS : Expected taxa P>0.70	11.43
RIVPACS : Observed taxa P>0.70	12.00
RIVPACS : O:E (p > 0.7)	1.05

Habitat Description

Variable	NJWIL01	Predicted Group Reference Mean \pm SD
Bedrock Geology		
Alluvium (%)	0.00000	0.00000 \pm 0.00000
Intrusive (%)	55.96531	11.07346 \pm 28.63466
Metamorphic (%)	11.56103	17.96649 \pm 35.53463
Sedimentary (%)	30.79256	70.96005 \pm 44.90394
Ultramafic (%)	0.00000	0.00000 \pm 0.00000
Volcanic (%)	1.68110	0.00000 \pm 0.00000
Channel		
Depth-Avg (cm)	28.3	23.6 \pm 11.1
Depth-BankfullMinusWetted (cm)	41.50	51.38 \pm 29.42
Depth-Max (cm)	32.0	34.6 \pm 12.3
Macrophyte (PercentRange)	1	0 \pm 0
Reach-%CanopyCoverage (PercentRange)	1.00	1.33 \pm 0.78
Reach-DomStreamsideVeg (Category (1-4))	4	4 \pm 1
Reach-Pools (Binary)	0	1 \pm 0
Reach-Rapids (Binary)	0	0 \pm 0
Reach-Riffles (Binary)	1	1 \pm 0
Reach-StraightRun (Binary)	1	1 \pm 1
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)	0.54	0.48 \pm 0.22
Velocity-Max (m/s)	0.77	0.76 \pm 0.36
Width-Bankfull (m)	33.5	13.4 \pm 9.9
Width-Wetted (m)	32.0	8.5 \pm 5.8
XSEC-VelMethod (Category (1-3))	1	1 \pm 0
Climate		
Precip01_JAN (mm)	145.00000	104.85000 \pm 26.28129
Precip02_FEB (mm)	117.44444	83.66667 \pm 27.10278
Precip03_MAR (mm)	102.55556	77.23611 \pm 27.15950
Precip04_APR (mm)	145.00000	104.85000 \pm 26.28129
Precip05_MAY (mm)	78.55556	71.65833 \pm 17.81753
Precip06_JUN (mm)	91.88889	78.56667 \pm 15.58521
Precip07_JUL (mm)	77.77778	64.39167 \pm 10.41611
Precip08_AUG (mm)	75.22222	60.53056 \pm 10.43373

Habitat Description

Variable	NJWIL01	Predicted Group Reference Mean \pm SD
Precip09_SEP (mm)	71.44444	56.91944 \pm 10.91783
Precip10_OCT (mm)	91.33333	65.08056 \pm 14.41229
Precip11_NOV (mm)	142.77778	105.93889 \pm 25.04104
Precip12_DEC (mm)	158.33333	116.84444 \pm 29.80954
PrecipTotal_ANNUAL (mm)	1231.33333	952.64722 \pm 226.04690
Temp01_JANMax (Degrees Celsius)	-5.22222	-4.39167 \pm 2.51268
Temp01_JANmin (Degrees Celsius)	-11.33333	-11.40833 \pm 3.53951
Temp02_FEBmax (Degrees Celsius)	-2.33333	-1.70000 \pm 2.12945
Temp02_FEBmin (Degrees Celsius)	-9.33333	-9.17500 \pm 3.33361
Temp03_MARmax (Degrees Celsius)	0.88889	2.50556 \pm 2.87525
Temp03_MARmin (Degrees Celsius)	-6.77778	-6.14167 \pm 2.98556
Temp04_APRmax (Degrees Celsius)	5.44444	7.12222 \pm 3.48771
Temp04_APRmin (Degrees Celsius)	-3.11111	-2.71667 \pm 2.22785
Temp05_MAYmax (Degrees Celsius)	10.44444	12.03889 \pm 3.55434
Temp05_MAYmin (Degrees Celsius)	0.33333	1.04722 \pm 2.08663
Temp06_JUNMax (Degrees Celsius)	14.22222	15.72500 \pm 3.40030
Temp06_JUNMin (Degrees Celsius)	3.44444	4.00278 \pm 2.41085
Temp07_JULmax (Degrees Celsius)	18.00000	19.56111 \pm 3.47275
Temp07_JULmin (Degrees Celsius)	5.77778	6.35833 \pm 2.28332
Temp08_AUGmax (Degrees Celsius)	17.88889	19.52222 \pm 3.51100
Temp08_AUGmin (Degrees Celsius)	5.66667	6.19167 \pm 2.34422
Temp09_SEPmax (Degrees Celsius)	12.66667	14.04444 \pm 3.03456
Temp09_SEPmin (Degrees Celsius)	1.77778	2.04722 \pm 2.37208
Temp10_OCTmax (Degrees Celsius)	5.33333	6.88889 \pm 2.71577
Temp10_OCTmin (Degrees Celsius)	-1.55556	-1.46111 \pm 1.64316
Temp11_NOVmax (Degrees Celsius)	-1.77778	-0.79722 \pm 2.43512
Temp11_NOVmin (Degrees Celsius)	-7.22222	-6.68056 \pm 2.97163
Temp12_DECmax (Degrees Celsius)	-5.44444	-4.66389 \pm 2.69757
Temp12_DECmin (Degrees Celsius)	-11.11111	-10.65833 \pm 3.71739
TempANNUALmax (Degrees Celsius)	5.66667	6.96389 \pm 3.06157
TempANNUALmean (Degrees Celsius)	1.00000	2.25278 \pm 2.66574
TempANNUALmin (Degrees Celsius)	-2.33333	-2.18056 \pm 2.41152
Hydrology		
Drainage-Area (km ²)	583.19479	124.42081 \pm 200.99192
Perimeter (Km)	208.38023	64.71360 \pm 56.15436
StreamDensity (m/km ²)	2598.88970	2246.06682 \pm 604.89962
StreamLength (m)	1515658.94	302226.63 \pm 500983.26
Landcover		
Natl-AnnCrops (%)	0.00000	0.00000 \pm 0.00000
Natl-Barren (%)	0.00000	0.00000 \pm 0.00000
Natl-BroadleafDense (%)	0.00000	0.00000 \pm 0.00000
Natl-BroadleafOpen (%)	4.31810	1.19263 \pm 2.03874
Natl-BroadleafSparse (%)	0.00000	0.00000 \pm 0.00000
Natl-Coniferous (%)	0.00000	0.00000 \pm 0.00000
Natl-ConiferousDense (%)	0.27049	0.64845 \pm 0.37668
Natl-ConiferousOpen (%)	45.17803	54.62780 \pm 18.30692
Natl-ConiferousSparse (%)	1.63053	0.94121 \pm 1.53621
Natl-Deciduous (%)	0.00000	0.00000 \pm 0.00000
Natl-Developed (%)	0.00000	0.00000 \pm 0.00000
Natl-ExposedLand (%)	21.70973	13.20054 \pm 11.11850
Natl-Grassland (%)	2.27104	1.87556 \pm 1.68508
Natl-Herb (%)	10.03165	5.75738 \pm 2.89836
Natl-MixedForest (%)	0.00000	0.00000 \pm 0.00000
Natl-MixedwoodDense (%)	0.00000	0.00000 \pm 0.00000
Natl-MixedwoodOpen (%)	0.15160	0.04060 \pm 0.10208
Natl-MixedwoodSparse (%)	0.00000	0.00000 \pm 0.00000
Natl-PerennCropsPast (%)	0.00000	0.00000 \pm 0.00000
Natl-Rock/Rubble (%)	0.77367	1.56403 \pm 2.75979
Natl-Shrubland (%)	0.00000	0.00000 \pm 0.00000
Natl-ShrubLow (%)	0.76923	4.98298 \pm 3.22579
Natl-ShrubTall (%)	0.00000	0.00000 \pm 0.00000
Natl-SnowIce (%)	0.44097	0.08491 \pm 0.15475

Habitat Description

Variable	NJWIL01	Predicted Group Reference Mean \pm SD
Natl-Water (%)	0.54348	0.22916 \pm 0.36834
Natl-Wetland (%)	0.00000	0.00000 \pm 0.00000
Natl-WetlandHerb (%)	0.02618	0.12918 \pm 0.35193
Natl-WetlandShrub (%)	0.00376	0.00000 \pm 0.00000
Natl-WetlandTreed (%)	0.00000	0.00000 \pm 0.00000
Reg-Ice (%)	0.20862	0.02487 \pm 0.06034
Substrate Data		
%Bedrock (%)	0	0 \pm 0
%Boulder (%)	11	9 \pm 9
%Cobble (%)	83	51 \pm 15
%Gravel (%)	0	3 \pm 3
%Pebble (%)	6	37 \pm 20
%Sand (%)	0	0 \pm 0
%Silt+Clay (%)	0	0 \pm 0
D50 (cm)	15.00	15.12 \pm 14.26
Dg (cm)	14.3	8.2 \pm 2.8
Dominant-1st (Category(0-9))	7	7 \pm 1
Dominant-2nd (Category(0-9))	6	7 \pm 1
Embeddedness (Category(1-5))	4	5 \pm 1
PeriphytonCoverage (Category(1-5))	2	1 \pm 0
Topography		
ElevationMax (m)	3015.00000	2634.66667 \pm 309.54023
ElevationMin (m)	545.00000	913.41667 \pm 271.25180
ElevationStdev (m)	425.01481	349.02363 \pm 92.12445
Reg-SlopeLT30% (%)	16.65922	18.88386 \pm 9.29866
Slope30-50% (%)	27.28587	29.00215 \pm 6.33837
Slope50-60% (%)	15.58662	13.91808 \pm 1.91315
SlopeAvg (%)	53.64259	52.79851 \pm 8.68755
SlopeGT60% (%)	38.08856	35.47207 \pm 13.39684
SlopeLT30% (%)	19.03895	21.60770 \pm 8.54172
SlopeMax (%)	283.60913	298.94390 \pm 146.30679
SlopeMin (%)	0.00000	0.19777 \pm 0.29213
SlopeStdev (%)	26.27283	26.57529 \pm 4.62351
Water Chemistry		
General-Alkalinity (mg/L)	58.9000000	71.7000000 \pm 53.9231440
General-DO (mg/L)	11.0000000	11.4175000 \pm 0.7986708
General-pH (pH)	6.2	7.9 \pm 0.4
General-SpCond (μ S/cm)	123.0000000	168.9833333 \pm 123.7858182
General-TempAir (Degrees Celsius)	10.0	26.0
General-TempWater (Degrees Celsius)	6.0000000	7.3183333 \pm 2.7240839
General-Turbidity (NTU)	0.2000000	0.2020000
Nitrogen-NO2 (mg/L)	0.0025000	0.0027500 \pm 0.0062831
Nitrogen-NO2+NO3 (mg/L)	0.0720000	0.0690000
Nitrogen-NO3 (mg/L)	0.0720000	0.0546667 \pm 0.0498148
Phosphorus-OrthoP (mg/L)	0.0000000	0.0002727 \pm 0.0004671

Site Description

Study Name	CBWQ-Slocan
Site	NJWIL01
Sampling Date	Oct 22 2013
Know Your Watershed Basin	Slocan
Province / Territory	British Columbia
Terrestrial Ecological Classification	Montane Cordillera EcoZone Columbia Mountains and Highlands EcoRegion
Coordinates (decimal degrees)	50.01667 N, 117.40000 W
Altitude	1824
Local Basin Name	Wilson Cr
	Columbia
Stream Order	6



Figure 1. Location Map

Across Reach (No image found)
Aerial (No image found)



Down Stream
Field Sheet (No image found)
Miscellaneous (No image found)
Substrate (No image found)



Up Stream

Cabin Assessment Results

Reference Model Summary					
Model	Columbia-Okanagan Preliminary March 2010				
Analysis Date	September 15, 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%	3.2%	11.2%	65.4%	20.0%
CABIN Assessment of NJWIL01 on Oct 22, 2013	Similar to Reference				

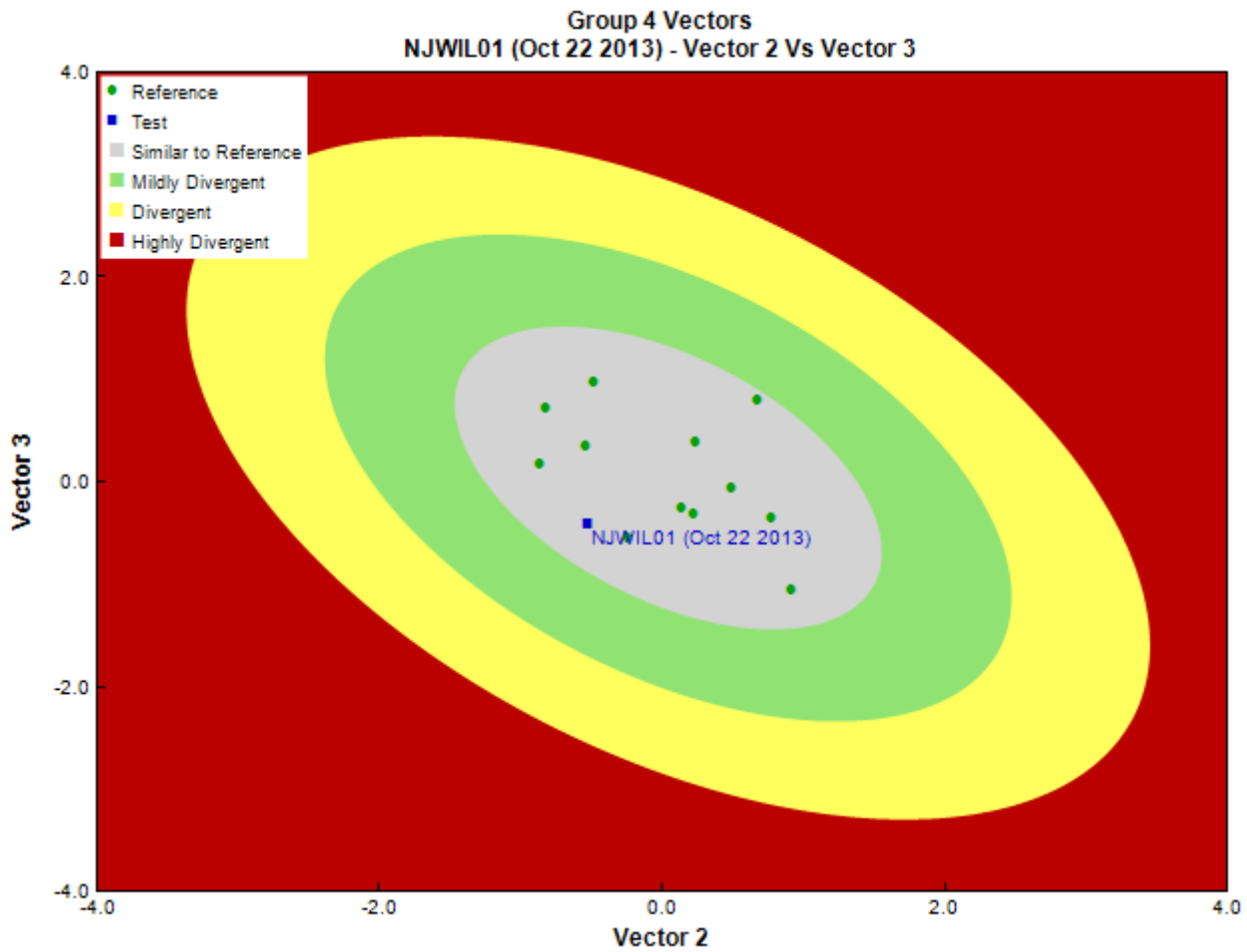


Figure 3. CABIN ordination assessment of the test site with the predicted group of reference sites. Each axis represents the relative abundance of the entire benthic invertebrate community with different organisms weighted differently on each axis.

Sample Information

Sampling Device	Kick Net
Mesh Size	400
Sampling Time	3
Taxonomist	Pina Viola, Consultant
Date Taxonomy Completed	March 14, 2014
	Marchant Box
Sub-Sample Proportion	36/100

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count	
Arthropoda	Arachnida	Trombidiformes	Lebertiidae	3	8.3	
			Sperchontidae	1	2.8	
	Insecta	Coleoptera	Torrenticolidae	4	11.1	
			Elmidae	4	11.1	
			Diptera	Chironomidae	58	161.1
		Empididae		1	2.8	
		Simuliidae		6	16.6	
		Ephemeroptera		Ameletidae	1	2.8
			Baetidae	69	191.7	
			Ephemerellidae	13	36.2	
		Plecoptera		Heptageniidae	77	213.9
					2	5.6
				Capniidae	22	61.1
				Chloroperlidae	2	5.6
			Leuctridae	1	2.8	

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
			Nemouridae	19	52.8
			Perlidae	6	16.7
			Perlodidae	5	13.9
			Taeniopterygidae	24	66.7
		Trichoptera	Brachycentridae	1	2.8
			Glossosomatidae	3	8.3
			Hydropsychidae	4	11.2
			Lepidostomatidae	2	5.6
			Rhyacophilidae	3	8.3
			Total	331	919.8

Metrics

Name	NJWIL01	Predicted Group Reference Mean \pm SD
Bray-Curtis Distance	0.36	0.4 \pm 0.1
Biotic Indices		
Hilsenhoff Family index (North-West)	3.6	3.2 \pm 0.3
Intolerant taxa	--	
Long-lived taxa	4.0	2.1 \pm 1.0
Tolerant individuals (%)	--	0.8 \pm 0.3
Functional Measures		
% Filterers	3.3	2.2 \pm 1.8
% Gatherers	36.9	38.4 \pm 12.4
% Predatores	28.1	19.0 \pm 8.5
% Scrapers	55.9	63.2 \pm 19.7
% Shredder	22.1	27.6 \pm 15.2
No. Clinger Taxa	31.0	23.2 \pm 6.3
Number Of Individuals		
% Chironomidae	17.6	7.4 \pm 6.4
% Coleoptera	1.2	1.5 \pm 3.9
% Diptera + Non-insects	22.2	10.8 \pm 7.6
% Ephemeroptera	48.6	51.7 \pm 18.8
% Ephemeroptera that are Baetidae	43.1	40.6 \pm 30.0
% EPT Individuals	76.6	87.7 \pm 7.4
% Odonata	0.0	0.0 \pm 0.0
% of 2 dominant taxa	44.4	57.9 \pm 14.2
% of 5 dominant taxa	76.0	81.6 \pm 7.9
% of dominant taxa	23.4	39.8 \pm 14.9
% Plecoptera	24.0	31.4 \pm 15.4
% Tribe Tanyatarisini	--	
% Trichoptera that are Hydropsychida	30.8	27.0 \pm 26.2
% Tricoptera	3.9	4.5 \pm 2.8
No. EPT individuals/Chironomids+EPT Individuals	0.8	0.9 \pm 0.1
Total Abundance	919.2	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	4.0	3.8 \pm 0.8
EPT Individuals (Sum)	699.8	526.0 \pm 285.8
EPT taxa (no)	16.0	13.3 \pm 2.7
Odonata taxa	0.0	0.0 \pm 0.0
Pielou's Evenness	0.7	0.7 \pm 0.1
Plecoptera taxa	7.0	6.3 \pm 1.1
Shannon-Wiener Diversity	2.3	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	23.0	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 NJWIL01
	Group 1	Group 2	Group 3	Group 4	Group 5	
Baetidae	100%	100%	100%	100%	97%	0.99
Capniidae	78%	55%	50%	92%	68%	0.81
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%	0.72
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	13.52
RIVPACS : Observed taxa P>0.50	15.00
RIVPACS : O:E (p > 0.5)	1.11
RIVPACS : Expected taxa P>0.70	11.19
RIVPACS : Observed taxa P>0.70	12.00
RIVPACS : O:E (p > 0.7)	1.07

Habitat Description

Variable	NJWIL01	Predicted Group Reference Mean \pm SD
Bedrock Geology		
Alluvium (%)	0.00000	0.00000 \pm 0.00000
Intrusive (%)	55.96531	11.07346 \pm 28.63466
Metamorphic (%)	11.56103	17.96649 \pm 35.53463
Sedimentary (%)	30.79256	70.96005 \pm 44.90394
Ultramafic (%)	0.00000	0.00000 \pm 0.00000
Volcanic (%)	1.68110	0.00000 \pm 0.00000
Channel		
Depth-Avg (cm)	18.6	23.6 \pm 11.1
Depth-BankfullMinusWetted (cm)	80.00	51.38 \pm 29.42
Depth-Max (cm)	23.5	34.6 \pm 12.3
Macrophyte (PercentRange)	0	0 \pm 0
Reach-%CanopyCoverage (PercentRange)	1.00	1.33 \pm 0.78
Reach-DomStreamsideVeg (Category (1-4))	4	4 \pm 1
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)	0.0170000	0.0546683 \pm 0.0376269
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)	0.42	0.48 \pm 0.22
Velocity-Max (m/s)	0.83	0.76 \pm 0.36
Width-Bankfull (m)	35.0	13.4 \pm 9.9
Width-Wetted (m)	31.0	8.5 \pm 5.8
XSEC-VelMethod (Category (1-3))	1	1 \pm 0
Climate		
Precip01_JAN (mm)	145.00000	104.85000 \pm 26.28129
Precip02_FEB (mm)	117.44444	83.66667 \pm 27.10278
Precip03_MAR (mm)	102.55556	77.23611 \pm 27.15950
Precip04_APR (mm)	145.00000	104.85000 \pm 26.28129
Precip05_MAY (mm)	78.55556	71.65833 \pm 17.81753
Precip06_JUN (mm)	91.88889	78.56667 \pm 15.58521
Precip07_JUL (mm)	77.77778	64.39167 \pm 10.41611

Habitat Description

Variable	NJWIL01	Predicted Group Reference Mean \pm SD
Precip08_AUG (mm)	75.22222	60.53056 \pm 10.43373
Precip09_SEP (mm)	71.44444	56.91944 \pm 10.91783
Precip10_OCT (mm)	91.33333	65.08056 \pm 14.41229
Precip11_NOV (mm)	142.77778	105.93889 \pm 25.04104
Precip12_DEC (mm)	158.33333	116.84444 \pm 29.80954
PrecipTotal_ANNUAL (mm)	1231.33333	952.64722 \pm 226.04690
Temp01_JANMax (Degrees Celsius)	-5.22222	-4.39167 \pm 2.51268
Temp01_JANmin (Degrees Celsius)	-11.33333	-11.40833 \pm 3.53951
Temp02_FEBmax (Degrees Celsius)	-2.33333	-1.70000 \pm 2.12945
Temp02_FEBmin (Degrees Celsius)	-9.33333	-9.17500 \pm 3.33361
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Temp03_MARmin (Degrees Celsius)	-6.77778	-6.14167 \pm 2.98556
Temp04_APRmax (Degrees Celsius)	5.44444	7.12222 \pm 3.48771
Temp04_APRmin (Degrees Celsius)	-3.11111	-2.71667 \pm 2.22785
Temp05_MAYmax (Degrees Celsius)	10.44444	12.03889 \pm 3.55434
Temp05_MAYmin (Degrees Celsius)	0.33333	1.04722 \pm 2.08663
Temp06_JUNMax (Degrees Celsius)	14.22222	15.72500 \pm 3.40030
Temp06_JUNMin (Degrees Celsius)	3.44444	4.00278 \pm 2.41085
Temp07_JULmax (Degrees Celsius)	18.00000	19.56111 \pm 3.47275
Temp07_JULmin (Degrees Celsius)	5.77778	6.35833 \pm 2.28332
Temp08_AUGmax (Degrees Celsius)	17.88889	19.52222 \pm 3.51100
Temp08_AUGmin (Degrees Celsius)	5.66667	6.19167 \pm 2.34422
Temp09_SEPmax (Degrees Celsius)	12.66667	14.04444 \pm 3.03456
Temp09_SEPmin (Degrees Celsius)	1.77778	2.04722 \pm 2.37208
Temp10_OCTmax (Degrees Celsius)	5.33333	6.88889 \pm 2.71577
Temp10_OCTmin (Degrees Celsius)	-1.55556	-1.46111 \pm 1.64316
Temp11_NOVmax (Degrees Celsius)	-1.77778	-0.79722 \pm 2.43512
Temp11_NOVmin (Degrees Celsius)	-7.22222	-6.68056 \pm 2.97163
Temp12_DECmax (Degrees Celsius)	-5.44444	-4.66389 \pm 2.69757
Temp12_DECmin (Degrees Celsius)	-11.11111	-10.65833 \pm 3.71739
TempANNUALmax (Degrees Celsius)	5.66667	6.96389 \pm 3.06157
TempANNUALmean (Degrees Celsius)	1.00000	2.25278 \pm 2.66574
TempANNUALmin (Degrees Celsius)	-2.33333	-2.18056 \pm 2.41152
Hydrology		
Drainage-Area (km ²)	583.19479	124.42081 \pm 200.99192
Perimeter (Km)	208.38023	64.71360 \pm 56.15436
StreamDensity (m/km ²)	2598.88970	2246.06682 \pm 604.89962
StreamLength (m)	1515658.94	302226.63 \pm 500983.26
Landcover		
Natl-AnnCrops (%)	0.00000	0.00000 \pm 0.00000
Natl-Barren (%)	0.00000	0.00000 \pm 0.00000
Natl-BroadleafDense (%)	0.00000	0.00000 \pm 0.00000
Natl-BroadleafOpen (%)	4.31810	1.19263 \pm 2.03874
Natl-BroadleafSparse (%)	0.00000	0.00000 \pm 0.00000
Natl-Coniferous (%)	0.00000	0.00000 \pm 0.00000
Natl-ConiferousDense (%)	0.27049	0.64845 \pm 0.37668
Natl-ConiferousOpen (%)	45.17803	54.62780 \pm 18.30692
Natl-ConiferousSparse (%)	1.63053	0.94121 \pm 1.53621
Natl-Deciduous (%)	0.00000	0.00000 \pm 0.00000
Natl-Developed (%)	0.00000	0.00000 \pm 0.00000
Natl-ExposedLand (%)	21.70973	13.20054 \pm 11.11850
Natl-Grassland (%)	2.27104	1.87556 \pm 1.68508
Natl-Herb (%)	10.03165	5.75738 \pm 2.89836
Natl-MixedForest (%)	0.00000	0.00000 \pm 0.00000
Natl-MixedwoodDense (%)	0.00000	0.00000 \pm 0.00000
Natl-MixedwoodOpen (%)	0.15160	0.04060 \pm 0.10208
Natl-MixedwoodSparse (%)	0.00000	0.00000 \pm 0.00000
Natl-PerennCropsPast (%)	0.00000	0.00000 \pm 0.00000
Natl-Rock/Rubble (%)	0.77367	1.56403 \pm 2.75979
Natl-Shrubland (%)	0.00000	0.00000 \pm 0.00000
Natl-ShrubLow (%)	0.76923	4.98298 \pm 3.22579
Natl-ShrubTall (%)	0.00000	0.00000 \pm 0.00000

Habitat Description

Variable	NJWIL01	Predicted Group Reference Mean \pm SD
Natl-SnowIce (%)	0.44097	0.08491 \pm 0.15475
Natl-Water (%)	0.54348	0.22916 \pm 0.36834
Natl-Wetland (%)	0.00000	0.00000 \pm 0.00000
Natl-WetlandHerb (%)	0.02618	0.12918 \pm 0.35193
Natl-WetlandShrub (%)	0.00376	0.00000 \pm 0.00000
Natl-WetlandTreed (%)	0.00000	0.00000 \pm 0.00000
Reg-Ice (%)	0.20862	0.02487 \pm 0.06034
Substrate Data		
PeriphytonCoverage (Category(1-5))	2	1 \pm 0
SurroundingMaterial (Category(0-9))	6	4 \pm 1
Topography		
ElevationMax (m)	3015.00000	2634.66667 \pm 309.54023
ElevationMin (m)	545.00000	913.41667 \pm 271.25180
ElevationStdev (m)	425.01481	349.02363 \pm 92.12445
Reg-SlopeLT30% (%)	16.65922	18.88386 \pm 9.29866
Slope30-50% (%)	27.28587	29.00215 \pm 6.33837
Slope50-60% (%)	15.58662	13.91808 \pm 1.91315
SlopeAvg (%)	53.64259	52.79851 \pm 8.68755
SlopeGT60% (%)	38.08856	35.47207 \pm 13.39684
SlopeLT30% (%)	19.03895	21.60770 \pm 8.54172
SlopeMax (%)	283.60913	298.94390 \pm 146.30679
SlopeMin (%)	0.00000	0.19777 \pm 0.29213
SlopeStdev (%)	26.27283	26.57529 \pm 4.62351
Water Chemistry		
General-DO (mg/L)	14.0000000	11.4175000 \pm 0.7986708
General-pH (pH)	7.6	7.9 \pm 0.4
General-SpCond (μ S/cm)	119.7000000	168.9833333 \pm 123.7858182
General-TempAir (Degrees Celsius)	9.0	26.0
General-TempWater (Degrees Celsius)	5.0000000	7.3183333 \pm 2.7240839
General-Turbidity (NTU)	0.5200000	0.2020000

Site Description

Study Name	CBWQ-Slocan
Site	NJWIL01
Sampling Date	Sep 10 2014
Know Your Watershed Basin	Slocan
Province / Territory	British Columbia
Terrestrial Ecological Classification	Montane Cordillera EcoZone Columbia Mountains and Highlands EcoRegion
Coordinates (decimal degrees)	50.14333 N, 117.40861 W
Altitude	1824
Local Basin Name	Wilson Cr
	Columbia
Stream Order	6



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	September 15, 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%	3.0%	11.7%	59.0%	26.2%
CABIN Assessment of NJWIL01 on Sep 10, 2014	Mildly Divergent				

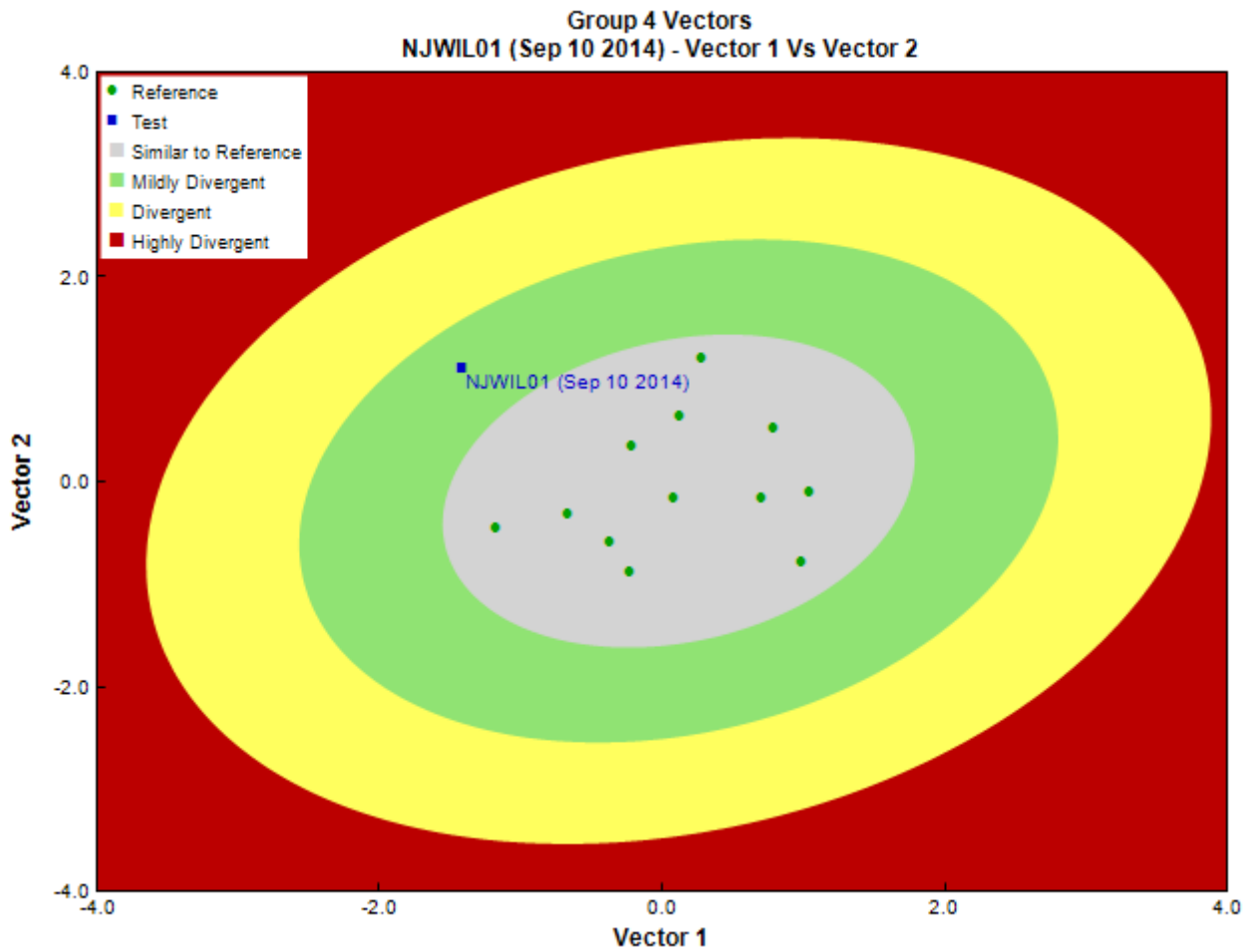


Figure 3. CABIN ordination assessment of the test site with the predicted group of reference sites. Each axis represents the relative abundance of the entire benthic invertebrate community with different organisms weighted differently on each axis.

Sample Information

Sampling Device	Kick Net
Mesh Size	400
Sampling Time	3
Taxonomist	Pina Viola, Consultant
Date Taxonomy Completed	January 21, 2015
	Marchant Box
Sub-Sample Proportion	24/100

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
Annelida	Oligochaeta	Tubificida	Naididae	17	70.8
Arthropoda	Arachnida	Trombidiformes	Sperchontidae	1	4.2
	Insecta	Coleoptera	Elmidae	2	8.4
		Diptera	Chironomidae	243	1,012.5
			Empididae	1	4.2
			Tipulidae	1	4.2
		Ephemeroptera	Ameletidae	2	8.3
			Baetidae	34	141.7
			Ephemerellidae	5	20.8
			Heptageniidae	5	20.8
		Plecoptera	Capniidae	5	20.8
			Nemouridae	1	4.2
			Perlodidae	2	8.3
		Trichoptera		1	4.2
			Uenoidae	1	4.2

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
			Total	321	1,337.6

Metrics

Name	NJWIL01	Predicted Group Reference Mean \pm SD
Bray-Curtis Distance	0.77	0.4 \pm 0.1
Biotic Indices		
Hilsenhoff Family index (North-West)	5.5	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	84.7	38.4 \pm 12.4
% Predatores	77.0	19.0 \pm 8.5
% Scrapers	13.1	63.2 \pm 19.7
% Shredder	2.8	27.6 \pm 15.2
No. Clinger Taxa	11.0	23.2 \pm 6.3
Number Of Individuals		
% Chironomidae	75.9	7.4 \pm 6.4
% Coleoptera	0.6	1.5 \pm 3.9
% Diptera + Non-insects	82.2	10.8 \pm 7.6
% Ephemeroptera	14.4	51.7 \pm 18.8
% Ephemeroptera that are Baetidae	73.9	40.6 \pm 30.0
% EPT Individuals	17.2	87.7 \pm 7.4
% Odonata	0.0	0.0 \pm 0.0
% of 2 dominant taxa	86.6	57.9 \pm 14.2
% of 5 dominant taxa	95.0	81.6 \pm 7.9
% of dominant taxa	75.9	39.8 \pm 14.9
% Plecoptera	2.5	31.4 \pm 15.4
% Tribe Tanyatarisini	--	
% Trichoptera that are Hydropsychida	0.0	27.0 \pm 26.2
% Tricoptera	0.3	4.5 \pm 2.8
No. EPT individuals/Chironomids+EPT Individuals	0.2	0.9 \pm 0.1
Total Abundance	1337.4	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	4.0	3.8 \pm 0.8
EPT Individuals (Sum)	229.1	526.0 \pm 285.8
EPT taxa (no)	8.0	13.3 \pm 2.7
Odonata taxa	0.0	0.0 \pm 0.0
Pielou's Evenness	0.4	0.7 \pm 0.1
Plecoptera taxa	3.0	6.3 \pm 1.1
Shannon-Wiener Diversity	1.0	1.9 \pm 0.4
Simpson's Diversity	0.4	0.8 \pm 0.1
Simpson's Evenness	0.1	0.3 \pm 0.1
Total No. of Taxa	14.0	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 NJWIL01
	Group 1	Group 2	Group 3	Group 4	Group 5	
Baetidae	100%	100%	100%	100%	97%	0.99
Capniidae	78%	55%	50%	92%	68%	0.79
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

Frequency and Probability of Taxa Occurrence

Reference Model Taxa	Frequency of Occurrence in Reference Sites					Probability Of Occurrence at NJWIL01
	Group 1	Group 2	Group 3	Group 4	Group 5	
Nemouridae	100%	100%	100%	100%	100%	1.00
Perlodidae	78%	78%	89%	92%	81%	0.88
Rhyacophilidae	100%	92%	100%	100%	95%	0.98
Taeniopterygidae	89%	49%	100%	92%	97%	0.93

RIVPACS Ratios

RIVPACS : Expected taxa P>0.50	13.40
RIVPACS : Observed taxa P>0.50	10.00
RIVPACS : O:E (p > 0.5)	0.75
RIVPACS : Expected taxa P>0.70	10.44
RIVPACS : Observed taxa P>0.70	7.00
RIVPACS : O:E (p > 0.7)	0.67

Habitat Description

Variable	NJWIL01	Predicted Group Reference Mean \pm SD
Bedrock Geology		
Alluvium (%)	0.00000	0.00000 \pm 0.00000
Intrusive (%)	55.96531	11.07346 \pm 28.63466
Metamorphic (%)	11.56103	17.96649 \pm 35.53463
Sedimentary (%)	30.79256	70.96005 \pm 44.90394
Ultramafic (%)	0.00000	0.00000 \pm 0.00000
Volcanic (%)	1.68110	0.00000 \pm 0.00000
Channel		
Depth-Avg (cm)	14.1	23.6 \pm 11.1
Depth-BankfullMinusWetted (cm)	74.00	51.38 \pm 29.42
Depth-Max (cm)	20.0	34.6 \pm 12.3
Macrophyte (PercentRange)	0	0 \pm 0
Reach-%CanopyCoverage (PercentRange)	1.00	1.33 \pm 0.78
Reach-DomStreamsideVeg (Category (1-4))	4	4 \pm 1
Reach-Pools (Binary)	1	1 \pm 0
Reach-Rapids (Binary)	0	0 \pm 0
Reach-Riffles (Binary)	1	1 \pm 0
Reach-StraightRun (Binary)	1	1 \pm 1
Slope (m/m)	0.0170000	0.0546683 \pm 0.0376269
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)	0.22	0.48 \pm 0.22
Velocity-Max (m/s)	0.63	0.76 \pm 0.36
Width-Bankfull (m)	35.0	13.4 \pm 9.9
Width-Wetted (m)	33.0	8.5 \pm 5.8
XSEC-VelMethod (Category (1-3))	1	1 \pm 0
Climate		
Precip01_JAN (mm)	145.00000	104.85000 \pm 26.28129
Precip02_FEB (mm)	117.44444	83.66667 \pm 27.10278
Precip03_MAR (mm)	102.55556	77.23611 \pm 27.15950
Precip04_APR (mm)	145.00000	104.85000 \pm 26.28129
Precip05_MAY (mm)	78.55556	71.65833 \pm 17.81753
Precip06_JUN (mm)	91.88889	78.56667 \pm 15.58521
Precip07_JUL (mm)	77.77778	64.39167 \pm 10.41611
Precip08_AUG (mm)	75.22222	60.53056 \pm 10.43373
Precip09_SEP (mm)	71.44444	56.91944 \pm 10.91783
Precip10_OCT (mm)	91.33333	65.08056 \pm 14.41229
Precip11_NOV (mm)	142.77778	105.93889 \pm 25.04104
Precip12_DEC (mm)	158.33333	116.84444 \pm 29.80954
PrecipTotal_ANNUAL (mm)	1231.33333	952.64722 \pm 226.04690
Temp01_JANMax (Degrees Celsius)	-5.22222	-4.39167 \pm 2.51268
Temp01_JANmin (Degrees Celsius)	-11.33333	-11.40833 \pm 3.53951

Habitat Description

Variable	NJWIL01	Predicted Group Reference Mean \pm SD
Temp02_FEBmax (Degrees Celsius)	-2.33333	-1.70000 \pm 2.12945
Temp02_FEBmin (Degrees Celsius)	-9.33333	-9.17500 \pm 3.33361
Temp03_MARmax (Degrees Celsius)	0.88889	2.50556 \pm 2.87525
Temp03_MARmin (Degrees Celsius)	-6.77778	-6.14167 \pm 2.98556
Temp04_APRmax (Degrees Celsius)	5.44444	7.12222 \pm 3.48771
Temp04_APRmin (Degrees Celsius)	-3.11111	-2.71667 \pm 2.22785
Temp05_MAYmax (Degrees Celsius)	10.44444	12.03889 \pm 3.55434
Temp05_MAYmin (Degrees Celsius)	0.33333	1.04722 \pm 2.08663
Temp06_JUNMax (Degrees Celsius)	14.22222	15.72500 \pm 3.40030
Temp06_JUNMin (Degrees Celsius)	3.44444	4.00278 \pm 2.41085
Temp07_JULmax (Degrees Celsius)	18.00000	19.56111 \pm 3.47275
Temp07_JULmin (Degrees Celsius)	5.77778	6.35833 \pm 2.28332
Temp08_AUGmax (Degrees Celsius)	17.88889	19.52222 \pm 3.51100
Temp08_AUGmin (Degrees Celsius)	5.66667	6.19167 \pm 2.34422
Temp09_SEPmax (Degrees Celsius)	12.66667	14.04444 \pm 3.03456
Temp09_SEPmin (Degrees Celsius)	1.77778	2.04722 \pm 2.37208
Temp10_OCTmax (Degrees Celsius)	5.33333	6.88889 \pm 2.71577
Temp10_OCTmin (Degrees Celsius)	-1.55556	-1.46111 \pm 1.64316
Temp11_NOVmax (Degrees Celsius)	-1.77778	-0.79722 \pm 2.43512
Temp11_NOVmin (Degrees Celsius)	-7.22222	-6.68056 \pm 2.97163
Temp12_DECmax (Degrees Celsius)	-5.44444	-4.66389 \pm 2.69757
Temp12_DECmin (Degrees Celsius)	-11.11111	-10.65833 \pm 3.71739
TempANNUALmax (Degrees Celsius)	5.66667	6.96389 \pm 3.06157
TempANNUALmean (Degrees Celsius)	1.00000	2.25278 \pm 2.66574
TempANNUALmin (Degrees Celsius)	-2.33333	-2.18056 \pm 2.41152
Hydrology		
Drainage-Area (km ²)	583.19479	124.42081 \pm 200.99192
Perimeter (Km)	208.38023	64.71360 \pm 56.15436
StreamDensity (m/km ²)	2598.88970	2246.06682 \pm 604.89962
StreamLength (m)	1515658.94	302226.63 \pm 500983.26
Landcover		
Natl-AnnCrops (%)	0.00000	0.00000 \pm 0.00000
Natl-Barren (%)	0.00000	0.00000 \pm 0.00000
Natl-BroadleafDense (%)	0.00000	0.00000 \pm 0.00000
Natl-BroadleafOpen (%)	4.31810	1.19263 \pm 2.03874
Natl-BroadleafSparse (%)	0.00000	0.00000 \pm 0.00000
Natl-Coniferous (%)	0.00000	0.00000 \pm 0.00000
Natl-ConiferousDense (%)	0.27049	0.64845 \pm 0.37668
Natl-ConiferousOpen (%)	45.17803	54.62780 \pm 18.30692
Natl-ConiferousSparse (%)	1.63053	0.94121 \pm 1.53621
Natl-Deciduous (%)	0.00000	0.00000 \pm 0.00000
Natl-Developed (%)	0.00000	0.00000 \pm 0.00000
Natl-ExposedLand (%)	21.70973	13.20054 \pm 11.11850
Natl-Grassland (%)	2.27104	1.87556 \pm 1.68508
Natl-Herb (%)	10.03165	5.75738 \pm 2.89836
Natl-MixedForest (%)	0.00000	0.00000 \pm 0.00000
Natl-MixedwoodDense (%)	0.00000	0.00000 \pm 0.00000
Natl-MixedwoodOpen (%)	0.15160	0.04060 \pm 0.10208
Natl-MixedwoodSparse (%)	0.00000	0.00000 \pm 0.00000
Natl-PerennCropsPast (%)	0.00000	0.00000 \pm 0.00000
Natl-Rock/Rubble (%)	0.77367	1.56403 \pm 2.75979
Natl-Shrubland (%)	0.00000	0.00000 \pm 0.00000
Natl-ShrubLow (%)	0.76923	4.98298 \pm 3.22579
Natl-ShrubTall (%)	0.00000	0.00000 \pm 0.00000
Natl-SnowIce (%)	0.44097	0.08491 \pm 0.15475
Natl-Water (%)	0.54348	0.22916 \pm 0.36834
Natl-Wetland (%)	0.00000	0.00000 \pm 0.00000
Natl-WetlandHerb (%)	0.02618	0.12918 \pm 0.35193
Natl-WetlandShrub (%)	0.00376	0.00000 \pm 0.00000
Natl-WetlandTreed (%)	0.00000	0.00000 \pm 0.00000
Reg-Ice (%)	0.20862	0.02487 \pm 0.06034
Substrate Data		

Habitat Description

Variable	NJWIL01	Predicted Group Reference Mean \pm SD
%Bedrock (%)	0	0 \pm 0
%Boulder (%)	0	9 \pm 9
%Cobble (%)	37	51 \pm 15
%Gravel (%)	0	3 \pm 3
%Pebble (%)	63	37 \pm 20
%Sand (%)	0	0 \pm 0
%Silt+Clay (%)	0	0 \pm 0
D50 (cm)	5.50	15.12 \pm 14.26
Dg (cm)	5.5	8.2 \pm 2.8
Dominant-1st (Category(0-9))	5	7 \pm 1
Dominant-2nd (Category(0-9))	6	7 \pm 1
Embeddedness (Category(1-5))	3	5 \pm 1
PeriphytonCoverage (Category(1-5))	5	1 \pm 0
SurroundingMaterial (Category(0-9))	2	4 \pm 1
Topography		
ElevationMax (m)	3015.00000	2634.66667 \pm 309.54023
ElevationMin (m)	545.00000	913.41667 \pm 271.25180
ElevationStdev (m)	425.01481	349.02363 \pm 92.12445
Reg-SlopeLT30% (%)	16.65922	18.88386 \pm 9.29866
Slope30-50% (%)	27.28587	29.00215 \pm 6.33837
Slope50-60% (%)	15.58662	13.91808 \pm 1.91315
SlopeAvg (%)	53.64259	52.79851 \pm 8.68755
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SlopeLT30% (%)	19.03895	21.60770 \pm 8.54172
SlopeMax (%)	283.60913	298.94390 \pm 146.30679
SlopeMin (%)	0.00000	0.19777 \pm 0.29213
SlopeStdev (%)	26.27283	26.57529 \pm 4.62351
Water Chemistry		
CO3 (mg/L)	0.2500000	0.0000000 \pm 0.0000000
General-Alkalinity (mg/L)	50.5000000	71.7000000 \pm 53.9231440
General-Conductivity (μ S/cm)	10.0000000	121.8083333 \pm 87.6800844
General-DO (mg/L)	11.0000000	11.4175000 \pm 0.7986708
General-TempAir (Degrees Celsius)	9.0	26.0
General-TempWater (Degrees Celsius)	7.5000000	7.3183333 \pm 2.7240839
HCO3 (mg/L)	61.6000000	0.0000000 \pm 0.0000000
Nitrogen-NO2 (mg/L)	0.0025000	0.0027500 \pm 0.0062831
Nitrogen-NO2+NO3 (mg/L)	0.0520000	0.0690000
Nitrogen-NO3 (mg/L)	0.0520000	0.0546667 \pm 0.0498148
Phosphorus-OrthoP (mg/L)	0.0025000	0.0002727 \pm 0.0004671
Phosphorus-TP (mg/L)	0.0025000	0.0045833 \pm 0.0049992