Site Assessment Report – 2013 – YPS-429

Site Data

Site	YPS-429
Sample Date	July 16, 2013
Latitude	N 63.4383
Longitude	W 138.8233
Altitude	1804 ft
Feature Name	Black Hills Creek (Upper)
Stream Order	4

Site Photograph

Upstream view

Context Map

Refer to Stewart River Watershed Aquatic Health Monitoring Sites 2013 map.

Assignment of the Test Site to a Group

The test site is assigned to a benthic insect community group (Group) based on the 2013 Yukon CABIN model (BEAST Prediction Results). The site is assigned to the Group for which it has the highest probability of belonging based on habitat attributes.

Predictor Variables	Altitude (ft), Longitude, LC-Bryoids (%), LC-Broadleaf open (%), LC-Mixed wood open (%), LC-Wetland herbaceous (%), Precipitation Feb (mm), Precipitation March (mm), Precipitation June (mm), Precipitation July (mm), Rainfall June (mm), April Max temp (C), Average Depth (cm), Average Velocity (m/s)				
Predicted Group	4				
Group	**1**	**2**	**3**	**4**	**5**
Probability that the site belongs to each Group	6.3%	22.0%	12.8%	48.5%	10.4%

Habitat Attributes of Site

This table reports on how the habitat predictor variables measured at the test site compare to the mean habitat predictor variables for the reference sites in the same group.

Variable	Site	Reference Mean	Reference SD
Longitude	-138.823	-137.45	2.65
Altitude (ft)	1804	2296.81	838.01
Depth-Avg (cm)	24.6	29.80	14.62
Velocity-Avg (m/s)	0.6	0.52	0.32
Precip. FEB (mm)	32.9	29.34	11.79
Precip. MAR (mm)	31.7	27.46	11.91
Precip. JUN (mm)	54.3	53.49	18.49
Precip. JUL (mm)	68.6	65.85	22.37
Rainfall JUN (mm)	51.3	48.44	16.06
April Max Temp (C)	-2.4	-0.98	3.38
Broadleaf Open (%)	0.00	0.38	1.31
Bryoids (%)	0.87	0.54	1.04
Mixedwood Open (%)	0.05	0.77	2.87
Wetland Herb (%)	0.00	0.14	0.46

Summary Results of the Benthic Invertebrate Data

The table presents the summary values of the benthic community of the test site compared to expected values and the average benthic community of the reference sites.

	Test Site	Reference Average	Reference Standard Deviation	Expected Families (RIVPACS)
Total Abundance	297	2059.44	1572.86	
Total No. of Taxa	11	12.95	4.37	12.5

Detailed Results of the Benthic Data

This table shows how the benthic community of the test site compares to the average of the reference sites to which it is being compared. Both the presence of certain families and their abundance (the number of individuals found) are compared.

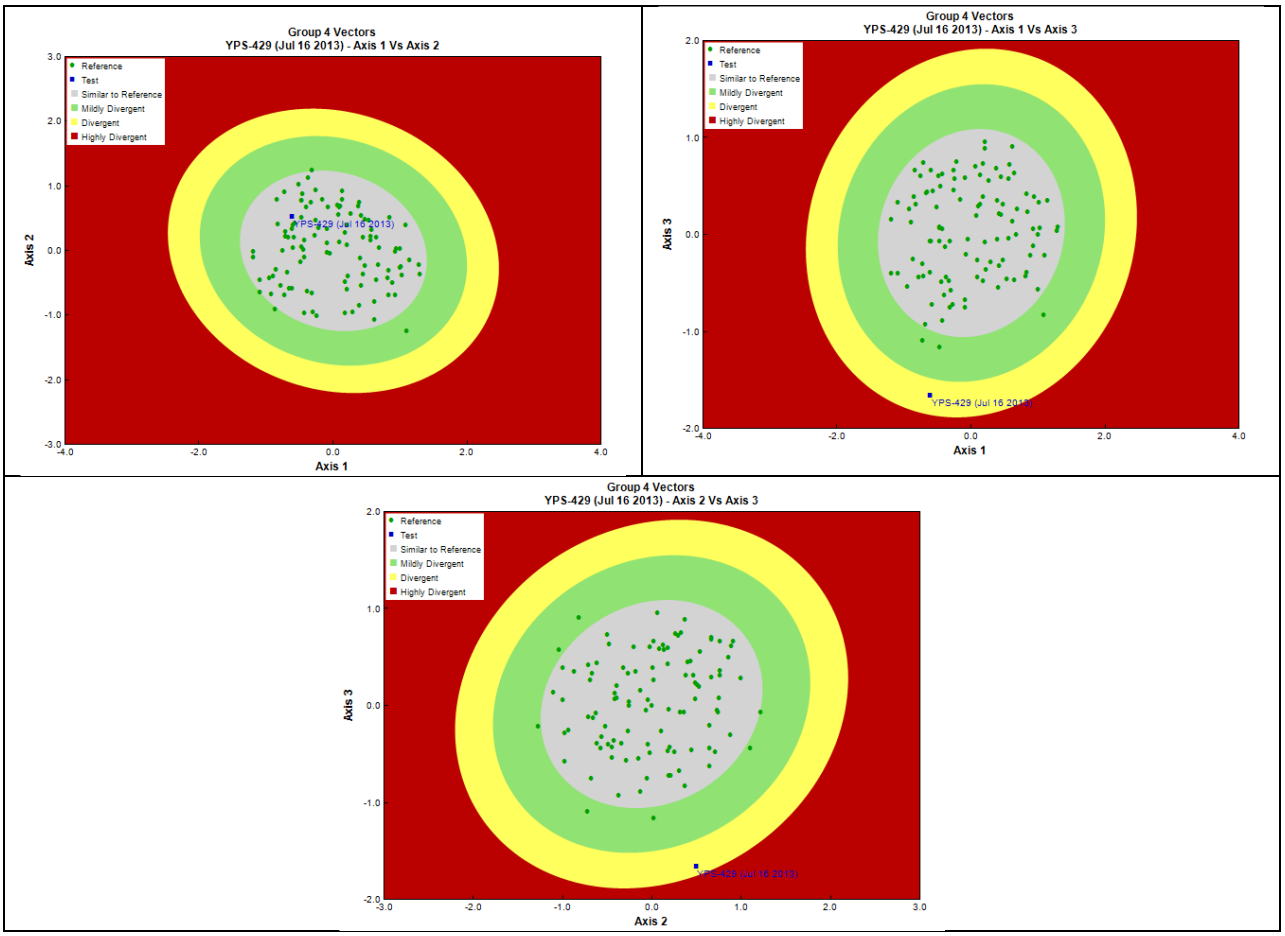
Family (bold = characteristic of group)	RIVPACS Prediction (probability)	Test Site (# of individuals)	Reference Average	Reference Standard Deviation
Chironomidae	0.99	14	911	827
Baetidae	0.87	262	233	309
Nemouridae	0.82	5	130	184
Simuliidae	0.81	7	207	367
Heptageniidae	0.73	0	120	216
Sperchontidae	0.57	0	35	60
Empididae	0.56	1	18	37
Tipulidae	0.54	0	19	41

Using the predictive model with the RIVAPCS weighted probability of the sites predicted membership, we would expect 12.5 families at this site, 11 were observed. Of the eight families expected to occur (P>0.5), three (Heptageniidae, Sperchontidae, and Tipulidae), were absent. Of the five families characteristic of the group to which this site was predicted only one was absent (Heptageniidae). Baetidae rather than Chironomidae dominated the site. Total abundance was below the normal range for this group, while richness was slightly lower than expected.

Visual Reports on Site Condition

This figure displays three site assessment graphs which show the site relative to the group of reference sites to which it is compared. The three axes (or vectors) represent three dimensional space, and the probability bands (from center) are 75 - 90% (Similar to Reference), 90 – 99% (Mildly Divergent from Reference), 99 – 99.9% (Divergent from Reference), and outside 99.9% (Highly Divergent from Reference).

A 0-75% probability band was provided in past annual monitoring reports. Programming is currently being developed in order to incorporate this function into the CABIN model, however at this time the 0-75% band cannot be included here.



Assessment of Overall Site Condition

Vector 1 vs Vector 2	Similar to Reference
Vector 1 vs Vector 3	Divergent from Reference Condition
Vector 2 vs Vector 3	Divergent from Reference Condition
Overall	Divergent from Reference Condition

Using CABIN, YPS-429 is assessed as Divergent from Reference.

Field Measurements

The following table shows general information collected at the site as well as water quality parameters when available. All measurements reflect conditions at the time the site visit was conducted.

Variable	
Site	YPS-429
Sample Year	2013
Status	Test
Bankfull Width (m)	19.8
Wetted Width (m)	7
Channel Depth Average (cm)	24.6
Channel Depth Max (cm)	30
Slope (m/m)	0.0075
Max Water Velocity (m/s)	0.6
Average Water Velocity (m/s)	0.58
Substrate Embeddedness	1/2 embedded
Dominant Substrate-1st	6.4 – 12.8 cm (cobble)
Dominant Substrate-2nd	0.2 – 1.6 cm (gravel)
Surrounding Substrate Material	0.1 – 0.2 cm (sand)
Pools	Absent
Rapids	Absent
Riffles	Present
Straight Run	Present
Canopy Coverage (%)	1-25
Periphyton Coverage	
Macrophyte Coverage (%)	None
Riparian Vegetation-Coniferous	Absent
Riparian Vegetation-Deciduous	Present
Riparian Vegetation-Grasses/Ferns	Present
Riparian Vegetation-Shrubs	Present
General Conductivity (µS/cm)	213
Specific Conductance (µS/cm)	273
DO (mg/L)	9.55
pH (pH)	7.5
TDS (mg/L)	
TSS (mg/L)	
Air Temp (Degrees Celsius)	20
Water Temp (Degrees Celsius)	13.56
Turbidity (NTU)	