Site Assessment Report 2014 – YPS-153

Site Data

Site	YPS-153
Sample Date	Jul 22, 2014
Latitude	63.36458 N
Longitude	139.35458 W
Altitude	1282
Feature Name	Henderson Creek
Stream Order	5

Site Photograph

Aerial view

Context Map

Refer to Yukon River North Watershed Aquatic Health Monitoring Sites 2014 map.

Site Sampling History

This site has been sampled on three previous occasions, in 2006, 2009 and 2010.

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	23.3%	16.5%	15.2%	42.4%	2.6%

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	-139.35	-137.45	2.65
Altitude (ft)	1282	2296.81	838.01
Depth-Avg (cm)	36.00	29.80	14.62
Velocity-Avg (m/s)	1.00	0.52	0.32
Precip. FEB (mm)	34.45	29.34	11.79
Precip. MAR (mm)	33.30	27.46	11.91
Precip. JUN (mm)	54.36	53.49	18.49
Precip. JUL (mm)	69.65	65.85	22.37
Rainfall JUN (mm)	51.76	48.44	16.06
April Max Temp (C)	-2.92	-0.98	3.38
Broadleaf Open (%)	0.30	0.38	1.31
Bryoids (%)	0.17	0.54	1.04
Mixedwood Open (%)	1.63	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	94.00	2059.44	1572.86	
Total No. of Taxa	11.00	12.95	4.37	11.7

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	0.98	7	911	827
Baetidae	0.76	47	233	309
Simuliidae	0.74	1	207	367
Nemouridae	0.74	0	130	184
Heptageniidae	0.63	0	120	216
Sperchontidae	0.53	0	35	60
Tipulidae	0.52	5	18	41

Using the predictive model with the RIVAPCS weighted probability of the sites predicted membership, we would expect 11.7 families at this site, but 11 families were observed.

Total abundance is well below average for this group and outside the normal range. Richness (total number of families) is slightly lower than expected.

Of the 7 families expected to occur (P>0.5), 3 (Nemouridae, Heptageniidae, and Sperchontidae) were absent.

Five families are characteristic of the group to which this site was predicted and 2 were absent (Nemouridae and Heptageniidae).

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.
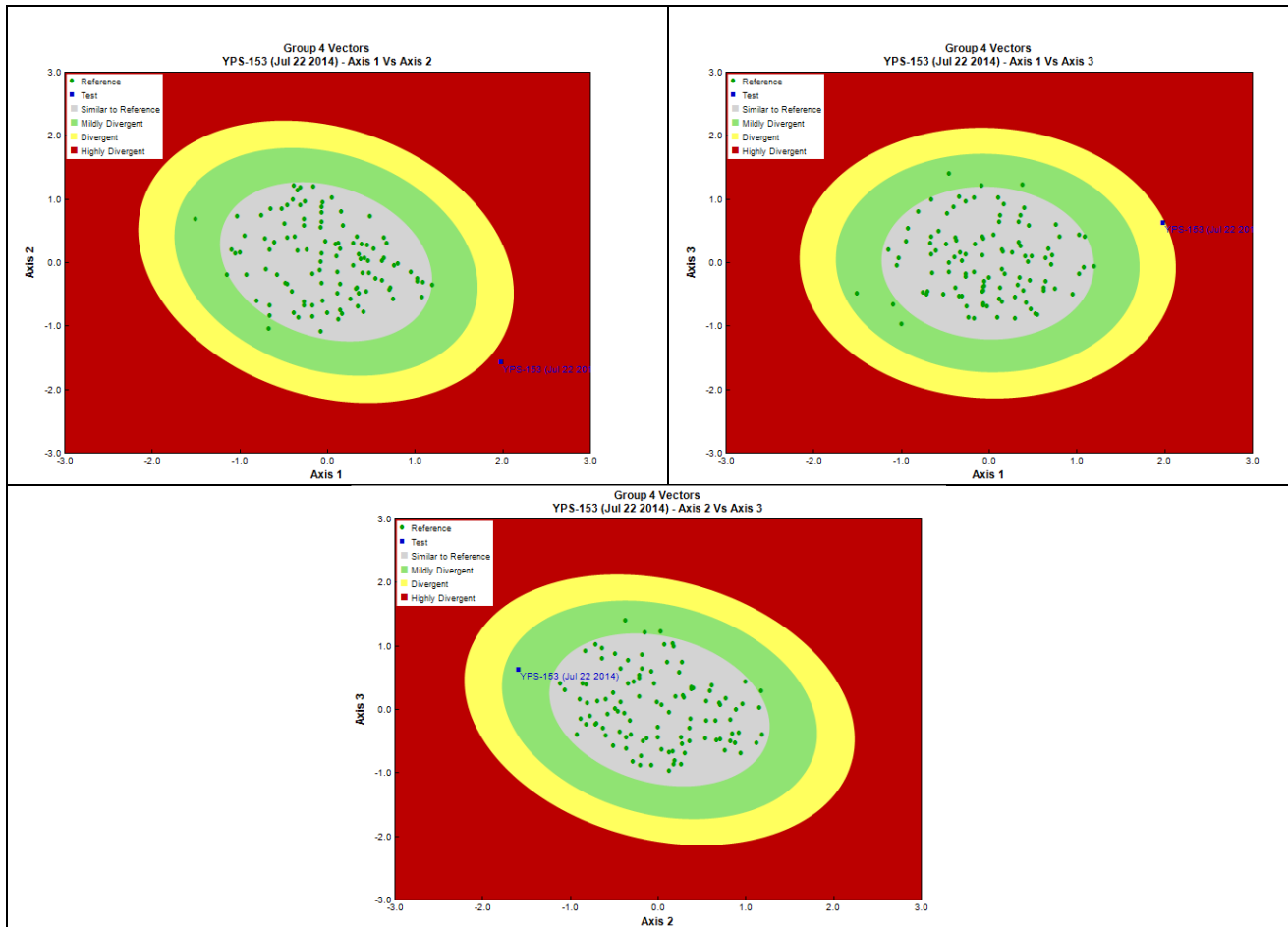
Assessment of Overall Site Condition

Vector 1 vs Vector 2	Highly Divergent from Reference Condition
Vector 1 vs Vector 3	Divergent from Reference Condition
Vector 2 vs Vector 3	Mildly Divergent from Reference Condition
Overall	Highly Divergent from Reference Condition

Using CABIN, YPS-153 is assessed as Highly Divergent from Reference Condition.

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.

Site	YPS-153
Sample Year	2014
Status	Test
Bankfull Width (m)	11.2
Wetted Width (m)	7.6
Channel Depth Average (cm)	36
Channel Depth Max (cm)	40
Slope m/m	0.01
Slope (%)	1
Max Water Velocity (m/s)	1.1
Average Water Velocity (m/s)	1
Dominant Substrate-1st	0.2 – 1.6 cm (gravel)
Dominant Substrate-2nd	1.6 – 3.2 cm (pebble)
Surrounding Substrate Material	<0.1 cm (silt)
Substrate Embeddedness	1/2 Embedded
Pools	Absent
Rapids	Absent
Riffles	Present
Straight Run	Absent
Canopy Coverage (%)	1-25
Periphyton Coverage	
Macrophyte Coverage (%)	None
Riparian Vegetation-Coniferous	Present
Riparian Vegetation-Deciduous	Present
Riparian Vegetation-Grasses/Ferns	Present
Riparian Vegetation-Shrubs	Present
General Conductivity (µS/cm)	124.8
Specific Conductance (µS/cm)	192
DO (mg/L)	10.04
pH (pH)	7.7
TDS (mg/L)	109
TSS (mg/L)	82
Air Temp (Degrees Celsius)	14
Water Temp (Degrees Celsius)	6.6
Turbidity (NTU)	47