

Site Assessment Report – 2013 – YPS-165

Site Data

| | |
|--------------|-----------------|
| Site | YPS-165 |
| Sample Date | August 6 2013 |
| Latitude | N 63.6469 |
| Longitude | W 137.0888 |
| Altitude | 1610 ft |
| Feature Name | Vancouver Creek |
| Stream Order | 4 |

Site Photograph



Downstream view

Context Map

Refer to McQuesten 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 | 8.3% | 30.4% | 20.7% | 40.0% | 0.7% |

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 | -137.089 | -137.45 | 2.65 |
| Altitude (ft) | 1610 | 2296.81 | 838.01 |
| Depth-Avg (cm) | 23.8 | 29.80 | 14.62 |
| Velocity-Avg (m/s) | 0.6 | 0.52 | 0.32 |
| Precip. FEB (mm) | 29.0 | 29.34 | 11.79 |
| Precip. MAR (mm) | 27.9 | 27.46 | 11.91 |
| Precip. JUN (mm) | 59.9 | 53.49 | 18.49 |
| Precip. JUL (mm) | 69.6 | 65.85 | 22.37 |
| Rainfall JUN (mm) | 55.0 | 48.44 | 16.06 |
| April Max Temp (C) | -2.7 | -0.98 | 3.38 |
| Broadleaf Open (%) | 0.05 | 0.38 | 1.31 |
| Bryoids (%) | 0.23 | 0.54 | 1.04 |
| Mixedwood Open (%) | 0.34 | 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 | 680 | 2059.44 | 1572.86 | |
| Total No. of Taxa | 13 | 12.95 | 4.37 | 12.6 |

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.

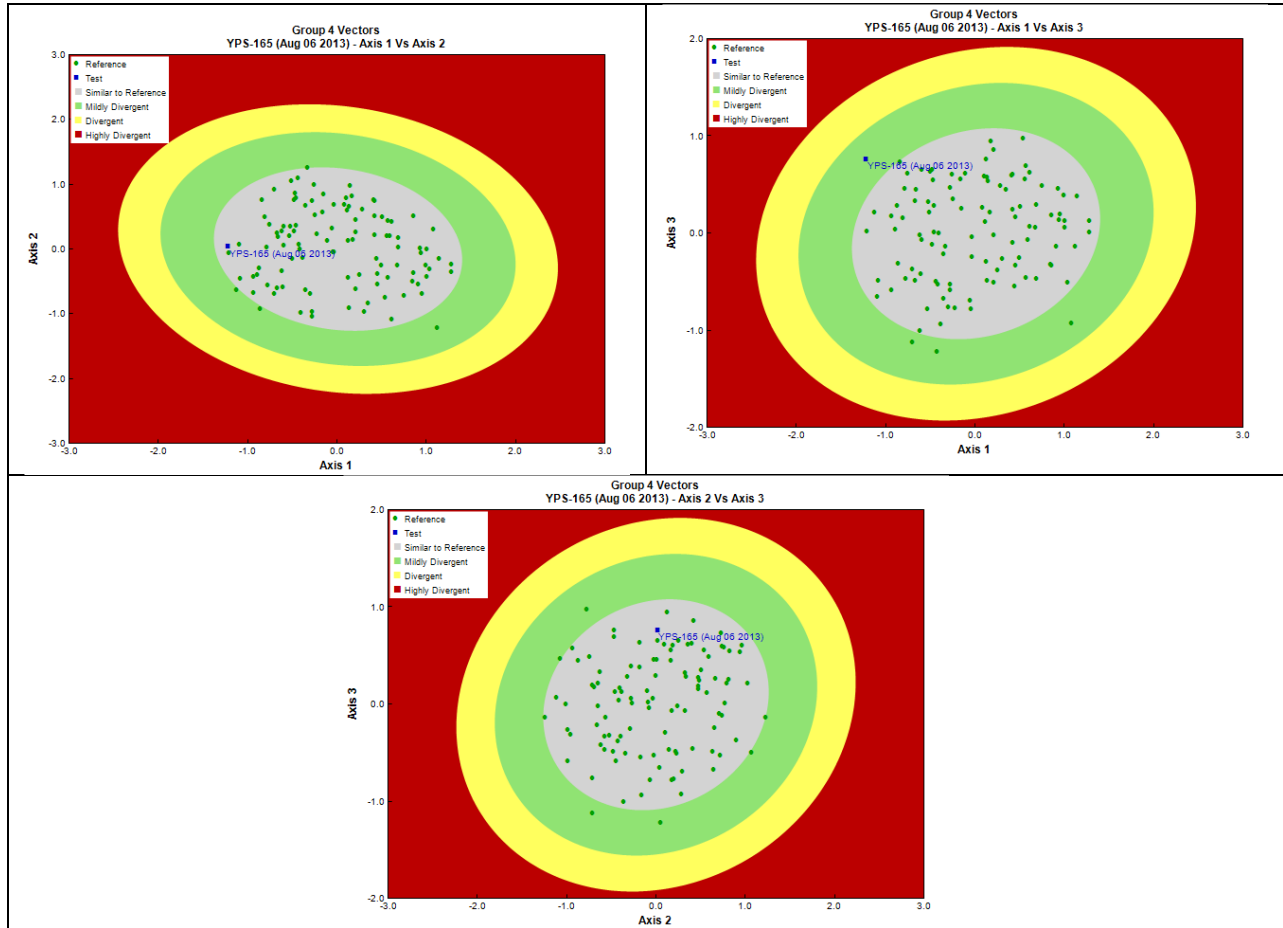
| Family (bold = characteristic of group) | RIVPACS Prediction (probability) | Test Site (# of individuals) | Reference Average | Reference Standard Deviation |
|---|----------------------------------|------------------------------|-------------------|------------------------------|
| Chironomidae | 0.99 | 122 | 911 | 827 |
| Baetidae | 0.83 | 30 | 233 | 309 |
| Nemouridae | 0.80 | 104 | 130 | 184 |
| Simuliidae | 0.80 | 17 | 207 | 367 |
| Heptageniidae | 0.71 | 348 | 120 | 216 |
| Sperchontidae | 0.58 | 0 | 35 | 60 |
| Empididae | 0.56 | 4 | 18 | 37 |
| Tipulidae | 0.54 | 0 | 19 | 41 |
| Chloroperlidae | 0.51 | 13 | 29 | 73 |

Using the predictive model with the RIVAPCS weighted probability of the sites predicted membership, we would expect 12.6 families at this site, and 13 families were observed. Of the nine families expected to occur ($P>0.5$), two (Sperchontidae and Tipulidae) were absent. All five families characteristic of the group to which this site was predicted were present. Total abundance was just below the normal range, while richness was as expected. The relative abundance is different to the reference sites with Heptageniidae rather than Chironomidae as the dominant group.

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 | Mildly Divergent from Reference Condition |
| Vector 2 vs Vector 3 | Similar to Reference |
| Overall | Mildly Divergent from Reference Condition |

Using CABIN, YPS-165 is assessed as Mildly 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.

| Variable | |
|--|-------------------------|
| Site | YPS-165 |
| Sample Year | 2013 |
| Status | Test |
| Bankfull Width (m) | 11.4 |
| Wetted Width (m) | 10 |
| Channel Depth Average (cm) | 23.8 |
| Channel Depth Max (cm) | 30 |
| Slope (m/m) | 0.01 |
| Max Water Velocity (m/s) | 1.05 |
| Average Water Velocity (m/s) | 0.64 |
| Substrate Embeddedness | unembedded |
| Dominant Substrate-1st | 3.2 – 6.4 cm (pebble) |
| Dominant Substrate-2nd | 12.8 – 25.6 cm (cobble) |
| Surrounding Substrate Material | 0.1 – 0.2 cm (sand) |
| Pools | Present |
| Rapids | Absent |
| Riffles | Present |
| Straight Run | Present |
| 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 ($\mu\text{S}/\text{cm}$) | 126 |
| Specific Conductance ($\mu\text{S}/\text{cm}$) | 191 |
| DO (mg/L) | 11.93 |
| pH (pH) | 7.5 |
| TDS (mg/L) | |
| TSS (mg/L) | |
| Air Temp (Degrees Celsius) | 24 |
| Water Temp (Degrees Celsius) | 7.09 |
| Turbidity (NTU) | |