Water Quality Objective Monitoring, Yukon River South, 2010

Hydrologic and Geomorphic Characteristics of the Yukon River South Drainage Basin

The Yukon River is a major watercourse of north western North America. Over half of the river lies in the U.S. state of Alaska, with most of the other portion lying in and giving its name to Canada's Yukon Territory, and a small part of the river starts near the rivers source in British Columbia. The river is 3,700 km long and empties into the Bering Sea at the Yukon-Kuskokwim Delta. The average flow is 6,430 m^3/s. The total drainage area is 832,700 km^2 of which 323,800 km^2 is in Canada. By comparison, the total area is more than 25% larger than the province of Alberta.

The Yukon River is divided into two sections, the North Yukon section, downstream from the Yukon Rivers confluence with the White River and the South Yukon, the section of the Yukon River upstream from its confluence with the White River. The average water quality of the North Yukon River is much more turbid and higher in suspended solids concentrations than that of the South Yukon due to the huge contribution of sediment and glacial material entering the Yukon River from the White River drainage. Total suspended solids concentrations in the North Yukon can be 10-25 times higher than those found in the South Yukon. Many large tributary rivers and streams flow into the catchment area of the Yukon River basin.

In 2010, 50 grab samples were taken by employees of the Department of Energy, Mines and Resources Client Services and Inspections Branch at 25 different locations in the Yukon River South basin.

Site Codes and Global Position of Water Quality Sampling Locations in the Yukon River South Watershed

Site Code	Alias	Site Description	Latitude	Longitude
YS01	YS 01	Yukon River upstream of the White River	63.17276	-139.56602
YS_TH01	YS THI 01	Thistle Creek below all mining	63.07133	-139.46533
YS02	YS 02	Yukon River upstream of Thistle Creek	63.07411	-139.50436
YS_LO01	YS LOS 01	Los Angeles Creek mouth	63.04897	-139.52612
YS03	N/A	Yukon River upstream of Los Angeles Creek	63.04716	-139.51733
YS_CA01	YS CAR 01	Carlisle Creek mouth	63.00539	-139.49359
YS04	YS 03	Yukon River upstream of Carlisle Creek	63.00394	-139.47209
YS_KI01	YS KIR 01	Kirkman Creek mouth	62.99714	-139.46533
YS05	YS 04	Yukon River upstream of Kirkman Creek	62.98285	-139.31924
YS_SP01	YS SPA 01	Sparkling Creek mouth	62.92348	-139.17473
YS06	YS 05	Yukon River upstream of Sparkling Creek	62.922453	-139.173
YS_CO01	YS COF 01	Coffee Creek mouth	62.90965	-139.04201
YS07	YS 06	Yukon River upstream of Coffee Creek	62.91109	-139.03923
YS_BA01	YS BAL 01	Ballarat Creek South below all mining	62.89784	-138.96138
YS08	YS 07	Yukon River upstream of Ballarat Creek	62.88658	-138.85291
YS_PE01	YS PED 01	Pedlar Creek mouth	62.87419	-138.77946
YS09	YS 08	Yukon River upstream of Pedlar Creek	62.87306	-138.77945
YS_BR01	YS BRIT 01	Britannia Creek below all mining	62.87063	-138.68726
YS10	YS 09	Yukon River upstream of Britannia Creek	62.87556	-138.68182
YS_SE01	YS SEL 01	Selwyn River below all mining	62.74988	-138.28221
YS11	YS 11	Yukon River upstream of Selwyn River	62.80207	-138.25978
YS12	YS 13	Yukon River upstream of Pelly River	62.76823	-137.33797
YS_MI01		Minto Creek mouth	62.65689	-137.09521
YS13	N/A	Yukon River upstream Minto Creek	62.65787	-137.08046
YS14	YS 14	Yukon River upstream of Big Creek	62.61576	-136.99323

Water Quality Objective monitoring, Yukon River South Watershed – Summary

On average, the water quality in the basin met the minimum objectives set under the *Fish Habitat Management System* throughout the monitoring season. On those occasions when the WQO were not met and the Total Suspended Solids levels were greater than the objectives, a direct correlation between environmental conditions and the volume of solids in the water was observed.

The Fish Habitat Management System - Yukon River South Watershed (Category A)

Sample Results that Exceed Water Quality Objectives for 2010

Sampling Station	YS01	YS_TH01	YS02	YS_KI01	YS06	YS_BR01	YS10	YS_SE01	Confluence with Pelly River Watershed	YS12	Confluence with Big Creek Watershed	YS14	Other
Location Description	u/s W 01	Mouth	u/s YS_TH01	Mouth	u/s YS SPA 01	Mouth	u/s YS_BR01	Mouth		u/s Pelly R		u/s Big Creek	
Sample Type	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab		Grab		Grab	
Lat Y	63.17276	63.07133	63.00394	62.99714	62.92245	62.87063	62.87556	62.74988		establish		62.61576	
Long X	-139.56602	-139.46533	-139.47209	-139.46533	-139.17300	-138.68726	-138.68182	-138.28221		establish		-136.99323	
Habitat Classification	High	Moderate-H	Area of special consideration	High	High	Area of special consideration	High	Moderate-H		High		High	
Water Quality Objective (mg/L)	25	25	25	25	25	25	25	25		25		25	
Input / Direction of Flow	←	↓	←	↓	←	↓	←	↓	↓	←	↓	←	
Date of Sampling													
22-Jun-10										15.1		4.8	
23-Jun-10	30.0			64.5	13.4			37.3					
24-Aug-10							5.2	1.0		3.6		2	
25-Aug-10	9.2	9.7	7.5	45.6	9.5								
Total Seasonal Average TSS (mg/L) by site	13.7	9.7	15.3	55.1	15.1	0.2	13.3	19.1		9.4		3.4	
Number of days sampled	3	1	2	2	3	1	2	2		2		2	

Legend	
	Not continuously monitored
	Water Samples that are: Above / Below the Water Quality Objective