DNR&E / DFO - NEW BRUNSWICK
STREAM SURVEY and HABITAT ASSESSMENT
Start Point: US end **End Point:** DS end

River: Unnamed trib to Ridge Brook
Date: 04-Sep-19
Personnel: B. Moore / L. Vicaire

Stream/River No.
Stream Order No. 1

Unit No.	Stream Type	Channel Type	Chainage End	Length (m)	Ave Width (m) Wet	Ave Width (m) Bank Channel	Substrate (%) Bedrock	Boulder	Rock	Rubble	Gravel	Sand	Fines	Ave Depth – Wet Width (cm)	Undercut Bank 0-50% L	R	Over-Hanging Bank Vegetation 0-50% L	R	Large Woody Debris In-Stream (m)	Embedded (Criteria) 1: <20% 2: 20-35% 3: 35-50% 4: >50%	In-Stream Vegetation	Comments
1	N/A	1	55.0	55.0	0.3	1.2	0	0	5	0	0	15	80	5	0	0	30	30	0.0	4		Not enough water to determine flow type
2	3	1	201.0	146.0	1.2	1.4	0	0	10	65	20	5	0	5	5	5	20	20	0.0	2		Flow type presumed based on substrate
3	8	1	448.0	247.0	0.4	0.7	0	0	5	0	40	50	5	5	5	5	25	25	0.0	4		Flow type presumed based on substrate
																						Upstream
																						45.99957 / 65.36777
																						Downstream
																						45.99817 / 65.36370

STREAM TYPE						CHANNEL TYPE	SUBSTRATE	FLOW TYPE	POOL RATING (reverse side)	
FASTWATER		POOLS							CRITERIA (NO.)	% OF POOLS IN SITE (LETTER)
1. Fall	6. Sheet (ledge)	10. Midchannel	14. Trench	18. Eddy	22. Wood Debris	1. Main (if measurement refers to main area of river)	1 Bedrock Ledge	1. Survey Stream	Pool Depth >1.5 m	a - > 30%
2. Cascade	7. Chute	11. Convergence	15. Plunge	19. Gabion	23. Man-Made Dam	* 2. Side Channel (water diverted by islands)	2. Boulder = > 461 mm	2. Spring	1 - Instream Cover > 30%	b - 10% to 30%
3. Riffle (GR/RB)	8. Run	12. Lateral	16.	20. Log Structure	24. Natural Deadwater	* 3. Split (if river is split into various different stream types)	3 Rock = 180 - 460 mm	3 Brook/River Tributary	2 - Instream Cover < 30%	c - < 10%
4. Riffle (R/B)	9. Rapid	13. Beaver	17. Bogan	21. Road Crossing		* 4. Bogan	4 Rubble = 54 - 178 mm 5 Gravel = 2.6 - 53 mm 6 Sand = 0.06 - 2.5 mm	4 Spring Seep	Pool Depth .5 to 1.5m	a - > 30%
5. Riffle (Sand)						* Specify Left (L), Right (R) or Middle (M)	7 Fines = 0.0006 - 0.05 mm		3 - Instream Cover > 30% 4 - Instream Cover < 30%	b - < 30%

*For different left and right parameters, values are to be written as L/R.

River: Unnamed trib to Ridge Brook

Valley Slope L/M/H	Bank Height (m)	Flood Plain Width (m)	Shade (%)	Stream Banks Vegetation (%)				Erosion (%) Left Bank (0-50%)			Right Bank (0-50%)			O² (Mg/L)	pH	Water Temperature (°C)	Fish Species	Pool Rating No.	Letter	Pool Tail Embedded (Criteria) 1: <20% 2: 20-35% 3: 35-50% 4: >50%	Mean Substrate Size(cm)	Fines (%)	Turbulence (%)
				Bare	Grasses	Shrubs	Trees	Stable	Bare Stable	Eroding	Stable	Bare Stable	Eroding										
L	0.3	40	75	0	55	10	35	50	0	0	50	0	0				Creek chub						
L	0.2	40	60	0	10	25	65	40	0	10	40	0	10										
L	0.2	60	75	0	10	20	70	40	0	10	40	0	10										

NOTE: * For selected site study, these columns (reverse side) should be done for a habitat assessment

WATER FLOW MEASUREMENT

RIFFLE GRADIENT			UNIT No.	STREAM TYPE	WET WIDTH (m)	DEPTH (cm)			AVERAGE DEPTH SUM / 4		COEFFICIENT (0.9 - smooth) (0.8 - rough)	LENGTH (3m)	FLOAT TIME (sec)				FLOW CMS
LENGTH M	DROP M	GRADIENT %				1/4 way	1/2 way	3/4 way	CENTIMETERS	METERS (m)			1/4 way	1/2 way	3/4 way	AVERAGE	

Formula (CMS) = W___ (m) x D___ (m) x A___ x L___ (m) / T___ (sec)   Where W = width, D = depth, L = length, A is a coefficient for the stream bottom (A= 0.8 for rough bottom, 0.9 for smooth)

CRITERIA

1 Chute: water depth equal to or greater than channel width
2 Riffle: GR/RB - is a riffle flowing over a gravel and/or rubble bottom
  R/B - is a riffle flowing over & through large substrates (e.g. rock and /or boulder), some of which protrudes the surface
3 Side channels - treat as a separate stream type

4 Undercut Bank - % of bank overhang (above water edge for stream type. Specify left (L) or right (R)
5 Over-hanging Bank Vegetation - % of vegetation overhang for stream type. Specify L or R
6 Visual Embeddedness - % of sands or fines surrounding the larger substrate, up to 100%
7 Woody Debris - total width should be >10 cm in diameter

*For different left and right parameters, values are to be written as L/R.

Adobe form developed by Alison Johnson @ AMEC Fredericton

DNR&E / DFO - NEW BRUNSWICK
STREAM SURVEY and HABITAT ASSESSMENT

River: Unnamed trib to Ridge Brook **Start Point:** Cross Road **End Point:** Property edge
Date: 04-Sep-19
Personnel: B. Moore / L. Vicarie

Stream/River No. 1
Stream Order No.

Unit No.	Stream Type	Channel Type	Chainage End	Length (m)	Ave Width (m)		Substrate (%)							Ave Depth – Wet Width (cm)	Undercut Bank 0-50%		Over-Hanging Bank Vegetation 0-50%		Large Woody Debris In-Stream (m)	Embedded (Criteria) 1: <20% 2: 20 - 35% 3: 35 - 50% 4: >50%	In-Stream Vegetation	Comments
					Wet	Bank Channel	Bedrock	Boulder	Rock	Rubble	Gravel	Sand	Fines		L	R	L	R				
1	N/A	1	97.0	97.0		1.8	0	0	0	40	40	20	0		0	0	35	35	0.0	2		
2	N/A		268.0	171.0																		
3	N/A	1	338.0	70.0		2.4	0	5	20	50	25	0	0		0	10	10	10	0.0	1	✓	
																						Upstream
																						45.99670 / 65.36682
																						Downstream
																						45.99627 / 65.36308

*For different left and right parameters, values are to be written as L/R.

River: Unnamed trib to Ridge Brook

Valley Slope L/M/H	Bank Height (m)	Flood Plain Width (m)	Shade (%)	Stream Banks — Vegetation (%) Bare	Grasses	Shrubs	Trees	Erosion (%) — Left Bank (0-50%) Stable	Bare Stable	Eroding	Right Bank (0-50%) Stable	Bare Stable	Eroding	O₃ (Mg/L)	pH	Water Temperature (°C)	Fish Species	Pool Rating No.	Letter	Pool Tail — Embedded (Criteria) 1: <20% 2: 20-35% 3: 35-50% 4: >50%	Mean Substrate Size(cm)	Fines (%)	Turbulence (%)
L	0.2	40	85	0	10	30	60	50	0	0	50	0	0										
L		60	90	0	60	30	10																
L	0.2	10	80	0	10	40	50	50	0	0	50	0	0										

NOTE. * For selected site study, these columns (reverse side) should be done for a habitat assessment

WATER FLOW MEASUREMENT

RIFFLE GRADIENT LENGTH M	DROP M	GRADIENT %	UNIT No.	STREAM TYPE	WET WIDTH (m)	DEPTH (cm) 1/4 way	1/2 way	3/4 way	AVERAGE DEPTH SUM / 4 CENTIMETERS	METERS (m)	COEFFICIENT (0.8 - smooth) (0.9 - rough)	LENGTH (3m)	FLOAT TIME (sec) 1/4 way	1/2 way	3/4 way	AVERAGE	FLOW cm/s

Formula (CMS) = W ___ m : D ___ (m) x A ___ x L ___ (m)
                              T ___ (sec)

Where W = width, D = depth, L = length, A = a coefficient for the stream bottom (A= 0.8 for rough bottom, 0.9 for smooth)

CRITERIA

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Photo 1: Upstream extent of Watercourse 1

Photo 2: Looking upstream from the end of Unit 1; Watercourse 1

Photo 3: Looking downstream from the end of Unit 1; Watercourse 1

Photo 4: Mid-point of Unit 2; Watercourse 1

Photo 5: Looking downstream from the end of Unit 2; Watercourse 1

Photo 6: Electrofishing site in Unit 2; Watercourse 1

Photo 7: Electrofishing site in Unit 3; Watercourse 1

Photo 8: Creek chub from Unit 3 site; Watercourse 1

Photo 9: Looking downstream from Cross Road culvert; Watercourse 2

Photo 10: Mid-point of Unit 2; Watercourse 1

Photo 11: Looking downstream from the start of Unit 3; Watercourse 2

Photo 12: Looking upstream from the downstreamextent of the survey; Watercourse 2