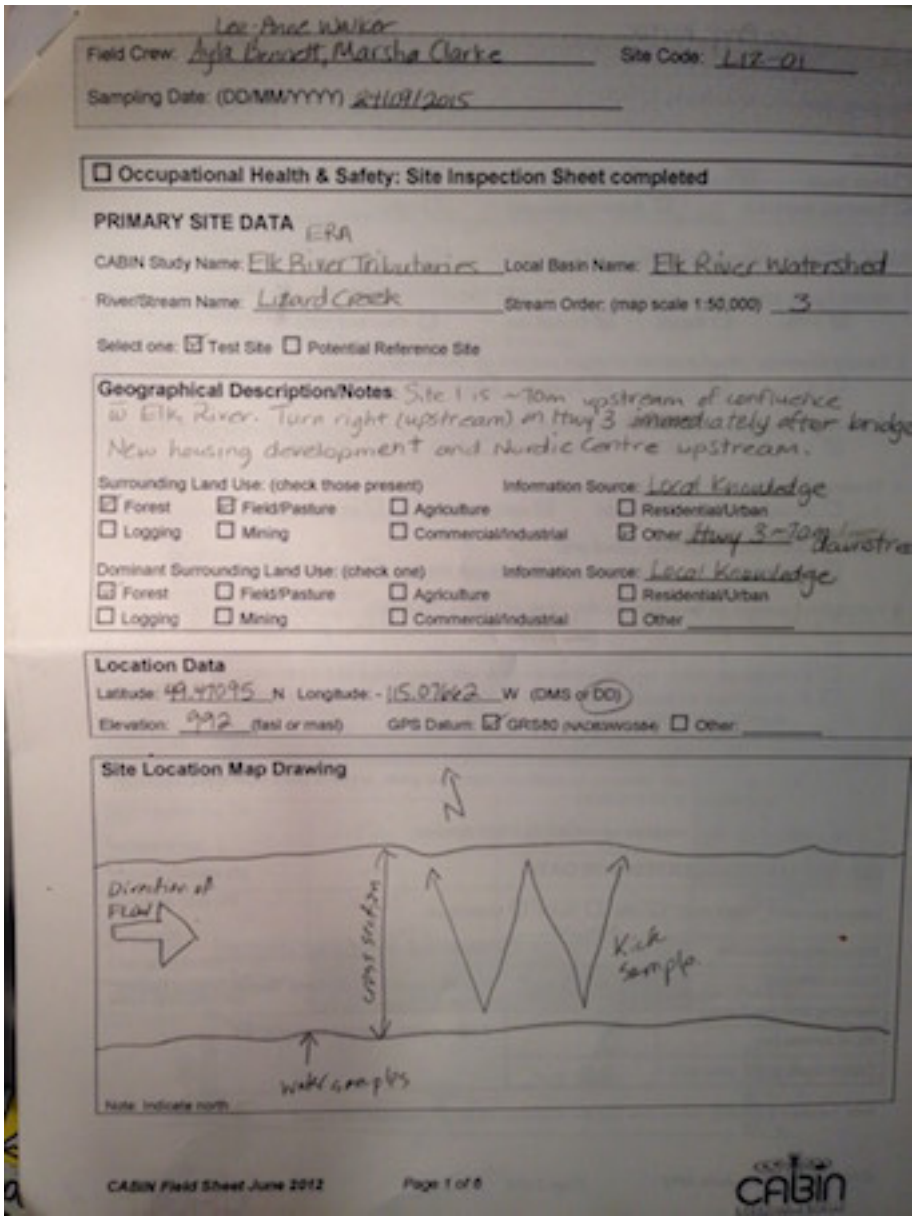
Site Description

Study Name	CBWQ-Elk
Site	Liz-01
Sampling Date	Sep 24 2015
Know Your Watershed Basin	Central Kootenay
Province / Territory	British Columbia
Terrestrial Ecological Classification	Montane Cordillera EcoZone Northern Continental Divide EcoRegion
Coordinates (decimal degrees)	49.47095 N, 115.07662 W
Altitude	3254
Local Basin Name	Lizard Creek
	Elk River
Stream Order	3

Figure 1. Location Map

Across Reach

Down Stream



Lee-Anne Walker
Field Crew: Aqla Bennett, Marsha Clarke Site Code: LIZ-01
Sampling Date: (DD/MM/YYYY) 24/09/2015

☐ Occupational Health & Safety: Site Inspection Sheet completed

PRIMARY SITE DATA ERA

CABIN Study Name: Elk River Tributaries Local Basin Name: Elk River Watershed
River/Stream Name: Lizard Creek Stream Order: (map scale 1:50,000) 3

Select one: ☑ Test Site ☐ Potential Reference Site

Geographical Description/Notes: Site 1 is ~10m upstream of confluence w Elk River. Turn right (upstream) on Hwy 3 immediately after bridge. New housing development and Nordic Centre upstream.

Surrounding Land Use: (check those present) Information Source: Local Knowledge
☑ Forest ☑ Field/Pasture ☐ Agriculture ☐ Residential/Urban
☐ Logging ☐ Mining ☐ Commercial/Industrial ☑ Other Hwy 3 ~70m downstre

Dominant Surrounding Land Use: (check one) Information Source: Local Knowledge
☑ Forest ☐ Field/Pasture ☐ Agriculture ☐ Residential/Urban
☐ Logging ☐ Mining ☐ Commercial/Industrial ☐ Other

Location Data
Latitude: 49.47095 N Longitude: -115.07662 W (DMS or DD)
Elevation: 992 (masl or masl) GPS Datum: ☑ GRS80 (NAD83/WGS84) ☐ Other:

Site Location Map Drawing

Note: Indicate north

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Field Sheet

Up Stream

Cabin Assessment Results

Reference Model Summary	
Model	Columbia-Okanagan Preliminary March 2010
Analysis Date	January 25, 2016
Taxonomic Level	Family
Predictive Model Variables	Depth-Avg Latitude Longitude Reg-Ice Reg-SlopeLT30%

Reference Groups	**1**	**2**	**3**	**4**	**5**
Number of Reference Sites	9	43	17	12	33
Group Error Rate	22.2%	24.5%	22.2%	25.0%	32.4%
Overall Model Error Rate	26.4%				
Probability of Group Membership	0.0%	0.0%	32.3%	60.8%	6.9%
CABIN Assessment of Liz-01 on Sep 24, 2015	N/A				

Sample Information

Sampling Device	Kick Net
Mesh Size	400
Sampling Time	3
Taxonomist	Pina Viola, Consultant
Date Taxonomy Completed	January 18, 2016
	Marchant Box
Sub-Sample Proportion	14/100

Community Structure

Phylum	Class	Order	Family	Raw Count	Total Count
Annelida	Oligochaeta	Tubificida	Naididae	45	321.4
Arthropoda	Arachnida	Trombidiformes	Hygrobatidae	1	7.1
			Sperchontidae	2	14.3
	Insecta	Coleoptera	Elmidae	28	200.0
		Diptera	Chironomidae	81	578.6
			Empididae	9	64.3
			Psychodidae	4	28.6
			Simuliidae	8	57.1
			Tipulidae	14	100.0
		Ephemeroptera	Baetidae	79	564.2
			Ephemerellidae	17	121.4
			Heptageniidae	10	71.4
		Plecoptera	Capniidae	3	21.4
			Chloroperlidae	6	42.8
			Nemouridae	13	92.8
			Perlidae	9	64.3
			Perlodidae	1	7.1
			Taeniopterygidae	1	7.1
		Trichoptera	Glossosomatidae	1	7.1
			Hydropsychidae	24	171.4
			Lepidostomatidae	4	28.6
			Rhyacophilidae	7	50.0
			Total	367	2,621.0

Metrics

Name	Liz-01	Predicted Group Reference Mean ±SD
Bray-Curtis Distance	0.77	0.4 ± 0.1
Biotic Indices		
Intolerant taxa	--	
Long-lived taxa	3.0	2.1 ± 1.0
Tolerant individuals (%)	--	0.8 ± 0.3
Number Of Individuals		
% EPT Individuals	47.7	87.7 ± 7.4
% of dominant taxa	22.1	39.8 ± 14.9
Total Abundance	2621.4	587.4 ± 299.1
Richness		
EPT Individuals (Sum)	1250.0	526.0 ± 285.8
EPT taxa (no)	13.0	13.3 ± 2.7
Total No. of Taxa	22.0	19.3 ± 3.7

Frequency and Probability of Taxa Occurrence

Reference Model Taxa	Frequency of Occurrence in Reference Sites					Probability Of Occurrence at Liz-01
	Group 1	Group 2	Group 3	Group 4	Group 5	
Ameletidae	56%	53%	22%	50%	68%	0.42
Apataniidae	22%	24%	28%	25%	3%	0.24
Athericidae	0%	2%	0%	17%	0%	0.10
Aturidae	0%	8%	0%	0%	0%	0.00
Baetidae	100%	100%	100%	100%	97%	1.00
Blephariceridae	0%	0%	0%	0%	5%	0.00
Brachycentridae	11%	69%	0%	42%	3%	0.26
Capniidae	78%	55%	50%	92%	68%	0.77
Ceratopogonidae	0%	55%	28%	42%	5%	0.35
Chironomidae	100%	100%	100%	100%	95%	1.00
Chloroperlidae	78%	88%	94%	100%	100%	0.98
Corixidae	11%	0%	0%	0%	0%	0.00
Curculionidae	0%	4%	0%	0%	0%	0.00
Deuterophlebiidae	0%	0%	0%	0%	3%	0.00
Dixidae	0%	10%	0%	0%	0%	0.00
Dytiscidae	0%	8%	6%	0%	0%	0.02
Elmidae	0%	86%	50%	50%	5%	0.47

Frequency and Probability of Taxa Occurrence

Reference Model Taxa	Frequency of Occurrence in Reference Sites					Probability Of Occurrence at Liz-01
	Group 1	Group 2	Group 3	Group 4	Group 5	
Empididae	67%	55%	50%	67%	57%	0.61
Enchytraeidae	11%	14%	0%	8%	0%	0.05
Ephemerellidae	78%	100%	100%	100%	100%	1.00
Ephydridae	0%	2%	0%	0%	0%	0.00
Glossosomatidae	11%	49%	39%	42%	35%	0.40
Heptageniidae	100%	100%	100%	100%	100%	1.00
Hydraenidae	0%	4%	0%	0%	0%	0.00
Hydrophilidae	11%	2%	0%	0%	0%	0.00
Hydropsychidae	11%	92%	78%	92%	86%	0.87
Hydroptilidae	11%	8%	0%	0%	0%	0.00
Hydrozetidae	0%	10%	17%	8%	16%	0.12
Hydryphantidae	11%	31%	11%	8%	8%	0.09
Hygrobatidae	0%	29%	0%	0%	11%	0.01
Lebertiidae	78%	65%	39%	58%	5%	0.48
Lepidostomatidae	0%	53%	6%	17%	8%	0.12
Leptohyphidae	0%	2%	0%	0%	0%	0.00
Leptophlebiidae	0%	90%	11%	33%	3%	0.24
Leuctridae	22%	43%	56%	67%	54%	0.62
Limnephilidae	22%	31%	6%	25%	41%	0.20
Limnesiidae	0%	2%	0%	0%	0%	0.00
Lumbriculidae	0%	20%	17%	25%	3%	0.21
Mideopsidae	0%	2%	0%	0%	0%	0.00
Naididae	0%	6%	39%	0%	3%	0.13
Nemouridae	100%	100%	100%	100%	100%	1.00
Pelecorhynchidae	0%	22%	6%	0%	0%	0.02
Peltoperlidae	22%	12%	6%	8%	41%	0.10
Perlidae	11%	84%	33%	100%	3%	0.72
Perlodidae	78%	78%	89%	92%	81%	0.90
Philopotamidae	0%	31%	0%	0%	3%	0.00
Pisidiidae	0%	6%	0%	8%	0%	0.05
Planariidae	0%	8%	67%	17%	3%	0.32
Planorbidae	0%	0%	0%	0%	3%	0.00
Psychodidae	22%	65%	94%	8%	11%	0.36
Pteronarcyidae	0%	12%	6%	0%	3%	0.02
Rhyacophilidae	100%	92%	100%	100%	95%	1.00
Simuliidae	33%	49%	39%	33%	16%	0.34
Sperchontidae	78%	63%	50%	42%	65%	0.46
Stygothrombidiidae	0%	4%	0%	17%	0%	0.10
Taeniopterygidae	89%	49%	100%	92%	97%	0.95
Thaumaleidae	11%	4%	0%	0%	0%	0.00
Tipulidae	56%	55%	28%	67%	43%	0.52
Torrenticolidae	11%	86%	11%	17%	11%	0.14
Tubificidae	0%	2%	0%	0%	0%	0.00
Uenoidae	22%	37%	17%	25%	46%	0.24
Valvatidae	0%	2%	6%	0%	0%	0.02

RIVPACS Ratios

RIVPACS : Expected taxa P>0.50	12.92
RIVPACS : Observed taxa P>0.50	14.00
RIVPACS : O:E (p > 0.5)	1.08
RIVPACS : Expected taxa P>0.70	11.17
RIVPACS : Observed taxa P>0.70	12.00
RIVPACS : O:E (p > 0.7)	1.07

Habitat Description

Variable	Liz-01	Predicted Group Reference Mean ±SD
Channel		
Depth-Avg (cm)	16.3	23.6 ± 11.1
Depth-BankfullMinusWetted (cm)	22.00	51.38 ± 29.42

Habitat Description

Variable	Liz-01	Predicted Group Reference Mean ±SD
Depth-Max (cm)	28.0	34.6 ± 12.3
Macrophyte (PercentRange)	0	0 ± 0
Reach-%CanopyCoverage (PercentRange)	2.00	1.33 ± 0.78
Reach-DomStreamsideVeg (Category (1-4))	3	4 ± 1
Reach-Pools (Binary)	0	1 ± 0
Reach-Rapids (Binary)	0	0 ± 0
Reach-Riffles (Binary)	1	1 ± 0
Reach-StraightRun (Binary)	1	1 ± 1
Slope (m/m)	0.0178000	0.0988017 ± 0.1465915
Veg-Coniferous (Binary)	1	1 ± 0
Veg-Deciduous (Binary)	1	1 ± 0
Veg-GrassesFerns (Binary)	1	1 ± 0
Veg-Shrubs (Binary)	1	1 ± 0
Velocity-Avg (m/s)	0.52	0.48 ± 0.22
Velocity-Max (m/s)	0.94	0.76 ± 0.36
Width-Bankfull (m)	9.5	13.4 ± 9.9
Width-Wetted (m)	6.7	8.5 ± 5.8
XSEC-VelMethod (Category (1-3))	1	1 ± 0
Substrate Data		
%Bedrock (%)	0	0 ± 0
%Boulder (%)	9	9 ± 9
%Cobble (%)	49	51 ± 15
%Gravel (%)	6	3 ± 3
%Pebble (%)	33	37 ± 20
%Sand (%)	0	0 ± 0
%Silt+Clay (%)	2	0 ± 0
D50 (cm)	8.00	14.58 ± 14.69
Dg (cm)	6.5	8.2 ± 2.8
Dominant-1st (Category(0-9))	6	7 ± 1
Dominant-2nd (Category(0-9))	7	7 ± 1
Embeddedness (Category(1-5))	4	5 ± 1
PeriphytonCoverage (Category(1-5))	2	1 ± 0
SurroundingMaterial (Category(0-9))	3	4 ± 1
Water Chemistry		
Ag (mg/L)	0.0000000	0.0000050
Al (mg/L)	0.0085800	0.0049000
As (mg/L)	0.0001940	0.0002700
B (mg/L)	0.0260000	0.0500000
Ba (mg/L)	0.0752000	0.0682000
Be (mg/L)	0.0000000	0.0000100
Bi (mg/L)	0.0000000	0.0000050
Ca (mg/L)	102.0000000	21.1083333 ± 16.8005659
Cd (mg/L)	0.0000160	0.0000050
Cr (mg/L)	0.0001800	0.0001000
Cu (mg/L)	0.0003800	0.0001000
Fe (mg/L)	0.0110000	0.0080000
General-DO (mg/L)	11.0000000	11.4175000 ± 0.7986708
General-Hardness (mg/L)	357.0000000	84.2750000 ± 70.6251066
General-pH (pH)	8.7	7.9 ± 0.4
General-SolidsTSS (mg/L)	0.0000000	0.8849836 ± 1.2378575
General-SpCond (µS/cm)	648.0000000	168.9833333 ± 123.7858182
General-TempAir (Degrees Celsius)	14.5	26.0
General-TempWater (Degrees Celsius)	8.4000000	7.3183333 ± 2.7240839
General-Turbidity (NTU)	1.2000000	0.2020000
K (mg/L)	0.5000000	0.6141667 ± 0.4056971
Li (mg/L)	0.0036800	0.0011000
Mg (mg/L)	24.8000000	7.6666667 ± 7.9748848
Mn (mg/L)	0.0022700	0.0006100
Mo (mg/L)	0.0018300	0.0006900
Na (mg/L)	1.7900000	1.5383333 ± 1.2751459
Ni (mg/L)	0.0001560	0.0003000
Nitrogen-TN (mg/L)	0.0400000	0.0883333 ± 0.0521943

Habitat Description

Variable	Liz-01	Predicted Group Reference Mean ±SD
Pb (mg/L)	0.0000170	0.0000520
Phosphorus-TP (mg/L)	0.0105000	0.0045833 ± 0.0049992
S (mg/L)	77.3000000	5.0000000
Sb (mg/L)	0.0000000	0.0000700
Se (mg/L)	0.0003910	0.0001200
Si (mg/L)	2.4100000	3.1516667 ± 1.2277017
Sn (mg/L)	0.0000000	0.0000100
Sr (mg/L)	1.6500000	0.0443000
Ti (mg/L)	0.0000000	0.0005000
Tl (mg/L)	0.0000020	0.0000020
U (mg/L)	0.0004460	0.0011700
V (mg/L)	0.0000000	0.0002000
Zn (mg/L)	0.0002600	0.0010000
Zr (mg/L)	0.0000000	0.0000000 ± 0.0000000