UIdaho Law
Digital Commons @ UIdaho Law

In re Klamath River (Klamath Tribe) | Hedden-Nicely

8-30-2008

Ex. 277-US-446

Unknown

Follow this and additional works at: https://digitalcommons.law.uidaho.edu/klamath

Recommended Citation
Unknown, "Ex. 277-US-446" (2008). *In re Klamath River (Klamath Tribe)*. 62.
https://digitalcommons.law.uidaho.edu/klamath/62

This Expert Report is brought to you for free and open access by the Hedden-Nicely at Digital Commons @ UIdaho Law. It has been accepted for inclusion in In re Klamath River (Klamath Tribe) by an authorized administrator of Digital Commons @ UIdaho Law. For more information, please contact annablaine@uidaho.edu.

Stream: Larkin Creek
Site: WM10
Date: 5/10/2004
Habitat: Pool **Flow:** High

(1) Level Loop Survey (BM & HP)

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	4.46	104.46		100.00
HP1			7.65	96.81
HP2			8.15	96.31
HP3			7.44	97.02
TP Run			4.01	100.45
Run HP3	3.90	104.35		
HP3			7.32	97.03
HP2			8.04	96.31
HP1			7.54	96.81
BM			4.35	100.00

Comment: Turned on Run HP3

(2) Water Surface Elevation (WSE) Survey

TR	Station L/R bank (ft)	Station Ave (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
1-L	0	0	104.35	10.38	0.00	93.97	93.98	8.3
1-R	0			10.37	0.00	93.98		
2-L	7	7	104.35	10.36	0.00	93.99	94.00	9.6
2-R	6			10.35	0.00	94.00		
3-L	15	15	104.35	10.34	0.00	94.01	94.01	7.7
3-R	14			10.34	0.00	94.01		
							Ave Q=	8.7

Note: Hydraulic control LWSE=10.38, RWSE=10.39
WSE slope = 0.241%

(3) Meter and propeller ID for Velocity Correction

Meter ID: 4099
Propeller ID: 1A

Date: 6/24/2004
Habitat: Pool **Flow:** Low

(1) Level Loop Survey

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	5.58	105.58		100.00
HP1			8.77	96.81
HP2			9.27	96.31
HP3			8.56	97.02
TP Run			5.14	100.44
Run HP3	5.18	105.62		
HP3			8.60	97.02
HP2			9.31	96.31
HP1			8.81	96.81
BM			5.62	100.00

Comment: Turned on Run HP3

(2) Water Surface Elevation (WSE) Survey

TR	Station L/R bank (ft)	Station Ave (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
1-L	0	0	105.62	12.20	0.00	93.42	93.40	2.2
1-R	0			12.24	0.00	93.38		
2-L	7	7	105.62	12.20	0.00	93.42	93.40	2.0
2-R	6			12.25	0.00	93.37		
3-L	15	15	105.62	12.16	0.00	93.46	93.45	1.7
3-R	14			12.18	0.00	93.44		
							Ave Q=	2.2

Note: Center WSE FS TR1&TR2=12.19, TR3=12.17
WSE slope = 0.345%

(3) Meter and propeller ID for Velocity Correction

Meter ID: 3602
Propeller ID: 3A

Date: 8/17/2004
Habitat: Pool **Flow:** Mid

(1) Level Loop Survey

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	5.88	105.88		100.00
HP1			9.06	96.82
HP2			9.57	96.31
HP3			8.85	97.03
TP Run			5.44	100.44
Run HP3	5.24	105.68		
HP3			8.66	97.02
HP2			9.38	96.30
HP1			8.87	96.81
BM			5.68	100.00

Comment: Turned on Run HP3

(2) Water Surface Elevation (WSE) Survey

TR	Station L/R bank (ft)	Station Ave (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
1-L	0	0	105.68	12.15	0.00	93.53	93.53	3.8
1-R	0			12.16	0.00	93.52		
2-L	7	7	105.68	12.14	0.00	93.54	93.54	2.9
2-R	6			12.14	0.00	93.54		
3-L	15	15	105.68	12.14	0.00	93.54	93.55	2.5
3-R	14			12.13	0.00	93.55		
							Ave Q=	2.8

Note: HC L FS=12.16, R FS=12.16, 60' d/s of HC FS=13.23 rod=1.02
WSE slope = 0.138%

(3) Meter and propeller ID for Velocity Correction

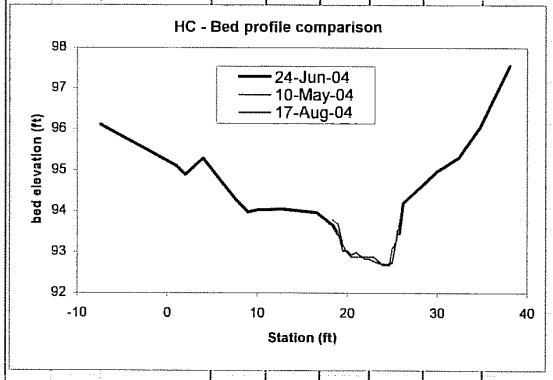
Meter ID: 4099
Propeller ID: 1a

Stream: Larkin Creek
Site: WM-10
Transect: Hyd Cont
Habitat: Pool

Survey Date	HI (ft)	Q (cfs)
5/10/2004	104.35	
6/24/2004	105.62	
8/17/2004	105.68	

10-May-04

	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	Vel (ft/s) $V_{0.2/0.6}$	Vel (ft/s) $V_{0.8}$	Vel (ft/s) Ave	q (cfs)	substrate
RWP									
RWE	18.4		93.78	0.20					
	19.0		93.68	0.30					
	19.5		93.18	0.80					
	20.0		92.98	1.00					
	20.5		92.88	1.10					
	21.0		92.88	1.10					
	21.5		92.88	1.10					
	22.0		92.88	1.10					
	22.5		92.88	1.10					
	23.0		92.88	1.10					
	23.5		92.78	1.20					
	24.0		92.68	1.30					
	24.5		92.68	1.30					
	24.7		92.68	1.30					
	25.0		93.08	0.90					
	25.5		93.28	0.70					
LWE	26.0		93.98	0.00					
LWP									



24-Jun-04

	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	Vel (ft/s) $V_{0.2/0.6}$	Vel (ft/s) $V_{0.8}$	Vel (ft/s) Ave	q (cfs)	substrate
	-7.4	9.52	96.10						
RWP	1.0	10.52	95.10						
	2.0	10.73	94.89						
	4.0	10.34	95.28						
	7.6	11.34	94.28						
	9.0	11.65	93.97						
	10.0	11.60	94.02						
	13.0	11.57	94.05						
	16.6	11.66	93.96						
	18.4	11.97	93.65						
RWE	19.0	12.19	93.43						
LWE	25.8	12.17	93.45						
	26.2	11.44	94.18						
	30.0	10.65	94.97						
	32.4	10.32	95.30						
LWP	34.8	9.57	96.05						
	38.1	8.06	97.56						

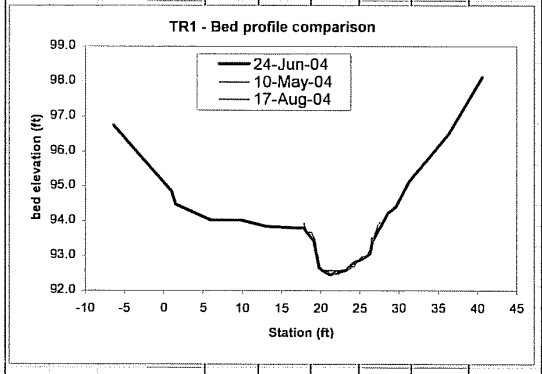
17-Aug-04

	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	Vel (ft/s) $V_{0.2/0.6}$	Vel (ft/s) $V_{0.8}$	Vel (ft/s) Ave	q (cfs)	substrate
RWE	18.9		93.53	0.00					
	19.0		93.48	0.05					
	19.5		93.03	0.50					
	20.0		93.03	0.50					
	20.5		92.93	0.60					
	21.0		93.00	0.53					
	21.5		92.91	0.62					
	22.0		92.83	0.70					
	22.5		92.83	0.70					
	23.0		92.78	0.75					
	23.5		92.73	0.80					
	24.0		92.71	0.82					
	24.5		92.71	0.82					
	25.0		92.73	0.80					
	25.5		93.33	0.20					
LWE	25.6		93.53	0.00					

Stream:	Larkin Creek	
Site:	WM10	
Transect:	1	
Habitat:	Pool	
Survey	HI	Q
Date	(ft)	(cfs)
5/10/2004	104.35	8.3
6/24/2004	105.62	2.2
8/17/2004	105.68	3.8

10-May-04

	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	Vel (ft/s) $V_{0.2/0.6}$	Vel (ft/s) $V_{0.8}$	Vel (ft/s) Ave	q (cfs)	substrate
RWP									
RWE	17.8		93.98	0.00	0.00		0.00	0.00	
	18.3		93.68	0.30	0.00		0.01	0.00	
	18.8		93.68	0.30	0.00		0.01	0.00	
	19.3		93.48	0.50	0.05		0.11	0.03	
	19.8		92.68	1.30	0.71		0.76	0.49	
	20.3		92.58	1.40	1.40		1.46	1.02	
	20.8		92.58	1.40	1.44		1.50	1.05	
	21.3		92.48	1.50	1.52		1.59	1.19	
	21.8		92.48	1.50	1.74		1.81	1.36	
	22.3		92.58	1.40	1.84		1.91	0.94	
	22.5		92.58	1.40	1.83		1.90	0.67	
	22.8		92.58	1.40	0.37		0.44	0.25	
	23.3		92.58	1.40	0.09		0.18	0.13	
	23.8		92.68	1.30	0.05		0.11	0.07	
	24.3		92.68	1.30	0.05		0.11	0.07	
	24.8		92.88	1.10	0.05		0.11	0.06	
	25.3		92.98	1.00	0.48		0.54	0.27	
	25.8		92.98	1.00	0.87		0.92	0.46	
	26.3		93.18	0.80	0.46		0.53	0.21	
	26.8		93.58	0.40	0.10		0.18	0.04	
	27.3		93.88	0.10	0.00		0.01	0.00	
LWE	27.6		93.98	0.00	0.00		0.00	0.00	
LWP									



24-Jun-04

	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	Vel (ft/s) $V_{0.2/0.6}$	Vel (ft/s) $V_{0.8}$	Vel (ft/s) Ave	q (cfs)	substrate
	-6.4	8.88	96.74						1.1
RWP	1.0	10.77	94.85						1.1
	1.5	11.14	94.48						1.1
	6.0	11.59	94.03						1.1
	10.0	11.60	94.02						1.1
	13.0	11.77	93.85						1.1
	17.0	11.82	93.80						1.1
	17.8	11.82	93.80						1.1
RWE	19.2		93.40	0.00	0.00		0.00	0.00	1.1
	19.3		93.25	0.15	0.00		0.01	0.00	1.1
	19.8		92.65	0.75	0.14		0.19	0.07	3.2
	20.3		92.57	0.83	0.64		0.66	0.27	3.4
	20.8		92.50	0.90	0.71		0.73	0.33	3.4
	21.3		92.45	0.95	0.74		0.76	0.36	3.4
	21.8		92.50	0.90	0.80		0.82	0.37	3.4
	22.3		92.50	0.90	0.81		0.83	0.26	3.4
	22.5		92.55	0.85	0.82		0.84	0.18	3.4
	22.8		92.55	0.85	0.42		0.45	0.15	3.4
	23.3		92.58	0.82	0.00		0.01	0.00	2.3
	23.8		92.70	0.70	-0.04		-0.12	-0.04	2.3
	24.3		92.80	0.60	0.00		0.01	0.00	2.3
	24.8		92.85	0.55	0.18		0.23	0.06	3.2
	25.3		92.90	0.50	0.25		0.30	0.07	3.2
	25.8		92.98	0.42	0.36		0.39	0.08	3.2
	26.3		93.05	0.35	0.06		0.17	0.02	3.2
LWE	26.6		93.40	0.00	0.00		0.00	0.00	1.1
	28.6	11.40	94.22						1.1
	29.6	11.22	94.40						1.1
LWP	31.3	10.49	95.13						1.1
	36.3	9.13	96.49						1.1
	40.6	7.51	98.11						1.1

17-Aug-04

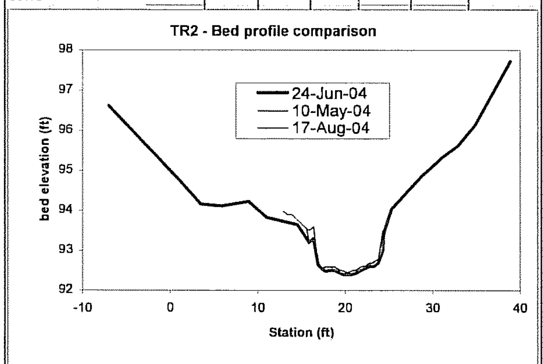
	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	Vel (ft/s) $V_{0.2/0.6}$	Vel (ft/s) $V_{0.8}$	Vel (ft/s) Ave	q (cfs)	substrate
RWE	18.9		93.53	0.00	0.00		0.00	0.00	
*	19.3		93.10	0.43	0.05		0.05	0.01	
	19.8		92.61	0.92	0.76		0.81	0.37	
	20.3		92.58	0.95	1.05		1.10	0.52	
	20.8		92.58	0.95	1.08		1.13	0.54	
	21.3		92.58	0.95	0.88		0.93	0.44	
	21.8		92.58	0.95	0.86		0.91	0.43	
	22.3		92.58	0.95	0.90		0.94	0.31	
	22.5		92.56	0.97	0.92		0.96	0.23	
	22.8		92.60	0.93	0.94		0.98	0.37	
	23.3		92.56	0.97	0.07		0.15	0.07	
*	23.8		92.63	0.90	-0.01		-0.01	0.00	
	24.3		92.80	0.73	0.10		0.18	0.07	
	24.8		92.88	0.65	0.57		0.62	0.20	
	25.3		92.91	0.62	0.51		0.57	0.18	
	25.8		92.98	0.55	0.24		0.33	0.09	
*	26.3		93.08	0.45	0.01		0.01	0.00	
LWE	26.5		93.53	0.00	0.00		0.00	0.00	

*- Estimated Velocity
Average velocity cell updated

Stream:	Larkin Creek	
Site:	WM10	
Transect:	2	
Habitat:	Pool	
Survey Date	HI (ft)	Q (cfs)
5/10/2004	104.35	9.6
6/24/2004	105.62	2.0
8/17/2004	105.68	2.9

10-May-04

	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	Vel (ft/s) $V_{0.2/0.6}$	Vel (ft/s) $V_{0.8}$	Vel (ft/s) Ave	q (cfs)	substrate
RWP									
RWE	12.9		94.00	0.00	0.00		0.00	0.00	
	13.4		93.90	0.10	0.00		0.01	0.00	
	13.9		93.90	0.10	0.00		0.01	0.00	
	14.4		93.80	0.20	0.00		0.01	0.00	
	14.9		93.70	0.30	0.00		0.01	0.00	
	15.4		93.60	0.40	0.00		0.01	0.00	
	15.9		93.50	0.50	0.00		0.01	0.00	
	16.4		93.60	0.40	0.00		0.01	0.00	
	16.9		92.70	1.30	0.00		0.01	0.00	
	17.3		92.50	1.50	0.53		0.58	0.39	
	17.8		92.60	1.40	0.75		0.80	0.56	
	18.3		92.60	1.40	1.14		1.19	0.83	
	18.8		92.50	1.50	1.35		1.41	1.06	
	19.3		92.50	1.50	1.49		1.55	1.17	
	19.8		92.40	1.60	1.59		1.66	1.33	
	20.3		92.40	1.60	1.45		1.51	1.21	
	20.8		92.40	1.60	1.63		1.70	1.36	
	21.3		92.50	1.50	1.09		1.14	0.86	
	21.8		92.50	1.50	0.73		0.78	0.58	
	22.3		92.60	1.40	0.21		0.30	0.21	
	22.8		92.70	1.30	0.02		0.04	0.03	
	23.3		92.70	1.30	0.02		0.04	0.03	
	23.8		92.80	1.20	0.02		0.04	0.03	
	24.3		93.10	0.90	-0.10		-0.18	-0.08	
	24.8		93.70	0.30	0.00		0.01	0.00	
RWE	25.2		94.00	0.00	0.00		0.00	0.00	
RWP									



24-Jun-04

	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	Vel (ft/s) $V_{0.2/0.6}$	Vel (ft/s) $V_{0.8}$	Vel (ft/s) Ave	q (cfs)	substrate
	-7.0	9.00	96.62						3.1
RWP	1.0	10.85	94.77						3.1
	3.5	11.46	94.16						1.3
	6.0	11.51	94.11						1.1
	9.0	11.40	94.22						1.1
	11.0	11.79	93.83						1.1
	14.5	11.97	93.65						1.1
RWE	15.4	12.25	93.37	0.00	0.00		0.00	0.00	1.1
	15.9		93.20	0.20	0.00		0.01	0.00	1.1
	16.4		93.30	0.10	0.00		0.01	0.00	1.1
	16.9		92.65	0.75	0.02		0.06	0.02	2.1
	17.3		92.55	0.85	0.17		0.22	0.09	2.1
	17.8		92.48	0.92	0.29		0.33	0.15	2.1
	18.3		92.50	0.90	0.44		0.46	0.21	3.4
	18.8		92.50	0.90	0.50		0.52	0.23	3.4
	19.3		92.45	0.95	0.59		0.61	0.29	4.3
	19.8		92.40	1.00	0.68		0.70	0.35	4.3
	20.3		92.40	1.00	0.71		0.73	0.37	4.3
	20.8		92.40	1.00	0.58		0.60	0.30	4.3
	21.3		92.43	0.97	0.22		0.27	0.13	4.3
	21.8		92.50	0.90	-0.02		-0.06	-0.03	4.3
	22.3		92.55	0.85	-0.02		-0.06	-0.02	3.4
	22.8		92.60	0.80	-0.03		-0.09	-0.03	2.3
	23.3		92.60	0.80	-0.02		-0.06	-0.02	2.3
	23.8		92.70	0.70	-0.01		-0.03	-0.01	2.3
	24.3		93.00	0.40	0.01		0.01	0.00	2.1
LWE	24.4	12.20	93.42	0.00	0.00		0.00	0.00	1.1
	25.3	11.59	94.03						1.1
	28.8	10.75	94.87						1.1
	31.2	10.28	95.34						1.1
LWP	32.9	10.01	95.61						1.3
	34.9	9.48	96.14						1.3
	38.9	7.90	97.72						3.1

17-Aug-04

	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	Vel (ft/s) $V_{0.2/0.6}$	Vel (ft/s) $V_{0.8}$	Vel (ft/s) Ave	Angle (deg)	q (cfs)	substrate
RWE	15.6		93.54	0.00	0.00		0.00		0.00	
*	15.9		93.24	0.30	0.01		0.01		0.00	
*	16.4		93.26	0.28	0.01		0.01		0.00	
	16.9		92.59	0.95	0.13		0.22		0.09	
	17.3		92.54	1.00	0.28		0.37		0.16	
	17.8		92.59	0.95	0.55		0.60		0.28	
	18.3		92.59	0.95	0.58		0.63		0.30	
	18.8		92.59	0.95	0.68		0.73		0.35	
	19.3		92.52	1.02	0.72		0.77		0.39	
	19.8		92.49	1.05	0.80		0.85		0.45	
	20.3		92.44	1.10	0.79		0.84		0.46	
	20.8		92.49	1.05	0.27		0.36		0.19	
	21.3		92.51	1.03	0.17		0.26	20	0.13	
*	21.8		92.59	0.95	0.08		0.08	60	0.02	
*	22.3		92.61	0.93	0.08		0.08	45	0.03	
*	22.8		92.64	0.90	0.05		0.05	20	0.02	
*	23.3		92.72	0.82	0.03		0.03		0.01	
*	23.8		92.79	0.75	0.03		0.03		0.01	
	24.3		93.49	0.05	0.01		0.02		0.00	
LWE	24.6		93.54	0.00	0.00		0.00		0.00	

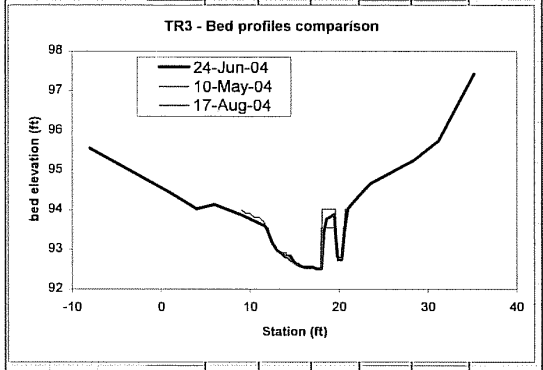
*- Estimated Velocity
Average velocity cell updated

Ex. 277-US-446
Page 4 of 22

Stream:	Larkin Creek	
Site:	WM10	
Transect:	3	
Habitat:	Pool	
Survey	HI	Q
Date	(ft)	(cfs)
5/10/2004	104.35	7.7
6/24/2004	105.62	1.7
8/17/2004	105.68	2.5

10-May-04

	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	Vel (ft/s) $V_{0.2/0.6}$	Vel (ft/s) $V_{0.8}$	Vel (ft/s) Ave	q (cfs)	substrate
RWP									
RWE	9.0		94.01	0.00	0.00		0.00	0.00	
	9.5		93.91	0.10	0.00		0.01	0.00	
	10.0		93.91	0.10	0.00		0.01	0.00	
	10.5		93.81	0.20	0.00		0.01	0.00	
	11.0		93.81	0.20	0.00		0.01	0.00	
	11.5		93.71	0.30	0.00		0.01	0.00	
	12.0		93.51	0.50	0.00		0.01	0.00	
	12.5		93.11	0.90	0.00		0.01	0.00	
	13.0		93.01	1.00	0.00		0.01	0.00	
	13.5		92.91	1.10	0.23		0.32	0.18	
	14.0		92.91	1.10	0.57		0.62	0.34	
	14.5		92.71	1.30	1.01		1.06	0.69	
	15.0		92.61	1.40	1.23		1.29	0.90	
	15.5		92.61	1.40	1.55		1.62	1.13	
	16.0		92.51	1.50	1.66		1.73	1.30	
	16.5		92.51	1.50	1.27		1.33	1.00	
	17.0		92.51	1.50	1.32		1.38	1.03	
	17.5		92.51	1.50	1.04		1.09	0.82	
	18.0		92.51	1.50	0.64		0.69	0.31	
LWE	18.1		94.01	0.00	0.00		0.00	0.00	
RWE	19.6		94.01	0.00	0.00		0.00	0.00	
	19.8		92.71	1.30	0.00		0.01	0.00	
	20.3		92.71	1.30	0.00		0.01	0.00	
LWE	20.7		94.01	0.00	0.00		0.00	0.00	
LWP									



24-Jun-04

	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	Vel (ft/s) $V_{0.2/0.6}$	Vel (ft/s) $V_{0.8}$	Vel (ft/s) Ave	q (cfs)	substrate
	-8.0	8.80	95.55						3.1
RWP	1.0	11.19	94.43						3.1
	4.0	11.60	94.02						1.3
	6.0	11.49	94.13						1.1
	9.0	11.75	93.87						1.1
	11.7	12.03	93.59						1.1
RWE	12.0		93.45	0.00	0.00		0.00	0.00	1.1
	12.5		93.15	0.30	0.00		0.01	0.00	2.1
	13.0		92.98	0.47	0.02		0.06	0.01	2.1
	13.5		92.90	0.55	0.02		0.06	0.02	2.1
	14.0		92.80	0.65	0.05		0.15	0.05	2.1
	14.5		92.83	0.62	0.18		0.23	0.07	1.2
	15.0		92.65	0.80	0.26		0.30	0.12	1.2
	15.5		92.58	0.87	0.32		0.35	0.15	4.3
	16.0		92.55	0.90	0.44		0.46	0.21	4.3
	16.5		92.55	0.90	0.51		0.53	0.24	4.5
	17.0		92.55	0.90	0.56		0.58	0.26	4.5
	17.5		92.50	0.95	0.59		0.61	0.29	4.5
	18.0		92.50	0.95	0.68		0.70	0.27	3.1
LWE	18.3		93.45	0.00	0.00		0.00	0.00	1.3
	18.6	11.86	93.76						
	19.5	11.74	93.88						
RWE	19.6	12.17	93.45	0.00	0.00		0.00	0.00	1.3
	19.8		92.80	0.65	0.03		0.09	0.02	2.1
	20.3		92.75	0.70	0.00		0.01	0.00	2.1
LWE	20.6	12.16	93.46	0.00	0.00		0.00	0.00	1.3
	21.0	11.60	94.02						1.3
	21.6	11.44	94.18						1.3
	23.5	10.97	94.65						1.1
LWP	28.4	10.38	95.24						3.1
	31.2	9.89	95.73						3.1
	35.2	8.20	97.42						3.1

17-Aug-04

	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	Vel (ft/s) $V_{0.2/0.6}$	Vel (ft/s) $V_{0.8}$	Vel (ft/s) Ave	q (cfs)	substrate
RWE	12.0		93.55	0.00	0.00		0.00	0.00	
	12.5		93.15	0.40	0.01		0.02	0.00	
*	13.0		92.95	0.60	0.05		0.05	0.02	
*	13.5		92.90	0.65	0.10		0.10	0.03	
	14.0		92.82	0.73	0.25		0.34	0.12	
	14.5		92.70	0.85	0.47		0.54	0.23	
	15.0		92.70	0.85	0.55		0.60	0.25	
	15.5		92.63	0.92	0.59		0.64	0.29	
	16.0		92.57	0.98	0.66		0.71	0.35	
	16.5		92.55	1.00	0.69		0.74	0.37	
	17.0		92.53	1.02	0.69		0.74	0.38	
	17.5		92.50	1.05	0.55		0.60	0.28	
	17.9		92.53	1.02	0.46		0.53	0.13	
	18.0		93.55	0.00	0.00		0.00	0.00	
	19.7		93.55	0.00	0.00		0.00	0.00	
*	19.8		92.75	0.80	0.01		0.01	0.00	
*	20.3		92.80	0.75	0.01		0.01	0.00	
LWE	20.5		93.55	0.00	0.00		0.00	0.00	

*- Estimated Velocity
Average velocity cell updated

```
     Larkin Creek   WM10   05/10/04
Pool                          HGH                                        TRANSECT 1
IOC       11000001000010001010000
QARD   1.0
QARD   1.5
QARD   2.1
QARD   2.8
QARD   3.0
QARD   3.5
QARD   4.0
QARD   4.5
QARD   5.0
QARD   5.5
QARD   6.0
QARD   6.5
QARD   7.0
QARD   7.5
QARD   8.0
QARD   8.6
QARD   9.0
QARD   9.5
QARD  10.0
QARD  10.5
QARD  11.0
QARD  11.5
QARD  12.0
QARD  12.5
QARD  13.0
QARD  14.0
QARD  16.0
QARD  18.0
QARD  20.0
QARD  22.0
XSEC   0.0       0.0 1.0     92.68   0.00241
       0.0 -6.4 96.7  1.0 94.8  1.5 94.5  6.0 94.0 10.0 94.0 13.0 93.8
       0.0 17.0 93.8 17.8 94.0 18.3 93.7 18.8 93.7 19.3 93.5 19.8 92.7
       0.0 20.3 92.6 20.8 92.6 21.3 92.5 21.8 92.5 22.3 92.6 22.5 92.6
       0.0 22.8 92.6 23.3 92.6 23.8 92.7 24.3 92.7 24.8 92.9 25.3 93.0
       0.0 25.8 93.0 26.3 93.2 26.8 93.6 27.3 93.9 27.6 94.0 28.6 94.2
       0.0 29.6 94.4 31.3 95.1 36.3 96.5 40.6 98.1
NS     0.0       1.1       1.1       1.1       1.1       1.1       1.1
NS     0.0       1.1       1.1  .45  1.1 0.45  1.1       1.1       3.2
NS     0.0       3.4       3.4       3.4       3.4 .053  3.4 .053  3.4
NS     0.0       3.4 .35   2.3  .35  2.3 .35   2.3  .35  3.2       3.2
NS     0.0       3.2       3.2       1.1 0.25  1.1       1.1       1.1
NS     0.0       1.1       1.1       1.1       1.1
WSL    0.0     93.20     93.31     93.41     93.51     93.54     93.60
WSL    0.0     93.65     93.70     93.75     93.80     93.84     93.87
WSL    0.0     93.91     93.94     93.97     94.00     94.02     94.04
WSL    0.0     94.07     94.09     94.11     94.13     94.14     94.16
WSL    0.0     94.18     94.21     94.27     94.33     94.38     94.42
CAL1   0.0     93.98       8.6
VEL1   0.0                                    0.00 0.01 0.01 0.11 0.76
VEL1   0.0 1.46 1.50 1.59 1.81 1.91 1.90 0.44 0.18 0.11 0.11 0.11 0.54
VEL1   0.0 0.92 0.53 0.18 0.01 0.00
CAL2   0.0     93.40       2.1
VEL2   0.0
VEL2   0.0
VEL2   0.0
CAL3   0.0     93.53       2.8
VEL3   0.0
VEL3   0.0
VEL3   0.0
ENDJ
```

```
     Larkin Creek   WM10   05/10/04
Pool                          HGH                                    TRANSECT 2
IOC        110000010000100010100 0
QARD   1.0
QARD   1.5
QARD   2.1
QARD   2.8
QARD   3.0
QARD   3.5
QARD   4.0
QARD   4.5
QARD   5.0
QARD   5.5
QARD   6.0
QARD   6.5
QARD   7.0
QARD   7.5
QARD   8.0
QARD   8.6
QARD   9.0
QARD   9.5
QARD  10.0
QARD  10.5
QARD  11.0
QARD  11.5
QARD  12.0
QARD  12.5
QARD  13.0
QARD  14.0
QARD  16.0
QARD  18.0
QARD  20.0
QARD  22.0
XSEC   0.0        0.0 1.0      92.48    0.00241
       0.0 -7.0 96.6  1.0 94.8  3.5 94.2  6.0 94.1  9.0 94.2 11.0 93.8
       0.0 12.9 94.0 13.4 93.9 13.9 93.9 14.4 93.8 14.9 93.7 15.4 93.6
       0.0 15.9 93.5 16.4 93.6 16.9 92.7 17.3 92.5 17.8 92.6 18.3 92.6
       0.0 18.8 92.5 19.3 92.5 19.8 92.4 20.3 92.4 20.8 92.4 21.3 92.5
       0.0 21.8 92.5 22.3 92.6 22.8 92.7 23.3 92.7 23.8 92.8 24.3 93.1
       0.0 24.8 93.7 25.2 94.0 25.3 94.0 28.8 94.9 31.2 95.3 32.9 95.6
       0.0 34.9 96.1 38.9 97.7
NS     0.0        3.1       3.1       1.3       1.1       1.1       1.1
NS     0.0        1.1 0.5   1.1 0.5   1.1 0.5   1.1 0.5   1.1 0.5   1.1
NS     0.0 0.5    1.1 0.3   1.1       2.1       2.1       2.1       3.4
NS     0.0        3.4       4.3       4.3       4.3       4.3       4.3
NS     0.0 0.1    4.3 0.2   3.4 0.3   2.3 0.5   2.3 0.5   2.3 0.5   2.1
NS     0.0 0.5    1.1       1.1       1.1       1.1       1.1       1.3
NS     0.0        1.3       3.1
WSL    0.0      93.21     93.32     93.42     93.52     93.55     93.61
WSL    0.0      93.67     93.72     93.77     93.81     93.85     93.89
WSL    0.0      93.92     93.95     93.98     94.02     94.04     94.06
WSL    0.0      94.08     94.10     94.12     94.14     94.16     94.18
WSL    0.0      94.20     94.23     94.29     94.34     94.39     94.44
CAL1   0.0      94.00       8.6
VEL1   0.0                               0.00 0.01 0.01 0.01 0.01 0.01
VEL1   0.0 0.01 0.01 0.01 0.58 0.80 1.19 1.41 1.55 1.66 1.51 1.70 1.14
VEL1   0.0 0.78 0.30 0.04 0.04 0.04-0.18 0.01 0.00
VEL1   0.0
CAL2   0.0      93.40       2.1
VEL2   0.0
VEL2   0.0
VEL2   0.0
VEL2   0.0
CAL3   0.0      93.54       2.8
VEL3   0.0
VEL3   0.0
VEL3   0.0
VEL3   0.0
ENDJ
```

```
     Larkin Creek   WM10   05/10/04
Pool                        HGH                                      TRANSECT 3
IOC       1100000100001000101000
QARD   1.0
QARD   1.5
QARD   2.1
QARD   2.8
QARD   3.0
QARD   3.5
QARD   4.0
QARD   4.5
QARD   5.0
QARD   5.5
QARD   6.0
QARD   6.5
QARD   7.0
QARD   7.5
QARD   8.0
QARD   8.6
QARD   9.0
QARD   9.5
QARD  10.0
QARD  10.5
QARD  11.0
QARD  11.5
QARD  12.0
QARD  12.5
QARD  13.0
QARD  14.0
QARD  16.0
QARD  18.0
QARD  20.0
QARD  22.0
XSEC   0.0        0.0 1.0      92.51   0.00241
       0.0 -8.0 95.6  1.0 94.4  4.0 94.0  6.0 94.1  9.0 94.0  9.5 93.9
       0.0 10.0 93.9 10.5 93.8 11.0 93.8 11.5 93.7 12.0 93.5 12.5 93.1
       0.0 13.0 93.0 13.5 92.9 14.0 92.9 14.5 92.7 15.0 92.6 15.5 92.6
       0.0 16.0 92.5 16.5 92.5 17.0 92.5 17.5 92.5 18.0 92.5 18.1 94.0
       0.0 18.6 93.8 19.5 93.9 19.6 94.0 19.8 92.7 20.3 92.7 20.7 94.0
       0.0 21.0 94.0 21.6 94.2 23.5 94.7 28.4 95.2 31.2 95.7 35.2 97.4
NS     0.0        3.1       3.1       1.3       1.1       1.1 0.50  1.1
NS     0.0 0.5    1.1 0.5   1.1 0.50  1.1 0.45  1.1 0.4   1.1 0.40  2.1
NS     0.0 0.4    2.1       2.1       2.1       1.2       1.2 .065  4.3
NS     0.0 .065   4.3       4.5       4.5.08    4.5 0.08  3.1  .10  1.3
NS     0.0 .2     1.3 0.3   1.3 0.4   1.3 0.5   2.1       2.1       1.3
NS     0.0        1.3       1.3       1.1       3.1       3.1       3.1
WSL    0.0      93.22     93.33     93.44     93.53     93.56     93.62
WSL    0.0      93.68     93.73     93.78     93.82     93.86     93.90
WSL    0.0      93.93     93.97     94.00     94.03     94.05     94.07
WSL    0.0      94.10     94.12     94.14     94.16     94.17     94.19
WSL    0.0      94.21     94.24     94.30     94.36     94.41     94.45
CAL1   0.0      94.01       8.6
VEL1   0.0                     0.00 0.01 0.01 0.01 0.01 0.01 0.01 0.01
VEL1   0.0 0.01 0.32 0.62 1.06 1.29 1.62 1.73 1.33 1.38 1.09 0.69 0.00
VEL1   0.0           0.00 0.01 0.01 0.00
CAL2   0.0      93.45       2.1
VEL2   0.0
VEL2   0.0
VEL2   0.0
CAL3   0.0      93.55       2.8
VEL3   0.0
VEL3   0.0
VEL3   0.0
ENDJ
```

Stream: Larkin Creek
Site: 634
Date: 5/10/2004
Habitat: Run **Flow:** High

(1) Level Loop Survey (BM & HP)

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	4.46	104.46		100.00
HP1			7.35	97.11
HP2			6.15	98.31
HP3			4.01	100.45
TP				
HP3	3.90	104.35		
HP2			6.04	98.31
HP1			7.24	97.11
BM			4.35	100.00

Comment:

(2) Water Surface Elevation (WSE) Survey

TR	Station L/R bank (ft)	Station Ave (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
1-L	0	0	104.35	10.02	0.00	94.33	94.33	11.0
1-R	0		104.35	10.03	0.00	94.32		
2-L	7.5	8	104.35	9.84	0.00	94.51	94.55	9.3
2-R	8		104.35	9.76	0.00	94.59		
3-L	25	27	104.35	9.55	0.00	94.80	94.80	8.6
3-R	28		104.35	9.56	0.00	94.79		
							Ave Q=	8.7

Note: WSE taken on surface
WSE slope = 1.774%

(3) Meter and propeller ID for Velocity Correction

Meter ID: 4099
Propeller ID: 1A

Date: 6/24/2004
Habitat: Run **Flow:** Low

(1) Level Loop Survey

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	5.58	105.58		100.00
HP1			8.47	97.11
HP2			7.27	98.31
HP3			5.14	100.44
TP				
HP3	5.18	105.62		
HP2			7.31	98.31
HP1			8.51	97.11
BM			5.62	100.00

Comment:

(2) Water Surface Elevation (WSE) Survey

TR	Station L/R bank (ft)	Station Ave (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
1-L	0	0	105.62	11.62	0.00	94.00	94.00	2.9
1-R	0			11.66	0.00			
2-L	7.5	8	105.62	11.45	0.00	94.17	94.17	2.1
2-R	8			11.43	0.00			
3-L	25	27	105.62	11.36	0.00	94.26	94.26	2.1
3-R	28			11.40	0.00			
							Ave Q=	2.2

Note: CWSE TR1=11.65, TR2=11.44, TR3=11.36
WSE slope = 0.981%

(3) Meter and propeller ID for Velocity Correction

Meter ID: 3602
Propeller ID: 3A

Date: 8/17/2004
Habitat: Run **Flow:** Mid

(1) Level Loop Survey

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	5.88	105.88		100.00
HP1			8.78	97.10
HP2			7.57	98.31
HP3			5.44	100.44
TP				
HP3	5.24	105.68		
HP2			7.38	98.30
HP1			8.58	97.10
BM			5.68	100.00

Comment:

(2) Water Surface Elevation (WSE) Survey

TR	Station L/R bank (ft)	Station Ave (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
1-L	0	0	105.68	11.62	0.00	94.06	94.04	2.3
1-R	0			11.66	0.00	94.02		
2-L	7.5	8	105.68	11.45	0.00	94.23	94.23	2.7
2-R	8			11.46	0.00	94.22		
3-L	25	27	105.68	11.37	0.00	94.31	94.31	2.7
3-R	28			11.38	0.00	94.30		
							Ave Q=	2.8

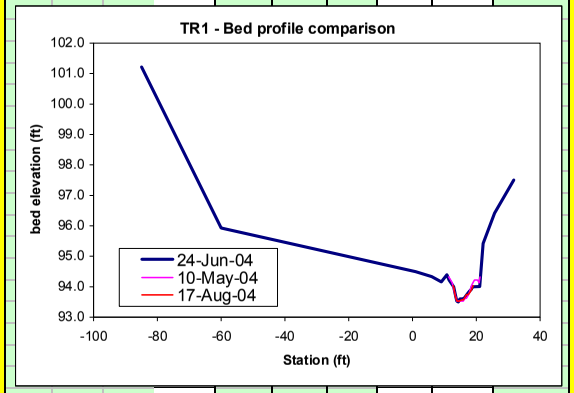
Note:
WSE slope = 1.000%

(3) Meter and propeller ID for Velocity Correction

Meter ID: 4099
Propeller ID: 1a

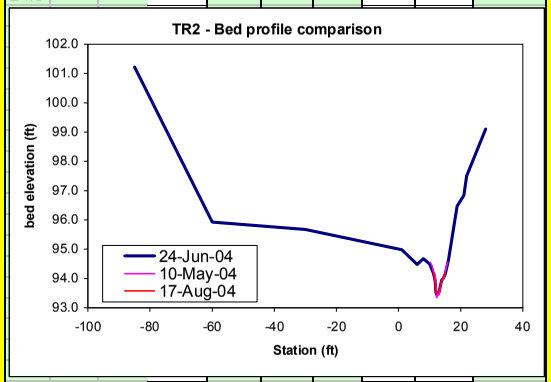
1

Stream:	Larkin Creek		10-May-04									24-Jun-04									17-Aug-04									
Site:	634			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q	
Transect:	1			(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate
Habitat:	Run		RWP										-85.0	4.40	101.22						3.1										
			RWE	11.4		94.33	0.00	0.00		0.00	0.00		-60.0	9.69	95.93						3.1										
Survey	HI	Q		11.9		94.23	0.10	0.00		0.01	0.00		RWP	1.0	11.13	94.49						1.1										
Date	(ft)	(cfs)		12.4		94.13	0.20	0.00		0.01	0.00			6.0	11.29	94.33						1.1										
5/10/2004	104.35	11.0		12.9		93.93	0.40	0.34		0.42	0.08			9.0	11.46	94.16						1.3										
6/24/2004	105.62	2.9		13.4		93.73	0.60	0.19		0.28	0.08			10.8	11.23	94.39						1.3										
8/17/2004	105.68	2.3		13.9		93.53	0.80	2.03		2.11	0.84			11.5	11.40	94.22						1.3	RWE	12.7		94.04	0.00	0.00		0.00	0.00	
				14.4		93.53	0.80	3.11		3.21	1.28		RWE	12.9		94.00	0.00	0.00		0.00	0.00	3.1	*	12.9		93.99	0.05	0.01		0.01	0.00	
				14.9		93.53	0.80	4.08		4.19	1.67			13.4		93.75	0.25	-0.17		-0.22	-0.03	1.3		13.4		93.69	0.35	-0.16		-0.25	-0.04	
				15.4		93.53	0.80	4.76		4.88	1.95			13.9		93.53	0.47	0.44		0.46	0.11	8.8		13.9		93.54	0.50	0.50		0.56	0.14	
				15.9		93.53	0.80	5.12		5.25	2.10			14.4		93.50	0.50	3.17		3.20	0.80	8.8		14.4		93.52	0.52	1.86		1.93	0.50	
				16.4		93.63	0.70	4.70		4.82	1.69			14.9		93.60	0.40	2.62		2.65	0.53	8.8		14.9		93.54	0.50	1.98		2.06	0.51	
				16.9		93.63	0.70	3.34		3.44	1.32			15.4		93.60	0.40	3.08		3.11	0.62	8.8		15.4		93.57	0.47	1.91		1.99	0.47	
				17.5		93.73	0.60	0.12		0.21	0.06			15.9		93.60	0.40	2.05		2.08	0.42	8.8		15.9		93.57	0.47	1.46		1.52	0.36	
				17.9		93.83	0.50	-0.05		-0.11	-0.02			16.4		93.65	0.35	2.67		2.70	0.47	8.8		16.4		93.64	0.40	2.24		2.32	0.46	
				18.4		94.03	0.30	-0.10		-0.18	-0.03			16.9		93.72	0.28	0.10		0.16	0.02	8.8	*	16.9		93.74	0.30	0.03		0.03	0.00	
				18.9		94.13	0.20	-0.05		-0.11	-0.01			17.5		93.80	0.20	-0.06		-0.17	-0.02	8.3		17.5		93.74	0.30	-0.28		-0.37	-0.05	
				19.4		94.23	0.10	0.00		0.01	0.00			17.9		93.85	0.15	-0.03		-0.09	-0.01	8.3		17.9		93.79	0.25	-0.42		-0.49	-0.06	
				19.9		94.23	0.10	0.00		0.01	0.00			18.4		93.92	0.08	-0.01		-0.03	0.00	3.8		18.4		93.89	0.15	-0.12		-0.21	-0.02	
				20.4		94.23	0.10	0.00		0.01	0.00		LWE	18.7		94.00	0.00	0.00		0.00	0.00	3.4	LWE	19.0		94.04	0.00	0.00		0.00	0.00	
				20.9		94.13	0.20	0.00		0.01	0.00			21.1	11.61	94.01						2.3										
			LWE	21.2		94.33	0.00	0.00		0.00	0.00			22.1	10.20	95.42						1.3										
			LWP										LWP	25.7	9.20	96.42						1.3										
														31.7	8.11	97.51						1.3										



*- Estimated Velocity
Average velocity cell updated

Stream:	Larkin Creek		10-May-04									24-Jun-04										17-Aug-04										
Site:	634			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			Angle	q			Sta	FS	Ground	Depth	Vel (ft/s)			Angle	q	
Transect:	2			(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(deg)	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(deg)	(cfs)	substrate
Habitat:	Run		RWP										-85.0	4.40	101.22							3.1										
			RWE	10.2		94.55	0.00	0.00		0.00	0.00		-60.0	9.69	95.93							3.1										
Survey	HI	Q		10.7		94.45	0.10	0.00		0.01	0.00		-30.0	9.95	95.67							3.1										
Date	(ft)	(cfs)		11.2		94.25	0.30	0.10		0.18	0.03		RWP	1.0	10.64	94.98							1.1										
5/10/2004	104.35	9.3	*	11.7		94.15	0.40	0.20		0.20	0.03			6.0	11.14	94.48							1.1										
6/24/2004	105.62	2.1		12.0		93.85	0.70	1.17		1.22	0.21			8.0	10.94	94.68							1.1										
8/17/2004	105.68	2.7		12.2		93.35	1.20	2.75		2.84	1.19			10.0	11.13	94.49							1.1	RWE	11.1		94.23	0.00	0.00		0.00		0.00	
				12.7		93.45	1.10	3.65		3.75	1.86		RWE	11.2		94.17	0.00	0.00		0.00		0.00	1.2		11.2		94.21	0.02	0.00		0.01		0.00	
				13.1		93.45	1.10	3.90		4.01	1.76			11.7		93.95	0.22	-0.01		-0.03		0.00	1.2		11.7		93.86	0.37	0.03		0.07		0.01	
				13.5		93.75	0.80	4.11		4.22	1.35			11.8		93.85	0.32	0.05		0.15		0.01	1.2		12.0		93.53	0.70	0.79		0.84	15	0.14	
				13.9		93.95	0.60	4.20		4.31	1.03			12.0		93.52	0.65	0.39		0.42		0.05	3.4		12.2		93.51	0.72	1.10		1.15	15	0.28	
				14.3		93.95	0.60	3.93		4.04	0.97			12.2		93.45	0.72	0.72		0.74		0.19	4.3		12.7		93.51	0.72	2.31		2.39	15	0.75	
				14.7		94.05	0.50	3.38		3.48	0.70			12.7		93.47	0.70	2.01		2.04	15	0.62	8.8		13.1		93.63	0.60	2.57		2.66	5	0.64	
				15.1		94.25	0.30	0.98		1.03	0.12			13.1		93.57	0.60	2.32		2.35	15	0.54	8.8		13.5		93.78	0.45	2.60		2.69		0.48	
				15.5		94.45	0.10	0.09		0.18	0.01			13.5		93.77	0.40	2.40		2.43	15	0.38	8.8		13.9		93.96	0.27	2.41		2.50		0.27	
			LWE	15.9		94.55	0.00	0.00		0.00	0.00			13.9		93.95	0.22	2.21		2.24		0.20	8.8		14.3		94.03	0.20	1.01		1.06		0.08	
			LWP											14.3		93.99	0.18	1.38		1.41		0.10	8.8		14.7		94.11	0.12	0.32		0.40		0.02	
														14.7		94.07	0.10	0.53		0.55		0.02	8.8	LWE	15.1		94.23	0.00	0.00		0.00		0.00	
													LWE	15.1		94.17	0.00	0.00		0.00		0.00	8.8										
														16.1	10.98	94.64							8.3										
														18.8	9.15	96.47							3.1										
														21.0	8.78	96.84							3.1										
													LWP	21.9	8.12	97.50							1.3										
														28.0	6.51	99.11							1.3										

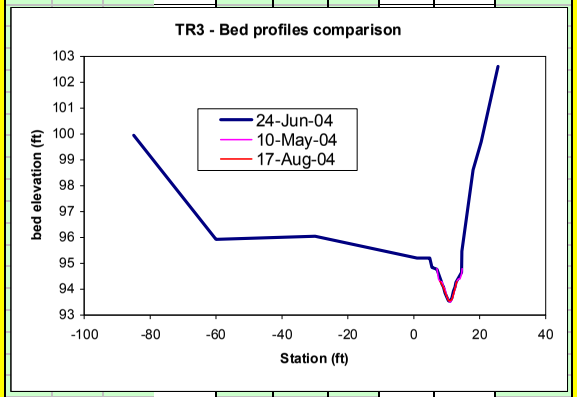


Stream:	Larkin Creek	
Site:	634	
Transect:	3	
Habitat:	Run	

Survey Date	HI (ft)	Q (cfs)
5/10/2004	104.35	8.6
6/24/2004	105.62	2.1
8/17/2004	105.68	2.7

10-May-04

	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	Vel (ft/s) $V_{0.2/0.6}$	Vel (ft/s) $V_{0.8}$	Vel (ft/s) Ave	q (cfs)	substrate
RWP									
RWE	7.0		94.80	0.00	0.00		0.00	0.00	
	7.5		94.40	0.40	0.00		0.01	0.00	
	8.0		94.30	0.50	0.79		0.84	0.21	
	8.5		94.30	0.50	1.86		1.93	0.48	
	9.0		94.10	0.70	1.38		1.44	0.50	
	9.5		94.00	0.80	1.26		1.32	0.53	
	10.0		93.70	1.10	1.86		1.93	1.06	
	10.5		93.60	1.20	1.76		1.83	1.10	
	11.0		93.50	1.30	1.71		1.78	1.16	
	11.5		93.60	1.20	1.67		1.74	1.04	
	12.0		93.80	1.00	1.78		1.85	0.93	
	12.5		94.00	0.80	1.78		1.85	0.74	
	13.0		94.30	0.50	1.53		1.60	0.40	
	13.5		94.40	0.40	1.11		1.16	0.23	
	14.0		94.40	0.40	0.98		1.03	0.21	
	14.5		94.60	0.20	0.35		0.43	0.03	
LWE	14.7		94.80	0.00	0.00		0.00	0.00	
LWP									



24-Jun-04

	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	Vel (ft/s) $V_{0.2/0.6}$	Vel (ft/s) $V_{0.8}$	Vel (ft/s) Ave	q (cfs)	substrate
	-85.0	4.40	99.95						3.1
	-60.0	9.69	95.93						3.1
	-30.0	9.57	96.05						1.3
RWP	1.0	10.41	95.21						1.1
	4.8	10.42	95.20						1.1
	5.5	10.78	94.84						1.1
	7.0	10.85	94.77						1.1
RWE	8.4		94.26	0.00	0.00		0.00	0.00	3.1
*	8.5		94.21	0.05	0.05		0.05	0.00	3.1
	9.0		94.08	0.18	0.44		0.46	0.04	3.1
	9.5		93.86	0.40	0.73		0.75	0.15	3.1
	10.0		93.69	0.57	1.13		1.16	0.33	3.4
	10.5		93.56	0.70	1.12		1.15	0.40	5.4
	11.0		93.53	0.73	1.21		1.24	0.45	8.5
	11.5		93.66	0.60	1.42		1.45	0.43	8.8
	12.0		93.93	0.33	1.58		1.61	0.27	8.8
	12.5		94.09	0.17	0.73		0.75	0.05	8.8
LWE	12.8		94.26	0.00	0.00		0.00	0.00	8.8
	14.5	10.97	94.65						8.8
	14.6	10.15	95.47						3.1
	18.0	7.00	98.62						3.1
LWP	20.5	5.92	99.70						3.1
	25.5	3.00	102.62						1.3

*- Estimated Velocity
Average velocity cell updated

17-Aug-04

	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	Vel (ft/s) $V_{0.2/0.6}$	Vel (ft/s) $V_{0.8}$	Vel (ft/s) Ave	q (cfs)	substrate
RWE	8.0		94.31	0.00	0.00		0.00	0.00	
*	8.5		94.19	0.12	0.03		0.03	0.00	
*	9.0		94.06	0.25	0.05		0.05	0.01	
	9.5		93.88	0.43	0.19		0.28	0.06	
	10.0		93.71	0.60	1.08		1.13	0.34	
	10.5		93.56	0.75	1.45		1.51	0.57	
	11.0		93.56	0.75	1.34		1.40	0.52	
	11.5		93.61	0.70	1.49		1.55	0.54	
	12.0		93.81	0.50	1.65		1.72	0.43	
	12.5		94.04	0.27	1.16		1.21	0.18	
LWE	13.1		94.31	0.00	0.00		0.00	0.00	

*- Estimated Velocity
Average velocity cell updated

```
     Larkin Creek   WM10   05/10/04
Run                          HGH                                    TRANSECT 1
IOC       11011001000010001010 00
QARD   1.0
QARD   1.5
QARD   2.1
QARD   2.8
QARD   3.0
QARD   3.5
QARD   4.0
QARD   4.5
QARD   5.0
QARD   5.5
QARD   6.0
QARD   6.5
QARD   7.0
QARD   7.5
QARD   8.0
QARD   8.6
QARD   9.0
QARD   9.5
QARD  10.0
QARD  10.5
QARD  11.0
QARD  11.5
QARD  12.0
QARD  12.5
QARD  13.0
QARD  14.0
QARD  16.0
QARD  18.0
QARD  20.0
QARD  22.0
XSEC   0.0       0.0 1.0     93.53   0.01774
       0.0-85.0101.2-60.0 95.9  1.0 94.5  6.0 94.3  9.0 94.2 10.8 94.4
       0.0 11.4 94.3 11.9 94.2 12.4 94.1 12.9 93.9 13.4 93.7 13.9 93.5
       0.0 14.4 93.5 14.9 93.5 15.4 93.5 15.9 93.5 16.4 93.6 16.9 93.6
       0.0 17.5 93.7 17.9 93.8 18.4 94.0 18.9 94.1 19.4 94.2 19.9 94.2
       0.0 20.4 94.2 20.9 94.1 21.2 94.3 22.1 95.4 25.7 96.4 31.7 97.5
NS     0.0       3.1       3.1       1.1       1.1       1.3       1.3
NS     0.0       1.3 0.4   1.3 0.3   1.3  .2   3.1 .2    1.3       8.8
NS     0.0       8.8       8.8       8.8       8.8       8.8       8.8
NS     0.0       8.3       8.3       3.8       3.4       3.4       3.4
NS     0.0       2.3       2.3       2.3       1.3       1.3       1.3
WSL    0.0     93.87     93.93     93.99     94.05     94.06     94.10
WSL    0.0     94.13     94.15     94.18     94.20     94.22     94.24
WSL    0.0     94.26     94.28     94.29     94.31     94.32     94.34
WSL    0.0     94.35     94.36     94.37     94.38     94.40     94.41
WSL    0.0     94.42     94.43     94.47     94.50     94.53     94.55
CAL1   0.0     94.33       8.6
VEL1   0.0                                0.00 0.01 0.01 0.42 0.28 2.11
VEL1   0.0 3.21 4.19 4.88 5.25 4.82 3.44 0.21-0.11-0.18-0.11 0.01 0.01
VEL1   0.0 0.01 0.01 0.00
CAL2   0.0     94.00       2.1
VEL2   0.0
VEL2   0.0
VEL2   0.0
CAL3   0.0     94.04       2.8
VEL3   0.0
VEL3   0.0
VEL3   0.0
ENDJ
```

```
     Larkin Creek   WM10   05/10/04
Run                          HGH                                    TRANSECT 2
IOC       11011001000010001010 00
QARD   1.0
QARD   1.5
QARD   2.1
QARD   2.8
QARD   3.0
QARD   3.5
QARD   4.0
QARD   4.5
QARD   5.0
QARD   5.5
QARD   6.0
QARD   6.5
QARD   7.0
QARD   7.5
QARD   8.0
QARD   8.6
QARD   9.0
QARD   9.5
QARD  10.0
QARD  10.5
QARD  11.0
QARD  11.5
QARD  12.0
QARD  12.5
QARD  13.0
QARD  14.0
QARD  16.0
QARD  18.0
QARD  20.0
QARD  22.0
XSEC   0.0       0.0 1.0     93.53   0.01774
       0.0-85.0101.2-60.0 95.9-30.0 95.7  1.0 95.0  6.0 94.5  8.0 94.7
       0.0 10.0 94.5 10.2 94.6 10.7 94.4 11.2 94.2 11.7 94.2 12.0 93.8
       0.0 12.2 93.3 12.7 93.4 13.1 93.4 13.5 93.7 13.9 93.9 14.3 93.9
       0.0 14.7 94.1 15.1 94.2 15.5 94.4 15.9 94.6 16.1 94.6 18.8 96.5
       0.0 21.0 96.8 21.9 97.5 28.0 99.1
NS     0.0       3.1       3.1       3.1       1.1       1.1       1.1
NS     0.0       1.1       1.1 .60   1.1  .25  1.2 .12   1.2       1.2
NS     0.0       3.4       4.3       8.8       8.8       8.8       8.8
NS     0.0       8.8       8.8       8.8       8.3       8.3       3.1
NS     0.0       3.1       1.3       1.3
WSL    0.0     94.04     94.12     94.19     94.25     94.27     94.30
WSL    0.0     94.33     94.36     94.39     94.42     94.44     94.46
WSL    0.0     94.48     94.50     94.51     94.53     94.54     94.56
WSL    0.0     94.57     94.58     94.60     94.61     94.62     94.63
WSL    0.0     94.64     94.67     94.71     94.75     94.79     94.82
CAL1   0.0     94.55       8.6
VEL1   0.0                                    0.00 0.01 0.18 0.20 1.22
VEL1   0.0 2.84 3.75 4.01 4.22 4.31 4.04 3.48 1.03 0.18 0.00
VEL1   0.0
CAL2   0.0     94.17       2.1
VEL2   0.0
VEL2   0.0
VEL2   0.0
CAL3   0.0     94.23       2.8
VEL3   0.0
VEL3   0.0
VEL3   0.0
ENDJ
```

```
     Larkin Creek   WM10   05/10/04
Run                          HGH                                    TRANSECT 3
IOC       11000001000010001010000
QARD   1.0
QARD   1.5
QARD   2.1
QARD   2.8
QARD   3.0
QARD   3.5
QARD   4.0
QARD   4.5
QARD   5.0
QARD   5.5
QARD   6.0
QARD   6.5
QARD   7.0
QARD   7.5
QARD   8.0
QARD   8.6
QARD   9.0
QARD   9.5
QARD  10.0
QARD  10.5
QARD  11.0
QARD  11.5
QARD  12.0
QARD  12.5
QARD  13.0
QARD  14.0
QARD  16.0
QARD  18.0
QARD  20.0
QARD  22.0
XSEC   0.0       0.0 1.0     93.53   0.01774
       0.0-11.0 99.9-10.1 95.9-10.0 96.1  1.0 95.2  4.8 95.2  5.5 94.8
       0.0  7.0 94.8  7.5 94.4  8.0 94.3  8.5 94.3  9.0 94.1  9.5 94.0
       0.0 10.0 93.7 10.5 93.6 11.0 93.5 11.5 93.6 12.0 93.8 12.5 94.0
       0.0 13.0 94.3 13.5 94.4 14.0 94.4 14.5 94.6 14.7 94.8 18.0 98.6
       0.0 20.5 99.7 25.5102.6
NS     0.0       3.1       3.1       1.3       1.1       1.1 0.5   1.1
NS     0.0 0.20  1.1 0.15  1.1       3.1 0.08  3.1       3.1       3.1
NS     0.0       3.1       3.4       5.4       8.5       8.8       8.8
NS     0.0       8.8       8.8       8.8       8.8       3.1       3.1
NS     0.0       3.1       1.3
WSL    0.0     94.10     94.17     94.24     94.33     94.35     94.41
WSL    0.0     94.46     94.50     94.54     94.58     94.61     94.65
WSL    0.0     94.68     94.71     94.74     94.78     94.80     94.82
WSL    0.0     94.84     94.85     94.87     94.89     94.91     94.92
WSL    0.0     94.94     94.97     95.03     95.08     95.13     95.17
CAL1   0.0     94.80       8.6
VEL1   0.0                                0.00 0.01 0.84 1.93 1.44 1.32
VEL1   0.0 1.93 1.83 1.78 1.74 1.85 1.85 1.60 1.16 1.03 0.43 0.00
VEL1   0.0
CAL2   0.0     94.26       2.1
VEL2   0.0
VEL2   0.0
VEL2   0.0
CAL3   0.0     94.31       2.8
VEL3   0.0
VEL3   0.0
VEL3   0.0
ENDJ
```

Stream: Larkin Creek
Site: 634
Date: 5/10/2004
Habitat: Riffle **Flow:** High

(1) Level Loop Survey (BM & HP)

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	3.11	103.11		100.00
HP1			4.49	98.62
HP2			4.53	98.58
HP3			4.14	98.97
TP				
HP3	4.00	102.97		
HP2			4.40	98.57
HP1			4.37	98.60
BM			2.98	99.99

Comment:

(2) Water Surface Elevation (WSE) Survey

TR	Station L/R (ft)	Station Ave (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
1-L	0	0	102.97	5.54	0.00	97.43	97.43	8.7
1-R	0			5.55	0.00	97.42		
2-L	33	37	102.97	5.23	0.00	97.74	97.73	8.3
2-R	40			5.25	0.00	97.72		
3-L	57	59	102.97	4.91	0.00	98.06	98.08	8.7
3-R	61			4.87	0.00	98.10		
							Ave Q=	8.7

Note: WSE taken on surface
WSE slope = 1.110%

(3) Meter and propeller ID for Velocity Correction

Meter ID: 4099
Propeller ID: 1A

Date: 6/24/2004
Habitat: Riffle **Flow:** Low

(1) Level Loop Survey

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	7.76	107.76		100.00
HP1			9.14	98.62
HP2			9.17	98.59
HP3			8.78	98.98
TP				
HP1	9.32	107.94		
HP2			9.36	98.58
HP3			8.96	98.98
BM			7.94	100.00

Comment:

(2) Water Surface Elevation (WSE) Survey

TR	Station L/R bank (ft)	Station Ave (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
1-L	0	0	107.94	10.88	0.00	97.06	97.06	2.0
1-R	0			10.86	0.00			
2-L	33	37	107.94	10.51	0.00	97.43	97.43	2.0
2-R	40			10.52	0.00			
3-L	57	59	107.94	10.35	0.00	97.59	97.59	2.5
3-R	61			10.27	0.00			
							Ave Q=	2.2

Note: Center WSE TR1=10.87, TR2=10.52, TR3-10.26
WSE slope = 0.898%

(3) Meter and propeller ID for Velocity Correction

Meter ID: 3602
Propeller ID: 3a

Date: 8/17/2004
Habitat: Riffle **Flow:** Mid

(1) Level Loop Survey

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	7.13	107.13		100.00
HP1			8.51	98.62
HP2			8.54	98.59
HP3				
TP				
HP3				
HP2	8.37	106.96		98.59
HP1			8.34	98.62
BM			6.95	100.01

Comment: Could not find TR3 HP.

(2) Water Surface Elevation (WSE) Survey

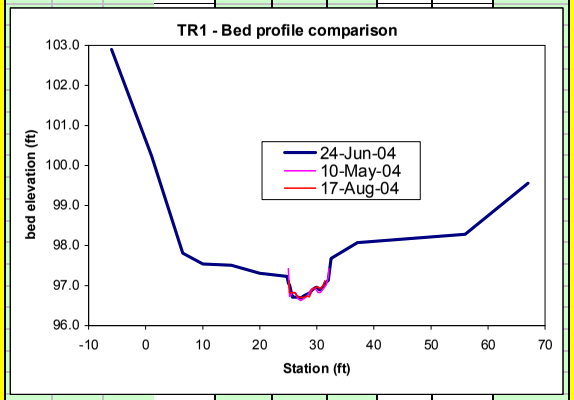
TR	Station L/R bank (ft)	Station Ave (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
1-L	0	0	106.96	9.84	0.00	97.12	97.12	3
1-R	0			9.84	0.00	97.12		
2-L	33	37	106.96	9.47	0.00	97.49	97.48	2.4
2-R	40			9.50	0.00	97.46		
3-L	57	59	106.96	9.27	0.00	97.69	97.70	2.7
3-R	61			9.25	0.00	97.71		
							Ave Q=	2.8

Note: 30' d/s of TR1 10.61, rod .6, 65' u/s of TR3 8.98, rod .46
WSE slope = 0.983%

(3) Meter and propeller ID for Velocity Correction

Meter ID: 4099
Propeller ID: 1a

Stream:	Larkin Creek		10-May-04									24-Jun-04									17-Aug-04									
Site:	634			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q	
Transect:	1			(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate
Habitat:	Riffle		RWP											-6.0	5.04	102.90						3.1									
			RWE	25.0		97.43	0.00	0.00		0.00	0.00	1.1	RWP	1.0	7.69	100.25						1.3									
Survey	HI	Q		25.2		96.73	0.70	0.00		0.01	0.00	1.2		6.5	10.13	97.81						1.1									
Date	(ft)	(cfs)		25.7		96.83	0.60	1.47		1.53	0.46	4.5		10.0	10.40	97.54						1.2									
5/10/2004	102.97	8.7		26.2		96.83	0.60	2.04		2.12	0.64	4.5		15.0	10.43	97.51						1.1									
6/24/2004	107.94	2.0		26.7		96.68	0.75	2.85		2.94	1.10	5.4		20.0	10.63	97.31						1.2									
8/17/2004	106.96	2.9		27.2		96.63	0.80	2.89		2.98	1.19	5.4		24.8	10.71	97.23						1.1									
				27.7		96.68	0.75	3.12		3.22	1.21	5.4	RWE	25.0		97.06	0.00	0.00		0.00	0.00	1.1	RWE	25.1		97.12	0.00	0.00		0.00	0.00	
				28.2		96.73	0.70	2.94		3.04	1.06	5.4		25.2		97.01	0.05	0.05		0.15	0.00	1.2	*	25.2		96.82	0.30	0.03		0.03	0.00	
				28.7		96.83	0.60	2.31		2.39	0.72	5.4		25.7		96.71	0.35	0.24		0.29	0.05	4.5	*	25.7		96.82	0.30	0.03		0.03	0.00	
				29.2		96.93	0.50	2.54		2.63	0.66	4.5		26.2		96.71	0.35	1.27		1.30	0.23	4.5		26.2		96.82	0.30	0.25		0.34	0.05	
				29.7		96.93	0.50	2.81		2.90	0.58	4.5		26.7		96.71	0.35	1.38		1.41	0.25	5.4		26.7		96.72	0.40	1.44		1.50	0.30	
				30.0		96.88	0.55	2.30		2.38	0.33	4.5		27.2		96.69	0.37	1.88		1.91	0.35	5.4		27.2		96.70	0.42	1.97		2.05	0.43	
				30.2		96.83	0.60	1.82		1.89	0.34	4.5		27.7		96.74	0.32	2.19		2.22	0.36	5.4		27.7		96.70	0.42	2.31		2.39	0.50	
				30.6		96.83	0.60	0.93		0.97	0.29	3.4		28.2		96.78	0.28	2.05		2.08	0.29	5.4		28.2		96.74	0.38	3.07		3.17	0.60	
				31.2		96.93	0.50	0.30		0.38	0.11	3.4		28.7		96.81	0.25	2.02		2.05	0.26	5.4		28.7		96.72	0.40	2.82		2.91	0.58	
				31.7		97.03	0.40	0.10		0.18	0.03	4.1		29.2		96.89	0.17	1.23		1.26	0.11	4.5		29.2		96.90	0.22	2.18		2.26	0.25	
				32.0		97.23	0.20	0.00		0.01	0.00	1.4		29.7		96.94	0.12	1.36		1.39	0.07	4.5		29.7		96.94	0.18	2.07		2.15	0.15	
			LWE	32.1		97.43	0.00	0.00		0.00	0.00	1.4		30.0		96.96	0.10	1.28		1.31	0.03	4.5		30.0		96.97	0.15	0.86		0.91	0.03	
			LWP											30.2		96.91	0.15	0.97		1.00	0.04	4.5		30.2		96.97	0.15	0.30		0.38	0.02	
													*	30.6		96.89	0.17	0.05		0.05	0.00	3.4	*	30.6		96.92	0.20	0.03		0.03	0.00	
													*	31.2		96.98	0.08	0.01		0.01	0.00	3.4		31.2		97.02	0.10	0.00		0.01	0.00	
													LWE	31.4		97.06	0.00	0.00		0.00	0.00	4.1	LWE	31.4		97.12	0.00	0.00		0.00	0.00	
														32.0	10.81	97.13						1.4									
														32.5	10.26	97.68						1.1									
													LWP	37.1	9.87	98.07						1.3									
														56.0	9.66	98.28						3.1									
														67.0	8.38	99.56						3.1									

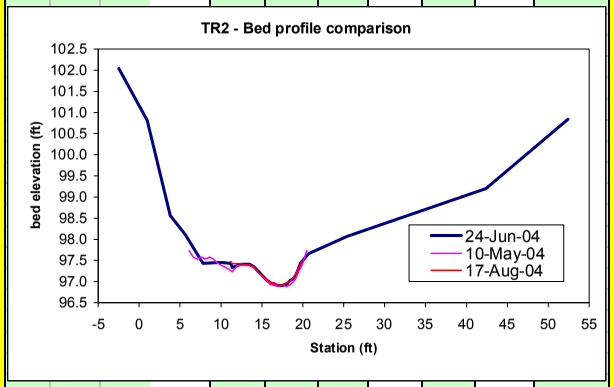


*- Estimated Velocity
Average velocity cell updated

*- Estimated Velocity
Average velocity cell updated

Stream:	Larkin Creek		10-May-04											24-Jun-04											17-Aug-04										
Site:	634			Sta	FS	Ground	Depth	Vel (ft/s)			Angle	q			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q		
Transect:	2			(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(deg)	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate	
Habitat:	Riffle		RWP												-2.5	5.90	102.04						1.3											
			RWE	6.1		97.73	0.00	0.00		0.00		0.00		RWP	1.0	7.13	100.81						1.3											
Survey	HI	Q	*	6.6		97.58	0.15	0.05		0.05		0.00			3.8	9.38	98.56						1.3											
Date	(ft)	(cfs)	*	7.1		97.53	0.20	0.05		0.05		0.01			5.6	9.82	98.12						2.1											
5/10/2004	102.97	8.3	*	7.6		97.58	0.15	0.05		0.05		0.00			7.8	10.51	97.43						2.1											
6/24/2004	107.94	2.0	*	8.1		97.53	0.20	0.05		0.05		0.01			10.0	10.49	97.45						2.1											
8/17/2004	106.96	2.4	*	8.6		97.58	0.15	0.05		0.05	90	0.00		RWE	11.2		97.43	0.00	0.00		0.00	0.00	2.1	RWE	11.2		97.48	0.00	0.00		0.00	0.00		
			*	9.1		97.53	0.20	0.05		0.05	90	0.00			11.4		97.33	0.10	0.00		0.01	0.00	3.5		11.4		97.43	0.05	0.00		0.01	0.00		
			*	9.6		97.43	0.30	0.05		0.05	90	0.00			12.0		97.38	0.05	0.03		0.09	0.00	5.3		12.0		97.43	0.05	0.00		0.01	0.00		
			*	10.1		97.38	0.35	0.05		0.05		0.01			12.5		97.41	0.02	0.00		0.01	0.00	5.4		12.5		97.43	0.05	0.00		0.01	0.00		
				10.6		97.33	0.40	0.00		0.01		0.00			13.0		97.41	0.02	0.00		0.01	0.00	5.4		13.0		97.40	0.08	0.00		0.01	0.00		
				11.4		97.23	0.50	0.83		0.88		0.31			13.5		97.41	0.02	0.00		0.01	0.00	5.4		13.5		97.40	0.08	0.00		0.01	0.00		
				12.0		97.38	0.35	1.06		1.11		0.21			14.0		97.35	0.08	0.05		0.15	0.01	5.4		14.0		97.36	0.12	0.00		0.01	0.00		
				12.5		97.38	0.35	1.14		1.19		0.21			14.5		97.26	0.17	-0.01		-0.03	0.00	3.4		14.5		97.23	0.25	0.05		0.11	0.01		
				13.0		97.38	0.35	1.19		1.24		0.22			15.0		97.15	0.28	0.05		0.15	0.02	3.4		15.0		97.16	0.32	0.94		0.98	0.17		
				13.5		97.38	0.35	1.31		1.37		0.24			15.6		97.03	0.40	0.84		0.86	0.17	3.4		15.6		97.06	0.42	1.45		1.51	0.32		
				14.0		97.33	0.40	1.28		1.34		0.27			16.0		96.98	0.45	1.44		1.47	0.30	4.5		16.0		96.98	0.50	1.79		1.86	0.42		
				14.5		97.23	0.50	1.11		1.16		0.29			16.5		96.93	0.50	1.23		1.26	0.31	5.4		16.5		96.98	0.50	0.73		0.78	0.19		
				15.0		97.13	0.60	1.26		1.32		0.43			17.0		96.91	0.52	1.46		1.49	0.39	5.4		17.0		96.91	0.57	1.47		1.53	0.44		
				15.6		97.03	0.70	1.57		1.64		0.57			17.5		96.91	0.52	1.13		1.16	0.30	5.4		17.5		96.93	0.55	0.77		0.82	0.23		
				16.0		96.93	0.80	2.05		2.13		0.77			18.0		96.93	0.50	1.04		1.07	0.27	5.4		18.0		96.98	0.50	0.91		0.95	0.24		
				16.5		96.93	0.80	2.35		2.44		0.97			18.5		97.03	0.40	0.94		0.97	0.19	5.4		18.5		97.01	0.47	1.08		1.13	0.27		
				17.0		96.88	0.85	2.01		2.09		0.89			19.0		97.08	0.35	0.47		0.49	0.09	3.4		19.0		97.15	0.33	0.47		0.54	0.09		
				17.5		96.93	0.80	1.80		1.87		0.75			19.5		97.31	0.12	-0.01		-0.03	0.00	1.2		19.5		97.33	0.15	0.00		0.01	0.00		
				18.0		96.88	0.85	1.57		1.64		0.70		LWE	19.7		97.43	0.00	0.00		0.00	0.00	1.2	LWE	19.9		97.48	0.00	0.00		0.00	0.00		
				18.5		96.93	0.80	2.03		2.11		0.84			20.7	10.28	97.66						1.1											
				19.0		97.03	0.70	1.32		1.38		0.48		LWP	25.4	9.87	98.07						1.1											
				19.5		97.23	0.50	0.44		0.51		0.13			42.4	8.74	99.20						3.1											
				20.0		97.43	0.30	0.00		0.01		0.00			52.4	7.10	100.84						3.1											
			LWE	20.5		97.73	0.00	0.00		0.00		0.00																						
			LWP																															

*- Estimated Velocity
Average velocity cell updated

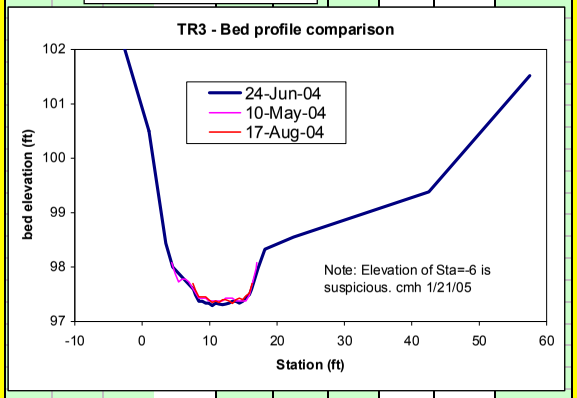


Stream:	Larkin Creek		10-May-04									24-Jun-04									17-Aug-04								
Site:	634			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q			Sta	FS	Ground	Depth	Vel (ft/s)			q	
Transect:	3			(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	Ave	(cfs)	substrate
Habitat:	Riffle		RWP											-4.0	5.35	102.59						1.3										
			RWE	4.4		98.08	0.00	0.00		0.00	0.00		RWP	1.0	7.44	100.50						1.3										
Survey	HI	Q		4.9		97.88	0.20	0.00		0.01	0.00			3.5	9.50	98.44						2.1										
Date	(ft)	(cfs)		5.4		97.73	0.35	0.00		0.01	0.00			4.5	9.94	98.00						2.1										
5/10/2004	102.97	8.7	*	5.9		97.78	0.30	0.05		0.05	0.01		RWE	7.6		97.59	0.00	0.00		0.00	0.00	1.2	RWE	7.5		97.70	0.00	0.00		0.00	0.00	
6/24/2004	107.94	2.5		6.4		97.78	0.30	0.05		0.05	0.01		*	7.9		97.49	0.10	0.10		0.10	0.00	8.2	*	7.9		97.58	0.12	0.03		0.03	0.00	
8/17/2004	106.96	2.7		6.9		97.73	0.35	0.05		0.11	0.02			8.4		97.37	0.22	1.38		1.41	0.15	4.5		8.4		97.45	0.25	0.34		0.42	0.05	
				7.4		97.63	0.45	0.72		0.77	0.17			8.9		97.37	0.22	1.89		1.92	0.21	4.5		8.9		97.45	0.25	1.60		1.67	0.21	
				7.9		97.53	0.55	0.78		0.83	0.23			9.4		97.34	0.25	1.79		1.82	0.23	4.5		9.4		97.45	0.25	1.43		1.49	0.19	
				8.4		97.43	0.65	1.26		1.32	0.43			9.9		97.34	0.25	1.81		1.84	0.23	4.5		9.9		97.40	0.30	1.36		1.42	0.21	
				8.9		97.43	0.65	1.72		1.79	0.58			10.4		97.29	0.30	1.30		1.33	0.20	4.5		10.4		97.35	0.35	1.31		1.37	0.24	
				9.4		97.43	0.65	1.48		1.54	0.50			10.9		97.34	0.25	0.89		0.92	0.11	4.5		10.9		97.38	0.32	1.40		1.46	0.23	
				9.9		97.38	0.70	1.41		1.47	0.52			11.4		97.32	0.27	1.53		1.56	0.21	4.5		11.4		97.35	0.35	1.44		1.50	0.26	
				10.4		97.38	0.70	1.43		1.49	0.52			11.9		97.31	0.28	1.62		1.65	0.23	4.5		11.9		97.40	0.30	1.65		1.72	0.26	
				10.9		97.38	0.70	1.36		1.42	0.50			12.4		97.32	0.27	1.56		1.59	0.21	4.5		12.4		97.40	0.30	1.03		1.08	0.16	
				11.4		97.38	0.70	1.70		1.77	0.62			12.9		97.34	0.25	1.49		1.52	0.19	4.5		12.9		97.38	0.32	1.30		1.36	0.22	
				11.9		97.38	0.70	1.41		1.47	0.52			13.4		97.37	0.22	1.81		1.84	0.20	4.5		13.4		97.33	0.37	1.36		1.42	0.26	
				12.4		97.43	0.65	1.66		1.73	0.56			13.9		97.37	0.22	0.82		0.84	0.09	4.5		13.9		97.40	0.30	1.18		1.23	0.19	
				12.9		97.43	0.65	1.68		1.75	0.57			14.4		97.34	0.25	1.00		1.03	0.13	4.5		14.4		97.43	0.27	0.76		0.81	0.11	
				13.4		97.43	0.65	1.90		1.98	0.64			14.9		97.37	0.22	1.00		1.03	0.11	4.5		14.9		97.40	0.30	0.92		0.96	0.14	
				13.9		97.38	0.70	1.35		1.41	0.49		*	15.4		97.44	0.15	0.05		0.05	0.00	4.3		15.4		97.47	0.23	0.00		0.01	0.00	
				14.4		97.38	0.70	0.74		0.79	0.28			15.9		97.49	0.10	0.00		0.01	0.00	3.4		15.9		97.52	0.18	0.00		0.01	0.00	
				14.9		97.38	0.70	1.71		1.78	0.62		LWE	16.2		97.59	0.00	0.00		0.00	0.00	3.1	LWE	16.3		97.70	0.00	0.00		0.00	0.00	
				15.4		97.38	0.70	1.44		1.50	0.53			17.2	9.96	97.98						1.2										
				15.9		97.48	0.60	1.18		1.23	0.37			18.2	9.61	98.33						1.1										
				16.4		97.73	0.35	0.00		0.01	0.00		LWP	22.5	9.39	98.55						1.1										
				16.9		97.98	0.10	0.00		0.01	0.00			42.5	8.56	99.38						1.3										
			LWE	17.0		98.08	0.00	0.00		0.00	0.00			57.5	6.42	101.52						3.1										
			LWP																													

*- Estimated Velocity
Average velocity cell updated

*- Estimated Velocity
Average velocity cell updated

*- Estimated Velocity
Average velocity cell updated



```
     Larkin Creek   WM10   05/10/04
Riffle                       HGH                                    TRANSECT 1
IOC       11000001000010001010 00
QARD   1.0
QARD   1.5
QARD   2.1
QARD   2.8
QARD   3.0
QARD   3.5
QARD   4.0
QARD   4.5
QARD   5.0
QARD   5.5
QARD   6.0
QARD   6.5
QARD   7.0
QARD   7.5
QARD   8.0
QARD   8.6
QARD   9.0
QARD   9.5
QARD  10.0
QARD  10.5
QARD  11.0
QARD  11.5
QARD  12.0
QARD  12.5
QARD  13.0
QARD  14.0
QARD  16.0
QARD  18.0
QARD  20.0
QARD  22.0
XSEC   0.0       0.0 1.0     96.63   0.01110
       0.0 -6.0102.9  1.0100.3  6.5 97.8 10.0 97.5 15.0 97.5 25.0 97.4
       0.0 25.2 96.7 25.7 96.8 26.2 96.8 26.7 96.7 27.2 96.6 27.7 96.7
       0.0 28.2 96.7 28.7 96.8 29.2 96.9 29.7 96.9 30.0 96.9 30.2 96.8
       0.0 30.6 96.8 31.2 96.9 31.7 97.0 32.0 97.2 32.1 97.4 32.5 97.7
       0.0 37.1 98.1 56.0 98.3 67.0 99.6
NS     0.0       3.1       1.3       1.1       1.2       1.1 0.15  1.1
NS     0.0 .075  1.2 .060  4.5       4.5       5.4       5.4       5.4
NS     0.0       5.4       5.4       4.5       4.5       4.5       4.5
NS     0.0       3.4       3.4       4.1       1.4       1.4       1.1
NS     0.0       1.3       3.1       3.1
WSL    0.0     96.98     97.03     97.08     97.13     97.14     97.17
WSL    0.0     97.20     97.23     97.25     97.28     97.30     97.32
WSL    0.0     97.34     97.36     97.38     97.40     97.42     97.43
WSL    0.0     97.45     97.47     97.48     97.49     97.51     97.52
WSL    0.0     97.53     97.55     97.59     97.62     97.65     97.68
CAL1   0.0     97.43       8.6
VEL1   0.0                          0.00 0.01 1.53 2.12 2.94 2.98 3.22
VEL1   0.0 3.04 2.39 2.63 2.90 2.38 1.89 0.97 0.38 0.18 0.01 0.00
VEL1   0.0
CAL2   0.0     97.06       2.1
VEL2   0.0
VEL2   0.0
VEL2   0.0
CAL3   0.0     97.12       2.8
VEL3   0.0
VEL3   0.0
VEL3   0.0
ENDJ
```

```
     Larkin Creek  WM10   05/10/04
Riffle                      HGH                                    TRANSECT 2
IOC       11011000000001000101000
QARD   1.0
QARD   1.5
QARD   2.1
QARD   2.8
QARD   3.0
QARD   3.5
QARD   4.0
QARD   4.5
QARD   5.0
QARD   5.5
QARD   6.0
QARD   6.5
QARD   7.0
QARD   7.5
QARD   8.0
QARD   8.6
QARD   9.0
QARD   9.5
QARD  10.0
QARD  10.5
QARD  11.0
QARD  11.5
QARD  12.0
QARD  12.5
QARD  13.0
QARD  14.0
QARD  16.0
QARD  18.0
QARD  20.0
QARD  22.0
XSEC   0.0       0.0 1.0     96.88   0.01110
       0.0 -2.5102.0  1.0100.8  3.8 98.6  5.6 98.1  6.1 97.7  6.6 97.6
       0.0  7.1 97.5  7.6 97.6  8.1 97.5  8.6 97.6  9.1 97.5  9.6 97.4
       0.0 10.1 97.4 10.6 97.3 11.4 97.2 12.0 97.4 12.5 97.4 13.0 97.4
       0.0 13.5 97.4 14.0 97.3 14.5 97.2 15.0 97.1 15.6 97.0 16.0 96.9
       0.0 16.5 96.9 17.0 96.9 17.5 96.9 18.0 96.9 18.5 96.9 19.0 97.0
       0.0 19.5 97.2 20.0 97.4 20.5 97.7 20.7 97.7 25.4 98.1 42.4 99.2
       0.0 52.4100.8
NS     0.0       1.3       1.3       1.3       2.1       2.1       2.1
NS     0.0       2.1       2.1 .70   2.1 .60   2.1  .50  2.1 0.4   2.1
NS     0.0 0.3   2.1 0.2   2.1       3.5       5.3       5.4       5.4
NS     0.0       5.4       5.4       3.4       3.4       3.4       4.5
NS     0.0       5.4       5.4       5.4       5.4       5.4       3.4
NS     0.0       1.2 0.20  1.2       1.1       1.1       1.1       3.1
NS     0.0       3.1
CAL1   0.0     97.73       8.6
VEL1   0.0                     0.00 0.05 0.05 0.05 0.05 0.05 0.05 0.05
VEL1   0.0 0.05 0.01 0.88 1.11 1.19 1.24 1.37 1.34 1.16 1.32 1.64 2.13
VEL1   0.0 2.44 2.09 1.87 1.64 2.11 1.38 0.51 0.01 0.00
VEL1   0.0
CAL2   0.0     97.43       2.1
VEL2   0.0
VEL2   0.0
VEL2   0.0
VEL2   0.0
CAL3   0.0     97.48       2.8
VEL3   0.0
VEL3   0.0
VEL3   0.0
VEL3   0.0
ENDJ
```

```
     Larkin Creek  WM10   05/10/04
Riffle                      HGH                                    TRANSECT 3
IOC       11000001000010001010000
QARD   1.0
QARD   1.5
QARD   2.1
QARD   2.8
QARD   3.0
QARD   3.5
QARD   4.0
QARD   4.5
QARD   5.0
QARD   5.5
QARD   6.0
QARD   6.5
QARD   7.0
QARD   7.5
QARD   8.0
QARD   8.6
QARD   9.0
QARD   9.5
QARD  10.0
QARD  10.5
QARD  11.0
QARD  11.5
QARD  12.0
QARD  12.5
QARD  13.0
QARD  14.0
QARD  16.0
QARD  18.0
QARD  20.0
QARD  22.0
XSEC   0.0       0.0 1.0     97.38   0.008983
       0.0  1.0100.5  3.5 98.4  4.4 98.1  4.9 97.9  5.4 97.7  5.9 97.8
       0.0  6.4 97.8  6.9 97.7  7.4 97.6  7.9 97.5  8.4 97.4  8.9 97.4
       0.0  9.4 97.4  9.9 97.4 10.4 97.4 10.9 97.4 11.4 97.4 11.9 97.4
       0.0 12.4 97.4 12.9 97.4 13.4 97.4 13.9 97.4 14.4 97.4 14.9 97.4
       0.0 15.4 97.4 15.9 97.5 16.4 97.7 16.9 98.0 17.0 98.1 17.2 98.0
       0.0 18.2 98.3 22.5 98.6 42.5 99.4 57.5101.5
NS     0.0       1.3       2.1       2.1 0.8   2.1 0.8   2.1       2.1
NS     0.0       2.1       2.1       1.2       8.2       4.5       4.5
NS     0.0       4.5       4.5       4.5       4.5       4.5       4.5
NS     0.0       4.5       4.5       4.5       4.5       4.5       4.5
NS     0.0       4.3       3.4       3.1 .15   3.1 .15   3.1       1.2
NS     0.0       1.1       1.1       1.3       3.1
WSL    0.0     97.54     97.58     97.61     97.72     97.76     97.81
WSL    0.0     97.85     97.88     97.92     97.95     97.97     98.00
WSL    0.0     98.02     98.04     98.06     98.08     98.09     98.11
WSL    0.0     98.12     98.14     98.16     98.17     98.19     98.20
WSL    0.0     98.22     98.24     98.30     98.35     98.39     98.43
CAL1   0.0     98.08       8.6
VEL1   0.0           0.00 0.01 0.01 0.05 0.05 0.11 0.77 0.83 1.32 1.79
VEL1   0.0 1.54 1.47 1.49 1.42 1.77 1.47 1.73 1.75 1.98 1.41 0.79 1.78
VEL1   0.0 1.50 1.23 0.01 0.01 0.00
CAL2   0.0     97.59       2.1
VEL2   0.0
VEL2   0.0
VEL2   0.0
CAL3   0.0     97.70       2.8
VEL3   0.0
VEL3   0.0
VEL3   0.0
ENDJ
```