

10-30-2008

Ex. 277-US-419

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Stream: Williamson River
Site: 625 (HW97 to Klamath Lake)
Date: 9/19/1990
Habitat: Run

Flow: Low

(1) Level Loop Survey (BM & HP)

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	4.76	104.76		
HP1			8.10	96.66
HP2			5.10	99.66
HP3			6.30	98.46
TP				
HP3	6.24	104.70		
HP2			5.03	99.67
HP1			8.04	96.66
BM			4.70	100.00

Comment:

Date: 4/4/1991
Habitat: Run

Flow: Mid

(1) Level Loop Survey

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	6.11	106.11		
HP1			9.45	96.66
HP2			6.44	99.67
HP3			7.69	98.42
TP				
HP3	7.74	106.16		
HP2			6.50	99.66
HP1			9.51	96.65
BM			6.17	99.99

Comment:

Date: 5/12/1993
Habitat: Run

Flow: High

(1) Level Loop Survey

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	6.51	106.51		
HP1			9.88	96.63
HP2			6.85	99.66
HP3			8.10	98.41
TP				
HP3	8.18	106.59		
HP2			6.93	99.66
HP1			9.94	96.65
BM			6.60	99.99

Comment:

(2) Water Surface Elevation (WSE) Survey

	L/R WSE (ft)		Sta (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
	LWSE	RWSE							
TR1	13.10	13.10	0	102.18	13.10	0.00	89.08	89.08	415.0
TR2	16.04	16.04	200	105.15	16.04	0.00	89.11	89.10	544.6
TR3	15.96	15.96	400	105.10	15.96	0.00	89.14	89.14	341.8
							89.14	89.14	
							Ave Q= 433.8		

Note: WSEs of 9/19/90 survey need to be lowered by 0.01ft to compensate for BM movement (See Sheet "data entry notes" for more details)
WSE slope = 0.015%

(2) Water Surface Elevation (WSE) Survey

	L/R WSE (ft)		Sta (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
	LWSE	RWSE							
TR1	12.12	12.12	0	102.28	12.12	0.00	90.16	90.18	830.2
TR2	15.24	15.24	200	105.53	15.24	0.00	90.29	90.29	971.8
TR3	15.64	15.64	400	105.90	15.64	0.00	90.26	90.26	817.6
							90.26	90.26	
							Ave Q= 873.2		

Note: TR2 WSE > TR3 WSE, water flows uphill
WSE slope = 0.020%

(2) Water Surface Elevation (WSE) Survey

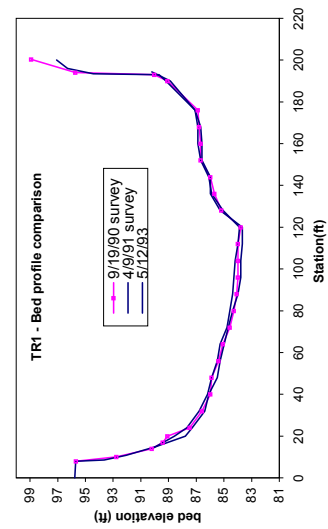
HI=

	L/R WSE (ft)		Sta (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
	LWSE	RWSE							
TR1	14.54	14.50	0	106.60	14.54	0.00	92.06	92.08	2267.1
TR2	14.45	14.45	200	106.60	14.45	0.00	92.15	92.15	
TR3	14.42	14.42	400	106.60	14.42	0.00	92.18	92.18	
							92.17	92.17	
							Ave Q= 2267.1		

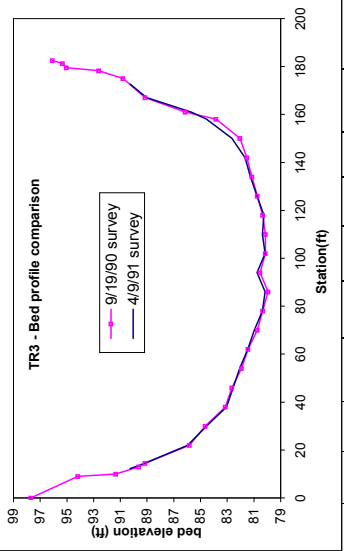
Note:

WSE slope = 0.024%

Stream: Williamson River	19-Sep-90										4-Apr-91										12-May-93											
	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	V _{0.2m/6} (ft/s)	V _{0.8} (ft/s)	Ave (ft/s)	q (cfs)	substrate		Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	V _{0.2m/6} (ft/s)	V _{0.8} (ft/s)	Ave (ft/s)	q (cfs)	substrate		Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	V _{0.2m/6} (ft/s)	V _{0.8} (ft/s)	Ave (ft/s)	q (cfs)	substrate			
Site: 625																																
Transsect: I																																
Habitat: Run																																
Survey																																
Date																																
9/19/1990	102.18	415.0																														
4/4/1991	102.28	830.2																														
5/12/1993	106.60	2267.1																														
LWP																																
8.0	6.50	95.68																														
10.0	9.42	92.76																														
14.0	11.97	90.21																														
17.0	12.76	89.42																														
LWE	20.0	89.08																														
24.0		87.48																														
32.0		86.58																														
40.0		85.98																														
48.0		85.88																														
56.0		85.38																														
64.0		84.58																														
72.0		84.28																														
80.0		84.08																														
88.0		83.98																														
96.0		83.78																														
104.0		83.58																														
112.0		83.38																														
120.0		83.18																														
128.0		82.98																														
136.0		82.78																														
144.0		82.58																														
152.0		82.38																														
160.0		82.18																														
168.0		81.98																														
176.0		81.78																														
RWE	190.0	81.58																														
193.0	12.16	90.02																														
194.0	6.45	95.73																														
200.3	3.26	98.92																														



Stream: Williamson River	19-Sep-90										4-Apr-91										12-May-93										
	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	V _{0.2/0.6} (ft/s)	V _{0.8} Ave	Vel (ft/s)	q (cfs)	substrate	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	V _{0.2/0.6} (ft/s)	V _{0.8} Ave	Vel (ft/s)	q (cfs)	substrate	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	V _{0.2/0.6} (ft/s)	V _{0.8} Ave	Vel (ft/s)	q (cfs)	substrate				
LWP	0.0	7.40	97.70					2.1																							
Survey	9.0	10.92	94.18					2.1																							
Date	10	13.76	91.34					2.1																							
9/19/1990	13	15.49	89.61					3.3																							
4/4/1991	14.5	15.96	89.14	0.00	0.00	0.00	0.00	3.5																							
5/7/1993	20	85.84	3.30	3.30	0.13	0.11	0.12	3.07	3.5																						
	30	84.64	4.50	4.50	0.34	0.32	0.33	11.88	3.9																						
	38	83.14	6.00	6.00	0.24	0.30	0.27	12.96	3.9																						
	46	82.64	6.50	6.50	0.36	0.30	0.33	17.16	3.5																						
	54	81.94	7.20	7.20	0.20	0.23	0.22	12.38	3.5																						
	62	81.44	7.70	7.70	0.5	0.28	0.39	24.02	3.5																						
	70	80.74	8.40	8.40	0.6	0.20	0.40	26.88	3.5																						
	78	80.34	8.80	8.80	0.44	0.49	0.47	32.74	3.5																						
	86	79.94	9.20	9.20	0.6	0.25	0.43	31.28	3.5																						
	94	80.54	8.60	8.60	0.43	0.52	0.48	32.68	3.5																						
	102	80.14	9.00	9.00	0.63	0.53	0.58	41.76	3.5																						
	110	80.14	9.00	9.00	0.54	0.25	0.40	28.44	3.5																						
	118	80.34	8.80	8.80	0.47	0.29	0.38	26.75	3.5																						
	126	80.74	8.40	8.40	0.41	0.24	0.33	21.84	3.5																						
	134	81.14	8.00	8.00	0.28	0.02	0.15	9.60	3.5																						
	142	81.54	7.60	7.60	0.02	0.05	0.04	2.13	3.5																						
	150	82.04	7.10	7.10	0.02	0.03	0.03	1.42	9.3																						
	158.0	83.84	5.30	5.30	0.12	0.13	0.13	3.64	9.3																						
	161.0	86.14	3.00	3.00	0.08	0.09	0.09	1.15	9.3																						
	167.0	15.96	89.14	0.00	0.00	0.00	0.00	0.00	1.3																						
	175.0	14.30	90.80					1.3																							
	178.3	12.48	92.62					1.3																							
	179.5	10.06	95.04					1.3																							
	181.3	9.78	95.32					1.3																							
	182.5	9.02	96.08					1.3																							



```

RUN                      MID                      TRANSECT 1
IOC      1101100000001000101000
QARD 200.0
QARD 250.0
QARD 300.0
QARD 350.0
QARD 400.0
QARD 433.8
QARD 500.0
QARD 600.0
QARD 650.0
QARD 700.0
QARD 750.0
QARD 800.0
QARD 873.2
QARD1000.0
QARD1100.0
QARD1200.0
QARD1300.0
QARD1400.0
QARD1500.0
QARD1600.0
QARD1700.0
QARD1800.0
QARD1900.0
QARD2000.0
QARD2267.1
QARD2400.0
QARD2600.0
QARD2800.0
QARD3000.0
QARD3200.0
XSEC1000.0      0.00 1.0      83.88  0.0002
1000.0  8.0 95.7 10.0 92.8 14.0 90.2 14.1 90.2 20.0 88.6 24.0 87.7
1000.0 32.0 86.8 40.0 86.2 48.0 85.9 56.0 85.5 64.0 85.3 72.0 84.8
1000.0 80.0 84.6 88.0 84.4 96.0 84.3104.0 84.2112.0 84.0120.0 83.9
1000.0128.0 85.1136.0 85.9144.0 86.1152.0 86.7160.0 86.9168.0 86.9
1000.0176.0 87.1190.0 88.9194.3 90.2200.3 98.9
NS 1000.0      1.3      1.3      1.3 0.5  1.3 0.10  9.3      8.5
NS 1000.0      8.5      8.6      8.6      8.6      8.6      8.6
NS 1000.0      8.6      8.6      8.6      8.6      8.6      8.8
NS 1000.0      8.8      8.8      8.8      8.8      8.8      8.8
NS 1000.0      8.8 0.12  3.2      1.3      1.3
CAL11000.0     90.18      873.2
VEL11000.0      0.00 .001 0.70 1.05 0.85 0.70 0.85 1.00 1.25
VEL11000.0 1.30 1.30 1.50 1.35 1.35 1.25 1.15 1.20 1.15 1.10 1.05 0.80
VEL11000.0 0.70 0.10 0.00
CAL21000.0     89.07      433.8
VEL21000.0
VEL21000.0
VEL21000.0
CAL31000.0     92.08      2267.1
VEL31000.0
VEL31000.0
VEL31000.0
ENDJ

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RUN MID
 IOC 1101100100001000101000

TRANSECT 2

QARD 200.0
 QARD 250.0
 QARD 300.0
 QARD 350.0
 QARD 400.0
 QARD 433.8
 QARD 500.0
 QARD 600.0
 QARD 650.0
 QARD 700.0
 QARD 750.0
 QARD 800.0
 QARD 873.2
 QARD1000.0
 QARD1100.0
 QARD1200.0
 QARD1300.0
 QARD1400.0
 QARD1500.0
 QARD1600.0
 QARD1700.0
 QARD1800.0
 QARD1900.0
 QARD2000.0
 QARD2267.1
 QARD2400.0
 QARD2600.0
 QARD2800.0
 QARD3000.0
 QARD3200.0
 XSEC1000.0 0.00 1.0 83.88 0.0002
 1000.0 3.0 99.1 18.0 92.2 19.0 90.9 21.8 90.3 25.0 89.4 32.0 86.2
 1000.0 41.0 84.4 50.0 84.0 59.0 84.2 68.0 84.4 77.0 84.4 86.0 84.5
 1000.0 95.0 84.7104.0 84.7113.0 84.6122.0 84.3131.0 83.7140.0 83.2
 1000.0149.0 81.9158.0 81.9167.0 82.0176.0 82.3185.0 83.9194.0 86.2
 1000.0205.0 89.4209.8 90.3210.0 90.0216.0 93.6227.5 96.8
 NS 1000.0 1.3 1.3 .035 1.3 .035 1.3 .035 7.5 7.5
 NS 1000.0 7.5 0.15 6.3 6.3 6.3 6.3 6.3
 NS 1000.0 6.3 6.3 6.3 6.3 6.3 .08 6.3
 NS 1000.0 6.3 7.3 0.15 7.3 .25 7.3 .30 3.9 .3 3.9
 NS 1000.0 0.3 1.3 1.3 1.3 1.3 1.3
 WSL 1000.0 88.10 88.37 88.60 88.80 88.99 89.10
 WSL 1000.0 89.32 89.60 89.72 89.85 89.96 90.07
 WSL 1000.0 90.22 90.47 90.64 90.81 90.96 91.12
 WSL 1000.0 91.26 91.39 91.51 91.63 91.75 91.87
 WSL 1000.0 92.15 92.28 92.48 92.65 92.82 92.99
 CAL11000.0 90.29 873.2
 VEL11000.0 0.00 0.60 0.45 0.55 0.40 0.70 0.95 1.40 1.45
 VEL11000.0 1.50 1.50 1.45 1.20 1.00 0.85 1.35 1.40 0.45 0.10 0.15 0.05
 VEL11000.0 .001 0.00
 CAL21000.0 89.10 433.8
 VEL21000.0
 VEL21000.0
 VEL21000.0
 CAL31000.0 92.15 2267.1
 VEL31000.0
 VEL31000.0
 VEL31000.0
 ENDJ

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RUN                      MID                      TRANSECT 3
IOC      1101100100001000101000
QARD 200.0
QARD 250.0
QARD 300.0
QARD 350.0
QARD 400.0
QARD 433.8
QARD 500.0
QARD 600.0
QARD 650.0
QARD 700.0
QARD 750.0
QARD 800.0
QARD 873.2
QARD1000.0
QARD1100.0
QARD1200.0
QARD1300.0
QARD1400.0
QARD1500.0
QARD1600.0
QARD1700.0
QARD1800.0
QARD1900.0
QARD2000.0
QARD2267.1
QARD2400.0
QARD2600.0
QARD2800.0
QARD3000.0
QARD3200.0
XSEC1000.0      0.00 1.0      83.88  0.0002
1000.0  0.0 97.7  9.0 94.2 10.0 91.3 12.2 90.3 14.5 89.2 22.0 86.0
1000.0 30.0 84.6 38.0 83.1 46.0 82.6 54.0 82.1 62.0 81.5 70.0 81.0
1000.0 78.0 80.4 86.0 80.2 94.0 80.8102.0 80.2110.0 80.4118.0 80.3
1000.0126.0 80.8134.0 81.3142.0 81.7150.0 82.7158.0 84.6161.0 85.7
1000.0167.0 89.0172.6 90.3175.0 90.8178.3 92.6179.5 95.0181.3 95.3
1000.0182.5 96.1
NS 1000.0      2.1      2.1      3.3 0.2  3.5      3.5
NS 1000.0      3.9      3.9      3.5      3.5      3.5
NS 1000.0      3.5 .13  3.5      3.5      3.5      3.5
NS 1000.0      3.5      3.5 .25  3.5 0.7  9.3 0.9  9.3 1.2  9.3
NS 1000.0 1.5  9.3      1.3      1.3      1.3      1.3      1.3
NS 1000.0      1.3
WSL 1000.0      88.11      88.38      88.61      88.81      89.01      89.12
WSL 1000.0      89.33      89.62      89.74      89.87      89.98      90.09
WSL 1000.0      90.25      90.49      90.66      90.84      90.99      91.14
WSL 1000.0      91.29      91.42      91.54      91.66      91.79      91.90
WSL 1000.0      92.18      92.32      92.51      92.69      92.86      93.03
CAL11000.0      90.26      873.2
VEL11000.0      0.00 .001 0.30 0.70 0.75 0.65 0.75 0.75 0.90
VEL11000.0 0.85 0.70 0.90 1.00 0.90 0.80 0.65 0.65 0.28 .001 .001 .001
VEL11000.0 .001 0.00
CAL21000.0      89.14      433.8
VEL21000.0
VEL21000.0
VEL21000.0
CAL31000.0      92.18      2267.1
VEL31000.0
VEL31000.0
VEL31000.0
ENDJ

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