

12-4-2009

Ex. 280-US-430

Mike Gagner
R2 Resource Consultants

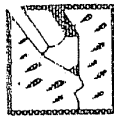
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SP-18



"Aids in the Rain"
ALL-WEATHER
LEVEL BOOK
No. 310 F

1418.01

4/11/04

SP-18 High Flow 04/11/04

Crew: M. Gagner
M. Appy

Weather: Clear & Warm ~ 75° F

No precip. in over two weeks

	In	Out
Time	12:30	5:45
S.G	3.0	2.99

Flow is slowly dropping

Equipment: Nikon Level

SNI:

Marsh McBirney Model 2000

SNI: 2005068

SP-18 04/11/04

Directions: From dike in head east on Sprague R. Hwy. for ~ 7 miles. Turn left on seven mile rd and follow signs to Case Ranch.

Notes: Need to contact Ed

Case before ~~access~~ accessing

Site. Ask Gentry call Dan

Gentry if unable to reach

Ed Case.

07/11/04

SP-18 Transect Placement

* Only one habitat type (run/ride) was present in the 2,589 ft of river that was habitat mapped.

* transects will be placed approx. 150-200 yards apart to cover the greatest extent of the unit, and still allow for t.

SP-18 Photo Log 04/11/04

Photo #	Description
#17	SP-18 North Bank
#16	looking Lt → Rt across TR-1
#15	" d/s from SW-2/TP
#14	" u/s " "
#13	looking Lt → Rt across TR-2
#12	" Lt → Rt across TR-3
#11	" u/s from TR-3 (house on hill)
#10	" d/s " "

STA	BS	HI	FS	Elev
SP-18 Level Loop 04/11/04				
B/M	1.23	101.23		100.00
TR-1 HP			6.97	94.26
TP/BM-2			8.97	92.26
(TP) TP/BM-2	4.55	96.81		92.26
TR-2 HP			2.95	93.86
(TP) TR-2 HP	4.78	98.64		93.86
TR-3 HP			4.74	93.90
(TP) TR-3 HP	4.87	98.77		93.90
TR-2 HP			4.91	93.86
(TP) TR-2 HP	3.65	97.51		93.86

STA	BS	HI	FS	Elev	Rod
SP-18 Level Loop 04/11/04					
TP/BM-2		97.51			
(TP) TP/BM-2	8.46	100.72		92.26	
TR-1 HP			6.47	94.25	
B/M-1			0.73	99.99	OK
TR-1		100.72			
LWS			9.94	91.24	0.46
RWS			9.74	91.24	0.26
TR-2					
HP	3.19	97.05		93.86	
LWS			6.20	91.29	0.44
TR-3					
HP			3.15		
LWS			5.92	91.33	0.20

SP-18 Discharge 04/11/04

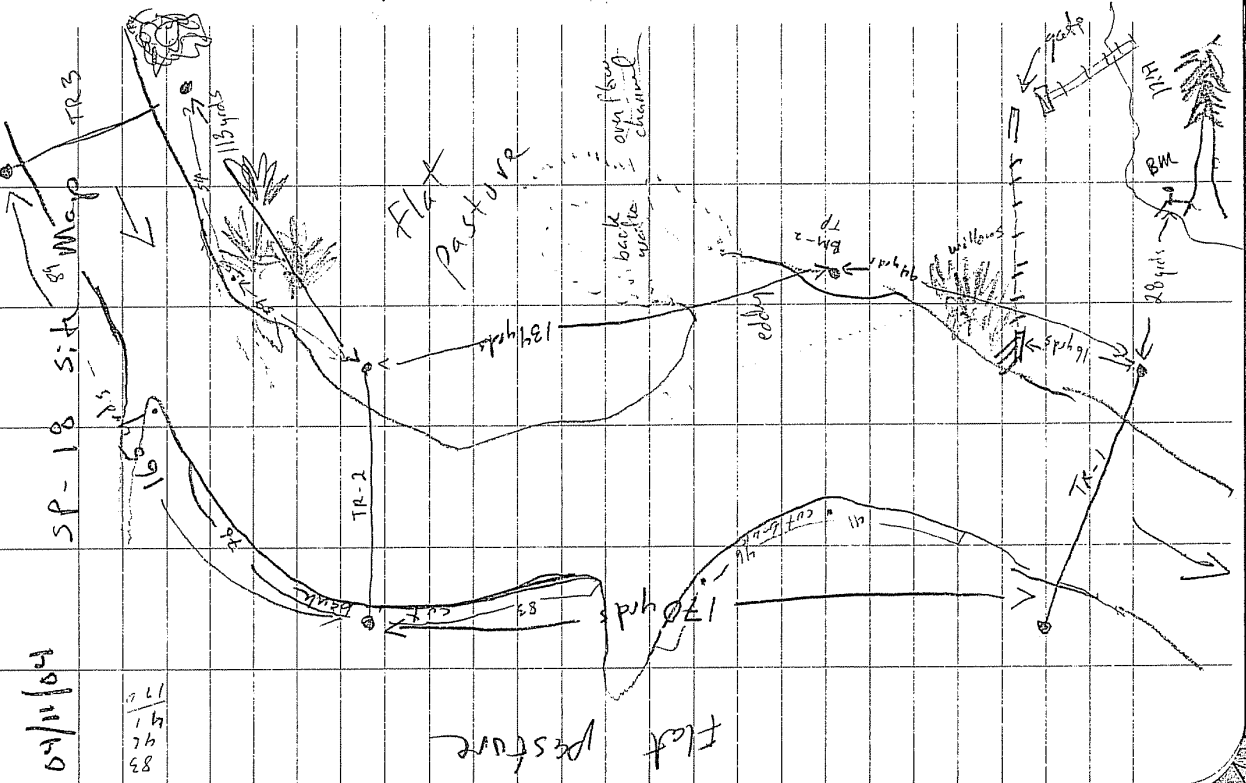
STA	Depth	Well
14.5	.75	.19
11.5	0	0

SP-18 Discharge Velocity 04/11/04

STA	Depth	0.6	0.2	0.8	Notes
139	1.3		.66	.51	
135	2.95		.83	1.05	
127	3.9		.92	1.27	
121	5.0		.83	1.18	
115	5.25		.99	1.37	
109	5.0		1.10	1.38	
103	5.15		1.16	1.32	
97	5.3		1.11	1.34	
91	5.6		1.08	1.44	
85	6.2		1.23	1.50	
79	5.9		1.39	1.53	
73	7.3		1.37	1.45	
67	8.4		1.42	1.42	
61	8.3		1.29	1.32	
55	8.3		1.33	1.30	
49	8.0		1.25	1.18	
43	6.6		1.16	1.18	
37	6.0		1.02	1.05	
31	5.1		.86		
25	3.0				
19	2.2	74			
17	1.65	50			

89
7.5
1.5

5A+
5.1
1.1



02/11/04

83
42
17.5

SP-18



"Auto in the Rain"
ALL-WEATHER
LEVEL BOOK
No. 310 F

6/26/04

SP-18

06/26/04

06/26/04

	In	Out
Time	2:00	6:00
S.G.	0.45	0.45

Crew: M. Boyman
C. M. ...

equipment: Marsh M. Birney
Medal 2000
SPD: 2005068

photo log:

- 35 - 1 looking up from below TK-1
- 36 - " " "
- 1 - 1 looking LT → RT across TK-1
- 2 - " " up from below TK-2
- 3 - " " "
- 4 - " " across TK-2 RT → LT

STA	BS	HT	FS	Elevon
B.M.	0.11	100.11		100.00
TR-1		5.82		94.29
TR-2		6.58		93.53
(TP) TR-2	3.84	97.37		97.37
TR-3		4.13		93.24
(TP) TR-3	4.71	97.95		93.90
TR-2		4.13 - 4.43		93.52
B.M-2		6.10		91.85
(TP) B.M-2	7.89	99.74		92.26
B.M-1		100.15		
		0.18		99.97 99.56

* unable to confirm HF elevations
use elevations developed during 07/11 survey

SP-18		TR-1			06/26/04	
STA	BS	HI	FS	Bench	to file	i use
	D, 50	100.50		Elevn		Sub. i Rod
TR-1	HP		6.22	100.00	94.28	
1.0	Lwp		6.70	veg/dist		
8.0			7.52	"		
11.0			9.04	"		
16.5			10.45			st/veg
18.0	LWE		11.53			st/veg
	LWS		11.41	89.09	0.0	
136.5	RWE		11.41			
	RWS		11.75	89.09	.34	
144.5			9.28		veg/dist	
146.0			7.87		veg/dist	
155.6	cup		7.12			
	LWE	RWE	LWS	RWS	use	Elevation
TR-1	18.0	136.5	89.09	89.09		89.09
TR-2	161.0	212.0	89.13	89.13		89.13
TR-3	31.0	129.5	89.27	89.27		89.27

STA	TR-1	COVER	6/26/04	% DOM
D	Y	VEG/ST	ST/ST	
18.0	φ			70
20.0	0.65			70
23.0	0.87	ST/VEG		70
28.0	1.68	ST/SD		80
33.0	0.97	"		90
38.0	2.84	"		"
43.0	3.14	ST/SG		70
48.0	3.10	"		60
53.0	3.00	"		"
58.0	3.10	"		"
63.0	3.25	"		"
68.0	3.50	"		"
73.0	3.85	"		"
78.0	4.30	ST/SD		90
83.0	4.30	"		"
88.0	5.65	"		"
93.0	6.60	"		"
98.0	6.50	"		"
103.0	6.60	"		"
108.0	6.40	"		"
113.0	6.00	"		"
118.0	5.20	"		"
123.0	4.60	VEG		4
128.0	3.10	VEG		80
133.0	1.8	"		90
138.5	0.7	"		90
	φ			90

SP-18	TR-2	Bank Prof. Co	6/26/09
STA BS	HT	FS	Element
TR-2 HP	4.98	98.84	Subst/Rod
236.3 RWP	5.66		sod/dirt
226.5	5.91		"
224.2	8.46		dirt/sand
212.0 RWE	9.77		s.A/sand
195.0 RWS	10.30	87.13	0.59
61.0 LWE	9.61		silt/sand
LWS	9.71	89.13	0.20
37.0	9.02		silt/veg
33.2	7.84		veg/silt
19.3	7.54		"
1.0 LWP	5.34		veg/dirt

SR-18	TR-2	COVER	6/26/09
STA RWE	φ	φ	ST/SD
61.0	0.38	0.08	"
65.0	0.61	1.10	"
73.0	0.55	0.00	60
81.0	1.60	0.34	60
89.0	1.80	-0.01	"
97.0	1.82	0.01	"
105.0	2.02	-0.03	"
113.0	2.00	-0.01	"
121.0	2.10	0.02	"
129.0	2.40	0.58	"
137.0	2.62	0.00	"
145.0	2.80	0.79	"
153.0	2.20	0.10	"
161.0	2.52	0.90	ST/SG 70
169.0	2.62	0.47	"
177.0	2.60	0.80	"
185.0	2.00	0.85	ST/SD 80
190.0	2.60	1.05	"
198.0	2.00	0.44	"
200.0	0.60	0.32	"
212.0 LWE	0.0	0.60	"
	0.0	-0.05	"
	0.0	0.0	"

SP-18 TR-3 Bank Prof. a & c use 06/26/04
 STA BS HI FS Eleva Subst. Rod

TR-3 HP	5.71	99.61		93.90	
1.0 LWP			5.94		grass/soil
149.7 RWP			5.86		2 1/2 grass
145.0			7.20		"
121.0 129.5			9.47		grass/soil
129.5 RWE			10.40		"
128.8 RWS			11.71	89.27	1.37
31.0 LWS			10.38	89.27	7.38
					.04
29.5 LWE					veg/soil
24.0			9.14		"
22.0			8.17		"
			7.33		

TR-3 TR-3
 STA D V COVER SUB 06/26/04
 31.0 0 0.13
 34.0 1.00 0.13
 39.0 1.95 0.25
 44.0 3.00 0.25
 49.0 3.50 0.42 0.42
 54.0 4.00 0.34 0.34
 59.0 4.30 0.34 0.46
 64.0 4.55 0.44 0.51
 69.0 4.40 0.51 0.30
 74.0 4.40 0.30 0.58
 79.0 4.40 0.54 0.26
 84.0 4.80 0.00 0.60
 89.0 4.30 0.48 0.48
 94.0 4.20 0.41 0.49
 99.0 4.05 0.33 0.20
 104.0 3.80 0.19 0.30
 109.0 3.67 0.28 0.22
 114.0 3.20 0.17 0.02
 119.0 2.20 0.16
 124.0 1.90 0.06
 128.0 0.62 0.02
 129.5 0 0

TR-3 TR-3
 STA D V COVER SUB 06/26/04
 31.0 0 0.13
 34.0 1.00 0.13
 39.0 1.95 0.25
 44.0 3.00 0.25
 49.0 3.50 0.42 0.42
 54.0 4.00 0.34 0.34
 59.0 4.30 0.34 0.46
 64.0 4.55 0.44 0.51
 69.0 4.40 0.51 0.30
 74.0 4.40 0.30 0.58
 79.0 4.40 0.54 0.26
 84.0 4.80 0.00 0.60
 89.0 4.30 0.48 0.48
 94.0 4.20 0.41 0.49
 99.0 4.05 0.33 0.20
 104.0 3.80 0.19 0.30
 109.0 3.67 0.28 0.22
 114.0 3.20 0.17 0.02
 119.0 2.20 0.16
 124.0 1.90 0.06
 128.0 0.62 0.02
 129.5 0 0

SP-18



Allen Co. Inc.
ALL-WEATHER
LEVEL BOOK
No. 310 F

8/18/04

1418.01

SP-18 Low Flow Sample 8/18/04

Time	In	Out
8:30	2.5	1:30
S.G.	2.5	2.5

Crew: M. Gagner
B. Nelson

Equipment: Marsh McBerry Model 2000
SN: 2105068
Lietz B1 SN 8918

SP-18 Level Log 08/18/04

STA	BS	HT	FS	Elev
BM	0.11	100.11		100.00
TR-1 HP			5.84	94.27
TP-1			5.99	94.12
TP-1	3.40	97.52		94.12
TP-2			4.95	92.57
TP-2	6.24	98.81		92.57
TR-2 HP			4.94	93.87
TR-3 HP			4.97	93.84
TP-3 HP	4.45	98.29		93.84
TR-2 HP			4.44	93.85
TP-2			5.34	92.56

SP-18 level loop Conch 8/10/04 8/18/04

STA BS	HT FS	Elev	STA BS	HT FS	Elev
TP-2 4.73	97.29	98.56	TR-1 HP	5.43	94.25

TR-1	3.18	94.11	TR-1 LWS	10.40	89.28
TR-1	6.03	94.11	TR-1 RWS	10.42	89.26

TR-1 HP	5.89	94.25 ✓	TR-2 HP	4.67	98.53
B.M.	0.15	97.99 ^{3x} Mike	TR-2 LWS	9.15	89.38
			TR-2 RWS	9.18	89.35

From 9/11 Survey
93.84 90 ✓

TR-3 HP	5.55	99.45	TR-3 LWS	10.07	89.38
		97.57	TR-3 RWS	10.08	89.37

Field crew was trying to force water to go downhill by changing H.P. elevation. Recommend use the actual HP-3 survey elevation, 93.84, to calculate ~~HI~~ HI. Then compensate the HI by adding the movement of HP-3. In this case, HP-3 may have moved (sunk) 0.06 ft, so the real HI = 93.84 + 5.55 + 0.06 = 99.45 ft. Why use # from 4/11 instead of 8/18?

Also see calibration notes for the derivation of the 0.06 ft elevation change. -cmh 1/27/05

SP-18 TR-1 Cond. 8/18/04
 STA Depth Vel Notes
 28 1.53 0.39
 23 1.00 -0.02 0.7
 20 0.60 0.0 AD. VEG. 0.6
 18 0.0 0.0 LWE

Marsh Mc Birney Meter

SP-18 DIV 8/18/04
 STA Depth TR-1 Vel Notes
 PWE
 VEG DER: 0.60

SP-18 STA	Depth	TR-1 Vel	Notes
137.6	0.0	0.0	PWE
136.5	0.30	0.05	
133	0.90	0.00	0.00
128	2.1	0.16	
123	3.4	0.01	0.0
118	4.3	-0.04	
113	4.35	0.18	0.0
108	6.0	0.20	-0.1
103	6.5	0.43	0.08
98	7.0	0.49	0.18
93	6.7	0.44	0.03
88	6.7	0.34	0.33
83	5.5	0.4	0.08
78	4.2	0.28	0.6
73	4.35	0.12	0.18
68	4.06	0.19	0.0
63	3.65	0.21	0.12
58	3.40	0.30	0.14
53	3.20	0.12	0.20
48	3.20	0.10	0.12
43	3.25	0.14	-0.02
38	3.23	0.20	0.16
33	2.68	0.38	0.12
			0.03

3.3
 4.3
 4.0
 7.0
 1.0
 3.0
 1.0
 2.0
 4.0
 1.0
 3.5
 1.5
 1.5
 1.2

SP-18 TR-2 0 EV 8/18/04

STA Depth Vel Notes

* Tape used @ 2.0 = LWF
added 1.0 to all (6/16/04) stations

STA	Depth	Vel	LWE
61.0	0.0	0.0	0.0
62	0.15	0.0	0.0
66	0.50	0.03	0.0
74	0.78	0.36	0.0
82	0.82	0.03	0.0
90	1.80	0.21	0.0
98	2.00	0.09	0.0
106	1.95	0.22	0.0
114	2.05	0.29	0.0
122	2.10	0.41	0.0
130	2.20	0.38	0.0
138	2.50	0.54	0.10
146	2.90	0.50	0.25
154	2.65	0.53	0.07
162	2.75	0.50	0.0
170	2.65	0.57	0.12
178	2.82	0.62	0.12
186	2.78	0.59	0.31
198	2.30	0.27	0.0
193	1.05	0.35	0.0
201	0.50	0.12	0.0
213	0.10	0.05	0.0
215	0.0	0.0	MWE

VEG 0.07

1.20
0.70
0.70
0.40
1.00

SP-18 7K-3 D EV 8/18/04

STA Depth Vel Notes

* Tape used @ 2.0 = LWF
added 1.0 to all stations

STA	Depth	Vel	LWE
32.2	0.0	0.0	0.0
35	1.00	-0.07	0.0
40	2.00	0.05	0.0
45	2.82	0.12	0.13
50	3.60	0.21	0.16
55	4.00	0.23	0.21
60	4.40	0.34	0.27
65	4.50	0.40	0.31
70	4.40	0.48	0.40
75	4.50	0.40	0.30
80	4.50	0.41	0.32
85	4.80	0.44	0.21
90	4.50	0.37	0.32
95	4.30	0.23	0.30
100	4.10	0.22	0.31
105	3.85	0.20	0.25
110	3.75	0.17	0.23
115	3.20	0.11	0.10
120	2.25	0.10	0.0
125	1.95	0.03	0.0
129	0.95	0.0	0.0
130	0.0	0.0	MWE