12-4-2009

Ex. 280-US-430

Mike Gagner
R2 Resource Consultants

SP-18

"Keep in the Race"

ALL-WEATHER

LEVEL BOOK

No. 310 F

1418.01

4/11/04

CONTENTS

PAGE	REFERENCE	DATE

"Rite in the Rain"®
ALL-WEATHER WRITING PAPER

ALL-WEATHER
LEVEL BOOK

Name Mike Gagner
R2 Resource Consultants
Address 15250 NE 95 st
Redmond, WA 98052
Phone 425/556-1288

Project 1418.01 PHABSIM site

This book is printed on "Rite in the Rain" All-Weather Writing Paper - A unique paper created to shed water and enhance the written image. It is widely used throughout the world for recording critical field data in all kinds of weather. For best results, use a pencil or an all-weather pen.

Specifications for this book:

Page Pattern		Cover Options	
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Columnar	Columnar	Item No. 310	Item No. 310F

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
SN:
Marsh McBirney Model 2000
SN: 2005068

SP-18 04/11/04

Directions: From chiloquin 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 ~~going~~ accessing site. ~~Ask Gentry~~ call Ken Gentry if unable to reach Ed Case.

04/11/04

SP-18 Transect Placement

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

* Transects will be placed approx. 150 – 200 yrds apart to cover the greatest extent of the unit ~~and still allow for ti~~

SP-18 Photo Log 04/11/04

Photo #	Description
#17	SP-18 Data Book
#16	looking Lt → Rt across TR-1
#15	" d/s from BM-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 " "

SP-18 Level Loop 04/11/04

STA	BS	HI	FS	Elevn
BM	1.23			100.00
		101.23		
TR-1 HP			6.97	94.26
TP/BM-2 (TP)			8.97	92.26
TP/BM-2	4.55			92.26
		96.81		
TR-2 HP			2.95	93.86
(TP)				
TR-2 HP	4.78			93.86
		98.64		
TR-3 HP			4.74	93.90
(TP)				
TR-3 HP	4.87			93.90
		98.77		
TR-2 HP (TP)			4.91	93.86
TR-2 HP	3.65			93.86
		97.51		

Level Loop &

SP-18 WSE 04/11/04

STA	BS	HI	FS	Elevn	Rod
		97.51			
TP/BM-2 (TP)			5.25	92.26	
TP/BM-2	8.46			92.26	
		100.72			
TR-1 HP			6.47	94.25	
BM-1			0.73	99.99	

WSE

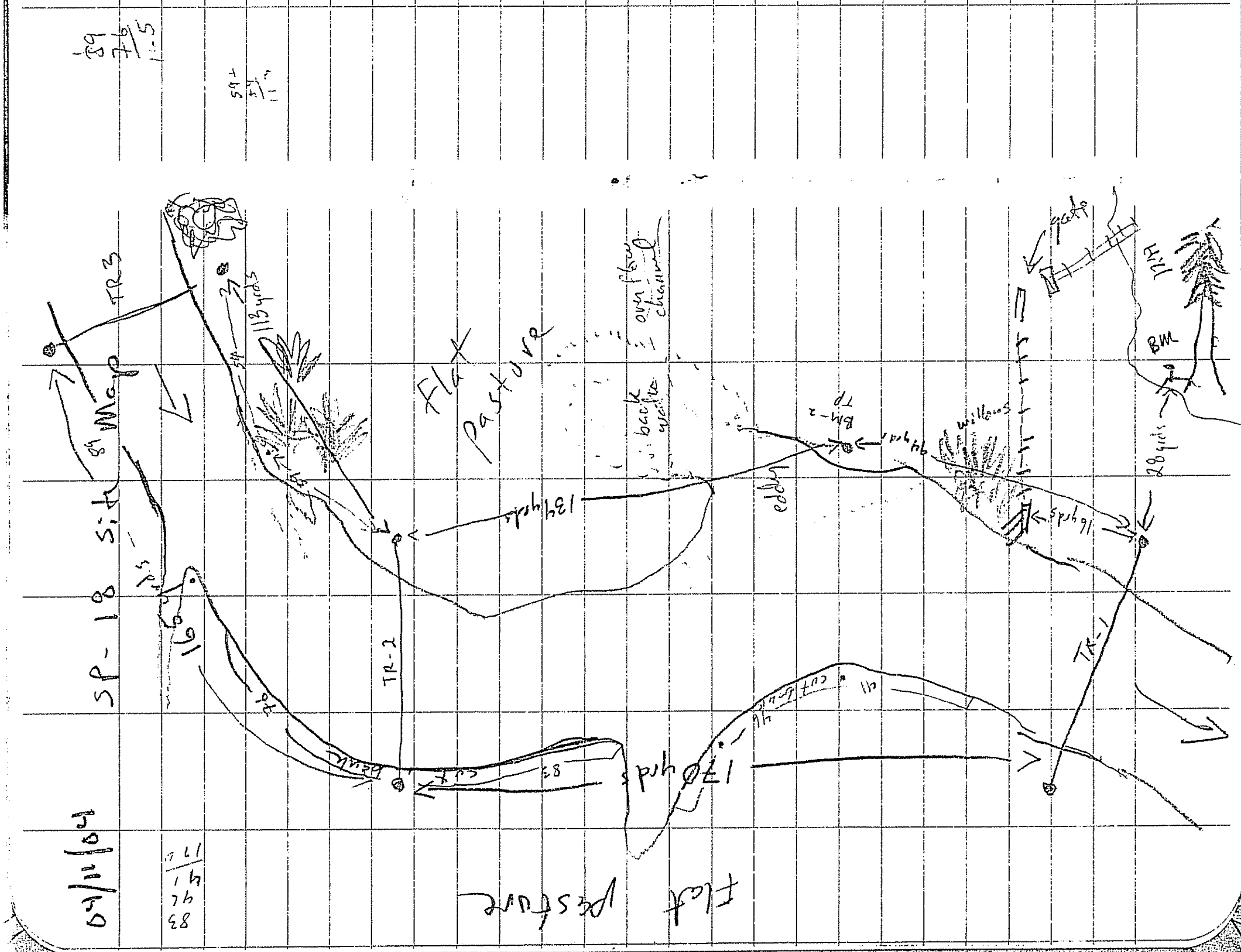
TR-1		100.72			
LWS			9.94	91.24	0.46
RWS			9.74	91.24	0.26
TR-2					
HP	3.19	97.05		93.86	
LWS			6.20	91.29	0.44
TR-3					
HP			3.15		
LWS			5.92	91.33	0.20

SP-18 Discharge 04/11/04

STA	Depth	Velocity 0.6	0.2	0.8	Notes
WVE 143.6	0	0			
139	1.3	.09			
133	2.95		.66	.51	
127	3.9		.88	1.05	
121	5.0		.72	1.27	
115	5.25		.83	1.18	
109	5.0		.99	1.37	
103	5.15		1.10	1.38	
97	5.3		1.16	1.32	
91	5.6		1.11	1.34	
85	6.2		1.08	1.44	
79	5.9		1.23	1.50	
73	7.3		1.39	1.53	
67	8.4		1.34	1.45	
61	8.3		1.42	1.42	
55	8.3		1.29	1.32	
49	8.0		1.33	1.30	
43	6.6		1.25	1.18	
37	6.0		1.16	1.18	
31	5.4		1.02	1.05	
25	3.0		.88	.86	
19	2.2	.74			
17	1.65	.50			

SP-18 Discharge 04/11/04

STA	Depth	Vel
14.5	.75	.19
11.5	0	0


SP-18 Site Map
04/11/04
Flat pasture
Flat pasture
TR3
TR-2
TR-1
BM
BM-2
TP
eddy
willows
gate
113 yds
134 yds
170 yds

SP-18

"Life in the Air"

ALL-WEATHER

LEVEL BOOK

No. 310 F

6/26/04

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ALL-WEATHER WRITING PAPER

ALL-WEATHER
LEVEL BOOK

Name Mike Gagner
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Address 15250 NE 95 st
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1

SP-18 06/26/04

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

Crew: W Gagnon
C. Macallie

equipment: Marsh McBirney
Model 2000
SN: 2005068

Photo log:

mab 1	35	looking u/s from below TR-1
	36	" " "
mab 2	1	looking Lt → Rt across TR-1
	2	" u/s from below TR-2
	3	" TR-2
	4	" across TR-2 Rt → Lt

Level Loop 06/26/04

STA	BS	HI	FS	Elevation
BM	0.11			100.00
		100.11		
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
		98.61		
TR-2		~~4.43~~	4.43	93.52
BM-2			6.10	91.85
(TP)				
BM-2	7.89	99.74		92.26
		100.15		
BM-1			0.18	~~99.97~~ 99.56

* unable to confirm HI elevations
use elevations developed during 04/11 survey

06/26/04

SP-18 TR-1 Bank Profile & WSE

STA	BS	HI	FS	Elevation	Sub. & Rod
BM	0.50	100.50		100.00	
TR-1 HP			6.22	94.28	
1.0 LWP			6.70	veg/dirt	
8.0			7.52	"	
11.0			9.04	"	
16.5			10.45		silt/veg
18.0	LWE		11.53		silt/veg
	LWS		11.41	89.09	0.0
136.5	RWE		11.41		
	RWS		11.75	89.09	.34
144.5			9.28		veg/dirt
146.0			7.87		veg/dirt
155.6	RWP		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

SP-18 TR-1 6/26/04

STA	D	V	COVER	SOIL	% DOM
18.0	ϕ	ϕ		VEG/ST	70
20.0	0.65	ϕ		"	70
23.0	0.87	0.03		ST/VEG	70
28.0	1.68	0.15		ST/SD	80
33.0	2.84	0.26		"	90
38.0	3.14	0.16, 0.08		"	"
43.0	3.10	0.10, 0.24		ST/SG	70
48.0	3.00	0.24, .09		"	60
53.0	3.10	.18, 0.30		"	"
58.0	3.25	0.29, 0.20		"	"
63.0	3.50	0.22, 0.29		"	"
68.0	3.85	0.32, 0.11		"	"
73.0	4.30	0.02, 0.40		"	"
78.0	4.30	0.44, .03		ST/SD	90
83.0	5.65	0.13, 0.46		"	"
88.0	6.60	0.52, 0.24		"	"
93.0	6.50	0.44, 0.52		"	"
98.0	6.60	0.49, 0.23		"	"
103.0	6.40	0.30, 0.44		"	"
108.0	6.00	0.32, 0.09		"	"
113.0	5.20	0.30, 0.19		"	"
118.0	4.60	0.14, .01	VEG	"	"
123.0	3.10	.09, 0.22	VEG	"	80
128.0	1.8	0.13	"	"	90
133.0	0.7	-.05	"	"	90
136.5	ϕ	ϕ		"	90

SP-18 TR-2 Bank Proj/Co

STA	BS	H±	FS	Elevation	Subst/Rod
TR-2 HP	4.98	98.84		93.86	
236.3 RWP			5.66		sod/dirt
226.5			5.91		"
224.2			8.46		dirt/sand
212.0 RWE			9.77		silt/sand
195.0 RWS			10.30	89.13	~~0.59~~
61.0 LWE			9.61		silt/sand
LWS			9.71	99.13	~~0.00~~
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 6/26/04

STA	D	V	COVER	SUB.	%DOM
61.0 RWE	ϕ	ϕ		ST/SD	90
65.0	0.38	0.08		"	"
73.0	0.61	1.10		"	"
81.0	0.55	0.00	VEG	"	60
89.0	1.60	0.34	VEG	"	60
97.0	1.80	-.01	"	"	"
105.0	1.82	0.01	"	"	"
~~TR~~ 113.0	2.02	-.03	"	"	"
121.0	2.00	-.01	"	"	"
129.0	1.10	0.02	"	"	"
137.0	2.40	0.58	"	"	"
145.0	2.62	0.00 / 0.79		"	"
153.0	2.80	0.98 / 0.10	VEG	"	"
161.0	2.20	0.90	—	ST/SG	70
169.0	2.52	0.47 / 0.80	—	"	"
177.0	2.62	0.85	—	"	"
185.0	2.60	1.05 ×12 / .44	—	ST/SD	80
190.0	2.0	.32	—	"	"
192.0	0.0	.60	—	"	"
200.0	0.3	-.05	—	"	"
212.0 LWE	0.0	0.0		"	"

SP-1B TR-3 Bank Profile & WSE 06/26/04

STA	BS	HI	FS	Elevation	Subst./Rmk
TR-3 HP	5.71	99.61		93.90	
1.0 LWP			5.94		grass/dirt
149.7 RWP			5.86		dirt/grass
145.0			7.20		"
~~131.0~~ 129.5			9.47		grass/silt
129.5	RWE		10.40		"
128.2	RWS		11.71	89.27	~~1.38~~ 1.37
31.0	LWS		10.38	89.27	.04
	LWE				
29.5			9.14		veg/dirt
24.0			8.17		"
22.0			7.33		"

Transect ~~SITE~~ APPEARED TO BE BEST CHOICE FOR 2D

SP-1B TR-3 06/26/04

STA	D	V	COVER	SUB	% NON
31.0	0	0	—	ST/VEG	70
34.0	1.00	0.13		SJ/SD	90
39.0	1.95	0.25		"	90
44.0	3.00	~~1.95~~ 0.42	Yes	"	"
49.0	3.50	0.42 0.34		"	"
54.0	4.00	0.31 0.46		"	"
59.0	4.30	0.52 0.46		"	"
64.0	4.55	0.44 0.51		ST/SD	60
69.0	4.40	0.51 0.30		"	"
74.0	4.40	0.30 0.58		"	"
79.0	4.40	0.56 0.26		SG/ST	60
84.0	4.86	0.00 0.60		"	"
89.0	4.30	0.49 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		ST/SD	70
119.0	2.20	0.16		ST/SD	70
124.0	1.90	0.06		"	80
128.0	0.62	0.02		"	"
129.5	0	0	—	VEG/ST	80

SP-18

ALL-WEATHER
LEVEL BOOK
No. 310 E

8/18/04

1418.01

SP-18 Low Flow Sample 8/18/04

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

Crew: M. Gagner
B. Nelson

Equipment: Marsh McBirney Model 2000
SN: 2005068
Leitz Bl SN 8918

SP-18 Level Loop 08/18/04

STA	BS	HI	FS	Elevation
BM	0.11			100.00
		100.11		
TR-1 HP			5.84	94.27
TP-1			5.99	94.12
TP				
TP-1	3.40			94.12
		97.52		
TP-2			4.95	92.57
TP				
TP-2	6.24			92.57
		98.81		
TR-2 HP			4.94	93.87
TR-3 HP			4.97	93.84
TP				
TR-3 HP	4.45			93.84
		98.29		
TR-2 HP			4.44	93.85
TP-2			5.73	92.56
TP				

SP-18 level loop Cmh 8/18/04

STA	BS	HI	FS	Elevn
TP-2	4.73			92.56
		97.29		
TP-1			3.18	94.11
(TP)				
TP-1	6.03			94.11
		100.14		
TR-1 HP			5.89	94.25 ✓
BM			0.15	99.99 SK pkd

SP-18 WSE 8/18/04

STA	BS	HT	FS	Elevn
TR-1 HP	5.43			94.25
		99.68		
TR-1 LWS			10.40	89.28
RWS			10.42	89.26
TR-2 HP	4.67			93.86 ✓
		98.53		
TR-2 LWS			9.15	89.38
RWS			9.18	89.35
TR-3 HP	5.55	99.45 ~~99.39~~		From 4/11 survey 93.~~84~~ 90 ✓
TR-3 LWS			10.07	89.38
RWS			10.08	89.37

Field crew was trying to force water to go ~~downhill~~ downhill by changing H.P. elevation. Recommend use the actual HP-3 survey elevation, 93.84, to calculate ~~elev~~ HI. Then compensate the HI by adding the movement of HP-3. In this case, HP-3 may have moved (sank) 0.06 ft, ~~compared~~ so the real HI = 93.84 + 5.55 + 0.06 = 99.45 ft.

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

Ask Mike. Why use # from 4/11 instead of 8/18?

SP-18 TR-1 D&V 8/18/04

STA	Depth	Vel	Notes
137.6	0.0	0.0	RWE
136.5	0.30	0.05	
133	0.90	0.06 / 0.0	YEG DEP: 0.6
128	2.1	0.16	
123	3.4	0.01 / 0.0	3.3
118	4.3	-0.04 / 0.0	4.3
113	4.85	0.18 / -0.1	4.0
108	6.0	0.20 / 0.08	2.0
103	6.5	0.43 / 0.18	1.0
98	7.0	0.49 / 0.05	3.0
93	6.7	0.44 / 0.33	1.0
88	6.7	0.34 / 0.4 / 0.08	2.0
83	5.5	0.6	4.0
78	4.2	0.28 / 0.18	1.0
73	4.35	0.12 / 0.0	3.5
68	4.00	0.19 / 0.12	
63	3.65	0.21 / 0.14	
58	3.40	0.30 / 0.20	
53	3.20	0.42 / 0.12	1.5
48	3.20	0.10 / -0.03	1.5
43	3.25	0.14 / 0.16	
38	3.23	0.20 / 0.12	
33	2.68	0.38 / 0.03	1.2

SP-18 TR-1 cont. 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 McBirney Meter

SP-18 TR-2 D & V 8/18/04

STA	Depth	Vel	Notes
			* tape tried @ 2.0 = LWP
			added 1.0 to all (6/26/04) stations
60			
61.0	0.0	0.0	LWE
61			
62	0.15	0.0	
66	0.50	0.03	
74	0.78	0.36	
82	0.82	0.03	
90	1.80	0.21	
98	2.00	0.09	
106	1.95	0.22	
114	2.05	0.29 / 0.0	
122	2.10	0.41	
130	2.20	0.38	
138	2.50	0.54 / 0.10	
146	2.90	0.50 / 0.25	
154	2.65	0.51 / -0.03	
162	2.25	0.50	
170	2.65	0.57 / 0.48	
178	2.82	0.63 / 0.12	
186	2.78	0.59 / 0.39	
198	2.30	0.27	
193	1.05	0.35	
201	0.50	0.12	
213	0.10	0.05*	
215	0.0	0.0	MWE

VEG DEP: 0.7
1.20
0.70
0.70
0.40

1.00

SP-18 TR-3 D & V 8/18/04

STA	Depth	Vel	Notes
32.2	0.0	0.0	LWE Tape tried @ 2.0 = LWP
35	1.00	-0.07	added 1.0 to all stations
40	2.00	0.05	
45	2.82	0.12 / 0.13	
50	3.60	0.51 / 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	0.39 / 0.35	
95	4.30	0.33 / 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	
125	1.95	0.08	
129	0.95	0.0	
130	0.0	0.0	MWE