

**SuWa - Focus Area Features
September 2014**

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Phil Hilgert

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PAGE	REFERENCE	DATE

FA-115 9/23

12:37

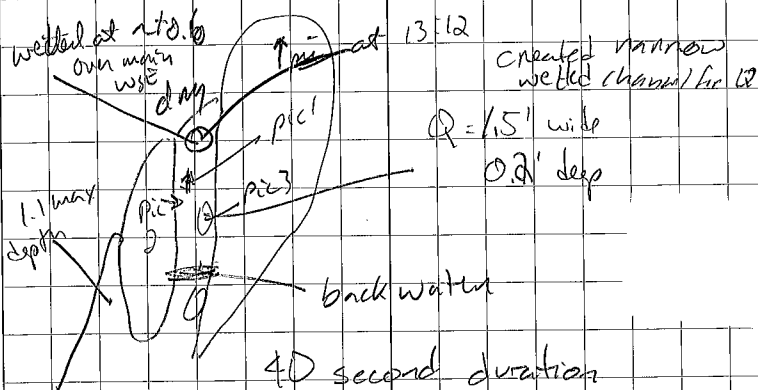
Drive D-221 - T+

Air temp 1

Pencil Helix - R2

Water temp 6°C

Mid-channel Island Feature C



T₁ 11 rotations

T₂ 9 rotations

T₃ 14 rotations

T₄ 10 rotations

Rating 2

15 rot/s 0.84 cfs

FA-113 Gash Creek Q

9/23/14 st 2:50 pm
 trib temp 7.5°C stop 15:15 pm
 Main stem temp 6°C
 Dave Pizzi TF Price AA
 Bob Ticeney TX pic
 Phil Hilgeat - R2

Sta	Depth	Reo/40sec	Vo f/s
0	+1.8		
1.5	+1.2		
2.0	0.0 WE		
2.5	0.1		0.2 est
3.0	0.2	12/40	0.626
3.5	0.3	21	1.17
4.0	0.3	16	0.88
4.5	0.4	22	1.22
5.0	0.5	32	1.75
5.5	0.6	36	1.96
6.0	0.6	64	3.53
6.5	0.6	64	3.54
7.0	0.5	44	2.4
7.5	0.5	43	2.35
8.0	0.4	35	1.94

continued next page

FA-113 9/23/14
 Gash Creek Q pg 2

Sta	Depth	Reo/40sec	Vo f/s	
8.5	0.4	30	1.65	
9.0	0.3	21	1.17	
9.5	0.3	14	0.76	
10.0	0.4		0.76 est	undercut bank
10.3	0.3		0.76 est	undercut bank
10.4	+1.8			Same as 9.5

Agua calc Q = 7.2 cfs

Transect 1

Tenna Tech Agua Calc # 61

FA-113 Slash Ca 9/23/14

Dave Pretz - TT PhD Hlgout Q measurement
 Bob Tierney - TT R2
 st 15:50
 stop 16:12
 mainstem temp: 6.5°C
 trib temp: 7°C

Sta	Depth	Rew/10sec	V0	Pump METER
2.2	+0.8	*		
2.3	0			LEW
2.4	0.2	7		
3.0	0.2	21		
3.5	0.2	14		
4.0	0.2	20		
4.5	0.2	13		
5.0	0.1	13		
5.5	0.1		0.2 est	
6.5	0			REW

FA-113 9/23/14

Feature B

Sta	Depth	Lower Pool x-section	Lower Pool Longitudinal - Depth
0		LEW	0.1
1.0	1.2		0.2
2.0	1.7		0.5
3.0	1.4		1.1
4.0	1.2		1.4
5.0	1.1		1.8
6	0.9		1.8
7	0.8		0.5
8	0.6		0.1
9	0.5		
10	0.4		
11	0.3		
12.5		REW	

FA-113 Feature B

9/23/14

Upper Pool

Longitudinal

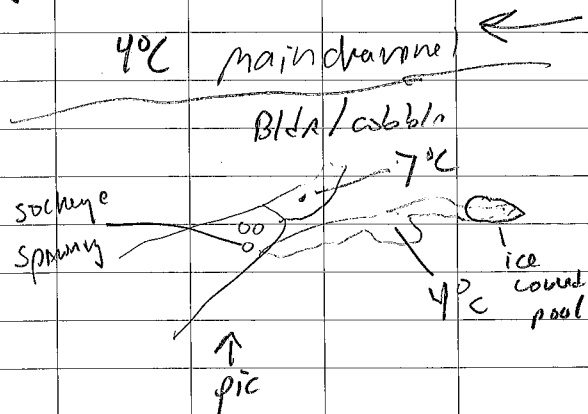
Sta	Depth	Sta	Depth	
0	0.0	2.5	0	LEW
10	0.3	4	0.8	
20	0.5	5	1.1	
30	0.7	6	1.3	
40	0.6	7	1.4	
50	0.9	8	1.5	
60	1.2	9	1.4	
70	1.3 →	10	1.3	
80	1.6	11	1.1	
90	1.4	12	0.9	
100	1.3	13	0.7	
110	1.8	14	0.0REW	
120	2.0			
130	1.6			
140	0.5			
143	upper end of pool			

FA-144 9/29/14

P. Hilgent notes D. Pizzi measurements

0911 sockeye spawning at head of side channel pool at Feature E pool is isolated from main channel flow but < 1 cfs est trickling through cobble berm at head of pool

Mainstem water temp at 0915 = 4°C
water temp of water trickling among cobbles at 0917 = 7°C



10:15 1°C
air temp

slough near FA-144 Feature F

trickle < 2 gal per minute into pool
water temp 4°C too little and exposed to air

FA-144 Slough 21

10:28 AM fresh Chinook carcass at Feature between I+T adult male, Milt expressed when stepped on

carcass about 30' from main slough at upper end of feeder channel pic

FA-144 Feature K water temp 7°C
water trickling out from lg ground cobble bar leading to a pool then flowing into main side slough

7°C water temp below beaver pond at J

FA-144 100' d/s Feature J, DIS
Intersection of Features J & K

Pygmy Meter #61 Spin test 1:44
40 s duration, 1/2-ft spacing

Sta ^(ft)	Depth (ft) Elev	Rot	ADs duration
0	+0.1		LB
1	+0.1		Bed entirely sand
2	0		LEW
2.5	0.1	13	
3	0.1	20	Start 11 AM
3.5	0.1	20	End 11:20 AM
4	0.1	22	
4.5	0.15	14	
5	0.1	25	
5.5	0.15	26	
6	0.05	22	
6.5	0.1	14	
6.6	0		REW

This discharge measured in Slough 21 (Feature J), upstream of the confluence with flow from Feature K

Flow Measurement

PRISM METER Col

1/2 ft Spacing ADs duration

Start 11:40 AM

Stop 12:05 PM

Sta ^(ft)	Depth (ft) Elev.	Rot.	Notes
---------------------	---------------------	------	-------

0	+0.6		
---	------	--	--

1	+0.3		
---	------	--	--

1.6	0		LEW
-----	---	--	-----

2	0.4	1	
---	-----	---	--

2.5	0.3	7	
-----	-----	---	--

3	0.2	9	
---	-----	---	--

3.5	0.2	11	
-----	-----	----	--

4	0.3	21	
---	-----	----	--

4.5	0.3	26	
-----	-----	----	--

5	0.35	24	
---	------	----	--

5.5	0.3	30	
-----	-----	----	--

6	0.2	24	
---	-----	----	--

6.5	0.15	21	
-----	------	----	--

7	0.2	19	
---	-----	----	--

7.5	0.2	19	
-----	-----	----	--

8	0.2	19	
---	-----	----	--

8.5	0.1	15	
-----	-----	----	--

This discharge measured downstream of confluence with Feature J; discharge includes flow from both Features J and K.

(cont. next page)

Measurement (cont.)			
Sta ^(ft)	Depth ^(ft) Flow	Rots	Notes
9	0.1	8	
9.5	0.1	20	
10	0.1	27	
10.5	0.2	19	
11	0.1 0.05	8	
11.5	0.05	11	
12	0		REW

FA=144 9/24/14

12:24 pm mainstem water temp 5°C

Water from main channel flowing into L on right side. If main channel drops 0.5 feet flow will stop from main channel ~1.5 cfs at this stage - 2 pics

Sockeye spawning in L ~ 30 rods at lower end. Lots of carcasses (~40) bear scat

M no salmon and no connection to main channel

① ~1.5 cfs & a fair connection no salmon

9/24/14 FA-138

large pool downstream 6°C @ 1440
 of D, no apparent inflow or outflow
 max depth ~ 3' - pie

P. Hilgert and D. Pizzi - Tt

Start Time: 14:45

Precip or cel

Stop Time: 15:00

40 s duration

Sta (ft) Depth (ft) Rots Notes D/o depth unless noted otherwise

0 +1.6

2 +0.2

3 0 LEW

3.1 0.3 10

3.5 0.35 16 0.8 depth (bottom)

3.5 0.35 16 0.2 depth (top)

4 0.4 24

4.5 0.2 9 located in small eddy

5 0.2 5

5.5 0.2 0

5.7 +0.2 REW

Water Temp 6°C

FA-138 FEATURE 2, 30' d/s Beaver Dam

Flow Measurement

Phil Hilgert

Precip cel

Dave Pizzi

40 s duration

Start: 15:55

Stop:

Channel II Left Channel

Sta Depth Rots Notes

0 0 LEW

1 0.1 0

1.5 0.1 4

2 0.1 10

2.5 0.15 36

3 0.2 29

3.5 0.2 28

4 0.2 39

4.5 0.25 5

5 0.1 17

5.5 0 0

5.8 0.05 3

6.3 0

REW

Stop 16:05

Channel 2 Next Page

Channel Z

Start 16:15

Stop 16:30

Sta	Depth	Zots	Notes
0	+0.2		
0.6	0		LEW
1	0.1	0	
2	0.1	0	
3	0.1	6	
4	0.2	10	
5	0.2	10	
6	0.2	5	in boulder shadow
7	0.3	23	
8	0.35	18	
9	0.4	19	
10	0.3	27	
11	0.4	5	
12	0.2	29	
13	0.2	13	
13.02	0.1	0	
14	0		REW

Channel B

Start 16:35

Stop 16:50

Sta	Depth	Zots	Notes
0	+0.2		
0.7	0		LEW
1	0.1	3	
1.5	0.15	11	
2	0.2	20	
2.5	0.1	16	
3	0.1	13	
3.5	0.2	15	
4	0.25	18	
4.5	0.35	43	
5	0.35	16	
5.5	0.3	21	
6	0.4	11	
6.5	0.2	3	
6.9	0		REW

water temp @ 1700 6°C

FA-13B Flow Measurement

D/S Beaver dams at Feature U

Phil Hilgert 2 Channels

Dave Pizer 40s duration

Left Channel Start 17:30

Stop 17:45

Sta	Depth	Rots	
0	+0.2	0	
1	0.1	0	LEW @ Sta 0.8
2	0.1	0	
2.5	+0.1		Water Temp 5°C
2.8	0.2	36	
3.2	0.1	9	
3.6	0.1	0	
4.0	+0.1		
4.3	0.1	38	
5	0.45	37	
6	0.5	15	
7	0.5	36	
7.5	0.5	39	
8	0.2	38	
8.5	0.1	23	
9	0.15	32	
9.5	0.1	28	
10	0.2	31	
10.5	0.25	2	
10.9	0.1	0	
			11 0 REW
			11.1 +0.4

Right Channel

Start 17:50

Stop 18:00

Sta	Dep	Rots	Notes
0	+0.4		
3	0		LEW
4	0.2	0	
5	0.45	10	Water Temp
6	0.3	16	5°C
7	0.2	22	
8	0.3	38	
9	0.4	29	
10	0.5	23	
11	0.6	13	
12	0.6	7	
13	0.4	6	
14	0.35	2	
14.8	0		REW

FA-51 Portage Creek

9/25/14

P. Wilgen's notes
 Bob Tierney - T
 Bill Miller - R

Sta	BS	HI	FS	Elev	Assumed
BM				100.0	
	1.25				
		101.25			
Top of pin			5.92	95.33	
Top of pin	5.87			95.33	
		101.2			
			1.21	99.99	

Top of
rod

BM - near bank downstream FA boundary

1.21 101.21

Need to get elevation from
 R/Governa

WE at transducer location	8.03
Bed at transducer	9.03
top of transducer	8.42

transducer inadvertently moved at
 0930, attempted to relocate in
 same location. Resurveyed to
 confirm location

Bob Tierney T Reader P. Wilgen's notes
 Bill Miller - MEC rod

9/25/14 11:39

Portage Cr confluence
 stranding - 8 salmon
 30-60 mm

1 chinook 45-60 mm
 2 coho 30 mm
 38 mm

Stranded in depression draining
 pool on downstream side of pool at
 Portage Creek confluence

FA-128 Slough A Feature T

9/25/14 Phil Hilgert - Rod level 1410
 Bob Tierney T₁ Rod

STA	BS	HI	FS	Elev	assump
BM	7538-S	RM	124.4L	2012	100.0
	4.420				
		104.420			
TP1			6.560	97.860	
TP1				97.860	
	6.618				
		104.478			
BM			4.478	100.0	

level closure
 loop
 Phil Hilgert

33	97.860
104.420	
6.560	+ 6.618
97.860	104.478

FA-128 Slough A Feature T

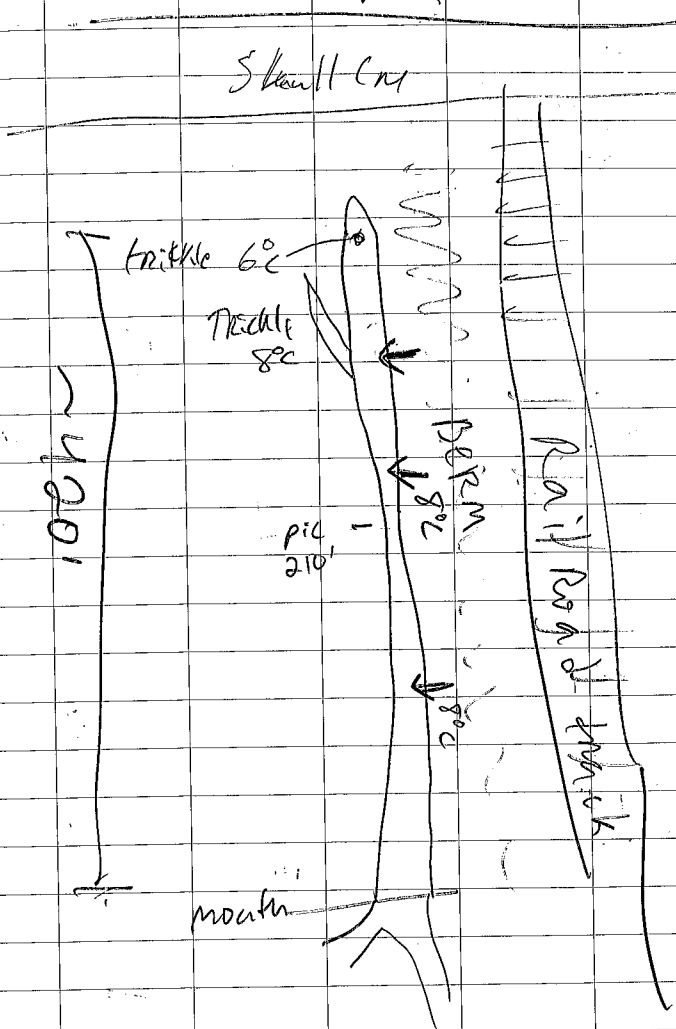
9/25/14	1500	water temp in	
Phil Hilgert level		slough	8°C
Bob Tierney - Rod		ST	1510
Sta	BS	HI	F
TP1			assump
	5.412		97.860
Bed 0.0	mouth of	7.155	
WSE 0.0	channel	6.665	
19. bed		6.61	
25		7.26	
35		7.00	
50		7.23	
65		8.00	5 ft pool
80		7.98	
100		7.54	
110	grade break	6.75	
125		6.98	
140		6.82	
155		7.29	
170		7.67	
185		6.91	
185 WSE		6.39	
200 bed		7.07	
210	6 in upwelling on left bank	8.10	

X-section @ 150 / 80 / 110 / 155 / 200

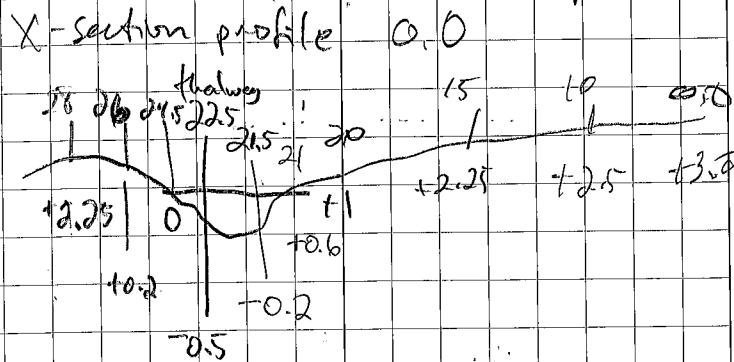


FA-128

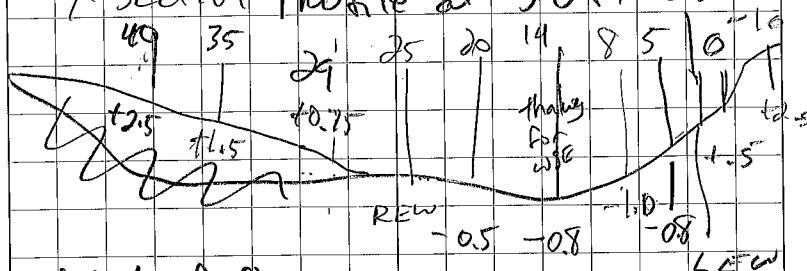
Feature T
Slough A



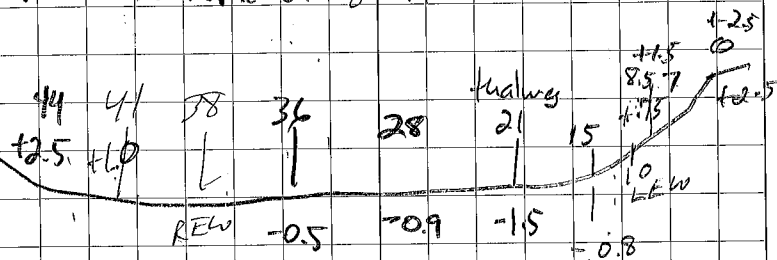
FA-128 Feature T Slough A



X-section profile at 50 ft 2.5

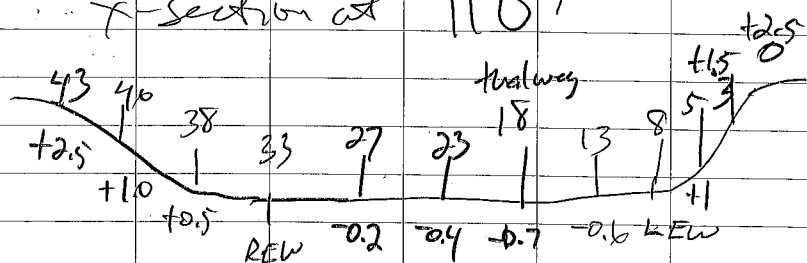


X-section profile at 80 ft

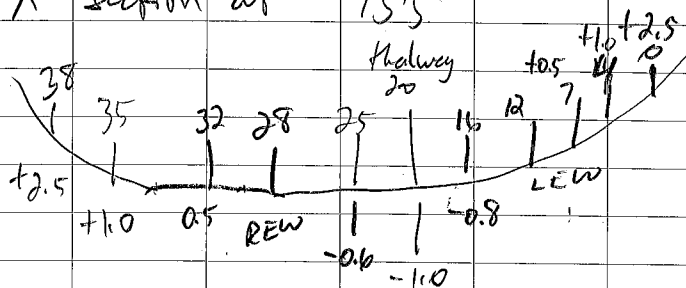


FA-128 Slough A
Feature T

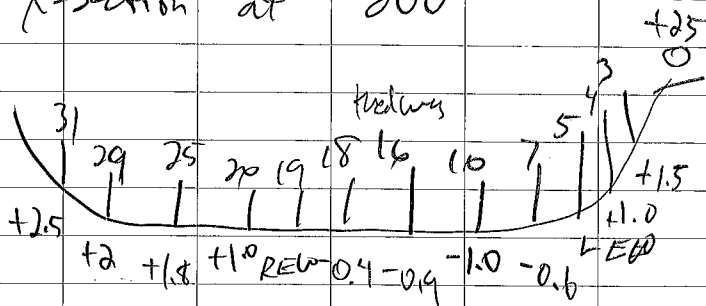
X-section at 110'



X-section at 155'



X-section at 200'



Phil Hilgent Note

FA-128 Slough A nearby

9/25/14

Q measurement

Feature T

St 16:38

F 1650

Pygmy water

40 second
ceat

Sta	Depth	REW/40s	Vo
0	+1.5		
3	+0.8		
3.3	+0.7		
			LEW 3.7
3.6	0.4	35	
4.0	0.3	53	
4.4	0.3	53	
4.7	0.2	33	
5.0	0.2	32	
5.3	0.1	29	
5.6	0.1	19	
5.9	0.0		REW
7.0	+0.4		
9.0	+1.2		

SEP. 26 2014 FA-12B Flow Recon

BOB TIERNEY (BP) Dave Pirri (DP)

10¹⁵ AM

FEATURE K

0002 U/S @ direct surface connection

channel ~ 6' wide (active) hd ~ 0.3' v ~ 0.5 f/s

Q ~ 0.9 cfs; deepest connection

about 0.2', so connection will disappear quickly as maintenance flows continue to drop. (Q_{collec} ~ 13,500 - 14,000 lbs AM)

fl. w msmt. feature K
price AA w AquaCalc pro +
10:20 AM

temp = 2.5 °C

x sec saved as #3 in AquaCalc.

tt #2 pic 003 - Q chan
VIEW U/S

Station	depth	Rev	time	Vel	Note
05	0				LEW
2.0	.2	0	40.0	0	
6.0	.2	3	42.4	.1	
6.0	.2	5	48.0	.13	Retake 26
7.0	.2	9	41.4	.24	
8.0	.3	12	43.2	.30	
9.0	.2	19	40.0	.49	
10	.3	18	42.3	.44	
11	0	0	40	0	Boulder
12	.5	13	42.6	.32	
13	.5	0	40	0	Boulder shadow
14	.3	0	40	0	
17	.2	0	40	0	
19.5	.3	0	40	0	
21	.0	0	40	0	REW
Start 9:44 9:15					
End 10:00					
est Q = .5					
msr = .60					

FA-12B Half-Moon Slouvent

No surface connection to channel d/s

Feature K, ~200' v/s pool/beaver pond
persists to Feature J

Take photo at v/s end (0004), no
surface inflow; note staff gage (-10) in background

no seeps observed, potentially dropping
stage after stoppage of recent rains

both channels to draining toward DW

(flanking staff gage # -10) backwatered

clear water, no sign of surface inflow

or outflows Pool temp = 4.7°C

FA-12B FEATURE P FLOW MEASUREMENT

PRICE AA AquaCalc Pro+ Start 10:07

Water Temp 4.4°C Stop 12:55

Estimated Q 1.75-2 cfs

Measured Total: 2.04 cfs saved as

XS #4 in Aqua Calc

0005 50' v/s mainstem @ Feature P, facing
v/s @ flow measurement section

Sta	Dep	Revs	Time	Vel	No. Len
12	0				LEW
13	0.1	6	41.9	0.33	
14	0.1	7	43.8	0.27	
15	0.2	9	44.6	0.46	
16	0.2	17	40.3	0.95	
17	0.3	24	40.6	1.32	
18	0.3	16	42.2	0.85	
19	0.3	15	40.1	0.84	
20	0.3	11	40.2	0.62	
21	0.2	14	41.4	0.76	
22	0.2	15	41.6	0.81	
23	0.2	12	41.7		
24	23	aborted due to logger errors			
24	0.2	12	40.7	0.64	
23 removed so 22 & 24 account for the greater width					

Sta	depth	Rev	Time	Vel	Remarks
0	1.0				
1	.2				
2	.2				LEW
2.5	.1	0	40	0	
3.0	.1	9	44	.23	
3.5	.1	8	42	.21	
4.0	.1	7	43	.19	
4.5	.1	7	45	.18	
5.0	.1	8	41	.22	
5.5	.1	11	42	.28	
6.0	.1	3	48	.09	
6.5	.1	9	43	.23	
7.0	0	0	40	0	REW

CFS = .07

PH, DD, BT
9/27/14 13:30 pm

.07 CFS

* $\frac{1}{2}$ of chan flow on $\frac{1}{4}$ of

PH cam estimated Q between Kand L = 0.33 of
pic #1015 1016 - flow msmt @ feature
halfway between J+K
@ FA/104

Section 5 in Agalak Pro +

9/27/14 FA-104 Whiskey

Slough
main stem 5°C at 2:00 pm

Right bank

stranding pools by feature F
- same as in 2013

11+12 scalps
2 whitefish pic
7+9 suckers
pics - PH

Water temp below Beaver Pond 5°C
at 1515

9/25/14 FA-151 Portage Creek
 P. Whigant notes
 B. Mooney level
 B. Miller rod

transducers inadvertently moved at 0930,
 attempted to relocate in same locations
 Resurveyed to confirm location,
 transducer is at left bank downstream
 end of FA. BM was located adjacent
 to transducer location.

Started w/ level loop

Sta	BS	HI	FS	Elev.
BM	1.25			assume 1000, get actual elev later
		101.25		
top of pin			5.92	95.33
	move level			
Top of pin				95.33
	5.87			
		101.20		
BM			1.21	99.99

level loop

P. Whigant notes
 B. Miller - substrate

9/25/14

Sta	BS	HI	FS	Elev	10:10
BM				tbd	
	1.21				
		tbd			
WE at transducer loc			8.03		
bed at transducer			9.03		
top of transducer			8.42		

11:39

Portage Cr confluence
 stranding/trapping of juvenile salmonid
 in depression & rainy pool on downstream
 side of pool at Portage Creek confluence

8 salmonids 30-60 mm
 5 sculpin 35-50 mm

6 Chinook 45-60 mm
 2 coho 32 mm
 38 mm