11-5-2008

Ex. 280-US-479

Unknown

Stream: S.F. Sprague R. d/s Brownsworth
Site: 656
Date: 4/27/2007
Habitat: Cascade **Flow:** High

(1) Level Loop Survey (BM & HP)

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	7.86	107.86		100.00
HP-1			10.04	97.82
HP-2			8.88	98.98
HP-3			5.51	102.35
TP				
HP-3	5.78	108.13		
HP-2			9.15	98.98
HP-1			10.31	97.82
BM			8.13	100.00

Comment:

(2) Water Surface Elevation (WSE) Survey

TR	River Station L/R bank (ft)	River Station Ave (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
1-L	0	0	108.13	13.82	0.33	94.64	94.64	
1-R				13.92	0.42	94.63		
2-L	75	75	108.13	13.50	1.17	95.80	95.82	
2-R				12.70	0.40	95.83		
3-L	140	140.0	109.08	12.44	0.34	96.98	96.96	
3-R				12.60	0.45	96.93		
						Ave Q=	124.3	

Note: Discharge calculated from single riffle transects
WSE slope = 1.657%

(3) Meter and propeller ID for Velocity Correction

Meter ID: 4099
Propeller ID: 4A
Calibration: 175

Date: 6/14/2007
Habitat: Cascade **Flow:** Mid

(1) Level Loop Survey (BM & HP)

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	8.70	108.70		100.00
HP-1			10.88	97.82
HP-2			9.72	98.98
HP-3			6.34	102.36
TP				
HP-3	6.49	108.85		
HP-2			9.87	98.98
HP-1			11.03	97.82
BM			8.85	100.00

Comment:

(2) Water Surface Elevation (WSE) Survey

TR	River Station L/R bank (ft)	River Station Ave (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
1-L	0	0	102.98	9.80	0.88	94.06	94.07	
1-M				9.82	0.93	94.09		38.4
1-R				9.39	0.48	94.07		
2-L	75	75	106.99	12.75	0.83	95.07	95.07	
2-M				12.41	0.48	95.06		37.8
2-R				12.16	0.26	95.09		
3-L	140	140.0	104.52	8.13	0.13	96.52	96.47	34.8
3-R				8.30	0.19	96.41		
						Ave Q=	37.0	

Note:
WSE slope = 1.708%

(3) Meter and propeller ID for Velocity Correction

Meter ID: 4099
Propeller ID: 4A
Calibration: 175

Date: 9/27/2007
Habitat: Cascade **Flow:** Low

(1) Level Loop Survey (BM & HP)

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM				
HP-1				
HP-2				
HP-3				
TP				
HP-3				
HP-2				
HP-1				
BM				

Comment: No level loop shoot

(2) Water Surface Elevation (WSE) Survey

TR	River Station L/R bank (ft)	River Station Ave (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
1-L	0	0	103.50	10.48	0.68	93.70	93.71	
1-M				10.30	0.52	93.72		
1-R				10.23	0.45	93.72		
2-L	75	75	107.16	13.69	1.21	94.68	94.69	
2-R				13.50	1.04	94.70		
3-L	140	140.0	104.09	8.57	0.63	96.15	96.15	
3-R								
						Ave Q=	11.4	

Note: Discharge calculated from the average of 3 downstream Riffle TRs.
WSE slope = 1.740%

(3) Meter and propeller ID for Velocity Correction

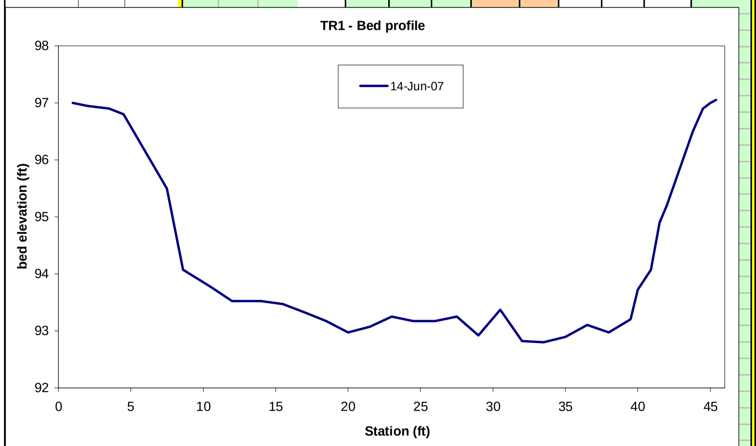
Meter ID: 4441
Propeller ID: 7A
Calibration: 186

Stream:	S.F. Sprague R. d/s
Site:	656
Transect:	1
Habitat:	Cascade

Survey Date	HI (ft)	Q (cfs)
4/27/2007	108.13	
6/14/2007	102.98	38.4
10/28/2007	103.50	

27-Apr-07

	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	Vel (ft/s) $V_{0.2/0.6}$	$V_{0.8}$	$NV_{0.2/0.6}$	$NV_{0.8}$	Ave	Angle (deg)	q (cfs)	substrate



14-Jun-07

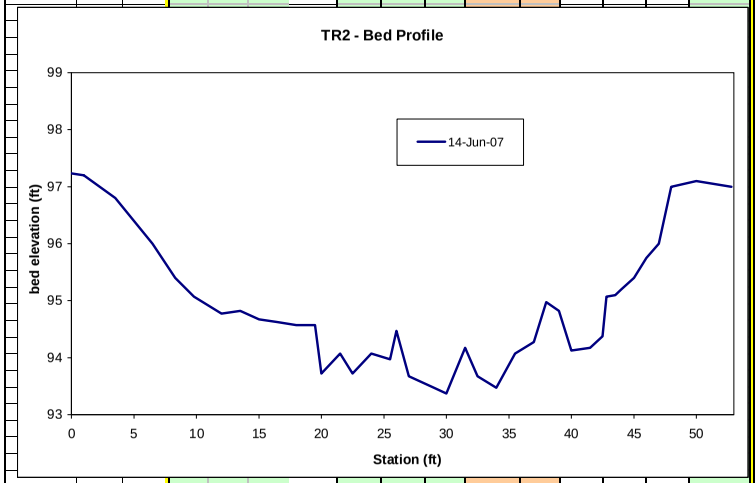
	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	Vel (ft/s) $V_{0.2/0.6}$	$V_{0.8}$	$NV_{0.2/0.6}$	$NV_{0.8}$	Ave	Angle (deg)	q (cfs)	substrate
RWP	**1.0**		**97.00**									**1.2**
	2.0		**96.95**									**1.2**
	3.5		**96.90**									**1.2**
	4.5		**96.80**									**1.5**
	7.5		**95.50**									**5.6**
RWE	8.6		94.07	0.00	0.00		0.00		0.00		0.00	**6.7**
	10.5		93.77	0.30	0.31		0.38		0.38		0.19	**6.7**
	12.0		93.52	0.55	0.13		0.23		0.23		0.22	**6.7**
	14.0		93.52	0.55	1.11		1.16		1.16		1.12	**6.7**
	15.5		93.47	0.60	0.55		0.60		0.60		0.54	**6.7**
	17.0		93.32	0.75	0.32		0.38		0.38		0.43	**6.7**
	18.5		93.17	0.90	1.64		1.70		1.70		2.30	**6.7**
	20.0		92.97	1.10	2.03		2.10		2.10		3.46	**6.7**
	21.5		93.07	1.00	0.49		0.54		0.54		0.81	**6.7**
	23.0		93.25	0.82	1.63		1.69		1.69		2.08	**6.7**
	24.5		93.17	0.90	0.36		0.42		0.42		0.56	**6.7**
	26.0		93.17	0.90	1.08		1.13		1.13		1.53	**6.7**
	27.5		93.25	0.82	2.41		2.48		2.48		3.05	**6.7**
	29.0		92.92	1.15	1.33	2.34	1.39	2.41	1.90		3.28	**6.7**
	30.5		93.37	0.70	0.98	2.51	1.03	2.58	1.81		1.90	**6.7**
	32.0		92.82	1.25	1.91		1.98		1.98		3.71	**6.7**
	33.5		92.80	1.27	2.26		2.33		2.33		4.44	**6.7**
	35.0		92.89	1.18	2.22		2.29		2.29		4.06	**6.7**
	36.5		93.10	0.97	0.87		0.92		0.92		1.34	**6.7**
	38.0		92.97	1.10	1.31		1.37		1.37		2.26	**6.7**
	39.5		93.20	0.87	1.14		1.19		1.19		1.04	**6.7**
	40.0		93.72	0.35	0.10		0.21		0.21		0.05	**6.7**
LWE	40.9		94.07	0.00	0.00		0.00		0.00		0.00	**6.7**
	41.5		**94.90**									**5.6**
	42.0		**95.20**									**1.5**
	43.8		**96.50**									**1.2**
	44.5		**96.90**									**1.2**
	45.0		**97.00**									**1.2**
LWP	**45.4**		**97.05**									**1.2**

NOTE: Bank profiles and substrates were scheduled to be collected during the low-flow survey on 9/27/07. However, due to the inclement weather that might endanger the field crew, those scheduled data were not surveyed at the time on that day (9/27/07). The bolded numbers are estimated from field visual survey, field notes, and site photos by MRG, who conducted the initial site reconnaissance, set up the site, performed habitat mapping, collected hydraulic data, and have visited the site for three times

28-Oct-07

	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	Vel (ft/s) $V_{0.2/0.6}$	$V_{0.8}$	$NV_{0.2/0.6}$	$NV_{0.8}$	Ave	Angle (deg)	q (cfs)	substrate

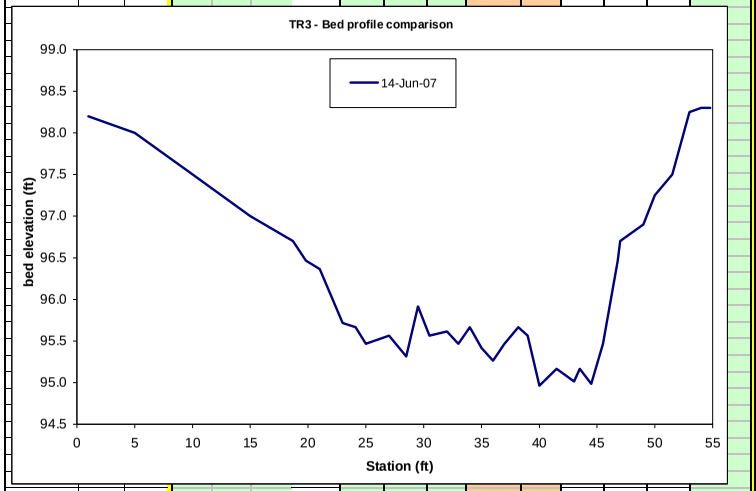
Stream:	S.F. Sprague R.		27-Apr-07													14-Jun-07														27-Sep-07													
Site:	656			Sta	FS	Ground	Depth	Vel (ft/s)					Angle	q			Sta	FS	Ground	Depth	Vel (ft/s)					Angle	q			Sta	FS	Ground	Depth	Vel (ft/s)					Angle	q	
Transect:	2			(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	$NV_{0.2/0.6}$	$NV_{0.8}$	Ave	(deg)	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	$NV_{0.2/0.6}$	$NV_{0.8}$	Ave	(deg)	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	$NV_{0.2/0.6}$	$NV_{0.8}$	Ave	(deg)	(cfs)	substrate
Habitat:	Cascade																																							
																	-2.0		97.30								1.2													
Survey	HI	Q														RWP	1.0		97.20								1.2													
Date	(ft)	(cfs)															3.5		96.80								1.2													
4/27/2007																	6.5		96.00								3.1													
6/14/2007	106.99	37.8															8.3		95.40								6.3													
9/27/2007																RWE	9.8		95.07	0.00	0.00		0.00	0.00		0.00	6.7													
																	12.0		94.77	0.30	0.00		0.00	0.00		0.00	6.7													
																	13.5		94.82	0.25	0.00		0.00	0.00		0.00	6.7													
																	15.0		94.67	0.40	0.00		0.00	0.00		0.00	6.7													
																	16.5		94.62	0.45	0.00		0.00	0.00		0.00	6.7													
																	18.0		94.57	0.50	0.07		0.18	0.18		0.13	6.7													
																	19.5		94.57	0.50	0.32		0.38	0.38		0.19	6.7													
																	20.0		93.72	1.35	0.40		0.45	0.45		0.61	6.7													
																	21.5		94.07	1.00	1.39		1.45	1.45		1.81	6.7													
																	22.5		93.72	1.35	2.04		2.11	2.11		3.56	6.7													
																	24.0		94.07	1.00	1.98		2.05	2.05		3.07	6.7													
																	25.5		93.97	1.10	0.88		0.93	0.93		1.03	6.7													
																	26.0		94.47	0.60	0.63		0.68	0.68		0.31	6.7													
																	27.0		93.67	1.40	0.13		0.23	0.23		0.48	6.7													
																	29.0		93.47	1.60	0.12		0.22	0.22		0.53	6.7													
																	30.0		93.37	1.70	1.48		1.54	1.54		3.27	6.7													
																	31.5		94.17	0.90	1.34		1.40	1.40		1.57	6.7													
																	32.5		93.67	1.40	1.51		1.57	1.57		2.75	6.7													
																	34.0		93.47	1.60	2.69		2.76	2.76		6.63	6.7													
																	35.5		94.07	1.00	1.97		2.04	2.04		3.06	6.7													
																	37.0		94.27	0.80	2.56		2.63	2.63		2.63	6.7													
																	38.0		94.97	0.10	1.40		1.46	1.46		0.15	6.7													
																	39.0		94.82	0.25	2.93		3.00	3.00		0.75	6.7													
																	40.0		94.12	0.95	1.73		1.79	1.79		2.13	6.7													
																	41.5		94.17	0.90	2.35		2.42	2.42		2.72	6.7													
																	42.5		94.37	0.70	0.85		0.90	0.90		0.41	6.7													
																LWE	42.8		95.07	0.00	0.00		0.00	0.00		0.00	6.7													
																	43.5		95.10								6.4													
																	44.0		95.20								2.1													
																	45.0		95.40								1.2													
																	46.0		95.75								1.2													
																	47.0		96.00								1.2													
																	48.0		97.00								1.2													
																	50.0		97.10								1.2													
																LWP	52.8		97.00								1.2													



NOTE: Bank profiles and substrates were scheduled to be collected during the low-flow survey on 9/27/07. However, due to the inclement weather that might endanger the field crew.

Stream: S.F. Sprague R.
Site: 656
Transect: 3
Habitat: Cascade

Survey Date	HI (ft)	Q (cfs)
4/27/2007	109.08	
6/14/2007	104.52	34.8
9/27/2007	104.09	



27-Apr-07

	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	Vel (ft/s) $V_{0.2/0.6}$	$V_{0.8}$	$NV_{0.2/0.6}$	$NV_{0.8}$	Ave	Angle (deg)	q (cfs)	substrate

14-Jun-07

	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	Vel (ft/s) $V_{0.2/0.6}$	$V_{0.8}$	$NV_{0.2/0.6}$	$NV_{0.8}$	Ave	Angle (deg)	q (cfs)	substrate
RWP	**1.0**		**98.20**									**1.2**
	5.0		**98.00**									**1.2**
	10.0		**97.50**									**1.2**
	15.0		**97.00**									**3.1**
	18.7		**96.70**									**6.3**
RWE	19.8		96.47	0.00	0.00		0.00		0.00		0.00	**6.7**
	21.0		96.37	0.10	0.00		0.00		0.00		0.00	**6.7**
	23.0		95.72	0.75	0.00		0.00		0.00		0.00	**6.7**
	24.1		95.67	0.80	0.55		0.60		0.60		0.48	**6.7**
	25.0		95.47	1.00	1.33		1.39		1.39		2.01	**6.7**
	27.0		95.57	0.90	1.83		1.90		1.90		2.99	**6.7**
	28.5		95.32	1.15	1.92		1.99		1.99		2.86	**6.7**
	29.5		95.92	0.55	2.02		2.09		2.09		1.15	**6.7**
	30.5		95.57	0.90	1.43		1.49		1.49		1.67	**6.7**
	32.0		95.62	0.85	1.86		1.93		1.93		2.05	**6.7**
	33.0		95.47	1.00	1.80		1.87		1.87		1.87	**6.7**
	34.0		95.67	0.80	2.73		2.80		2.80		2.24	**6.7**
	35.0		95.42	1.05	3.34		3.41		3.41		3.58	**6.7**
	36.0		95.27	1.20	3.00		3.07		3.07		3.69	**6.7**
	37.0		95.47	1.00	2.60		2.67		2.67		2.94	**6.7**
	38.2		95.67	0.80	1.35		1.41		1.41		1.13	**6.7**
	39.0		95.57	0.90	1.36		1.42		1.42		1.15	**6.7**
	40.0		94.97	1.50	0.18		0.28		0.28		0.52	**6.7**
	41.5		95.17	1.30	0.25		0.34		0.34		0.66	**6.7**
	43.0		95.02	1.45	0.89		0.94		0.94		1.37	**6.7**
	43.5		95.17	1.30	1.90		1.97		1.97		1.92	**6.7**
	44.5		94.99	1.48	0.10		0.21		0.21		0.30	**6.7**
	45.5		95.47	1.00	0.05		0.16		0.16		0.19	**6.7**
LWE	46.8		96.47	0.00	0.00		0.00		0.00		0.00	**6.7**
	47.0		**96.70**									**6.4**
	49.0		**96.90**									**2.1**
	50.0		**97.25**									**1.2**
	51.5		**97.50**									**1.2**
	53.0		**98.25**									**1.2**
	54.0		**98.30**									**1.2**
LWP	**54.8**		**98.30**									**1.2**

NOTE: Bank profiles and substrates were scheduled to be collected during the low-flow survey on 9/27/07. However, due to the inclement weather that might endanger the field crew, those data were not surveyed at the time of site visit on that day. The bolded numbers are estimated from field visual survey, field notes, and site photos by MRG, who conducted the initial site reconnaissance, set up the site, performed habitat mapping, collected hydraulic data, and have visited the

27-Sep-07

	Sta (ft)	FS (ft)	Ground (ft)	Depth (ft)	Vel (ft/s) $V_{0.2/0.6}$	$V_{0.8}$	$NV_{0.2/0.6}$	$NV_{0.8}$	Ave	Angle (deg)	q (cfs)	substrate

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     SF Sprague River SP16 06/14/07
CASCADE                      MID                                    TRANSECT 1
IOC       1101100000001000101000
QARD   5.0
QARD  10.0
QARD  11.4
QARD  15.0
QARD  20.0
QARD  25.0
QARD  30.0
QARD  35.0
QARD  36.9
QARD  40.0
QARD  45.0
QARD  50.0
QARD  55.0
QARD  60.0
QARD  65.0
QARD  70.0
QARD  75.0
QARD  80.0
QARD  85.0
QARD  90.0
QARD  95.0
QARD 100.0
QARD 105.0
QARD 110.0
QARD 120.0
QARD 124.3
QARD 130.0
QARD 140.0
QARD 150.0
QARD 160.0
XSEC   0.0      0.00 1.0     92.80   0.01708
       0.0  1.097.00  2.096.95  3.596.90  4.596.80  7.595.50  8.694.07
       0.0 10.593.77 12.093.52 14.093.52 15.593.47 17.093.32 18.593.17
       0.0 20.092.97 21.593.07 23.093.25 24.593.17 26.093.17 27.593.25
       0.0 29.092.92 30.593.37 32.092.82 33.592.80 35.092.89 36.593.10
       0.0 38.092.97 39.593.20 40.093.72 40.994.07 41.594.90 42.095.20
       0.0 43.896.50 44.596.90 45.097.00 45.497.05
NS     0.0       1.2       1.2       1.2       1.5       5.6       6.7
NS     0.0 .15   6.7 .3    6.7       6.7 .18   6.7 .25   6.7       6.7
NS     0.0       6.7 .20   6.7       6.7 .20   6.7       6.7 .079  6.7
NS     0.0       6.7       6.7       6.7       6.7       6.7 .16   6.7
NS     0.0       6.7       6.7 .15   6.7       6.7       5.6       1.5
NS     0.0       1.2       1.2       1.2       1.2
CAL1   0.0     94.07      36.9
VEL1   0.0                          0.00 0.38 0.23 1.16 0.60 0.38 1.70
VEL1   0.0 2.10 0.54 1.69 0.42 1.13 2.48 1.90 1.81 1.98 2.33 2.29 0.92
VEL1   0.0 1.37 1.19 0.21 0.00
CAL2   0.0     94.64     124.3
VEL2   0.0
VEL2   0.0
VEL2   0.0
CAL3   0.0     93.71      11.4
VEL3   0.0
VEL3   0.0
VEL3   0.0
ENDJ
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     SF Sprague River SP16 06/14/07
CASCADE                     MID                                   TRANSECT 2
IOC       1101100000001000101000
QARD   5.0
QARD  10.0
QARD  11.4
QARD  15.0
QARD  20.0
QARD  25.0
QARD  30.0
QARD  35.0
QARD  36.9
QARD  40.0
QARD  45.0
QARD  50.0
QARD  55.0
QARD  60.0
QARD  65.0
QARD  70.0
QARD  75.0
QARD  80.0
QARD  85.0
QARD  90.0
QARD  95.0
QARD 100.0
QARD 105.0
QARD 110.0
QARD 120.0
QARD 124.3
QARD 130.0
QARD 140.0
QARD 150.0
QARD 160.0
XSEC   0.0      0.00 1.0     94.22   0.01708
       0.0 -2.097.30  1.097.20  3.596.80  6.596.00  8.395.40  9.895.07
       0.0 12.094.77 13.594.82 15.094.67 16.594.62 18.094.57 19.594.57
       0.0 20.093.72 21.594.07 22.593.72 24.094.07 25.593.97 26.094.47
       0.0 27.093.67 29.093.47 30.093.37 31.594.17 32.593.67 34.093.47
       0.0 35.594.07 37.094.27 38.094.97 39.094.82 40.094.12 41.594.17
       0.0 42.594.37 42.895.07 43.595.10 44.095.20 45.095.40 46.095.75
       0.0 47.096.00 48.097.00 50.097.10 52.897.00
NS     0.0       1.2       1.2       1.2       3.1       6.3       6.7
NS     0.0       6.7       6.7       6.7       6.7 .4    6.7 .3    6.7
NS     0.0 .2    6.7       6.7       6.7       6.7       6.7       6.7
NS     0.0 .4    6.7 .4    6.7       6.7       6.7       6.7       6.7
NS     0.0       6.7       6.7 0.06  6.7 .05   6.7       6.7       6.7
NS     0.0 .08   6.7       6.7       6.4       2.1       1.2       1.2
NS     0.0       1.2       1.2       1.2       1.2
CAL1   0.0     95.07      36.9
VEL1   0.0                          0.00 0.00 0.00 0.00 0.00 0.18 0.38
VEL1   0.0 0.45 1.45 2.11 2.05 0.93 0.68 0.23 0.22 1.54 1.40 1.57 2.76
VEL1   0.0 2.04 2.63 1.46 3.00 1.79 2.42 0.90 0.00
VEL1   0.0
CAL2   0.0     95.82     124.3
VEL2   0.0
VEL2   0.0
VEL2   0.0
VEL2   0.0
CAL3   0.0     94.69      11.4
VEL3   0.0
VEL3   0.0
VEL3   0.0
VEL3   0.0
ENDJ
```

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     SF Sprague River SP16 06/14/07
CASCADE                      MID                                    TRANSECT 3
IOC       1101100000001000101000
QARD   5.0
QARD  10.0
QARD  11.4
QARD  15.0
QARD  20.0
QARD  25.0
QARD  30.0
QARD  35.0
QARD  36.9
QARD  40.0
QARD  45.0
QARD  50.0
QARD  55.0
QARD  60.0
QARD  65.0
QARD  70.0
QARD  75.0
QARD  80.0
QARD  85.0
QARD  90.0
QARD  95.0
QARD 100.0
QARD 105.0
QARD 110.0
QARD 120.0
QARD 124.3
QARD 130.0
QARD 140.0
QARD 150.0
QARD 160.0
XSEC   0.0      0.00 1.0     95.32   0.01708
       0.0  1.098.20  5.098.00 10.097.50 15.097.00 18.796.70 19.896.47
       0.0 21.096.37 23.095.72 24.195.67 25.095.47 27.095.57 28.595.32
       0.0 29.595.92 30.595.57 32.095.62 33.095.47 34.095.67 35.095.42
       0.0 36.095.27 37.095.47 38.295.67 39.095.57 40.094.97 41.595.17
       0.0 43.095.02 43.595.17 44.594.99 45.595.47 46.896.47 47.096.70
       0.0 49.096.90 50.097.25 51.597.50 53.098.25 54.098.30 54.898.30
NS     0.0       1.2       1.2       1.2       3.1       6.3 .25   6.7
NS     0.0 .23   6.7 .22   6.7 .2    6.7       6.7       6.7       6.7
NS     0.0       6.7 .1    6.7       6.7       6.7 .075  6.7 .075  6.7
NS     0.0       6.7       6.7       6.7       6.7 .35   6.7 .30   6.7
NS     0.0       6.7 .15   6.7 0.3   6.7 0.3   6.7       6.7       6.4
NS     0.0       2.1       1.2       1.2       1.2       1.2       1.2
CAL1   0.0     96.47      36.9
VEL1   0.0                          0.00 0.00 0.00 0.60 1.39 1.90 1.99
VEL1   0.0 2.09 1.49 1.93 1.87 2.80 3.41 3.07 2.67 1.41 1.42 0.28 0.34
VEL1   0.0 0.94 1.97 0.21 0.16 0.00
CAL2   0.0     96.96     124.3
VEL2   0.0
VEL2   0.0
VEL2   0.0
CAL3   0.0     96.15      11.4
VEL3   0.0
VEL3   0.0
VEL3   0.0
ENDJ
```

Stream: S.F. Sprague R. d/s E
Site: 656
Date: 4/27/2007
Habitat: Riffle **Flow:** High

(1) Level Loop Survey (BM & HP)

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	5.14	105.14		100.00
HP-1			6.43	98.71
HP-2				
HP-3			6.17	98.97
TP				
HP-3	5.72	104.69		
HP-2				
HP-1			5.98	98.71
BM			4.70	99.99

Comment:

(2) Water Surface Elevation (WSE) Survey

TR	River Station L/R bank (ft)	River Station Ave (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
1-L	0	0	104.69	11.46	1.02	94.25	94.24	124.3
1-R	0			10.84	0.38	94.23		
2-L	75	75	104.69	10.33	0.24	94.60	94.62	
2-R				10.85	0.80	94.64		
3-L	150	150	104.69	9.98	0.85	95.56	95.55	
3-R				9.67	0.52	95.54		

. Ave Q= 124.3

Note:

WSE slope = 0.873%

(3) Meter and propeller ID for Velocity Correction

Meter ID: 4099
Propeller ID: 4A
Calibration: 175

Date: 6/14/2007
Habitat: Riffle **Flow:** Mid

(1) Level Loop Survey (BM & HP)

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	4.48	104.48		100.00
HP-1			5.75	98.73
HP-2				
HP-3			5.50	98.98
TP				
HP-3	5.20	104.18		
HP-2				
HP-1			5.45	98.73
BM			4.18	100.00

Comment:

(2) Water Surface Elevation (WSE) Survey

TR	River Station L/R bank (ft)	River Station Ave (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
1-L	0	0	101.56	8.55	0.88	93.89	93.92	
1-M				8.37	0.76	93.95		38.7
1-R				8.22	0.59	93.93		
2-L	75	75	102.10	8.67	0.67	94.10	94.10	
2-M				8.80	0.80	94.10		37.7
2-R				8.50	0.51	94.11		
3-L	150	150	104.79	10.18	0.48	95.09	95.05	
3-M				10.44	0.68	95.03		34.0
3-R				10.31	0.56	95.04		

Ave Q= 36.8

Note:

WSE slope = 0.753%

(3) Meter and propeller ID for Velocity Correction

Meter ID: 4099
Propeller ID: 4A
Calibration: 175

Date: 9/27/2007
Habitat: Riffle **Flow:** Low

(1) Level Loop Survey (BM & HP)

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	5.34	105.34		100.00
HP-1			6.61	98.73
HP-2				
HP-3			6.35	98.99
TP				
HP-3	6.14	105.13		
HP-2				
HP-1			6.40	98.73
BM			5.13	100.00

Comment:

(2) Water Surface Elevation (WSE) Survey

TR	River Station L/R bank (ft)	River Station Ave (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
1-L	0	0	103.59	10.56	0.46	93.49	93.52	
1-M				10.37	0.32	93.54		13.3
1-R				10.53	0.47	93.53		
2-L	75	75	102.25	10.14	1.58	93.69	93.70	
2-M				9.77	1.22	93.70		10.8
2-R				8.96	0.42	93.71		
3-L	150	150.0	104.94	10.58	0.56	94.92	94.79	
3-M				10.50	0.31	94.75		10.2
3-R				10.60	0.36	94.70		

Ave Q= 11.4

Note: Natural drop in WSE from left to right bank at low flow.

WSE slope = 0.847%

(3) Meter and propeller ID for Velocity Correction

Meter ID: 4441
Propeller ID: 7A
Calibration: 186

Stream: S.F. Sprague R. d/s E
Site: 656
Date: 4/27/2007
Habitat: Riffle **Flow:** High

(1) Level Loop Survey (BM & HP)

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	5.14	105.14		100.00
HP-1			6.43	98.71
HP-2				
HP-3			6.17	98.97
TP				
HP-3	5.72	104.69		
HP-2				
HP-1			5.98	98.71
BM			4.70	99.99

Comment:

(2) Water Surface Elevation (WSE) Survey

TR	River Station L/R bank (ft)	River Station Ave (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
1-L	0	0	104.69	11.46	1.02	94.25	94.24	124.3
1-R	0			10.84	0.38	94.23		
2-L	75	75	104.69	10.33	0.24	94.60	94.62	
2-R				10.85	0.80	94.64		
3-L	150	150	104.69	9.98	0.85	95.56	95.55	
3-R				9.67	0.52	95.54		
				.			Ave Q=	124.3

Note:
WSE slope = 0.873%

(3) Meter and propeller ID for Velocity Correction

Meter ID: 4099
Propeller ID: 4A
Calibration: 175

Date: 6/14/2007
Habitat: Riffle **Flow:** Mid

(1) Level Loop Survey (BM & HP)

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	4.48	104.48		100.00
HP-1			5.75	98.73
HP-2				
HP-3			5.50	98.98
TP				
HP-3	5.20	104.18		
HP-2				
HP-1			5.45	98.73
BM			4.18	100.00

Comment:

(2) Water Surface Elevation (WSE) Survey

TR	River Station L/R bank (ft)	River Station Ave (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
1-L	0	0	101.56	8.55	0.88	93.89	93.92	
1-M				8.37	0.76	93.95		38.7
1-R				8.22	0.59	93.93		
2-L	75	75	102.10	8.67	0.67	94.10	94.10	
2-M				8.80	0.80	94.10		37.7
2-R				8.50	0.51	94.11		
3-L	150	150	104.79	10.18	0.48	95.09	95.05	
3-M				10.44	0.68	95.03		34.0
3-R				10.31	0.56	95.04		
							Ave Q=	36.8

Note:
WSE slope = 0.753%

(3) Meter and propeller ID for Velocity Correction

Meter ID: 4099
Propeller ID: 4A
Calibration: 175

Date: 9/27/2007
Habitat: Riffle **Flow:** Low

(1) Level Loop Survey (BM & HP)

BM/HP (ft)	BS (ft)	HI (ft)	FS (ft)	Elev (ft)
BM	5.34	105.34		100.00
HP-1			6.61	98.73
HP-2				
HP-3			6.35	98.99
TP				
HP-3	6.14	105.13		
HP-2				
HP-1			6.40	98.73
BM			5.13	100.00

Comment:

(2) Water Surface Elevation (WSE) Survey

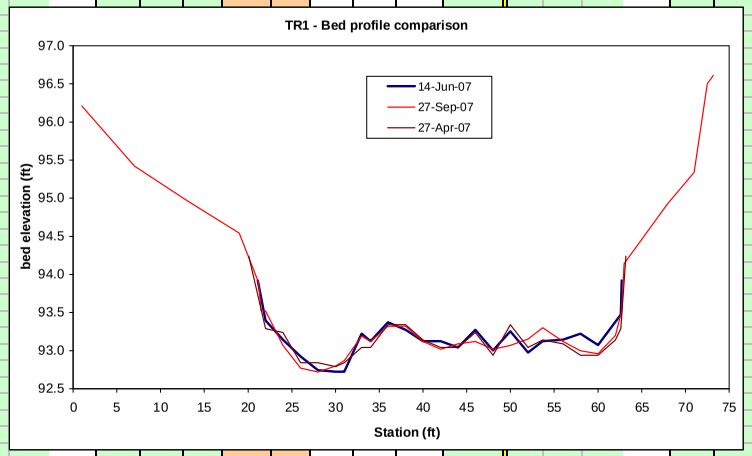
TR	River Station L/R bank (ft)	River Station Ave (ft)	HI (ft)	FS (ft)	Rod (ft)	WSE (ft)	Ave WSE (ft)	Q (cfs)
1-L	0	0	103.59	10.56	0.46	93.49	93.52	
1-M				10.37	0.32	93.54		13.3
1-R				10.53	0.47	93.53		
2-L	75	75	102.25	10.14	1.58	93.69	93.70	
2-M				9.77	1.22	93.70		10.8
2-R				8.96	0.42	93.71		
3-L	150	150.0	104.94	10.58	0.56	94.92	94.79	
3-M				10.50	0.31	94.75		10.2
3-R				10.60	0.36	94.70		
							Ave Q=	11.4

Note: Natural drop in WSE from left to right bank at low flow.
WSE slope = 0.847%

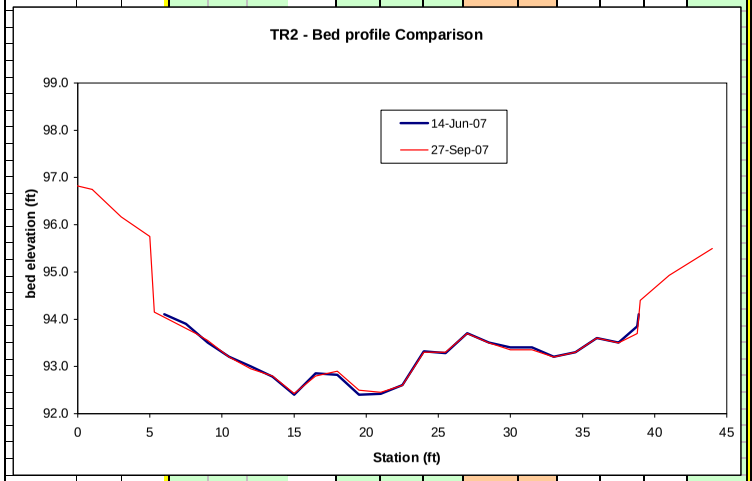
(3) Meter and propeller ID for Velocity Correction

Meter ID: 4441
Propeller ID: 7A
Calibration: 186

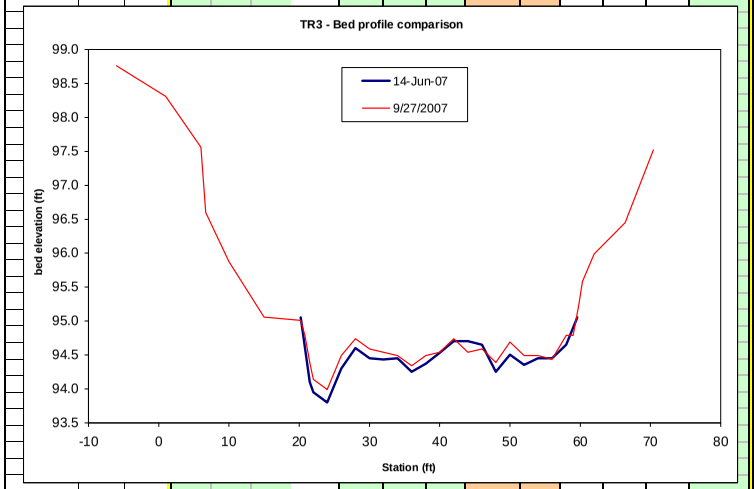
Stream:	S.F. Sprague R. d/		27-Apr-07													14-Jun-07													27-Sep-07												
Site:	656			Sta	FS	Ground	Depth	Vel (ft/s)					Angle	q			Sta	FS	Ground	Depth	Vel (ft/s)					Angle	q			Sta	FS	Ground	Depth	Vel (ft/s)					Angle	q	
Transect:	1			(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	$NV_{0.2/0.6}$	$NV_{0.8}$	Ave	(deg)	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	$NV_{0.2/0.6}$	$NV_{0.8}$	Ave	(deg)	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	$NV_{0.2/0.6}$	$NV_{0.8}$	Ave	(deg)	(cfs)	substrate
Habitat:	Riffle																																							
																													RWP	1.0	7.38	96.21								1.2
Survey	HI	Q																													7.0	8.17	95.42								1.2
Date	(ft)	(cfs)																													13.0	8.62	94.97								1.2
4/27/2007	104.69	124.3	RWP	1.0												RWP	1.0															19.0	9.05	94.54								1.2
6/14/2007	101.56	38.7	RWE	20.1		94.24	0.00	0.00		0.00		0.00		0.00	1.2	RWE	21.1		93.92	0.00	0.00		0.00		0.00		0.00	1.2													21.2	9.70	93.89								1.2
9/27/2007	103.59	13.3		22.0		93.29	0.95	0.89		0.94		0.94		1.75	2.8		22.0		93.39	0.53	0.18		0.28		0.28		0.21	2.8	RWE	21.5		93.52	0.00	0.00		0.00		0.00		0.00	2.8
				24.0		93.24	1.00	1.58		1.64		1.64		3.28	4.5		24.0		93.14	0.78	0.51		0.56		0.56		0.87	4.5		22.0		93.52	0.00	0.00		0.00		0.00		0.00	2.8
				26.0		92.84	1.40	1.12		1.17		1.17		3.29	4.6		26.0		92.92	1.00	0.35		0.41		0.41		0.82	4.6		24.0		93.07	0.45	0.10		0.21		0.21		0.18	4.5
				28.0		92.84	1.40	2.42		2.49		2.49		6.98	6.4		28.0		92.74	1.18	1.23		1.29		1.29		3.04	6.4		26.0		92.77	0.75	0.08		0.18		0.18		0.28	4.6
				30.0		92.79	1.45	3.01		3.08		3.08		6.70	6.5		30.0		92.72	1.20	1.57		1.63		1.63		2.94	6.5		28.0		92.72	0.80	0.16		0.27		0.27		0.43	6.4
				31.0		92.84	1.40	3.08		3.15		3.15		6.62	5.7		31.0		92.72	1.20	1.55		1.61		1.61		2.90	5.7		30.0		92.80	0.72	1.19		1.25		1.25		1.35	6.5
				33.0		93.04	1.20	3.36		3.43		3.43		6.18	7.5		33.0		93.22	0.70	1.82		1.89		1.89		1.98	7.5		31.0		92.87	0.65	1.15		1.20		1.20		1.17	5.7
				34.0		93.04	1.20	3.00		3.07		3.07		5.53	5.6		34.0		93.12	0.80	1.65		1.71		1.71		2.06	5.6		33.0		93.19	0.33	1.29		1.35		1.35		0.67	7.5
				36.0		93.34	0.90	2.80		2.87		2.87		5.17	5.6		36.0		93.37	0.55	1.02		1.07		1.07		1.18	5.6		34.0		93.12	0.40	1.28		1.34		1.34		0.80	5.6
				38.0		93.34	0.90	2.55		2.62		2.62		4.72	5.6		38.0		93.27	0.65	1.56		1.62		1.62		2.11	5.6		36.0		93.32	0.20	0.63		0.68		0.68		0.27	5.6
				40.0		93.14	1.10	2.59		2.66		2.66		5.86	5.6		40.0		93.12	0.80	1.84		1.91		1.91		3.05	5.6		38.0		93.32	0.20	0.98		1.03		1.03		0.41	5.6
				42.0		93.04	1.20	3.14		3.21		3.21		7.71	5.6		42.0		93.12	0.80	2.03		2.10		2.10		3.36	5.6		40.0		93.12	0.40	0.94		0.99		0.99		0.80	5.6
				44.0		93.04	1.20	0.68		0.73		0.73		1.76	5.6		44.0		93.04	0.88	0.29		0.36		0.36		0.63	5.6		42.0		93.02	0.50	0.98		1.03		1.03	20	0.97	5.6
				46.0		93.24	1.00	4.17		4.25		4.25		8.51	5.6		46.0		93.27	0.65	2.51		2.58		2.58		3.36	5.6		44.0		93.09	0.43	-0.02		-0.07		-0.07		-0.06	5.6
				48.0		92.94	1.30	3.37		3.44		3.44		8.95	5.6		48.0		93.00	0.92	1.46		1.52		1.52		2.79	5.6		46.0		93.12	0.40	1.49		1.55		1.55		1.24	5.6
				50.0		93.34	0.90	3.76		3.84		3.84		6.90	6.3		50.0		93.25	0.67	0.91		0.96		0.96		1.29	6.3		48.0		93.02	0.50	1.02		1.07		1.07		1.07	5.6
				52.0		93.04	1.20	0.24		0.34		0.34		0.75	6.3		52.0		92.97	0.95	0.22		0.32		0.32		0.56	6.3		50.0		93.07	0.45	0.80		0.85		0.85		0.77	6.3
				53.7		93.14	1.10	3.63		3.70		3.70		8.15	3.6		53.7		93.12	0.80	0.52		0.57		0.57		0.91	3.6		52.0		93.15	0.37	0.42		0.47		0.47	20	0.30	6.3
				56.0		93.09	1.15	3.52		3.59		3.59		8.88	3.6		56.0		93.14	0.78	0.89		0.94		0.94		1.58	3.6		53.7		93.30	0.22	0.47		0.52		0.52		0.23	3.6
				58.0		92.94	1.30	3.00		3.07		3.07		7.99	3.6		58.0		93.22	0.70	0.96		1.01		1.01		1.42	3.6		56.0		93.12	0.40	0.75		0.80		0.80		0.69	3.6
				60.0		92.94	1.30	2.31		2.38		2.38		6.19	4.6		60.0		93.07	0.85	0.79		0.84		0.84		1.65	4.6		58.0		93.00	0.52	0.63		0.68		0.68		0.71	3.6
				62.0		93.14	1.10	1.37		1.43		1.43		2.04	2.4		62.6		93.47	0.45	0.00		0.00		0.00		0.00	2.4		60.0		92.96	0.56	0.68		0.73		0.73		0.82	4.6
				62.6		93.29	0.95	0.59		0.64		0.64		0.37	2.1	LWE	62.7		93.92	0.00	0.00		0.00		0.00		0.00	2.1		62.0		93.20	0.32	0.28		0.36		0.36		0.15	2.4
			LWE	63.2		94.24	0.00	0.00		0.00		0.00		0.00	2.1	LWP	73.2													LWE	62.7		93.52	0.00	0.00		0.00		0.00		0.00	2.1
			LWP	73.2																											63.0	9.45	94.14								2.1
																															68.0	8.66	94.93								1.2
																															71.0	8.25	95.34								1.2
																															72.5	7.09	96.50								1.2
																													LWP	73.2	6.98	96.61								1.2



Stream:	S.F. Sprague R.		27-Apr-07														14-Jun-07														27-Sep-07													
Site:	656			Sta	FS	Ground	Depth	Vel (ft/s)					Angle	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)	$V_{0.2/0.6}$	$V_{0.8}$	$NV_{0.2/0.6}$	$NV_{0.8}$	Ave	(deg)	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	$NV_{0.2/0.6}$	$NV_{0.8}$	Ave	(deg)	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	$NV_{0.2/0.6}$	$NV_{0.8}$	Ave	(deg)	(cfs)	substrate
Habitat:	Riffle																																							
Survey Date	HI (ft)	Q (cfs)																																						
4/27/2007	104.69															RWP	1.0																								
6/14/2007	102.10	37.7														RWE	6.0		94.10	0.00	0.00		0.00		0.00		0.00	1.2														
9/27/2007	102.25	10.8															7.5		93.90	0.20	0.00		0.00		0.00		0.00	2.4														
																	9.0		93.50	0.60	0.00		0.00		0.00		0.00	2.3	RWE	8.2		93.70	0.00	0.00		0.00		0.00		0.00	2.4
																	10.5		93.20	0.90	0.23		0.33		0.33		0.44	2.6		9.0		93.55	0.15	0.00		0.00		0.00		0.00	2.3
																	12.0		93.00	1.10	0.24		0.34		0.34		0.55	6.2		10.5		93.20	0.50	0.37		0.43		0.43		0.33	2.6
																	13.5		92.78	1.32	0.26		0.35		0.35		0.68	6.2		12.0		92.95	0.75	0.24		0.30		0.30		0.34	6.2
																	15.0		92.40	1.70	0.71		0.76		0.76		1.95	7.3		13.5		92.80	0.90	0.51		0.57		0.57		0.77	6.2
																	16.5		92.85	1.25	1.41		1.47		1.47		2.75	7.4		15.0		92.43	1.27	0.07		0.23		0.23		0.44	7.3
																	18.0		92.82	1.28	2.23		2.30		2.30		4.42	6.7		16.5		92.80	0.90	1.33		1.39		1.39		1.87	7.4
																	19.5		92.40	1.70	1.79	0.81	1.86	0.86	1.36		3.47	6.5		18.0		92.90	0.80	0.75		0.80		0.80		0.96	6.7
																	21.0		92.42	1.68	2.14	0.45	2.21	0.50	1.35		3.41	6.5		19.5		92.50	1.20	0.60		0.66		0.66		1.18	6.5
																	22.5		92.60	1.50	2.40		2.47		2.47		5.56	6.5		21.0		92.45	1.25	0.39		0.45		0.45		0.85	6.5
																	24.0		93.32	0.78	0.88		0.93		0.93		1.09	7.6		22.5		92.60	1.10	0.46		0.52		0.52		0.85	6.5
																	25.5		93.28	0.82	1.99		2.06		2.06		2.53	7.6		24.0		93.30	0.40	0.36		0.42		0.42		0.25	7.6
																	27.0		93.70	0.40	2.12		2.19		2.19		1.31	7.6		25.5		93.30	0.40	1.17		1.22		1.22	20	0.69	7.6
																	28.5		93.50	0.60	1.77		1.84		1.84		1.65	7.5		27.0		93.70	0.00	0.00		0.00		0.00		0.00	7.6
																	30.0		93.40	0.70	1.74		1.80		1.80		1.90	7.5		28.5		93.50	0.20	0.90		0.95		0.95		0.28	7.5
																	31.5		93.40	0.70	1.78		1.85		1.85		1.94	5.6		30.0		93.35	0.35	0.95		1.00		1.00		0.52	7.5
																	33.0		93.20	0.90	2.00		2.07		2.07		2.79	5.4		31.5		93.35	0.35	1.16		1.21		1.21		0.64	5.6
																	34.5		93.30	0.80	0.40		0.45		0.45		0.54	5.2		33.0		93.20	0.50	0.88		0.93		0.93		0.70	5.4
																	36.0		93.60	0.50	0.03		0.10		0.10		0.07	2.5		34.5		93.30	0.40	0.13		0.22		0.22		0.13	5.2
																	37.5		93.50	0.60	0.68		0.73		0.73		0.62	2.4		36.0		93.60	0.10	0.00		0.00		0.00		0.00	2.5
																	38.8		93.85	0.25	0.00		0.00		0.00		0.00	2.1		37.5		93.50	0.20	0.00		0.00		0.00		0.00	2.4
																LWE	38.9		94.10	0.00	0.00		0.00		0.00		0.00	1.2	LWE	38.8		93.70	0.00	0.00		0.00		0.00		0.00	2.1
																LWP	44.0													39.0	7.85	94.40									1.2
																														41.0	7.32	94.93									1.2
																													LWP	44.0	6.75	95.50									1.2



Stream:	S.F. Sprague R.		27-Apr-07													14-Jun-07													27-Sep-07												
Site:	656			Sta	FS	Ground	Depth	Vel (ft/s)					Angle	q			Sta	FS	Ground	Depth	Vel (ft/s)					Angle	q			Sta	FS	Ground	Depth	Vel (ft/s)					Angle	q	
Transect:	3			(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	$NV_{0.2/0.6}$	$NV_{0.8}$	Ave	(deg)	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	$NV_{0.2/0.6}$	$NV_{0.8}$	Ave	(deg)	(cfs)	substrate		(ft)	(ft)	(ft)	(ft)	$V_{0.2/0.6}$	$V_{0.8}$	$NV_{0.2/0.6}$	$NV_{0.8}$	Ave	(deg)	(cfs)	substrate
Habitat:	Riffle																																						
																													-6.0	6.18	98.76								1.2
Survey	HI	Q																										RWP	1.0	6.63	98.31								1.2
Date	(ft)	(cfs)																											6.0	7.38	97.56								1.2
4/27/2007																													6.7	8.34	96.60								1.2
6/14/2007	104.79	34.0																											10.0	9.06	95.88								1.2
9/27/2007	104.94	10.2																											15.0	9.88	95.06								1.2
																RWP	1.0												20.2	9.93	95.01								1.2
																RWE	20.2		95.05	0.00	0.00		0.00		0.00		0.00	1.2	RWE	20.8		94.79	0.00	0.00		0.00		0.00		0.00	1.2
																	21.5		94.10	0.95	0.41		0.46		0.46		0.39	2.4		21.5		94.39	0.40	0.00		0.00		0.00		0.00	2.4
																	22.0		93.95	1.10	0.52		0.57		0.57		0.78	2.4		22.0		94.14	0.65	0.00		0.00		0.00		0.00	2.4
																	24.0		93.80	1.25	0.21	0.10	0.31	0.21	0.26		0.64	4.2		24.0		93.99	0.80	0.00		0.00		0.00		0.00	4.2
																	26.0		94.30	0.75	0.88		0.93		0.93		1.40	4.2		26.0		94.49	0.30	0.90		0.95		0.95	45	0.40	4.2
																	28.0		94.60	0.45	1.03		1.08		1.08		0.98	4.5		28.0		94.74	0.05	0.10		0.25		0.25		0.03	4.5
																	30.0		94.45	0.60	1.84		1.91		1.91		2.29	5.4		30.0		94.59	0.20	0.42		0.48		0.48		0.19	5.4
																	32.0		94.43	0.62	1.86		1.93		1.93		2.39	5.6		32.0		94.54	0.25	1.58		1.64		1.64		0.82	5.6
																	34.0		94.45	0.60	1.89		1.96		1.96		2.35	5.6		34.0		94.49	0.30	1.47		1.53		1.53		0.92	5.6
																	36.0		94.25	0.80	2.63		2.70		2.70		4.32	5.6		36.0		94.34	0.45	2.49		2.55		2.55		2.30	5.6
																	38.0		94.37	0.68	1.67		1.73		1.73		2.36	5.6		38.0		94.49	0.30	1.72		1.78		1.78	10	1.05	5.6
																	40.0		94.53	0.52	1.79		1.86		1.86		1.93	5.6		40.0		94.54	0.25	1.73		1.79		1.79	30	0.78	5.6
																	42.0		94.70	0.35	1.97		2.04		2.04		1.43	5.6		42.0		94.74	0.05	1.30		1.36		1.36		0.14	5.6
																	44.0		94.70	0.35	1.86		1.93		1.93		1.35	6.5		44.0		94.54	0.25	1.80		1.87		1.87	45	0.66	6.5
																	46.0		94.65	0.40	1.17		1.23		1.23		0.98	6.5		46.0		94.59	0.20	0.89		0.94		0.94	45	0.27	6.5
																	48.0		94.25	0.80	1.41		1.47		1.47		2.35	5.6		48.0		94.39	0.40	1.46		1.52		1.52	45	0.86	5.6
																	50.0		94.50	0.55	1.60		1.66		1.66		1.83	5.6		50.0		94.69	0.10	1.30		1.36		1.36	45	0.19	5.6
																	52.0		94.35	0.70	1.49		1.55		1.55		2.17	5.6		52.0		94.49	0.30	0.52		0.58		0.58	30	0.30	5.6
																	54.0		94.45	0.60	1.44		1.50		1.50		1.80	5.6		54.0		94.49	0.30	1.01		1.06		1.06	30	0.55	5.6
																	56.0		94.45	0.60	1.20		1.26		1.26		1.51	6.4		56.0		94.44	0.35	1.04		1.09		1.09		0.76	6.4
																	58.0		94.65	0.40	1.03		1.08		1.08		0.78	6.2		58.0		94.79	0.00	0.00		0.00		0.00		0.00	6.2
																LWE	59.6		95.05	0.00	0.00		0.00		0.00		0.00	1.2	LWE	59.0		94.79	0.00	0.00		0.00		0.00		0.00	1.2
																LWP	66.4													59.8	9.70	95.24								1.2
																														60.3	9.36	95.58								1.2
																														62.0	8.95	95.99								1.2
																												LWP	66.4	8.49	96.45								1.2
																													70.4	7.42	97.52								1.2



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     SF Sprague River SP16 09/27/07
RIFFLE                      LOW                                      TRANSECT 1
IOC       11011001000010001010000
QARD   5.0
QARD  10.0
QARD  11.4
QARD  15.0
QARD  20.0
QARD  25.0
QARD  30.0
QARD  35.0
QARD  36.9
QARD  40.0
QARD  45.0
QARD  50.0
QARD  55.0
QARD  60.0
QARD  65.0
QARD  70.0
QARD  75.0
QARD  80.0
QARD  85.0
QARD  90.0
QARD  95.0
QARD 100.0
QARD 105.0
QARD 110.0
QARD 120.0
QARD 124.3
QARD 130.0
QARD 140.0
QARD 150.0
QARD 160.0
XSEC   0.0      0.00 1.0     92.79   0.00753
       0.0  1.096.21  7.095.42 13.094.97 19.094.54 21.293.89 21.593.52
       0.0 22.093.52 24.093.07 26.092.77 28.092.72 30.092.80 31.092.87
       0.0 33.093.19 34.093.12 36.093.32 38.093.32 40.093.12 42.093.02
       0.0 44.093.09 46.093.12 48.093.02 50.093.07 52.093.15 53.793.30
       0.0 56.093.12 58.093.00 60.092.96 62.093.20 62.793.52 63.094.14
       0.0 68.094.93 71.095.34 72.596.50 73.296.61
NS     0.0       1.2       1.2       1.2       1.2       1.2       2.8
NS     0.0       2.8       4.5       4.6       6.4       6.5       5.7
NS     0.0       7.5       5.6       5.6       5.6       5.6       5.6
NS     0.0       5.6       5.6       5.6       6.3       6.3       3.6
NS     0.0       3.6       3.6       4.6       2.4       2.1       2.1
NS     0.0       1.2       1.2       1.2       1.2
WSL    0.0     93.36     93.49     93.52     93.61     93.71     93.80
WSL    0.0     93.86     93.91     93.92     93.94     93.97     93.99
WSL    0.0     94.02     94.04     94.06     94.08     94.10     94.12
WSL    0.0     94.13     94.15     94.17     94.19     94.20     94.22
WSL    0.0     94.25     94.26     94.28     94.31     94.33     94.36
CAL1   0.0     93.52      11.4
VEL1   0.0                          0.00 0.00 0.21 0.18 0.27 1.25 1.20
VEL1   0.0 1.35 1.34 0.68 1.03 0.99 1.03-0.07 1.55 1.07 0.85 0.47 0.52
VEL1   0.0 0.80 0.68 0.73 0.36 0.00
CAL2   0.0     93.92      36.9
VEL2   0.0
VEL2   0.0
VEL2   0.0
CAL3   0.0     94.24     124.3
VEL3   0.0
VEL3   0.0
VEL3   0.0
ENDJ
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     SF Sprague River SP16 06/14/07
RIFFLE                      MID                                    TRANSECT 1
IOC       11011001000010001010000
QARD   5.0
QARD  10.0
QARD  11.4
QARD  15.0
QARD  20.0
QARD  25.0
QARD  30.0
QARD  35.0
QARD  36.9
QARD  40.0
QARD  45.0
QARD  50.0
QARD  55.0
QARD  60.0
QARD  65.0
QARD  70.0
QARD  75.0
QARD  80.0
QARD  85.0
QARD  90.0
QARD  95.0
QARD 100.0
QARD 105.0
QARD 110.0
QARD 120.0
QARD 124.3
QARD 130.0
QARD 140.0
QARD 150.0
QARD 160.0
XSEC   0.0      0.00 1.0     92.79   0.00753
       0.0  1.096.21  7.095.42 13.094.97 19.094.54 20.194.24 21.193.92
       0.0 22.093.39 24.093.14 26.092.92 28.092.74 30.092.72 31.092.72
       0.0 33.093.22 34.093.12 36.093.37 38.093.27 40.093.12 42.093.12
       0.0 44.093.04 46.093.27 48.093.00 50.093.25 52.092.97 53.793.12
       0.0 56.093.14 58.093.22 60.093.07 62.693.47 62.793.92 63.094.14
       0.0 68.094.93 71.095.34 72.596.50 73.296.61
NS     0.0       1.2       1.2       1.2       1.2       1.2       1.2
NS     0.0       2.8       4.5       4.6       6.4       6.5       5.7
NS     0.0       7.5       5.6       5.6       5.6       5.6       5.6
NS     0.0       5.6       5.6       5.6       6.3       6.3       3.6
NS     0.0       3.6       3.6       4.6       2.4       2.1       2.1
NS     0.0       1.2       1.2       1.2       1.2
WSL    0.0     93.36     93.49     93.52     93.61     93.71     93.80
WSL    0.0     93.86     93.91     93.92     93.94     93.97     93.99
WSL    0.0     94.02     94.04     94.06     94.08     94.10     94.12
WSL    0.0     94.13     94.15     94.17     94.19     94.20     94.22
WSL    0.0     94.25     94.26     94.28     94.31     94.33     94.36
CAL1   0.0     93.92      36.9
VEL1   0.0                    0.00 0.00 0.28 0.56 0.41 1.29 1.63 1.61
VEL1   0.0 1.89 1.71 1.07 1.62 1.91 2.10 0.36 2.58 1.52 0.96 0.32 0.57
VEL1   0.0 0.94 1.01 0.84 0.00 0.00
CAL2   0.0     94.24     124.3
VEL2   0.0
VEL2   0.0
VEL2   0.0
CAL3   0.0     93.52      11.4
VEL3   0.0
VEL3   0.0
VEL3   0.0
ENDJ
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     SF Sprague River SP16 04/27/07
RIFFLE                      HGH                                    TRANSECT 1
IOC       1101100100001000101000
QARD   5.0
QARD  10.0
QARD  11.4
QARD  15.0
QARD  20.0
QARD  25.0
QARD  30.0
QARD  35.0
QARD  36.9
QARD  40.0
QARD  45.0
QARD  50.0
QARD  55.0
QARD  60.0
QARD  65.0
QARD  70.0
QARD  75.0
QARD  80.0
QARD  85.0
QARD  90.0
QARD  95.0
QARD 100.0
QARD 105.0
QARD 110.0
QARD 120.0
QARD 124.3
QARD 130.0
QARD 140.0
QARD 150.0
QARD 160.0
XSEC   0.0      0.00 1.0     92.79   0.00753
       0.0  1.096.21  7.095.42 13.094.97 19.094.54 20.194.24 22.093.29
       0.0 24.093.24 26.092.84 28.092.84 30.092.79 31.092.84 33.093.04
       0.0 34.093.04 36.093.34 38.093.34 40.093.14 42.093.04 44.093.04
       0.0 46.093.24 48.092.94 50.093.34 52.093.04 53.793.14 56.093.09
       0.0 58.092.94 60.092.94 62.093.14 62.693.29 63.294.24 68.094.93
       0.0 71.095.34 72.596.50 73.296.61
NS     0.0       1.2       1.2       1.2       1.2       1.2       2.8
NS     0.0       4.5       4.6       6.4       6.5       5.7       7.5
NS     0.0       5.6       5.6       5.6       5.6       5.6       5.6
NS     0.0       5.6       5.6       6.3       6.3       3.6       3.6
NS     0.0       3.6       4.6       2.4       2.1       2.1       1.2
NS     0.0       1.2       1.2       1.2
WSL    0.0     93.36     93.49     93.52     93.61     93.71     93.80
WSL    0.0     93.86     93.91     93.92     93.94     93.97     93.99
WSL    0.0     94.02     94.04     94.06     94.08     94.10     94.12
WSL    0.0     94.13     94.15     94.17     94.19     94.20     94.22
WSL    0.0     94.25     94.26     94.28     94.31     94.33     94.36
CAL1   0.0     94.24     124.3
VEL1   0.0                    0.00 0.94 1.64 1.17 2.49 3.08 3.15 3.43
VEL1   0.0 3.07 2.87 2.62 2.66 3.21 0.73 4.25 3.44 3.84 0.34 3.70 3.59
VEL1   0.0 3.07 2.38 1.43 0.64 0.00
CAL2   0.0     93.92      36.9
VEL2   0.0
VEL2   0.0
VEL2   0.0
CAL3   0.0     93.52      11.4
VEL3   0.0
VEL3   0.0
VEL3   0.0
ENDJ
```

```
     SF Sprague River SP16 06/14/07
RIFFLE                       LOW                                    TRANSECT 2
IOC       11011000000001000101000
QARD   5.0
QARD  10.0
QARD  11.4
QARD  15.0
QARD  20.0
QARD  25.0
QARD  30.0
QARD  35.0
QARD  36.9
QARD  40.0
QARD  45.0
QARD  50.0
QARD  55.0
QARD  60.0
QARD  65.0
QARD  70.0
QARD  75.0
QARD  80.0
QARD  85.0
QARD  90.0
QARD  95.0
QARD 100.0
QARD 105.0
QARD 110.0
QARD 120.0
QARD 124.3
QARD 130.0
QARD 140.0
QARD 150.0
QARD 160.0
XSEC   0.0      0.00 1.0     92.80   0.00753
       0.0 -7.097.33  1.096.75  3.096.17  5.095.75  5.394.15  8.293.70
       0.0  9.093.55 10.593.20 12.092.95 13.592.80 15.092.43 16.592.80
       0.0 18.092.90 19.592.50 21.092.45 22.592.60 24.093.30 25.593.30
       0.0 27.093.70 28.593.50 30.093.35 31.593.35 33.093.20 34.593.30
       0.0 36.093.60 37.593.50 38.893.70 39.094.40 41.094.93 44.095.50
NS     0.0       1.2       1.2       1.2       1.2       1.2       2.4
NS     0.0       2.3       2.6       6.2       6.2       7.3       7.4
NS     0.0       6.7       6.5       6.5       6.5       7.6       7.6
NS     0.0       7.6       7.5       7.5       5.6       5.4       5.2
NS     0.0       2.5       2.4       2.1       1.2       1.2       1.2
CAL1   0.0     93.70      11.4
VEL1   0.0                          0.00 0.00 0.43 0.30 0.57 0.23 1.39
VEL1   0.0 0.80 0.66 0.45 0.52 0.42 1.22 0.00 0.95 1.00 1.21 0.93 0.22
VEL1   0.0 0.00 0.00 0.00
CAL2   0.0     94.62     124.3
VEL2   0.0
VEL2   0.0
VEL2   0.0
CAL3   0.0     94.10      36.9
VEL3   0.0
VEL3   0.0
VEL3   0.0
ENDJ
```

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     SF Sprague River SP16 06/14/07
RIFFLE                      MID                                    TRANSECT 2
IOC       11011000000010001010000
QARD   5.0
QARD  10.0
QARD  11.4
QARD  15.0
QARD  20.0
QARD  25.0
QARD  30.0
QARD  35.0
QARD  36.9
QARD  40.0
QARD  45.0
QARD  50.0
QARD  55.0
QARD  60.0
QARD  65.0
QARD  70.0
QARD  75.0
QARD  80.0
QARD  85.0
QARD  90.0
QARD  95.0
QARD 100.0
QARD 105.0
QARD 110.0
QARD 120.0
QARD 124.3
QARD 130.0
QARD 140.0
QARD 150.0
QARD 160.0
XSEC   0.0      0.00 1.0     92.80   0.00753
       0.0 -7.097.33  1.096.75  3.096.17  5.095.75  5.394.15  6.094.10
       0.0  7.593.90  9.093.50 10.593.20 12.093.00 13.592.78 15.092.40
       0.0 16.592.85 18.092.82 19.592.40 21.092.42 22.592.60 24.093.32
       0.0 25.593.28 27.093.70 28.593.50 30.093.40 31.593.40 33.093.20
       0.0 34.593.30 36.093.60 37.593.50 38.893.85 38.994.10 41.094.93
       0.0 44.095.50
NS     0.0       1.2       1.2       1.2       1.2       1.2       1.2
NS     0.0       2.4       2.3  .20  2.6  .25  6.2 .25   6.2       7.3
NS     0.0       7.4       6.7  .11  6.5  .11  6.5       6.5 .09   7.6
NS     0.0       7.6       7.6       7.5       7.5       5.6       5.4
NS     0.0 .20   5.2 .25   2.5       2.4       2.1       1.2       1.2
NS     0.0       1.2
CAL1   0.0     94.10      36.9
VEL1   0.0                          0.00 0.00 0.00 0.33 0.34 0.35 0.76
VEL1   0.0 1.47 2.30 1.36 1.35 2.47 0.93 2.06 2.19 1.84 1.80 1.85 2.07
VEL1   0.0 0.45 0.10 0.73 0.00 0.00
CAL2   0.0     94.62     124.3
VEL2   0.0
VEL2   0.0
VEL2   0.0
CAL3   0.0     93.70      11.4
VEL3   0.0
VEL3   0.0
VEL3   0.0
ENDJ
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     SF Sprague River SP16 09/27/07
RIFFLE                      LOW                                    TRANSECT 3
IOC       11011000000001000101000
QARD   5.0
QARD  10.0
QARD  11.4
QARD  15.0
QARD  20.0
QARD  25.0
QARD  30.0
QARD  35.0
QARD  36.9
QARD  40.0
QARD  45.0
QARD  50.0
QARD  55.0
QARD  60.0
QARD  65.0
QARD  70.0
QARD  75.0
QARD  80.0
QARD  85.0
QARD  90.0
QARD  95.0
QARD 100.0
QARD 105.0
QARD 110.0
QARD 120.0
QARD 124.3
QARD 130.0
QARD 140.0
QARD 150.0
QARD 160.0
XSEC   0.0      0.00 1.0     94.45   0.00753
       0.0 -6.098.76  1.098.31  6.097.56  6.796.60 10.095.88 15.095.06
       0.0 20.295.01 20.894.79 21.594.39 22.094.14 24.093.99 26.094.49
       0.0 28.094.74 30.094.59 32.094.54 34.094.49 36.094.34 38.094.49
       0.0 40.094.54 42.094.74 44.094.54 46.094.59 48.094.39 50.094.69
       0.0 52.094.49 54.094.49 56.094.44 58.094.79 59.094.79 59.895.24
       0.0 60.395.58 62.095.99 66.496.45 70.497.52
NS     0.0       1.2       1.2       1.2       1.2       1.2       1.2
NS     0.0       1.2       1.2       2.4       2.4       4.2       4.2
NS     0.0       4.5       5.4       5.6       5.6       5.6       5.6
NS     0.0       5.6       5.6       6.5       6.5       5.6       5.6
NS     0.0       5.6       5.6       6.4       6.2       1.2       1.2
NS     0.0       1.2       1.2       1.2       1.2
CAL1   0.0     94.79      11.4
VEL1   0.0                                    0.00 0.00 0.00 0.00 0.95
VEL1   0.0 0.25 0.48 1.64 1.53 2.55 1.78 1.79 1.36 1.87 0.94 1.52 1.36
VEL1   0.0 0.58 1.06 1.09 0.00 0.00
CAL2   0.0     95.55     124.3
VEL2   0.0
VEL2   0.0
VEL2   0.0
CAL3   0.0     95.05      36.9
VEL3   0.0
VEL3   0.0
VEL3   0.0
ENDJ
```

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     SF Sprague River SP16 06/14/07
RIFFLE                      MID                                    TRANSECT 3
IOC       11011000000001000101000
QARD   5.0
QARD  10.0
QARD  11.4
QARD  15.0
QARD  20.0
QARD  25.0
QARD  30.0
QARD  35.0
QARD  36.9
QARD  40.0
QARD  45.0
QARD  50.0
QARD  55.0
QARD  60.0
QARD  65.0
QARD  70.0
QARD  75.0
QARD  80.0
QARD  85.0
QARD  90.0
QARD  95.0
QARD 100.0
QARD 105.0
QARD 110.0
QARD 120.0
QARD 124.3
QARD 130.0
QARD 140.0
QARD 150.0
QARD 160.0
XSEC   0.0      0.00 1.0     94.45   0.00753
       0.0 -6.098.76  1.098.31  6.097.56  6.796.60 10.095.88 15.095.06
       0.0 20.295.05 21.594.10 22.093.95 24.093.80 26.094.30 28.094.60
       0.0 30.094.45 32.094.43 34.094.45 36.094.25 38.094.37 40.094.53
       0.0 42.094.70 44.094.70 46.094.65 48.094.25 50.094.50 52.094.35
       0.0 54.094.45 56.094.45 58.094.65 59.695.05 59.895.24 60.395.58
       0.0 62.095.99 66.496.45 70.497.52
NS     0.0       1.2       1.2       1.2       1.2       1.2       1.2
NS     0.0 .1    1.2 .15   2.4 .15   2.4 .20   4.2       4.2       4.5
NS     0.0       5.4       5.6       5.6       5.6 .048  5.6       5.6
NS     0.0       5.6       6.5       6.5       5.6       5.6       5.6
NS     0.0       5.6       6.4 .07   6.2  .05  1.2       1.2       1.2
NS     0.0       1.2       1.2       1.2
CAL1   0.0     95.05      36.9
VEL1   0.0                                0.00 0.46 0.57 0.26 0.93 1.08
VEL1   0.0 1.91 1.93 1.96 2.70 1.73 1.86 2.04 1.93 1.23 1.47 1.66 1.55
VEL1   0.0 1.50 1.26 1.08 0.00
CAL2   0.0     95.55     124.3
VEL2   0.0
VEL2   0.0
VEL2   0.0
CAL3   0.0     94.79      11.4
VEL3   0.0
VEL3   0.0
VEL3   0.0
ENDJ
```