AQU 2 Appendix 2

Hydraulic Simulations

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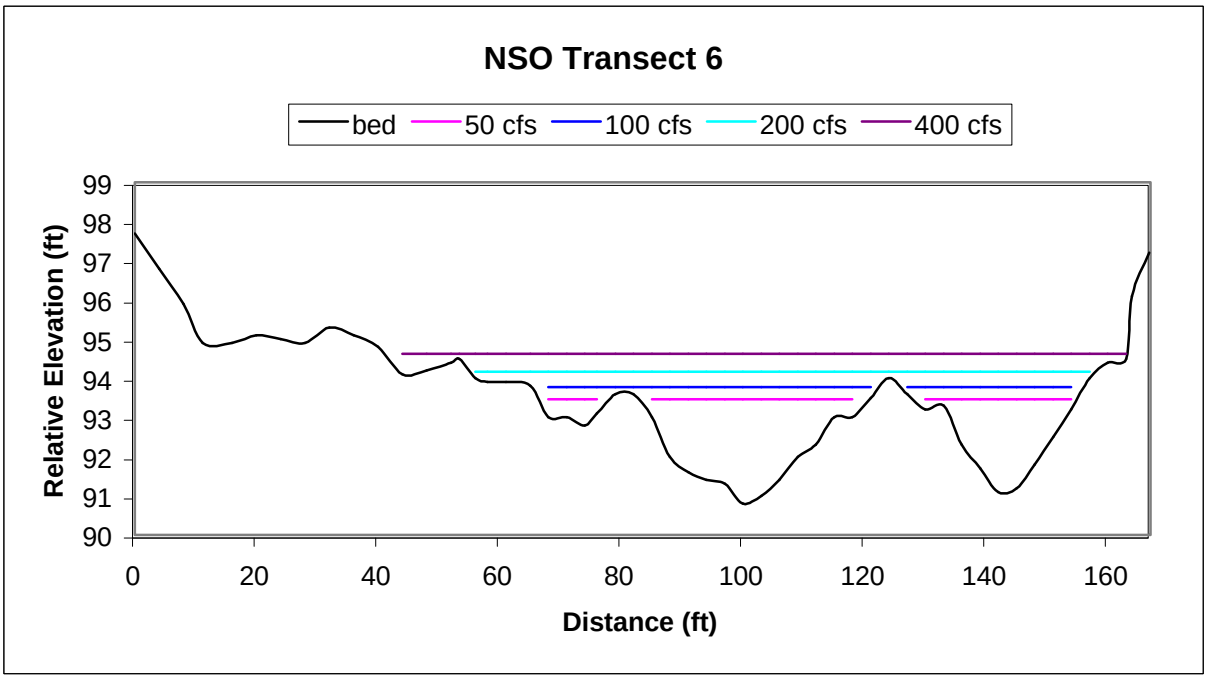
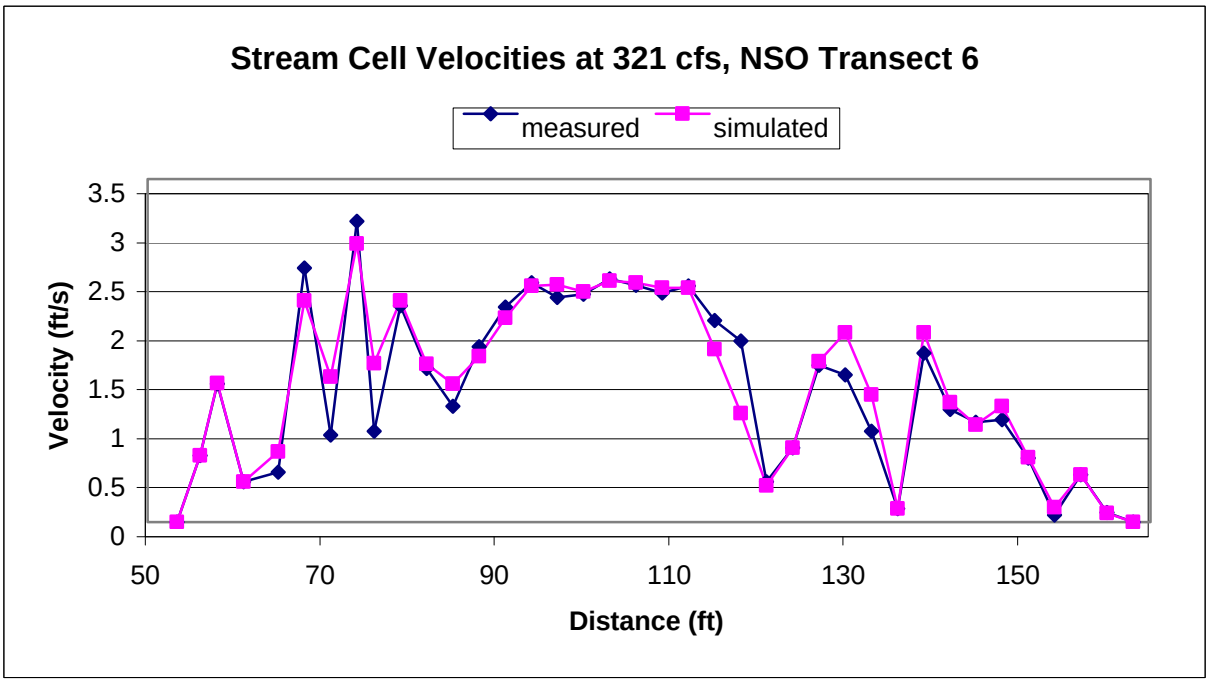
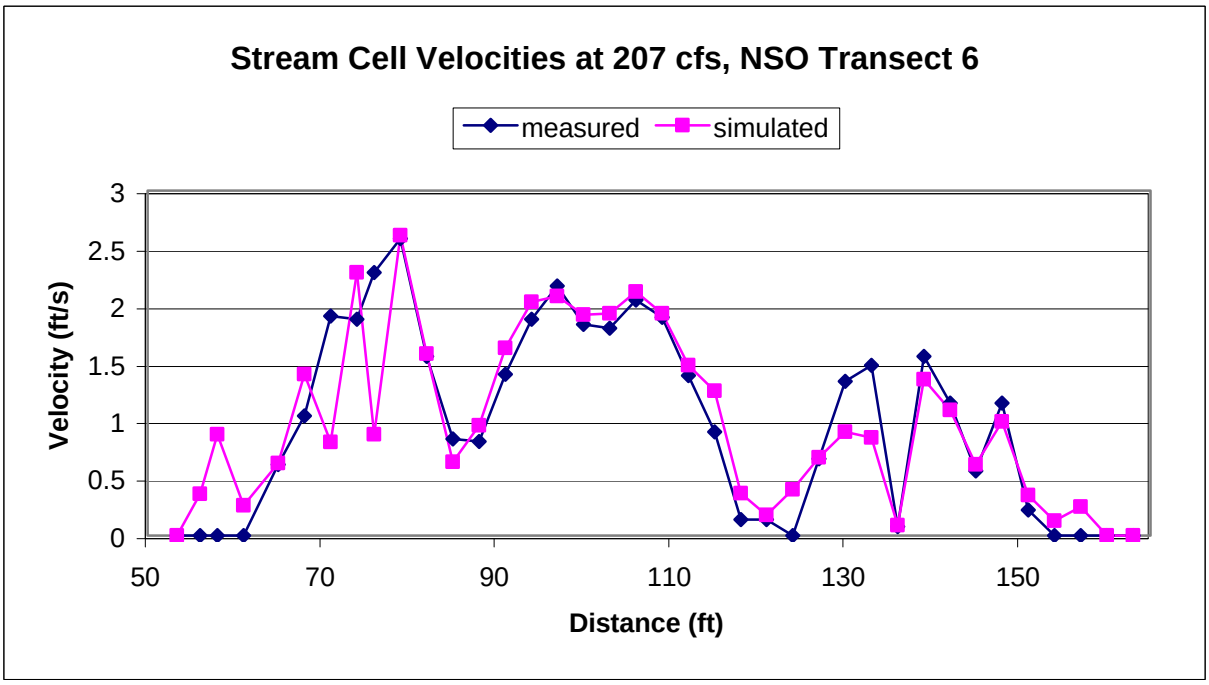
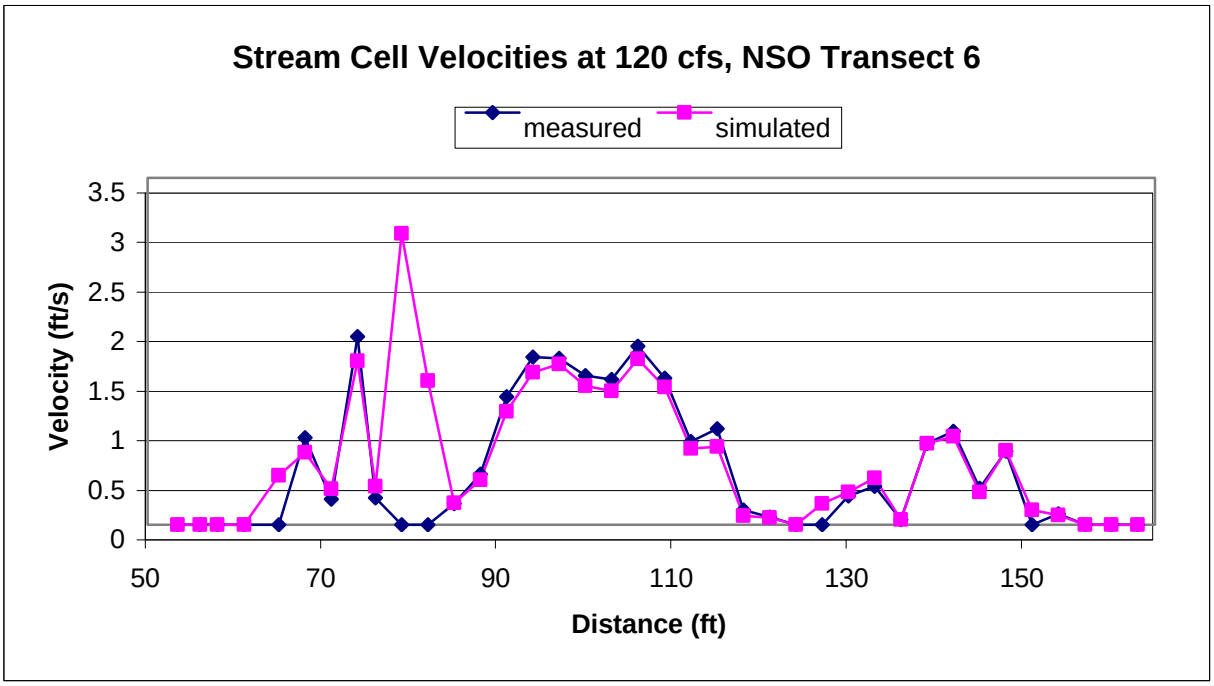
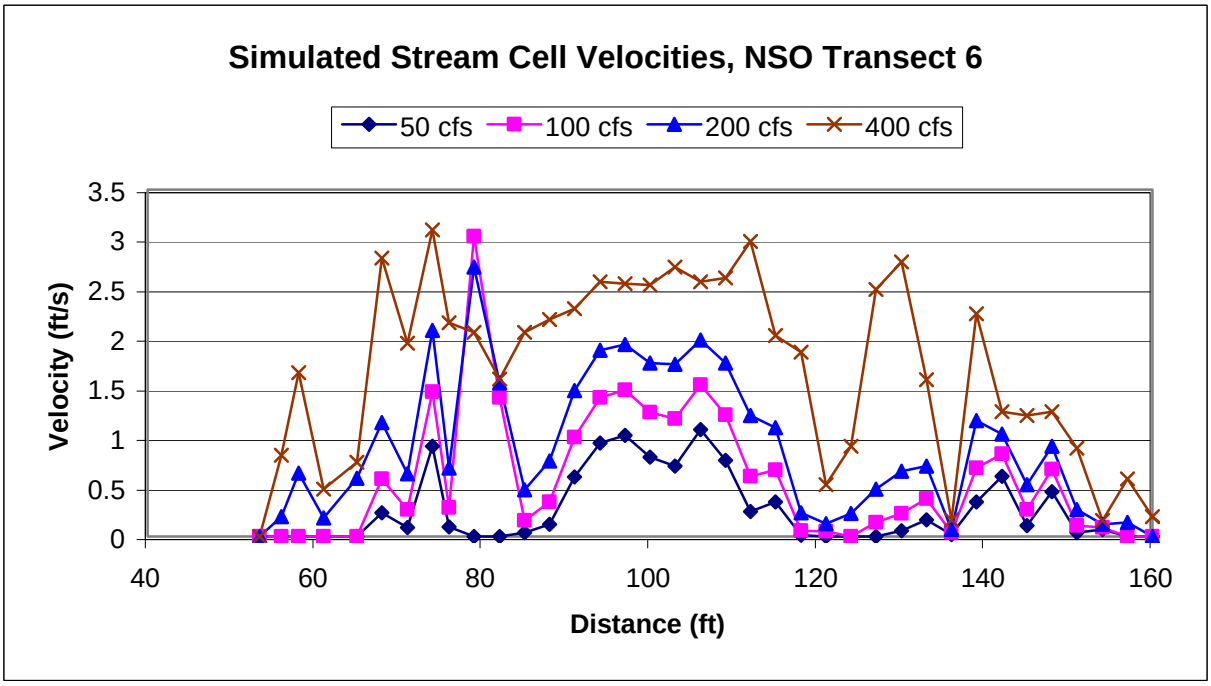
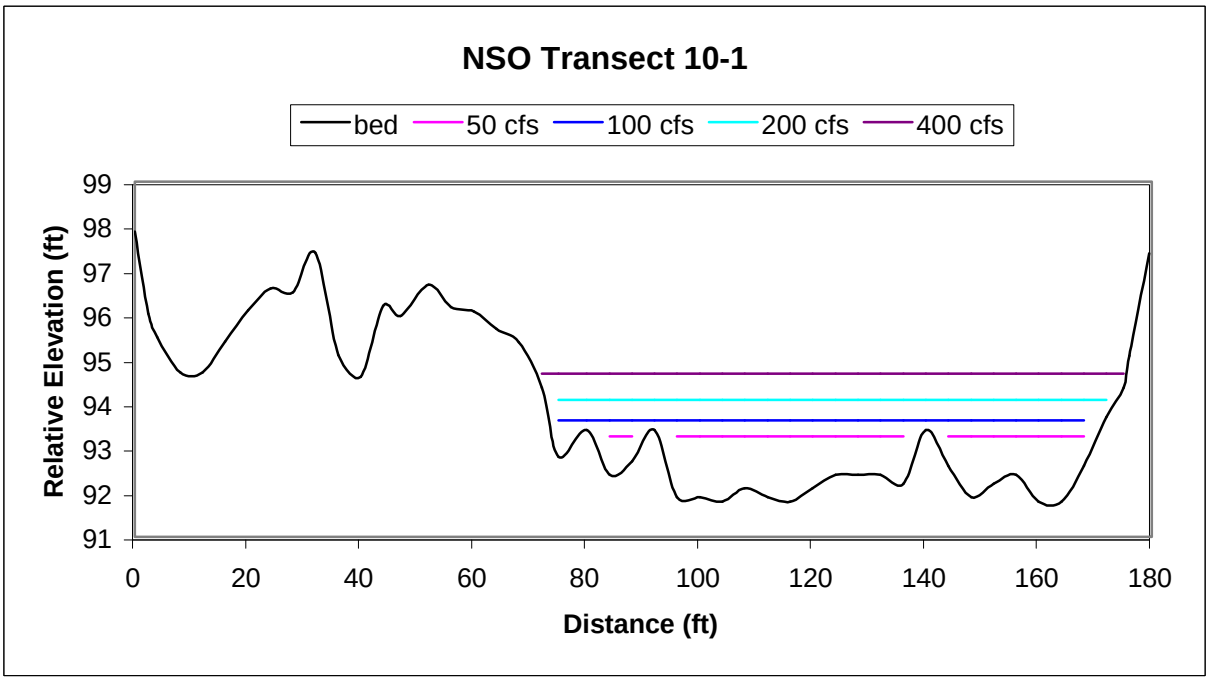

NSO Transect 6
bed
50 cfs
100 cfs
200 cfs
400 cfs
Relative Elevation (ft)
99
98
97
96
95
94
93
92
91
90
0
20
40
60
80
100
120
140
160
Distance (ft)

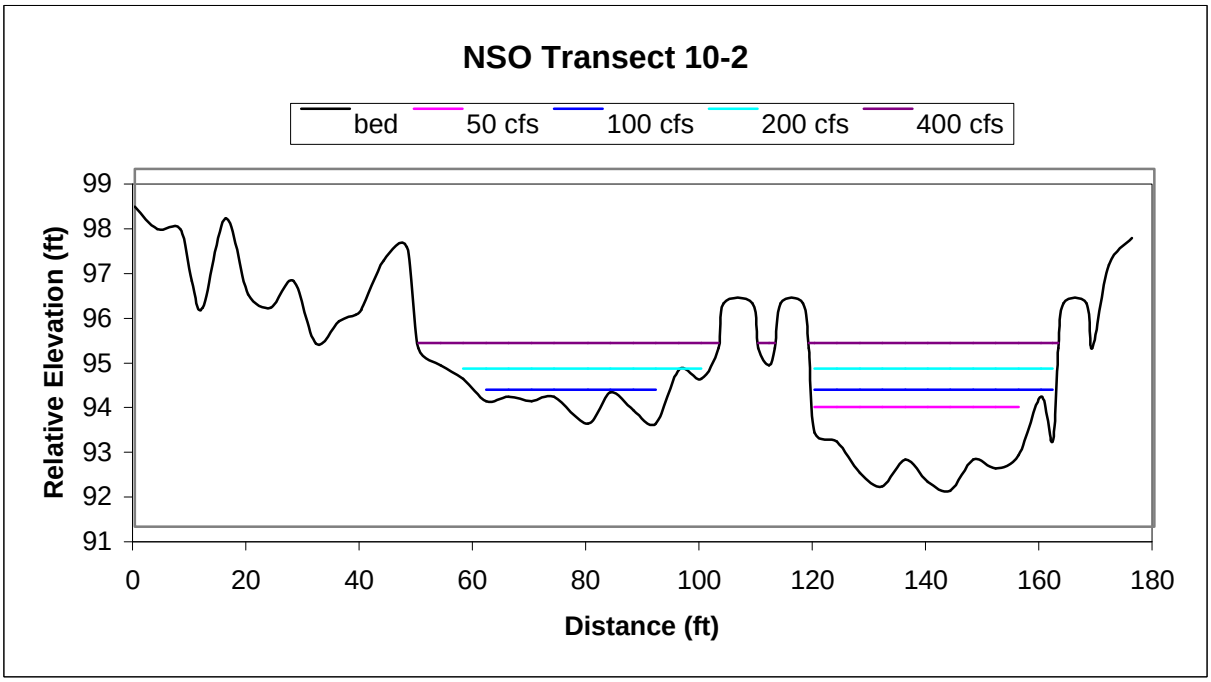

Stream Cell Velocities at 321 cfs, NSO Transect 6
measured
simulated
Velocity (ft/s)
3.5
3
2.5
2
1.5
1
0.5
0
50
70
90
110
130
150
Distance (ft)

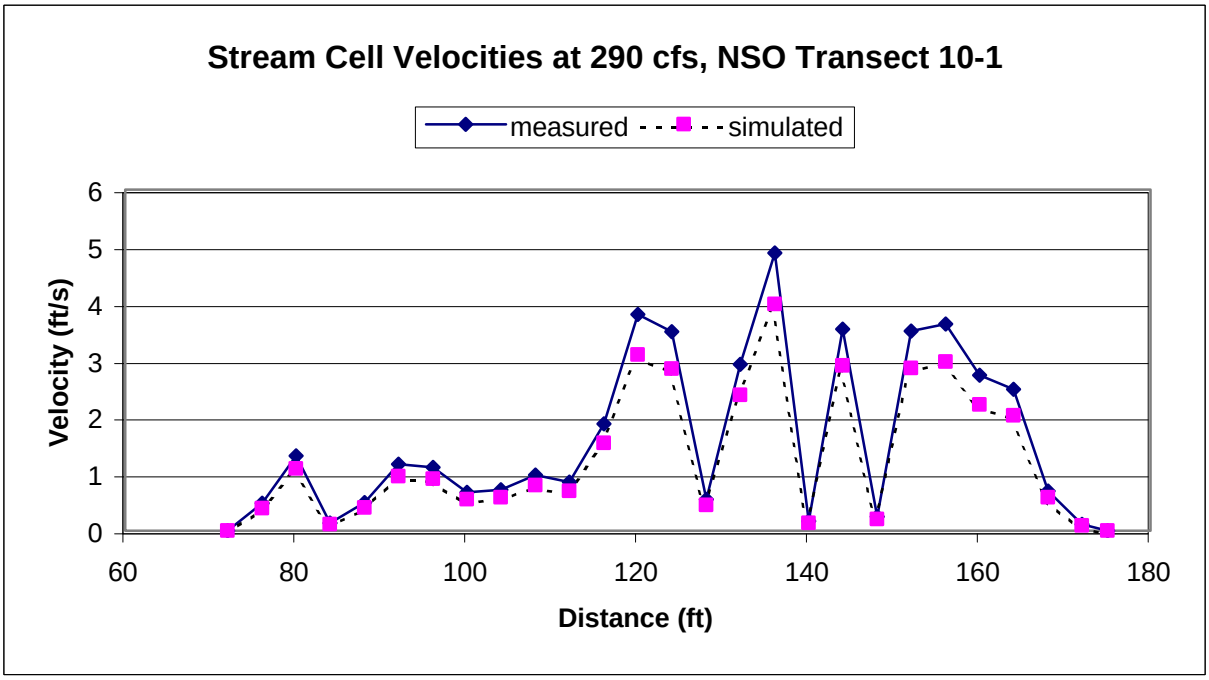

Stream Cell Velocities at 207 cfs, NSO Transect 6
measured
simulated
Velocity (ft/s)
3
2.5
2
1.5
1
0.5
0
50
70
90
110
130
150
Distance (ft)

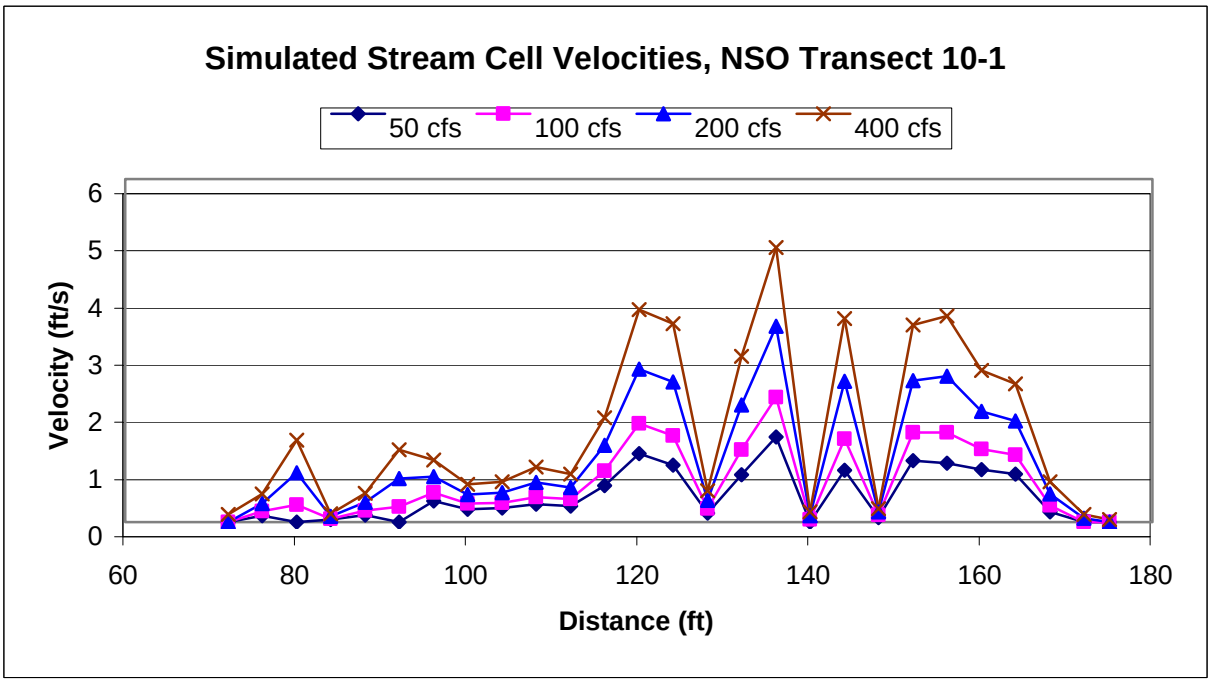

Stream Cell Velocities at 120 cfs, NSO Transect 6
measured
simulated
Velocity (ft/s)
3.5
3
2.5
2
1.5
1
0.5
0
50
70
90
110
130
150
Distance (ft)

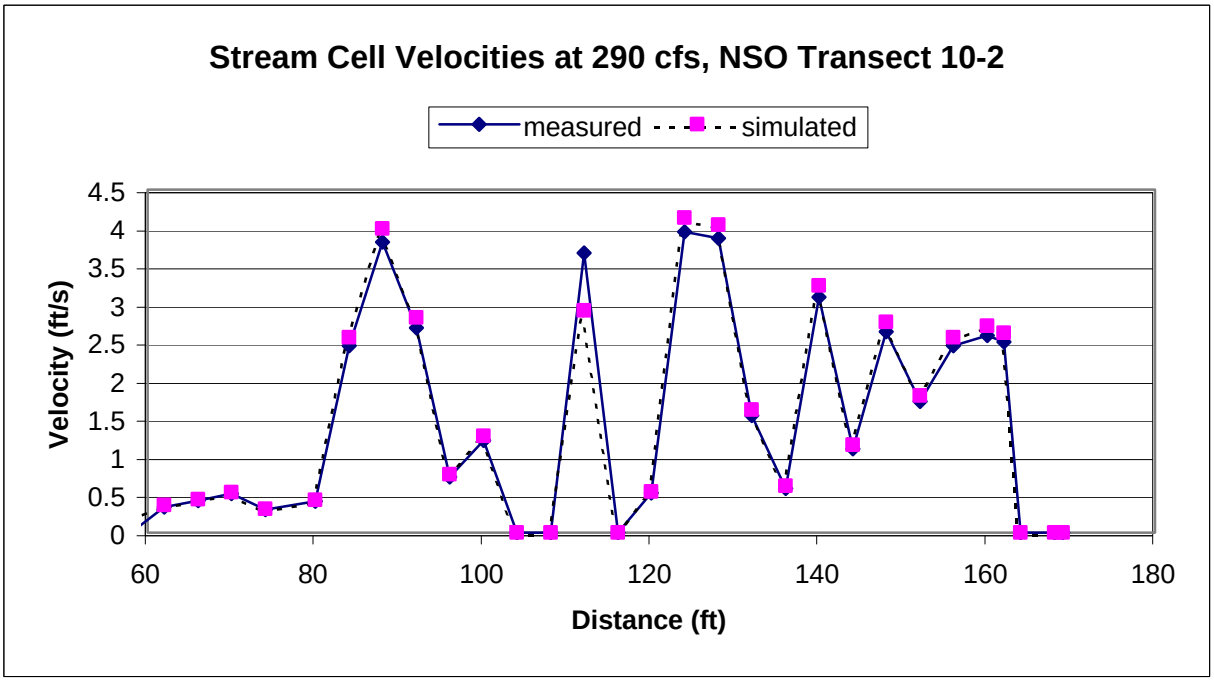

Simulated Stream Cell Velocities, NSO Transect 6
50 cfs
100 cfs
200 cfs
400 cfs
Velocity (ft/s)
3.5
3
2.5
2
1.5
1
0.5
0
40
60
80
100
120
140
160
Distance (ft)

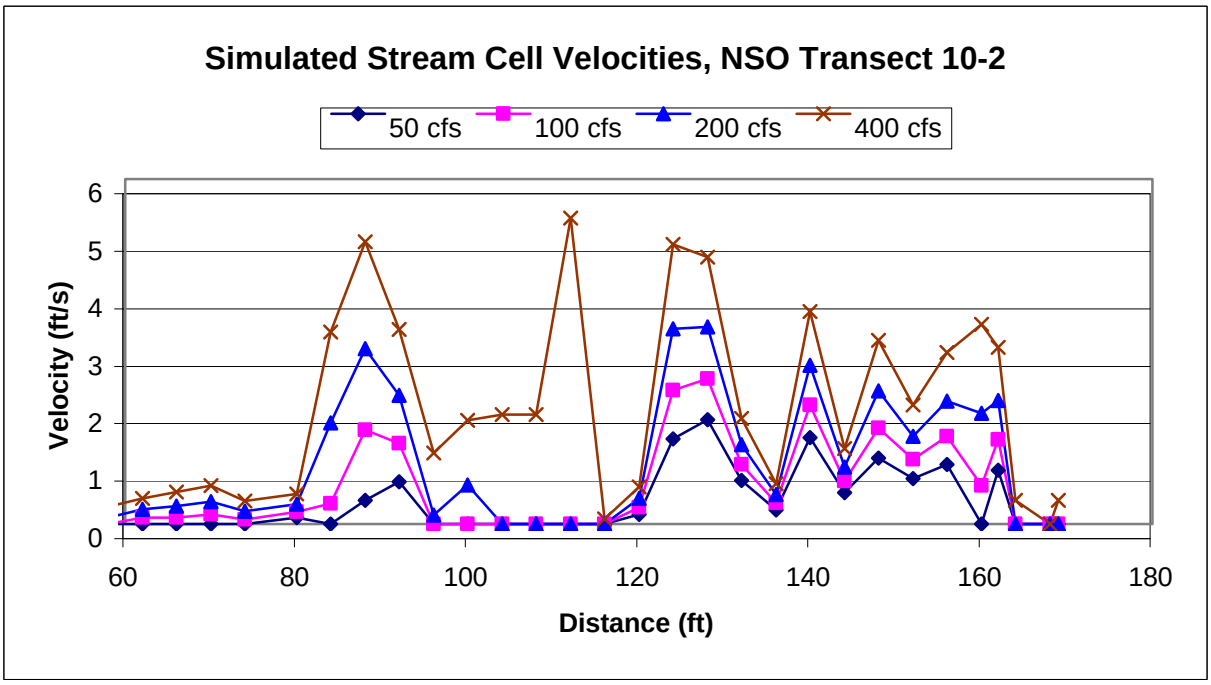

NSO Transect 10-1
bed
50 cfs
100 cfs
200 cfs
400 cfs
Relative Elevation (ft)
99
98
97
96
95
94
93
92
91
0
20
40
60
80
100
120
140
160
180
Distance (ft)

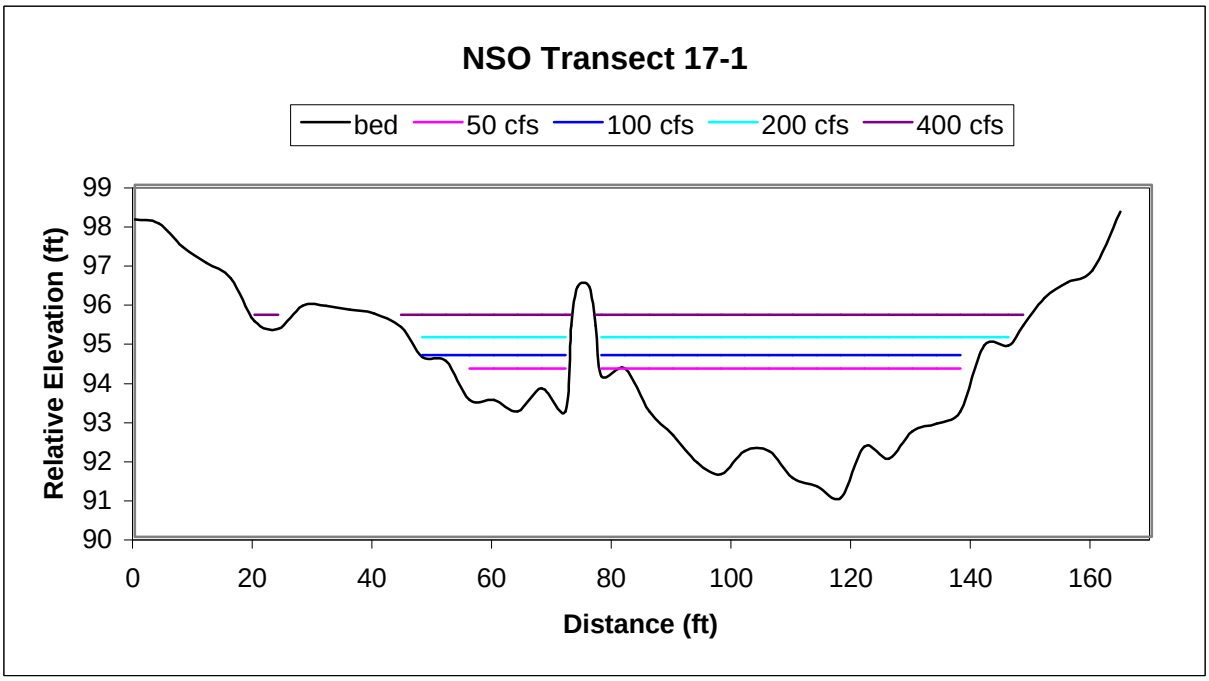

NSO Transect 10-2
bed
50 cfs
100 cfs
200 cfs
400 cfs
Relative Elevation (ft)
99
98
97
96
95
94
93
92
91
0
20
40
60
80
100
120
140
160
180
Distance (ft)

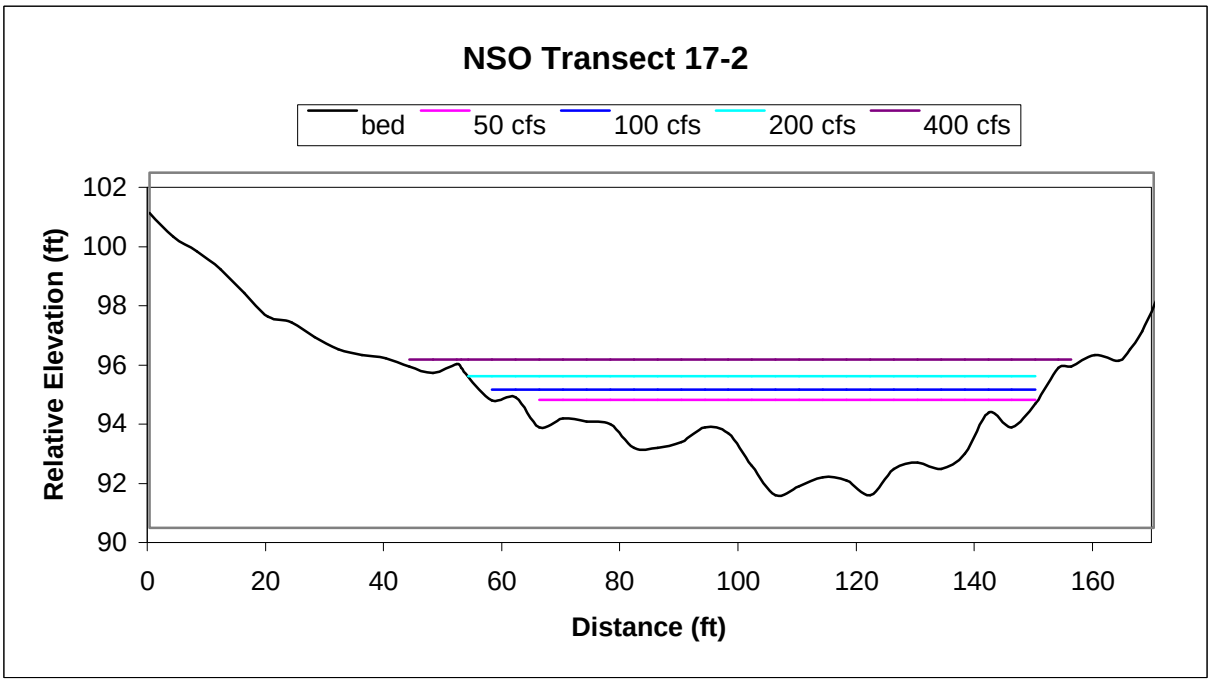

Stream Cell Velocities at 290 cfs, NSO Transect 10-1
measured
simulated
Velocity (ft/s)
0
1
2
3
4
5
6
60
80
100
120
140
160
180
Distance (ft)

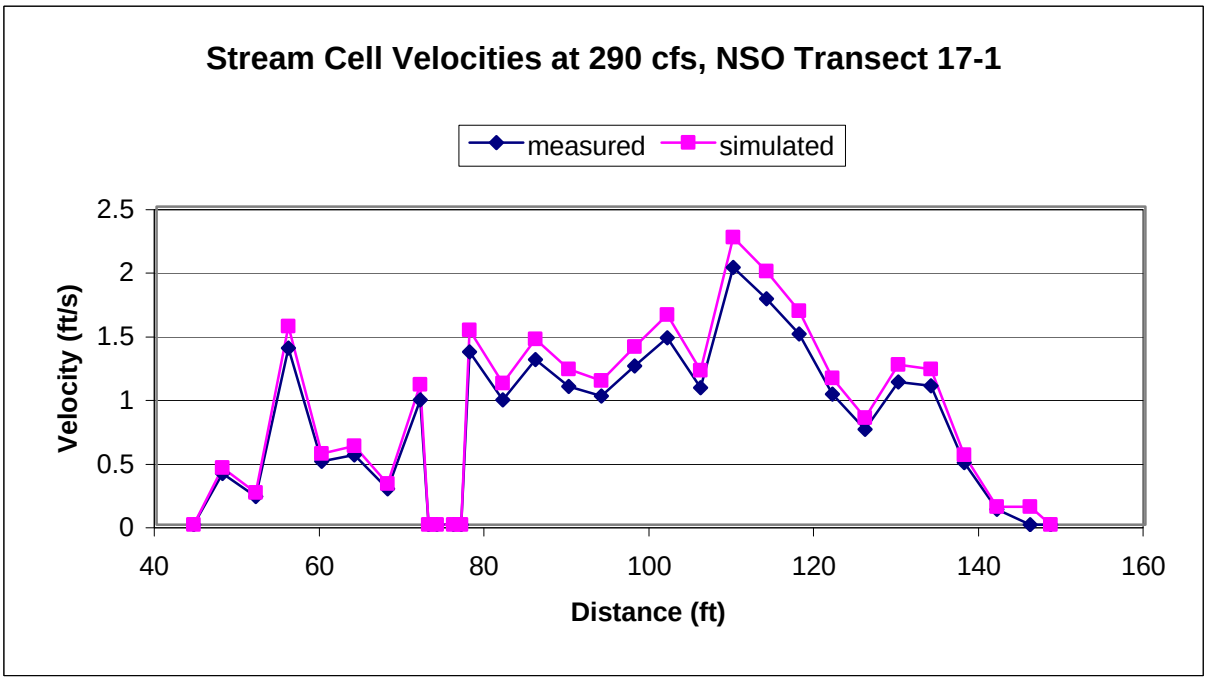

Simulated Stream Cell Velocities, NSO Transect 10-1
50 cfs
100 cfs
200 cfs
400 cfs
Velocity (ft/s)
0
1
2
3
4
5
6
60
80
100
120
140
160
180
Distance (ft)

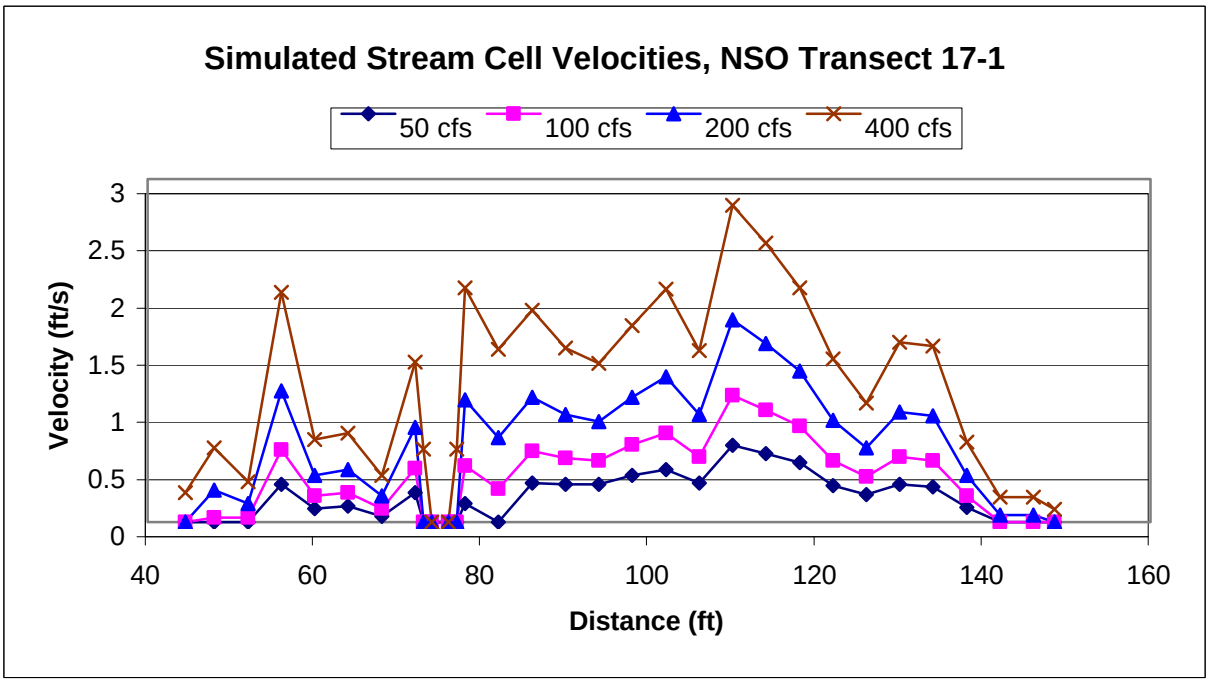

Stream Cell Velocities at 290 cfs, NSO Transect 10-2
measured
simulated
Velocity (ft/s)
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
60
80
100
120
140
160
180
Distance (ft)

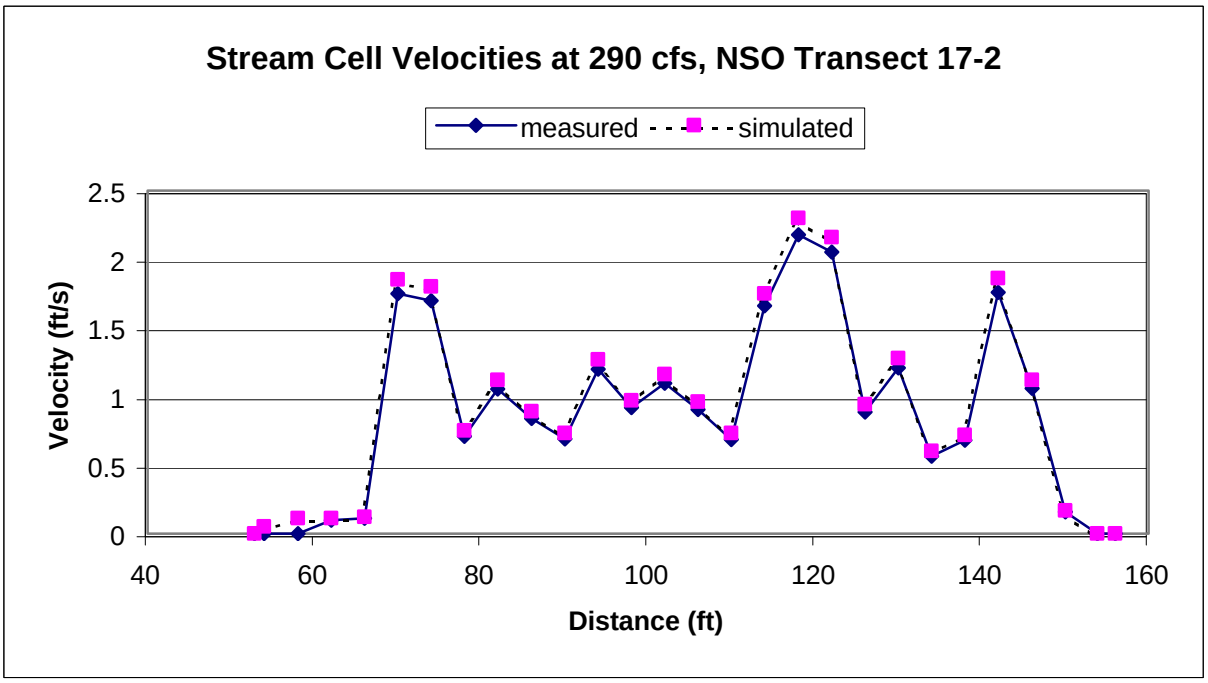

Simulated Stream Cell Velocities, NSO Transect 10-2
50 cfs
100 cfs
200 cfs
400 cfs
Velocity (ft/s)
6
5
4
3
2
1
0
60
80
100
120
140
160
180
Distance (ft)

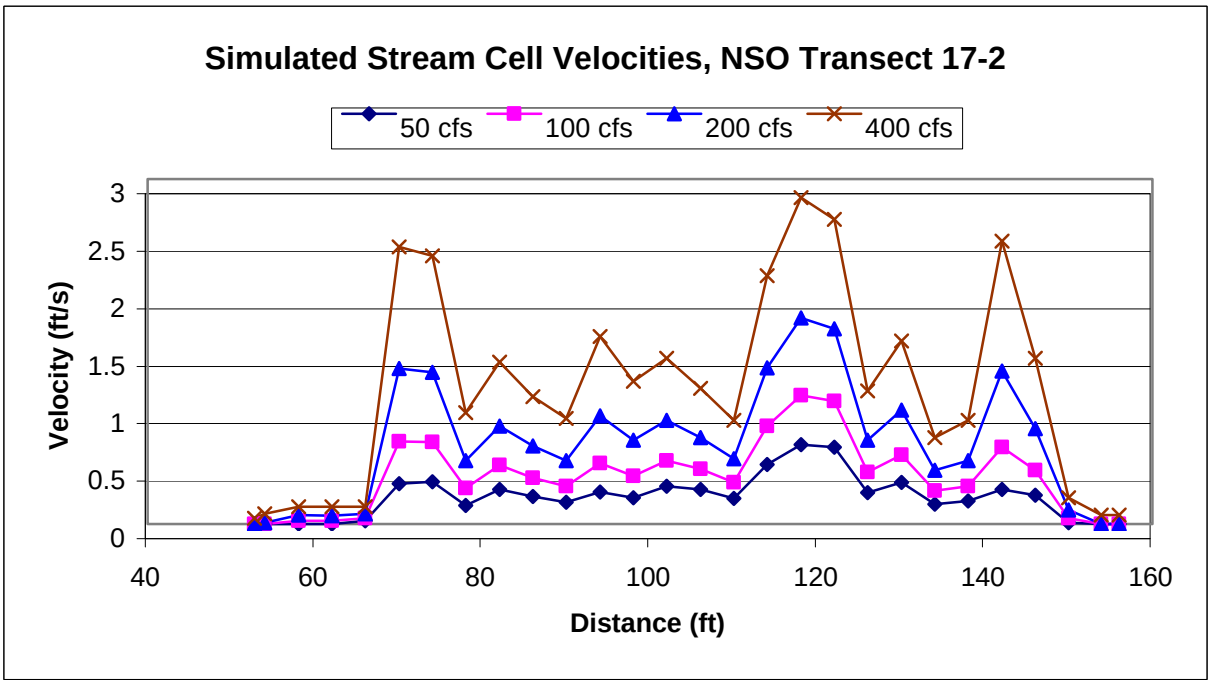

NSO Transect 17-1
bed
50 cfs
100 cfs
200 cfs
400 cfs
Relative Elevation (ft)
99
98
97
96
95
94
93
92
91
90
0
20
40
60
80
100
120
140
160
Distance (ft)

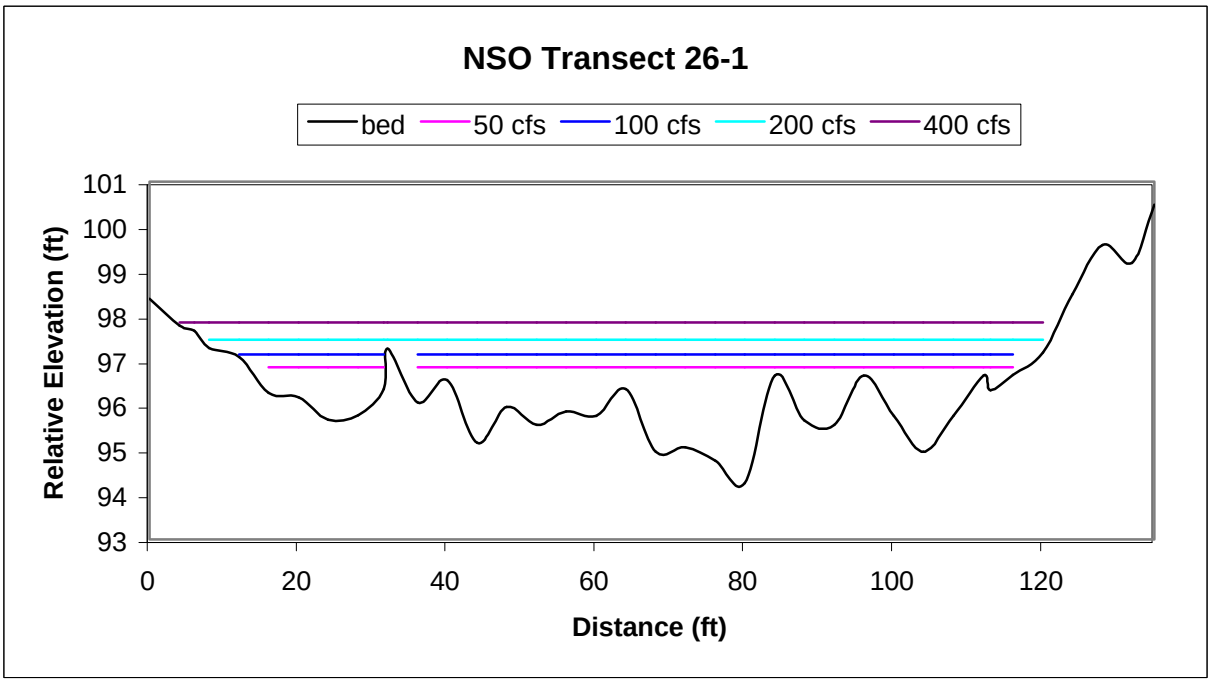

NSO Transect 17-2
bed
50 cfs
100 cfs
200 cfs
400 cfs
Relative Elevation (ft)
102
100
98
96
94
92
90
0
20
40
60
80
100
120
140
160
Distance (ft)

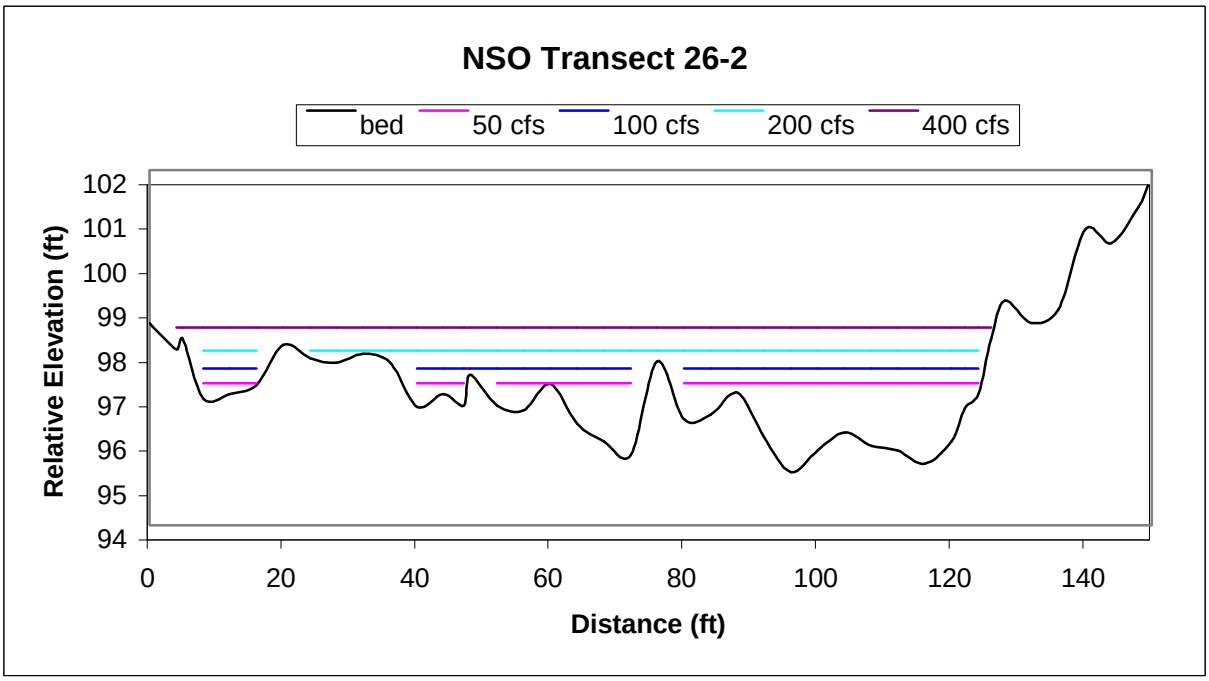

Stream Cell Velocities at 290 cfs, NSO Transect 17-1
measured
simulated
Velocity (ft/s)
2.5
2
1.5
1
0.5
0
40
60
80
100
120
140
160
Distance (ft)

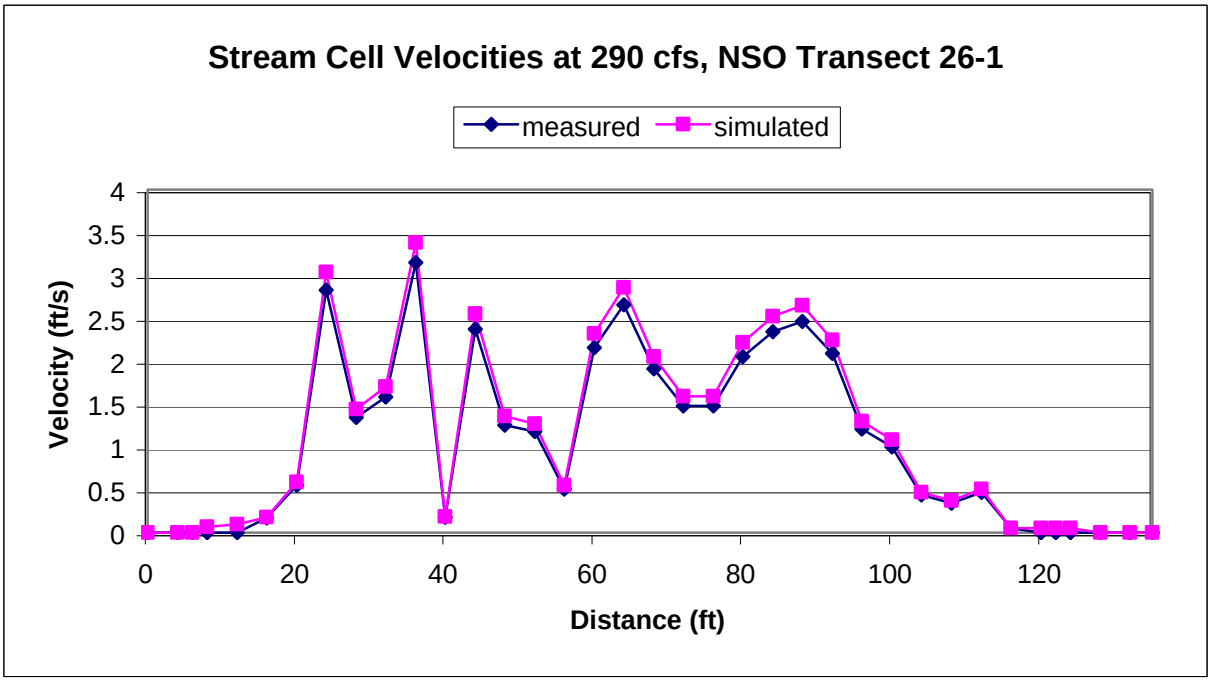

Simulated Stream Cell Velocities, NSO Transect 17-1
50 cfs
100 cfs
200 cfs
400 cfs
Velocity (ft/s)
3
2.5
2
1.5
1
0.5
0
40
60
80
100
120
140
160
Distance (ft)

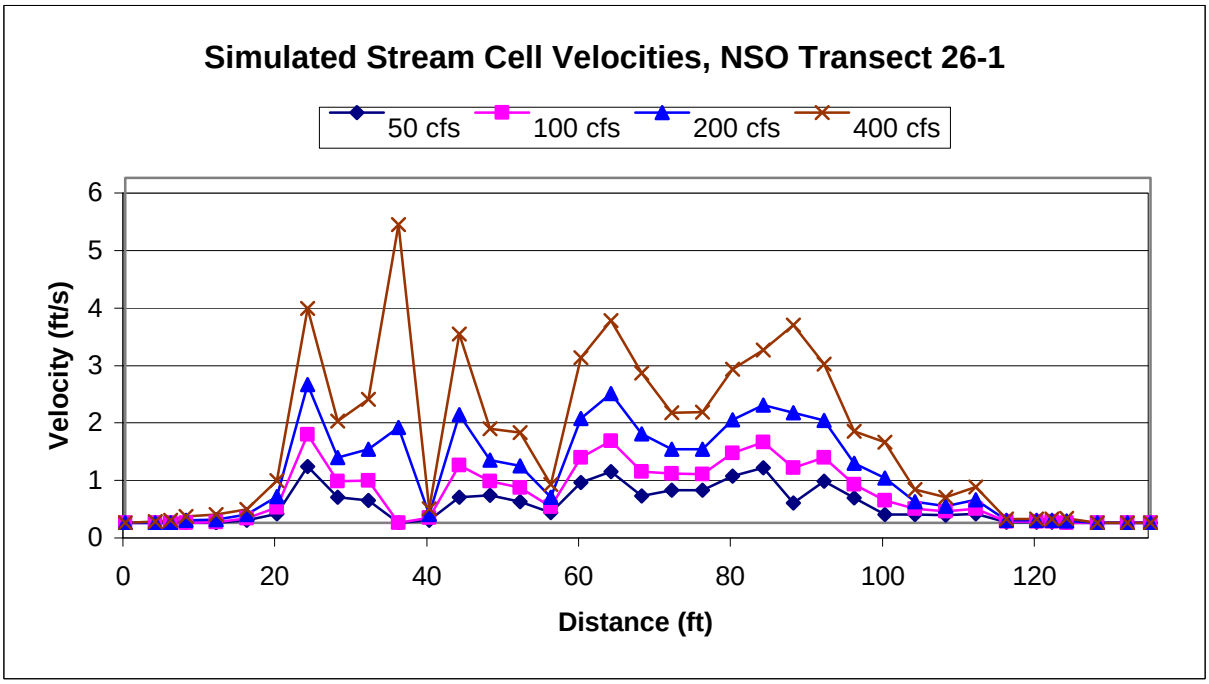

Stream Cell Velocities at 290 cfs, NSO Transect 17-2
measured
simulated
Velocity (ft/s)
2.5
2
1.5
1
0.5
0
40
60
80
100
120
140
160
Distance (ft)

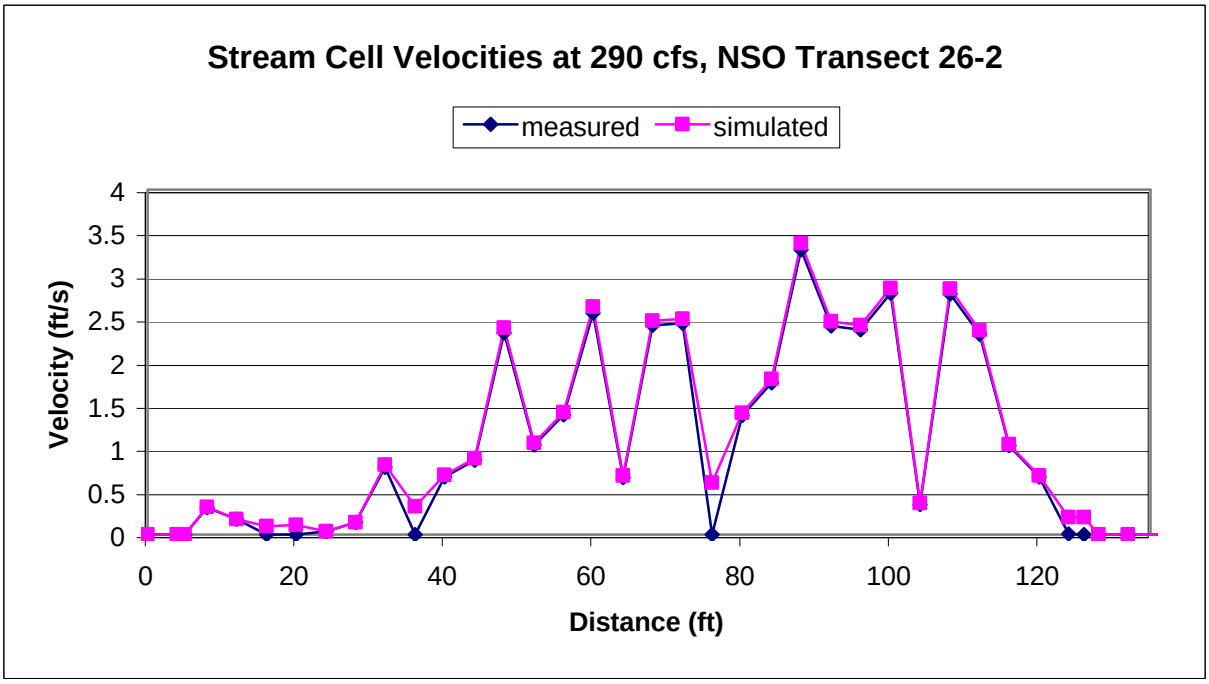

Simulated Stream Cell Velocities, NSO Transect 17-2
50 cfs
100 cfs
200 cfs
400 cfs
Velocity (ft/s)
3
2.5
2
1.5
1
0.5
0
40
60
80
100
120
140
160
Distance (ft)

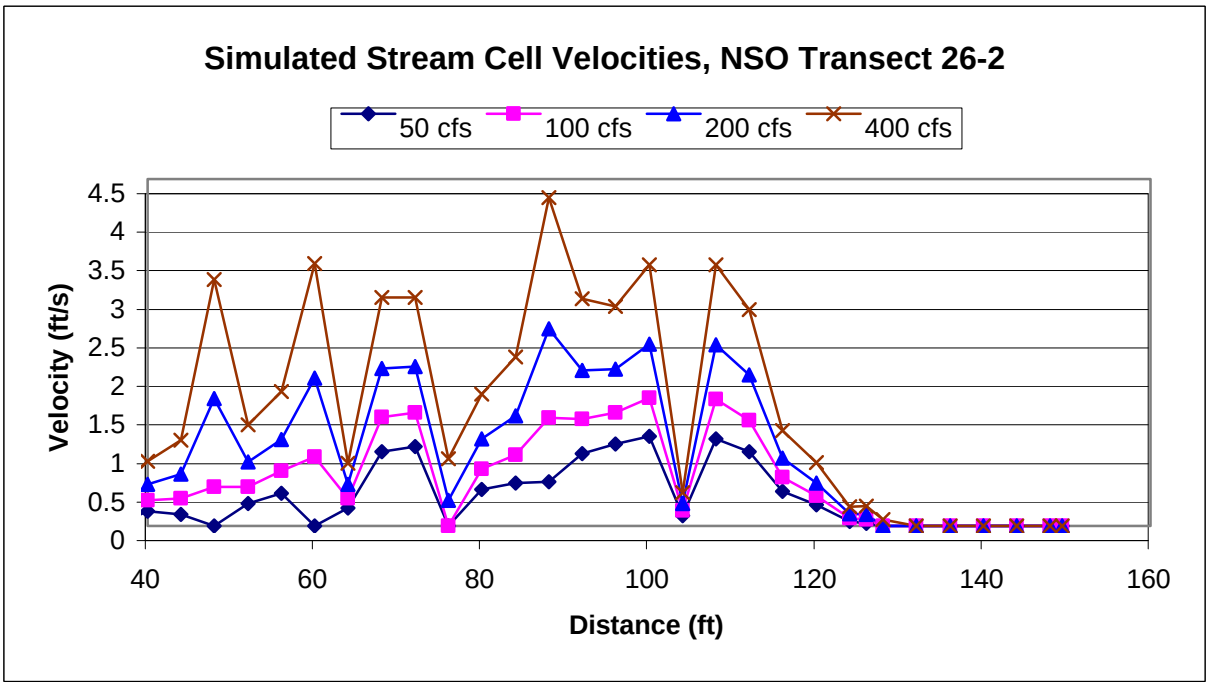

NSO Transect 26-1
bed
50 cfs
100 cfs
200 cfs
400 cfs
Relative Elevation (ft)
101
100
99
98
97
96
95
94
93
0
20
40
60
80
100
120
Distance (ft)

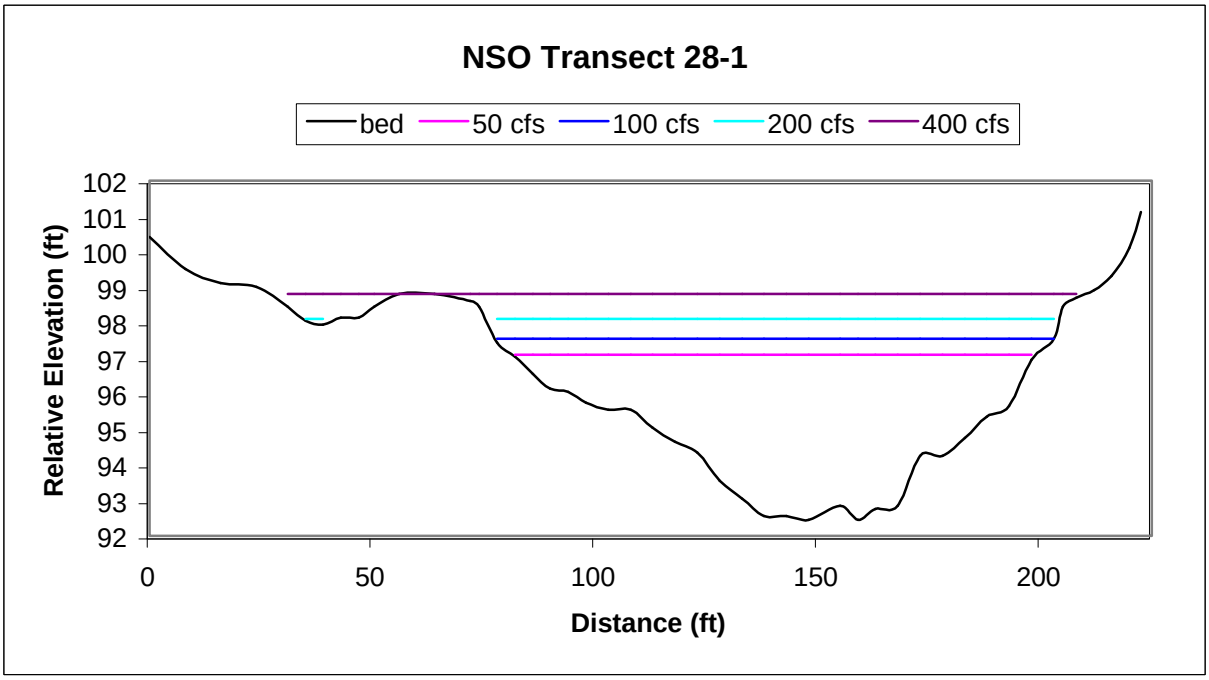

NSO Transect 26-2
bed
50 cfs
100 cfs
200 cfs
400 cfs
Relative Elevation (ft)
102
101
100
99
98
97
96
95
94
0
20
40
60
80
100
120
140
Distance (ft)

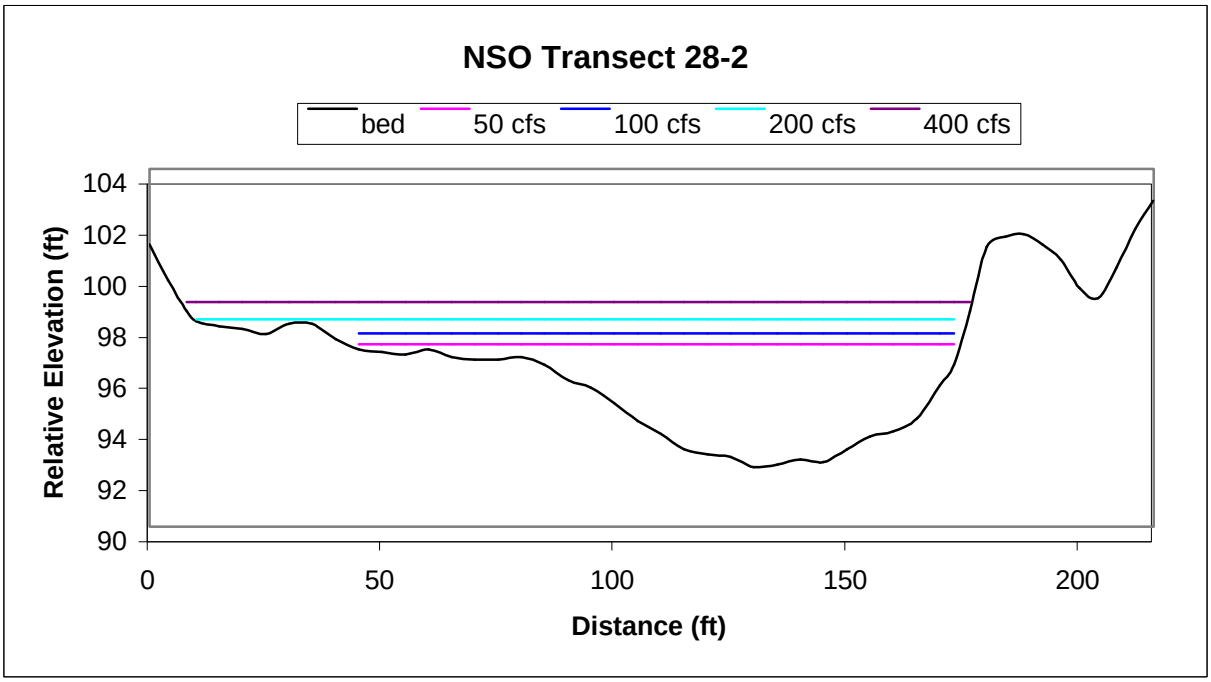

Stream Cell Velocities at 290 cfs, NSO Transect 26-1
measured
simulated
Velocity (ft/s)
0
0.5
1
1.5
2
2.5
3
3.5
4
0
20
40
60
80
100
120
Distance (ft)

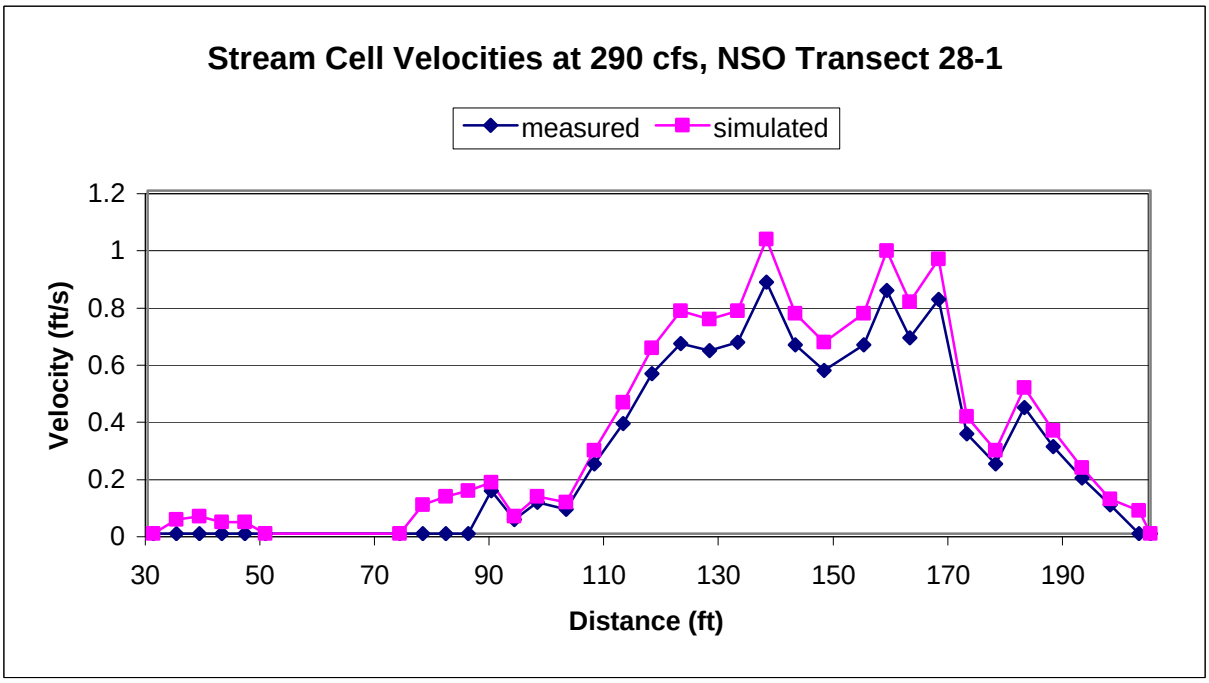

Simulated Stream Cell Velocities, NSO Transect 26-1
50 cfs
100 cfs
200 cfs
400 cfs
Velocity (ft/s)
0
1
2
3
4
5
6
0
20
40
60
80
100
120
Distance (ft)

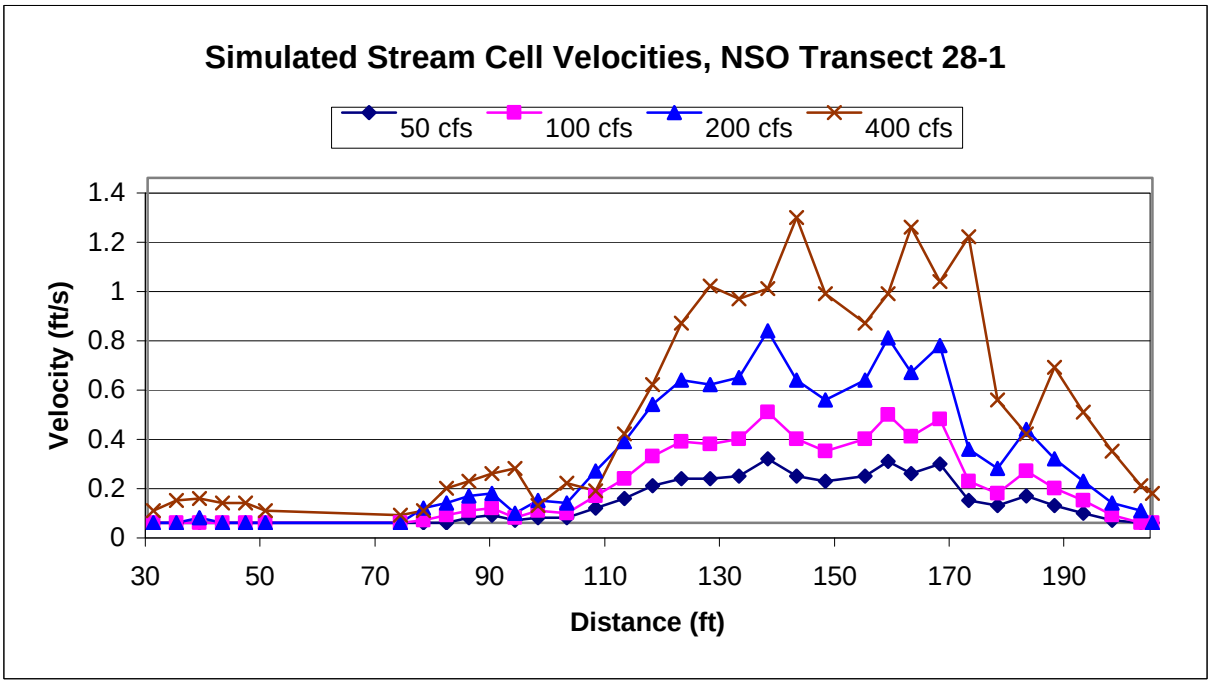

Stream Cell Velocities at 290 cfs, NSO Transect 26-2
measured
simulated
Velocity (ft/s)
0
0.5
1
1.5
2
2.5
3
3.5
4
0
20
40
60
80
100
120
Distance (ft)

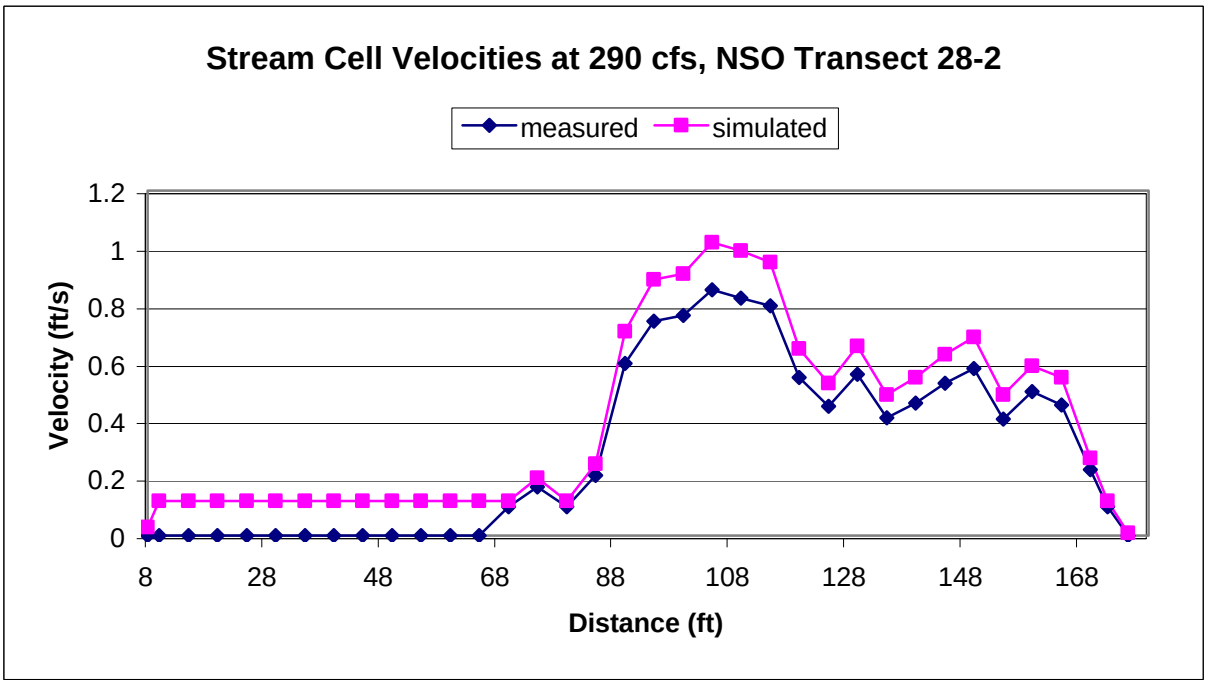

Simulated Stream Cell Velocities, NSO Transect 26-2
50 cfs
100 cfs
200 cfs
400 cfs
Velocity (ft/s)
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
40
60
80
100
120
140
160
Distance (ft)

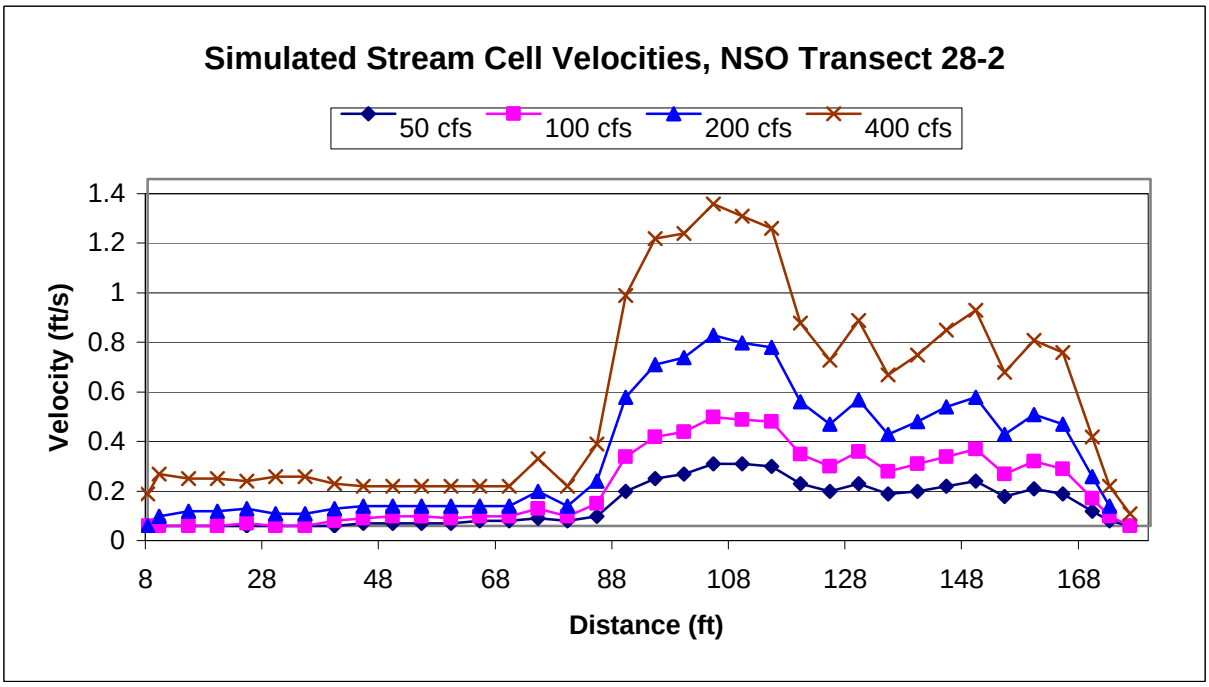

NSO Transect 28-1
bed
50 cfs
100 cfs
200 cfs
400 cfs
Relative Elevation (ft)
102
101
100
99
98
97
96
95
94
93
92
0
50
100
150
200
Distance (ft)

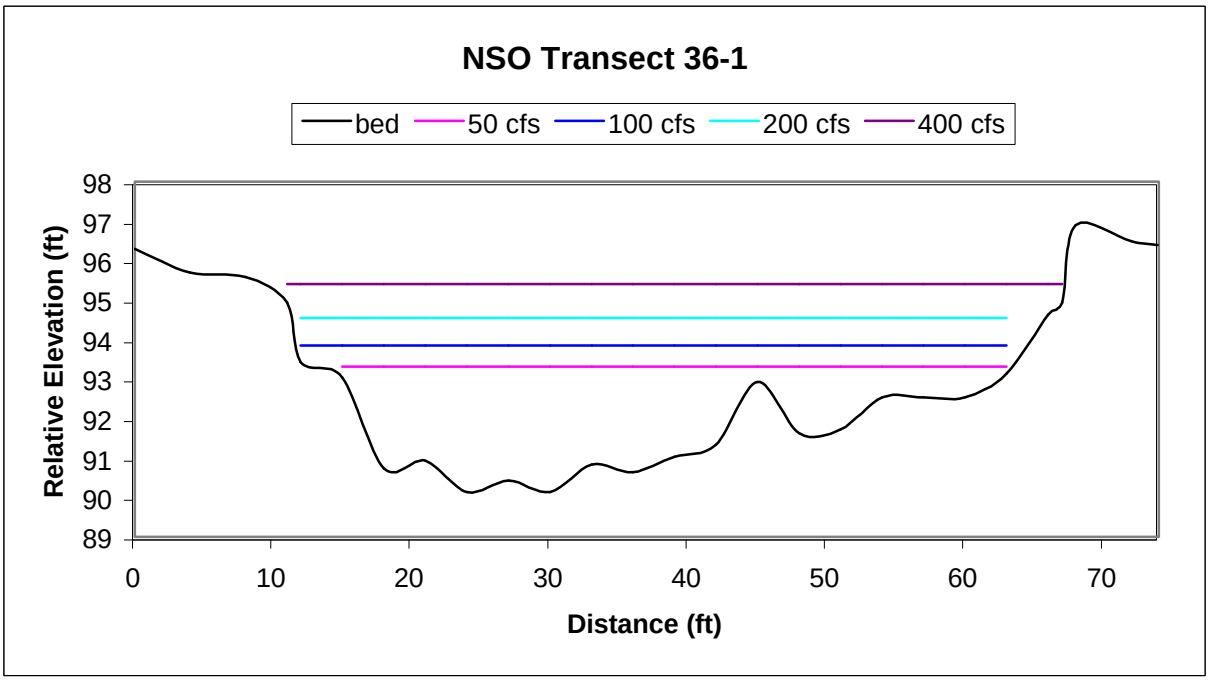

NSO Transect 28-2
bed
50 cfs
100 cfs
200 cfs
400 cfs
Relative Elevation (ft)
104
102
100
98
96
94
92
90
0
50
100
150
200
Distance (ft)

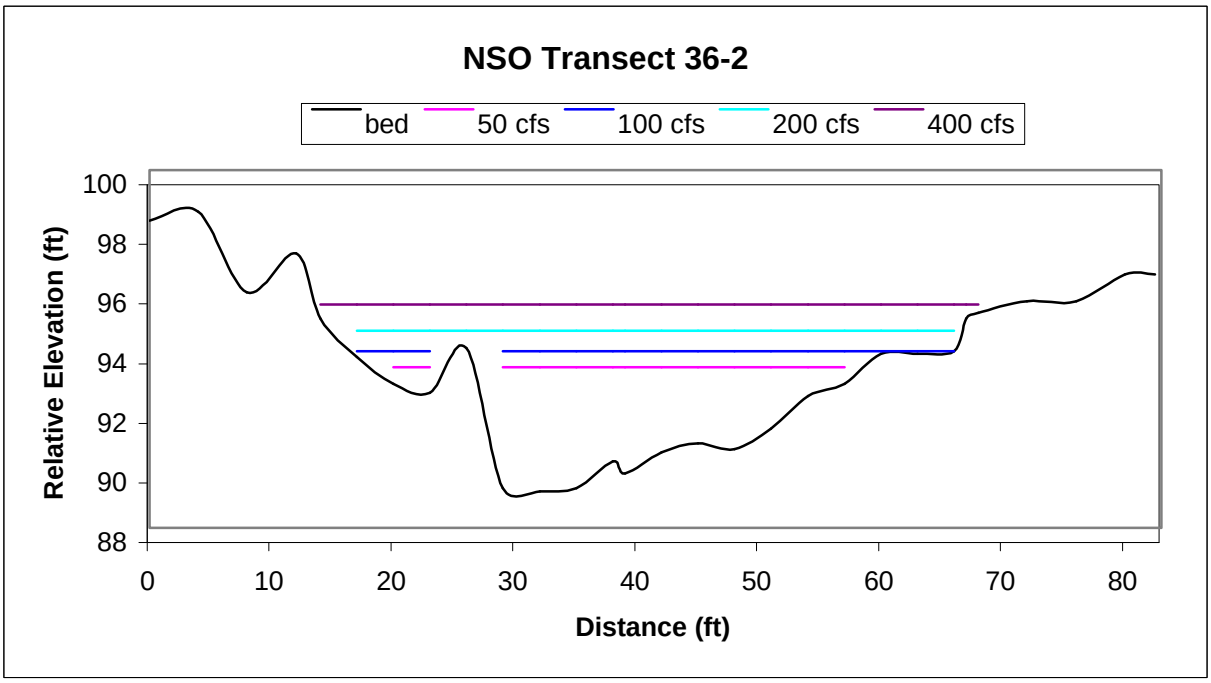

Stream Cell Velocities at 290 cfs, NSO Transect 28-1
measured
simulated
Velocity (ft/s)
1.2
1
0.8
0.6
0.4
0.2
0
30
50
70
90
110
130
150
170
190
Distance (ft)

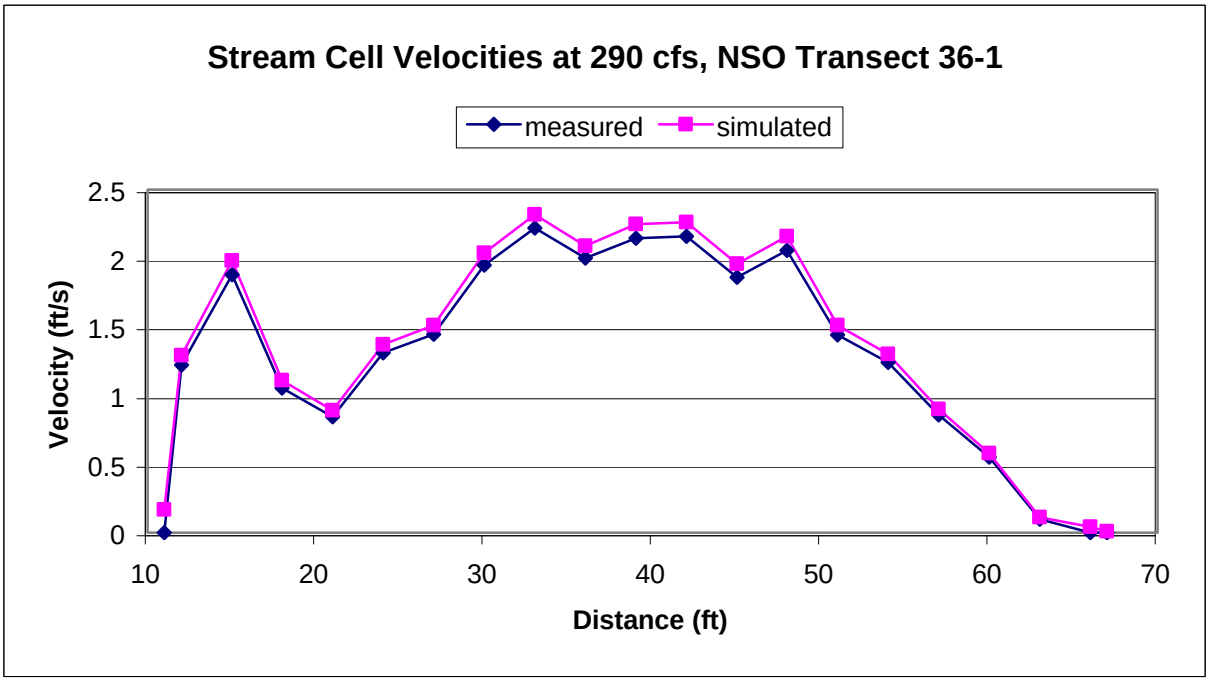

Simulated Stream Cell Velocities, NSO Transect 28-1
50 cfs
100 cfs
200 cfs
400 cfs
Velocity (ft/s)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
30
50
70
90
110
130
150
170
190
Distance (ft)

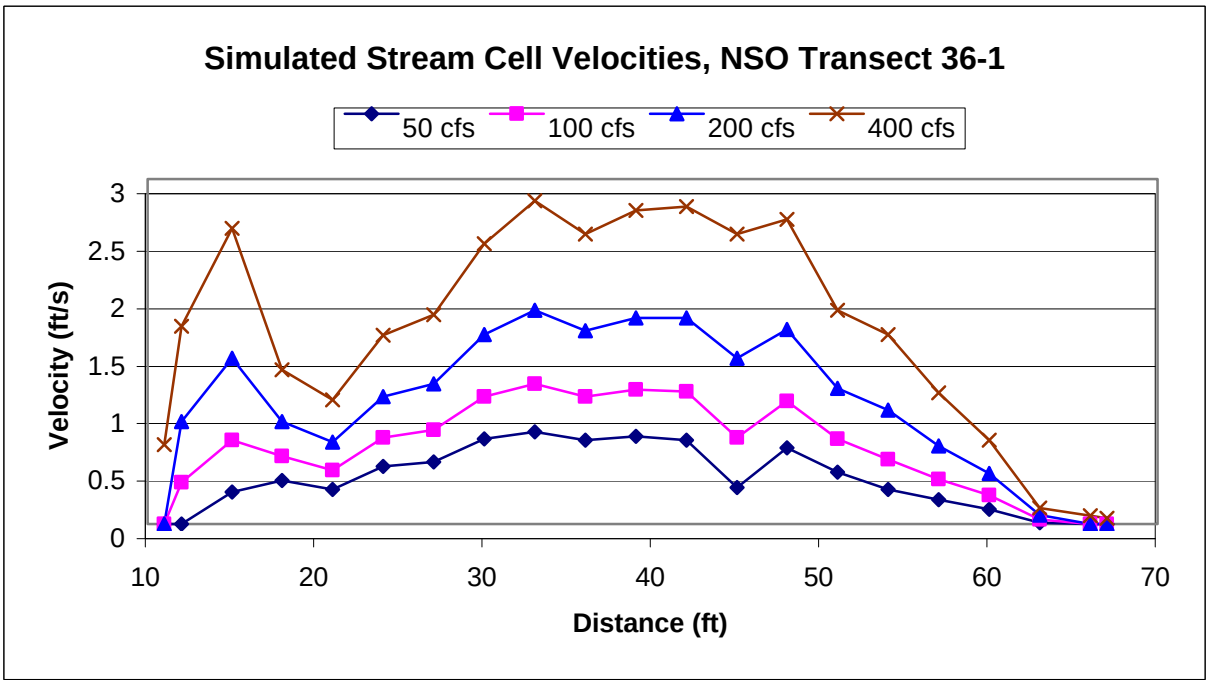

Stream Cell Velocities at 290 cfs, NSO Transect 28-2
measured
simulated
Velocity (ft/s)
1.2
1
0.8
0.6
0.4
0.2
0
8
28
48
68
88
108
128
148
168
Distance (ft)

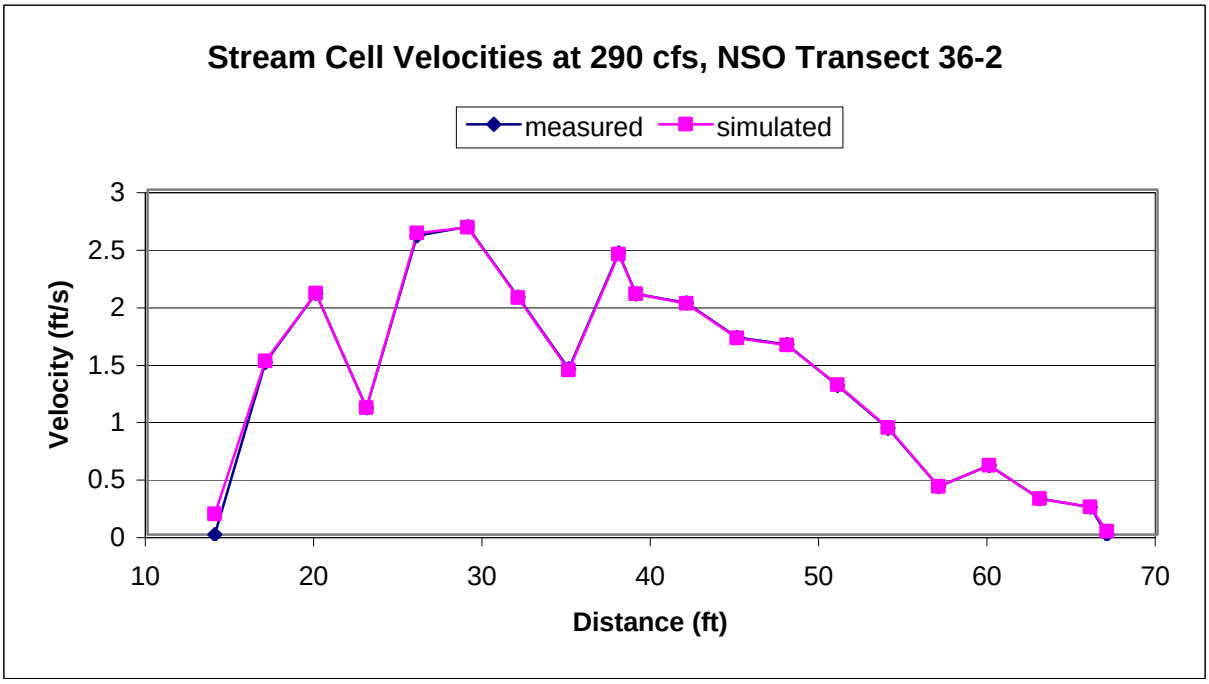

Simulated Stream Cell Velocities, NSO Transect 28-2
50 cfs
100 cfs
200 cfs
400 cfs
Velocity (ft/s)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
8
28
48
68
88
108
128
148
168
Distance (ft)

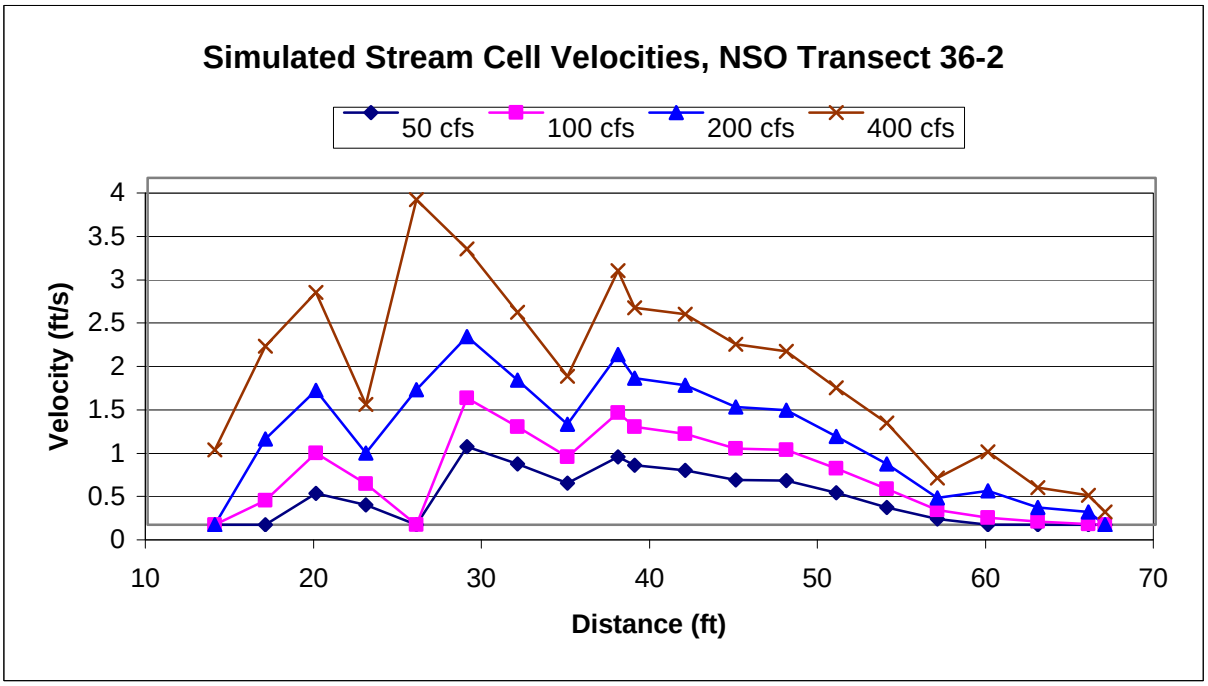

NSO Transect 36-1
bed
50 cfs
100 cfs
200 cfs
400 cfs
Relative Elevation (ft)
98
97
96
95
94
93
92
91
90
89
0
10
20
30
40
50
60
70
Distance (ft)

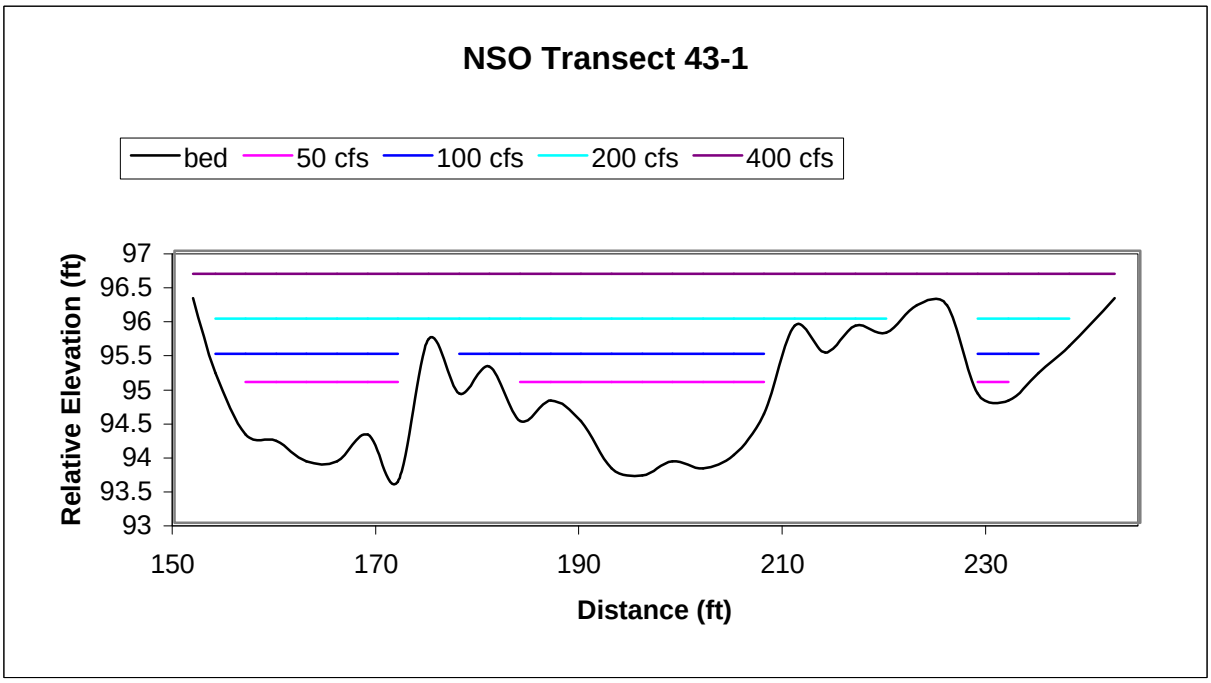

NSO Transect 36-2
bed
50 cfs
100 cfs
200 cfs
400 cfs
Relative Elevation (ft)
100
98
96
94
92
90
88
0
10
20
30
40
50
60
70
80
Distance (ft)

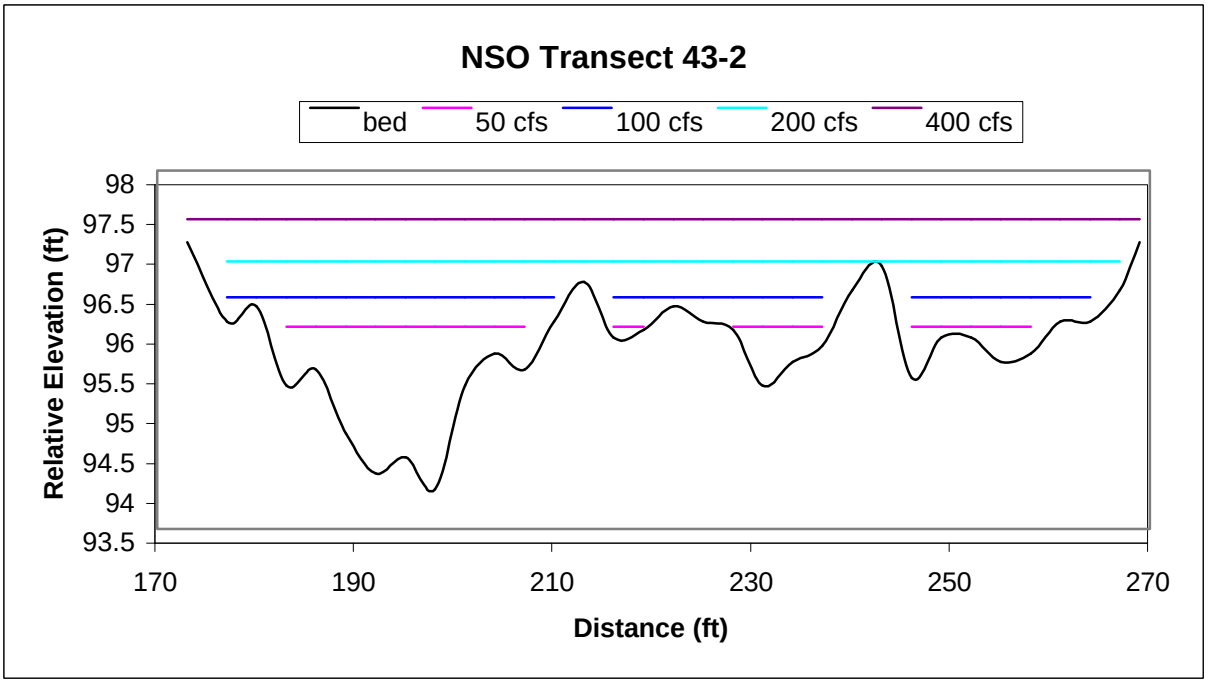

Stream Cell Velocities at 290 cfs, NSO Transect 36-1
measured
simulated
Velocity (ft/s)
2.5
2
1.5
1
0.5
0
10
20
30
40
50
60
70
Distance (ft)

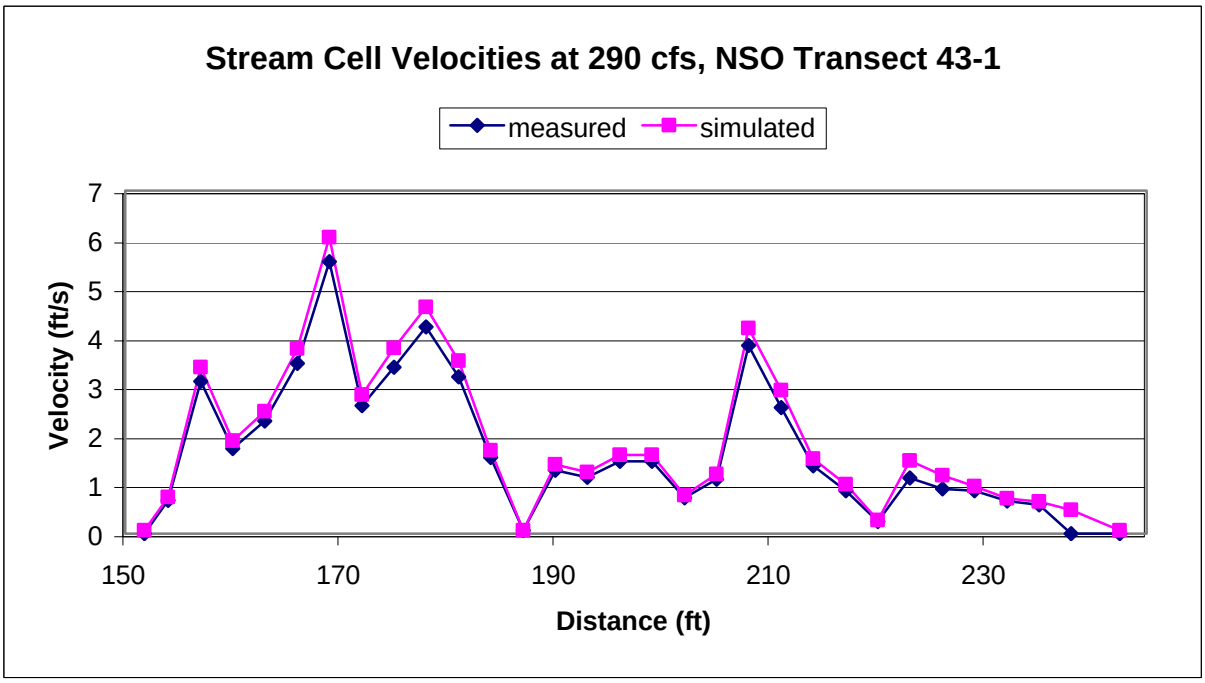

Simulated Stream Cell Velocities, NSO Transect 36-1
50 cfs
100 cfs
200 cfs
400 cfs
Velocity (ft/s)
3
2.5
2
1.5
1
0.5
0
10
20
30
40
50
60
70
Distance (ft)

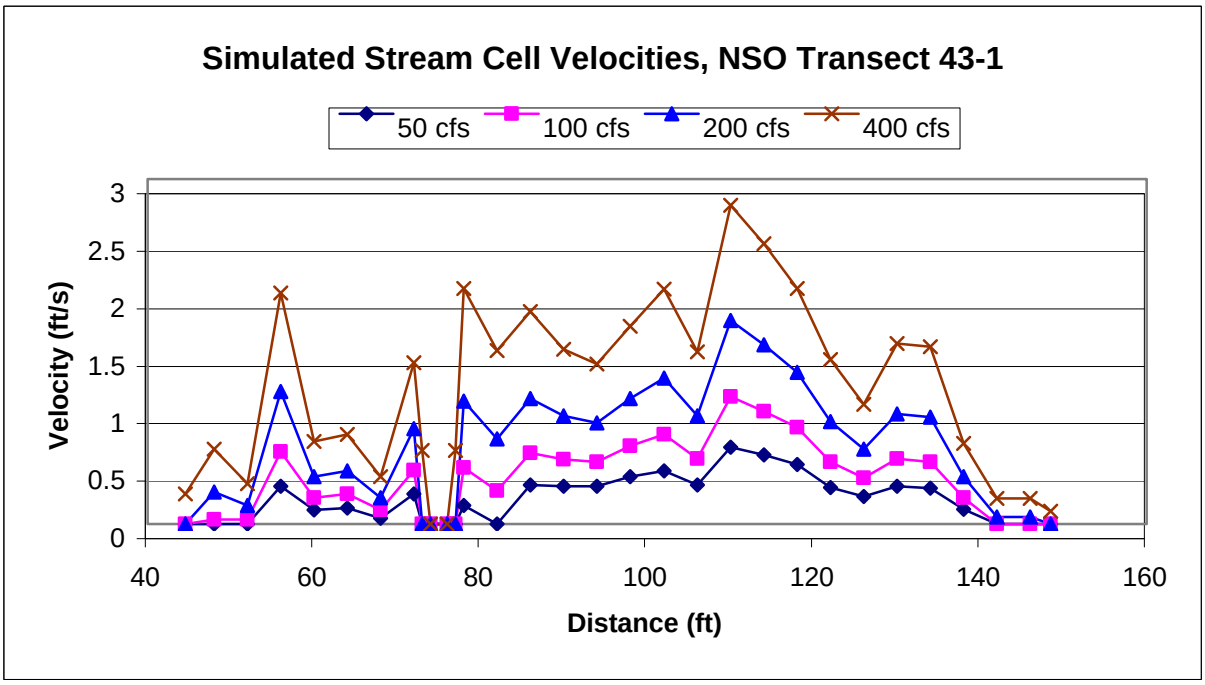

Stream Cell Velocities at 290 cfs, NSO Transect 36-2
measured
simulated
Velocity (ft/s)
3
2.5
2
1.5
1
0.5
0
10
20
30
40
50
60
70
Distance (ft)

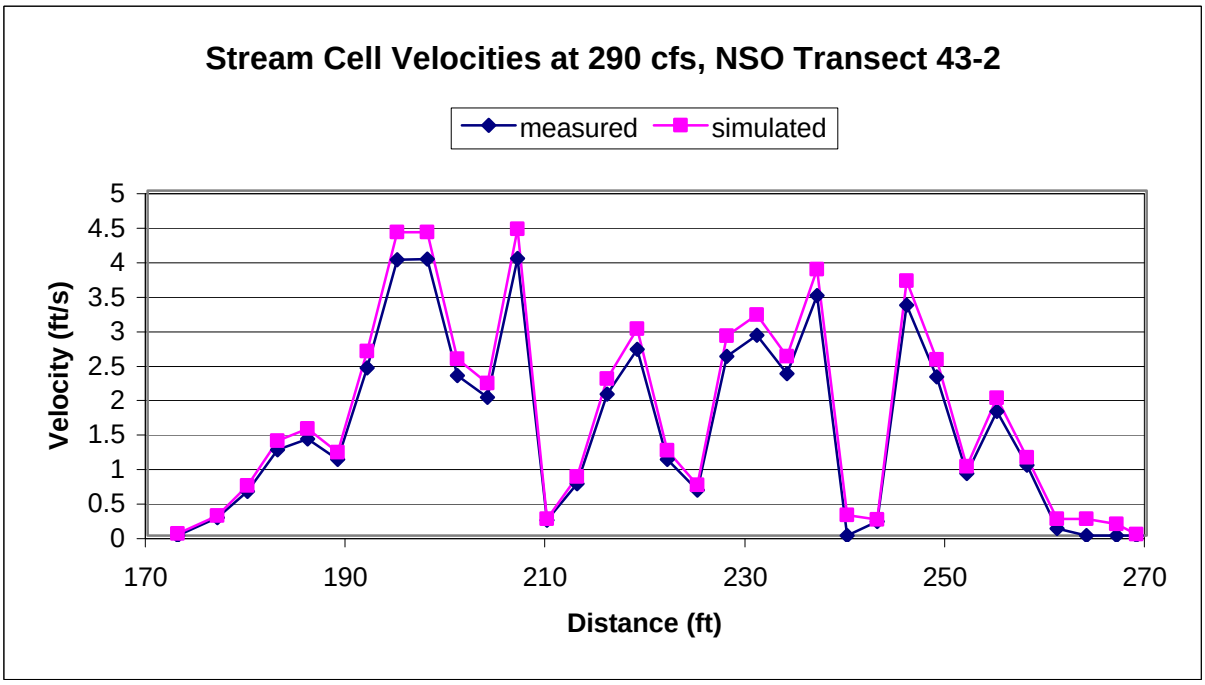

Simulated Stream Cell Velocities, NSO Transect 36-2
50 cfs
100 cfs
200 cfs
400 cfs
Velocity (ft/s)
4
3.5
3
2.5
2
1.5
1
0.5
0
10
20
30
40
50
60
70
Distance (ft)

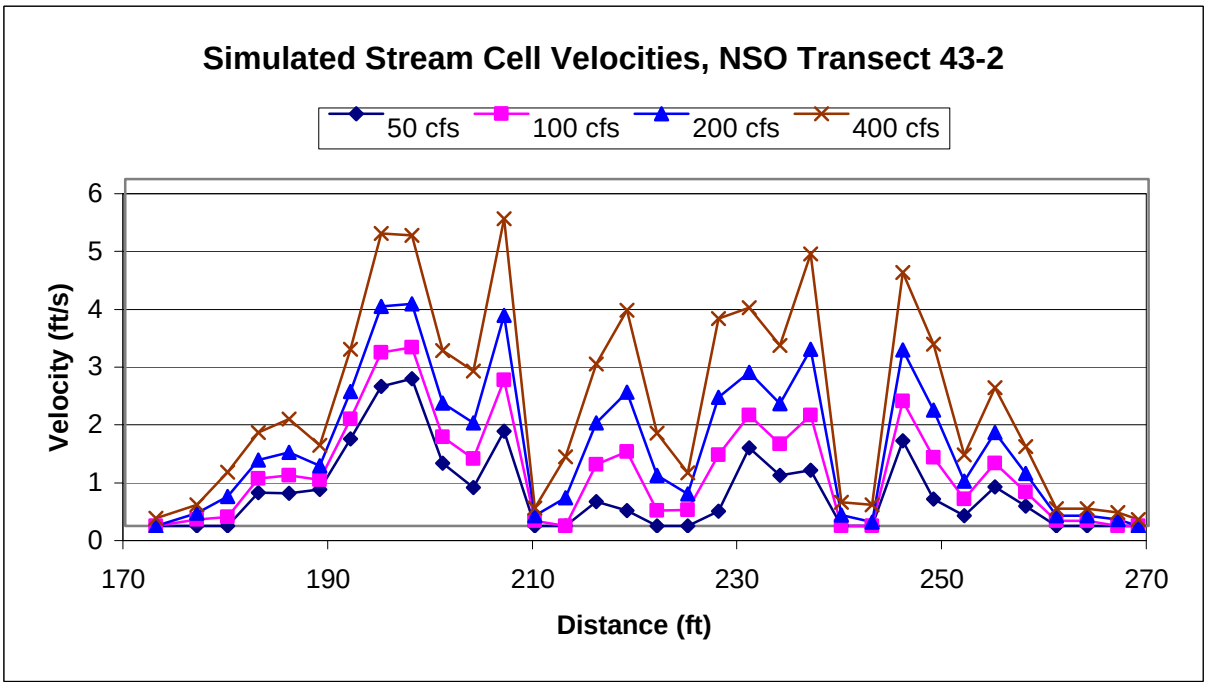

NSO Transect 43-1
bed
50 cfs
100 cfs
200 cfs
400 cfs
Relative Elevation (ft)
97
96.5
96
95.5
95
94.5
94
93.5
93
150
170
190
210
230
Distance (ft)


NSO Transect 43-2
bed
50 cfs
100 cfs
200 cfs
400 cfs
Relative Elevation (ft)
98
97.5
97
96.5
96
95.5
95
94.5
94
93.5
170
190
210
230
250
270
Distance (ft)


Stream Cell Velocities at 290 cfs, NSO Transect 43-1
measured
simulated
Velocity (ft/s)
0
1
2
3
4
5
6
7
150
170
190
210
230
Distance (ft)


Simulated Stream Cell Velocities, NSO Transect 43-1
50 cfs
100 cfs
200 cfs
400 cfs
Velocity (ft/s)
0
0.5
1
1.5
2
2.5
3
40
60
80
100
120
140
160
Distance (ft)


Stream Cell Velocities at 290 cfs, NSO Transect 43-2
measured
simulated
Velocity (ft/s)
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
170
190
210
230
250
270
Distance (ft)


Simulated Stream Cell Velocities, NSO Transect 43-2
50 cfs
100 cfs
200 cfs
400 cfs
Velocity (ft/s)
0
1
2
3
4
5
6
170
190
210
230
250
270
Distance (ft)

transect 6 data								
measured velocities in **bold**								
other velocities are simulated by PHABSIM								
distance	**calc.vel**	**calc.vel**	**meas vel**	**calc.vel**	**meas vel**	**calc.vel**	**meas vel**	**calc.vel**
from LLHP	500cfs	321cfs	**321cfs**	207cfs	**207cfs**	120cfs	**120cfs**	50cfs
0								
256								
260								
264	0.82	0.58		0.21				
268	0.74	0.47						
272	0.56	0.19						
273.4	0.46							
276	0.9	0.68	**0.68**	0.36				
278	1.77	1.42	**1.41**	0.88				
281	0.52	0.41	**0.41**	0.26				
285	0.39	0.52	**0.51**	0.63	**0.62**	0.73	**0.00**	
288	3.33	2.26	**2.59**	1.4	**1.04**	0.71	**0.88**	0.2
291	2.46	1.48	**0.89**	0.81	**1.91**	0.35	**0.26**	0.08
294	3.21	2.84	**3.07**	2.29	**1.88**	1.61	**1.90**	0.76
296	2.73	1.62	**0.93**	0.88	**2.29**	0.38	**0.27**	0.08
299	1.78	2.26	**2.21**	2.62	**2.58**	2.87	**0.00**	
302	1.49	1.61	**1.57**	1.58	**1.56**	1.42	**0.00**	
305	2.87	1.41	**1.18**	0.64	**0.84**	0.22	**0.21**	0.03
308	2.71	1.69	**1.79**	0.96	**0.82**	0.44	**0.51**	0.1
311	2.41	2.08	**2.20**	1.64	**1.40**	1.11	**1.29**	0.5
314	2.6	2.41	**2.44**	2.03	**1.88**	1.51	**1.69**	0.78
317	2.56	2.42	**2.29**	2.08	**2.17**	1.58	**1.68**	0.85
320	2.62	2.35	**2.33**	1.92	**1.84**	1.37	**1.51**	0.67
323	2.85	2.46	**2.48**	1.94	**1.81**	1.32	**1.47**	0.6
326	2.56	2.45	**2.42**	2.13	**2.05**	1.63	**1.80**	0.9
329	2.7	2.39	**2.34**	1.93	**1.90**	1.36	**1.48**	0.65
332	3.53	2.39	**2.41**	1.49	**1.39**	0.75	**0.84**	0.21
335	2.23	1.76	**2.06**	1.27	**0.90**	0.77	**0.97**	0.29
338	3	1.11	**1.85**	0.37	**0.14**	0.09	**0.15**	0.01
341	0.7	0.37	**0.41**	0.18	**0.14**	0.07	**0.08**	
344	1	0.76	**0.76**	0.4	**0.00**		**0.00**	
347	3.11	1.57	**1.60**	0.73	**0.67**	0.26	**0.00**	
350	3.14	1.84	**1.50**	0.98	**1.34**	0.41	**0.29**	0.09
353	6.62	1.82	**0.93**	0.46	**1.48**	0.08	**0.39**	0
356	0.03	0.09	**0.14**	0.2	**0.08**	0.5	**0.05**	1.9
359	2.29	1.88	**1.73**	1.41	**1.56**	0.91	**0.82**	0.37
362	2.21	1.42	**1.15**	0.83	**1.15**	0.39	**0.94**	0.1
365	0.92	0.88	**1.02**	0.77	**0.56**	0.59	**0.37**	0.33
368	0.9	1.07	**1.05**	1.17	**1.15**	1.18	**0.74**	1.01
371	1.21	0.6	**0.65**	0.27	**0.22**	0.09	**0.00**	0.01
374	0.08	0.07	**0.07**	0.06	**0.00**	0.04	**0.11**	0.02
377	0.63	0.48	**0.48**	0.25	**0**			
380	0.27	0.09	**0.1**		**0**			
383	0.23							

transect 10-1 data						
measured velocities in **bold**						
other velocities are simulated by PHABSIM						
distance	**calc.vel**	**meas vel**	**calc.vel**	**calc.vel**	**calc.vel**	**calc.vel**
	500cfs	**290cfs**	290cfs	134cfs	68cfs	50cfs
8	0.11					
12	0.11					
16						
36						
40	0.15					
44						
68						
72	0.21					
75	0.56	**0.48**	0.39	0.23	0.14	0.11
80	1.71	**1.32**	1.09	0.48	0.06	
84	0.16	**0.14**	0.11	0.07	0.05	0.04
88	0.58	**0.50**	0.41	0.24	0.15	0.12
92	1.52	**1.17**	0.96	0.43	0.05	
96	1.24	**1.12**	0.91	0.6	0.43	0.37
100	0.75	**0.68**	0.55	0.37	0.26	0.22
104	0.8	**0.73**	0.59	0.4	0.29	0.25
108	1.09	**0.98**	0.8	0.52	0.36	0.31
112	0.95	**0.86**	0.7	0.46	0.33	0.28
116	2.08	**1.89**	1.54	1.03	0.74	0.64
120	4.24	**3.80**	3.1	2.01	1.41	1.2
124	3.98	**3.50**	2.85	1.79	1.2	1
128	0.62	**0.55**	0.45	0.28	0.19	0.16
132	3.33	**2.93**	2.39	1.5	1.01	0.83
136	5.47	**4.88**	3.98	2.56	1.77	1.49
140	0.22	**0.17**	0.14	0.06	0.01	
144	4.1	**3.55**	2.9	1.77	1.13	0.91
148	0.28	**0.25**	0.2	0.13	0.1	0.08
152	3.93	**3.51**	2.86	1.84	1.27	1.07
156	4.13	**3.64**	2.97	1.87	1.25	1.03
160	3	**2.73**	2.22	1.48	1.07	0.92
164	2.73	**2.49**	2.03	1.35	0.97	0.84
168	0.82	**0.71**	0.58	0.35	0.23	0.18
172	0.16	**0.11**	0.09	0.02		
175	0.09					
176						
179.6						

transect 10-2 data						
measured velocities in **bold**						
other velocities are simulated by PHABSIM						
distance	**calc.vel**	**meas vel**	**calc.vel**	**calc.vel**	**calc.vel**	**calc.vel**
	500cfs	**290cfs**	290cfs	134cfs	68cfs	50cfs
28						
32	0.14					
36						
48						
50	0.18					
54	0.31	**0.00**	0.13			
58	0.39	**0.00**	0.23			
62	0.52	**0.34**	0.36	0.17	0.03	
66	0.65	**0.42**	0.44	0.19		
70	0.77	**0.51**	0.53	0.26	0.04	
74	0.47	**0.30**	0.31	0.14		
80	0.58	**0.41**	0.43	0.26	0.15	0.11
84	3.91	**2.45**	2.56	0.97		
88	5.57	**3.81**	3.99	2.19	0.96	0.41
92	3.79	**2.69**	2.82	1.72	1.01	0.73
96	1.57	**0.73**	0.76			
100	2.19	**1.21**	1.27			
103	5.35					
104						
109						
110	5.35					
112	9.21	**3.67**	3.83			
113	0.2					
114						
118						
119	0.2					
120	0.72	**0.52**	0.54	0.35	0.22	0.17
124	5.37	**3.95**	4.13	2.74	1.85	1.48
128	5.06	**3.86**	4.04	2.87	2.13	1.81
132	2	**1.54**	1.61	1.17	0.88	0.76
136	0.77	**0.58**	0.61	0.42	0.3	0.25
140	4.02	**3.09**	3.23	2.33	1.75	1.5
144	1.42	**1.10**	1.15	0.84	0.64	0.55
148	3.5	**2.64**	2.76	1.92	1.38	1.15
152	2.26	**1.72**	1.8	1.27	0.93	0.79
156	3.27	**2.45**	2.56	1.76	1.25	1.04
160	4.02	**2.59**	2.71	1.19		
162	3.4	**2.50**	2.62	1.73	1.17	0.94
163	0.88					
164						
168						
169	0.88					
172						
176.1						

transect 17-1 data						
measured velocities in **bold**						
other velocities are simulated by PHABSIM						
distance	**calc.vel**	**meas vel**	**calc.vel**	**calc.vel**	**calc.vel**	**calc.vel**
	500cfs	**290cfs**	290cfs	134cfs	68cfs	50cfs
0						
4						
8						
12						
16						
20	0.37					
24	0.49		0.11			
28						
32						
36	0.14					
40	0.23					
44.5	0.43					
48	0.82	**0.4**	0.45	0.13		
52	0.44	**0.22**	0.25	0.08		
56	2.37	**1.39**	1.56	0.82	0.44	0.33
60	0.85	**0.5**	0.56	0.29	0.16	0.12
64	0.92	**0.55**	0.62	0.34	0.19	0.14
68	0.49	**0.28**	0.32	0.16	0.08	0.05
72	1.64	**0.98**	1.1	0.6	0.34	0.26
73	1.04					
74						
76						
77	1.04					
78	2.48	**1.36**	1.53	0.69	0.28	0.16
82	1.85	**0.98**	1.11	0.45	0.13	
86	2.18	**1.3**	1.46	0.79	0.45	0.34
90	1.77	**1.085**	1.22	0.7	0.42	0.33
94	1.61	**1.01**	1.13	0.67	0.41	0.33
98	1.97	**1.245**	1.4	0.83	0.52	0.41
102	2.36	**1.47**	1.65	0.96	0.58	0.46
106	1.73	**1.075**	1.21	0.71	0.43	0.34
110	3.18	**2.02**	2.26	1.35	0.84	0.67
114	2.79	**1.775**	1.99	1.2	0.75	0.6
118	2.34	**1.5**	1.68	1.02	0.64	0.52
122	1.66	**1.025**	1.15	0.67	0.41	0.32
126	1.2	**0.75**	0.84	0.49	0.3	0.24
130	1.83	**1.12**	1.26	0.71	0.42	0.33
134	1.79	**1.09**	1.22	0.68	0.4	0.31
138	0.82	**0.49**	0.55	0.3	0.17	0.13
142	0.29	**0.12**	0.14			
146	0.29	**0**	0.14			
148.5	0.18					
152						

transect 17-2 data						
measured velocities in **bold**						
other velocities are simulated by PHABSIM						
distance	**calc.vel**	**meas vel**	**calc.vel**	**calc.vel**	**calc.vel**	**calc.vel**
	500cfs	**290cfs**	290cfs	134cfs	68cfs	50cfs
0						
32						
36	0.03					
40	0.05					
44	0.09		0			
48	0.11		0.04			
52	0.07					
52.8	0.09		0			
54	0.12	**0**	0.05			
58	0.19	**0**	0.11	0.05	0.01	0
62	0.18	**0.10**	0.11	0.04	0.01	
66	0.18	**0.11**	0.12	0.06	0.03	0.03
70	2.88	**1.75**	1.85	0.94	0.49	0.35
74	2.78	**1.70**	1.8	0.93	0.5	0.37
78	1.15	**0.71**	0.75	0.39	0.22	0.16
82	1.64	**1.06**	1.12	0.64	0.38	0.3
86	1.3	**0.84**	0.89	0.5	0.3	0.24
90	1.08	**0.69**	0.73	0.41	0.24	0.19
94	1.93	**1.20**	1.27	0.68	0.38	0.28
98	1.46	**0.92**	0.97	0.53	0.3	0.23
102	1.67	**1.10**	1.16	0.68	0.42	0.33
106	1.36	**0.91**	0.96	0.58	0.37	0.3
110	1.03	**0.69**	0.73	0.44	0.27	0.22
114	2.5	**1.66**	1.75	1.04	0.65	0.52
118	3.28	**2.18**	2.3	1.37	0.86	0.69
122	3.05	**2.05**	2.16	1.31	0.83	0.67
126	1.35	**0.89**	0.94	0.55	0.34	0.27
130	1.85	**1.21**	1.28	0.74	0.46	0.36
134	0.86	**0.57**	0.6	0.35	0.22	0.17
138	1.05	**0.68**	0.72	0.41	0.25	0.2
142	2.96	**1.76**	1.86	0.91	0.44	0.3
146	1.7	**1.06**	1.12	0.6	0.33	0.25
150	0.28	**0.16**	0.17	0.07	0.03	0.01
154	0.12	**0**	0			
156	0.12		0			
160	0.04					
164	0.09					
166						
168						
172.8						

transect 23 data

measured velocities in **bold**

other velocities are simulated by PHABSIM

distance	calc.vel	meas vel	calc.vel	calc.vel	calc.vel	calc.vel
	500cfs	**290cfs**	290cfs	134cfs	68cfs	50cfs
-25						
-20						
-18	1.11					
-17	2.29		1.25	0.31		
-16	2.29		1.25	0.31		
-15	1.11					
-10						
-5						
0						
4						
12						
20	0.4					
28	1.11					
31.2	1.11					
34	1.87	**0.86**	0.86			
36	6.38	**3.25**	3.26	0.16		
38	2.8	**1.59**	1.6	0.54		
41	1.4	**0.88**	0.89	0.43	0.2	0.13
44	0.69	**0.46**	0.46	0.26	0.15	0.12
47	5.65	**3.77**	3.8	2.1	1.21	0.93
50	3.65	**2.48**	2.5	1.43	0.85	0.67
53	5.95	**4.10**	4.14	2.43	1.49	1.19
56	7.89	**5.40**	5.45	3.16	1.91	1.52
59	6.54	**4.44**	4.48	2.56	1.52	1.2
62	4.79	**3.34**	3.37	2.01	1.26	1.02
65	3.24	**2.26**	2.28	1.36	0.85	0.69
68	4.89	**3.40**	3.43	2.04	1.27	1.03
71	1	**0.57**	0.57	0.19		
74	3.77	**1.92**	1.93	0.1		
77.2	0.65	**0.00**				
80	0.46					
84						
88						
96						
104						
108						
112.8						
117						
121						
125						
129						
133						
137						
139	1.22	**0.00**	0.62	0.03		
144	1.98	**1.26**	1.27	0.64	0.31	0.22
149	0.47	**0.30**	0.3	0.16	0.08	0.06
154	0.8	**0.51**	0.51	0.26	0.13	0.09
159	0.35	**0.23**	0.23	0.13	0.07	0.05
164	1.02	**0.68**	0.69	0.38	0.22	0.17
169	1.38	**0.93**	0.94	0.53	0.31	0.24
174	0.22	**0.15**	0.15	0.09	0.06	0.04
179	1.1	**0.76**	0.77	0.45	0.28	0.22
184	1.12	**0.78**	0.79	0.47	0.29	0.23
189	1.12	**0.78**	0.79	0.47	0.3	0.24
194	0.49	**0.33**	0.33	0.19	0.11	0.09
199	0.2	**0.14**	0.14	0.09	0.05	0.04
204	0.94	**0.65**	0.66	0.38	0.24	0.19
209	1.13	**0.79**	0.8	0.48	0.3	0.25
214	0.56	**0.39**	0.39	0.23	0.14	0.11
219	0.12	**0.08**	0.08	0.05	0.03	0.02
224	0.08	**0.00**	0.05	0.03	0.02	0.01
225.5	0.02	**0.00**				
228						
232.8						

transect 26-1 data

measured velocities in **bold**

other velocities are simulated by PHABSIM

distance	calc.vel	meas vel	calc.vel	calc.vel	calc.vel	calc.vel
from LHP	500cfs	**290cfs**	290cfs	134cfs	68cfs	50cfs
-66						
-64	0.32		0.07			
-63	0.47	**0.00**	0.24			
-61	0.6	**0.33**	0.35	0.14		
-59	0.83	**0.42**	0.45	0.08		
-57	0.09	**0.05**	0.05	0.02		
-55	0.19					
-53	0.58	**0.20**	0.21			
-51						
-49	0.11	**0.00**	0.06			
-47	0.08		0.02			
-45						
-39						
-33	0.1		0.04			
-32	0.13	**0.00**	0.07	0.02		
-30	0.12	**0.00**	0.07	0.01		
-28	0.09		0.03			
-26	0.06					
-24	0.17	**0.10**	0.11	0.05	0.02	0.01
-22	0.19	**0.10**	0.11	0.03		
-20	2.24	**1.24**	1.33	0.51		
-18	1.91	**1.02**	1.1	0.34		
-15	0.08					
-12	0.15	**0.00**	0.08			
-9	0.13		0.06			
0						
4	0.06					
6	0.08					
8	0.15	**0.00**	0.08			
12	0.18		0.1	0.03		
16	0.27	**0.17**	0.18	0.1	0.06	0.05
20	0.87	**0.55**	0.59	0.34	0.2	0.16
24	4.32	**2.83**	3.05	1.87	1.19	0.98
28	2.05	**1.34**	1.44	0.88	0.55	0.45
31.5	2.54	**1.58**	1.7	0.94	0.52	0.39
32	6.7	**3.15**	3.39			
36	0.28	**0.18**	0.19	0.11	0.07	0.05
40	3.91	**2.37**	2.55	1.33	0.66	0.45
44	1.88	**1.26**	1.36	0.86	0.57	0.48
48	1.83	**1.18**	1.27	0.76	0.46	0.37
52	0.77	**0.51**	0.55	0.34	0.22	0.18
56	3.33	**2.16**	2.32	1.4	0.87	0.7
60	4.08	**2.66**	2.86	1.74	1.1	0.89
64	3.07	**1.91**	2.06	1.14	0.63	0.47
68	2.2	**1.48**	1.59	1.02	0.68	0.57
72	2.21	**1.48**	1.59	1.02	0.68	0.57
76	3.05	**2.06**	2.22	1.43	0.97	0.81
80	3.42	**2.34**	2.52	1.65	1.13	0.96
84	4.12	**2.46**	2.65	1.32	0.59	0.35
88	3.19	**2.09**	2.25	1.38	0.88	0.72
92	1.84	**1.21**	1.3	0.81	0.52	0.43
96	1.68	**1.00**	1.08	0.54	0.24	0.14
100	0.67	**0.44**	0.47	0.29	0.18	0.15
104	0.51	**0.34**	0.37	0.23	0.16	0.13
108	0.72	**0.47**	0.51	0.31	0.19	0.16
112	0.08	**0.05**	0.05	0.03	0.01	0.01
113	0.1	**0.00**	0.07	0.04	0.02	0.02
116	0.08		0.05	0.03	0.01	0.01
120	0.06		0.03	0.01		

transect 26-2 data

measured velocities in **bold**

other velocities are simulated by PHABSIM

distance	calc.vel	meas vel	calc.vel	calc.vel	calc.vel	calc.vel
	500cfs	**290cfs**	290cfs	134cfs	68cfs	50cfs
0	0.03					
4	0.24		0.09			
5	0.18					
8	0.46	**0.31**	0.32	0.18	0.1	0.07
12	0.27	**0.18**	0.19	0.1	0.05	0.03
16	0.12	**0.00**	0.08	0.04	0.01	
20	0.06	**0.00**	0.02			
24	0.08	**0.04**	0.04			
28	0.26	**0.14**	0.15			
32	1.78	**0.78**	0.82			
36	0.6	**0.00**	0.33			
40	0.98	**0.67**	0.69	0.41	0.24	0.19
44	1.31	**0.86**	0.89	0.48	0.24	0.15
48	3.88	**2.34**	2.42	0.97		
52	1.52	**1.04**	1.07	0.64	0.38	0.29
56	2.02	**1.39**	1.43	0.87	0.54	0.42
60	4.05	**2.57**	2.65	1.3	0.44	
64	0.94	**0.66**	0.68	0.43	0.28	0.23
68	3.37	**2.43**	2.5	1.66	1.15	0.97
72	3.35	**2.45**	2.52	1.7	1.21	1.03
76	1.1	**0.00**	0.6			
80	1.97	**1.38**	1.42	0.89	0.58	0.47
84	2.53	**1.76**	1.81	1.12	0.71	0.57
88	5.02	**3.30**	3.4	1.85	0.91	0.57
92	3.37	**2.42**	2.49	1.63	1.12	0.94
96	3.21	**2.38**	2.44	1.69	1.23	1.06
100	3.84	**2.80**	2.87	1.94	1.36	1.16
104	0.49	**0.35**	0.36	0.23	0.16	0.13
108	3.85	**2.79**	2.86	1.92	1.34	1.13
112	3.19	**2.32**	2.38	1.6	1.13	0.96
116	1.4	**1.03**	1.06	0.72	0.52	0.45
120	0.93	**0.67**	0.69	0.46	0.32	0.27
122	0.01	**0.01**	0.01	0.01	0	0
124	0.01		0.01	0	0	0
126	0.01					

transect 28-1 data

measured velocities in **bold**

other velocities are simulated by PHABSIM

distance	**calc.vel**	**meas vel**	**calc.vel**	**calc.vel**	**calc.vel**	**calc.vel**
from LHP	500cfs	**290cfs**	290cfs	134cfs	68cfs	50cfs
0						
8						
16						
24	0.02					
31.0	0.1					
35.0	0.14	**0**	0.05			
39.0	0.15	**0**	0.06			
43.0	0.13	**0**	0.04			
47.0	0.13	**0**	0.04			
50.5	0.1					
56	0.06					
64	0.06					
72	0.09					
74.0	0.1					
78.0	0.19	**0**	0.1	0.03		
82.0	0.22	**0**	0.13	0.05	0.01	0
86.0	0.26	**0**	0.15	0.07	0.03	0.02
90.0	0.29	**0.15**	0.18	0.08	0.04	0.03
94.0	0.1	**0.05**	0.06	0.03	0.01	0.01
98.0	0.21	**0.11**	0.13	0.06	0.03	0.02
103.0	0.17	**0.085**	0.11	0.05	0.03	0.02
108.0	0.46	**0.245**	0.29	0.15	0.08	0.06
113.0	0.71	**0.385**	0.46	0.24	0.13	0.1
118.0	1.01	**0.56**	0.65	0.34	0.19	0.15
123.0	1.2	**0.665**	0.78	0.42	0.23	0.18
128.0	1.13	**0.64**	0.75	0.41	0.23	0.18
133.0	1.17	**0.67**	0.78	0.43	0.25	0.19
138.0	1.53	**0.880**	1.03	0.57	0.33	0.26
143.0	1.15	**0.66**	0.77	0.43	0.25	0.19
148.0	0.99	**0.57**	0.67	0.37	0.22	0.17
155.0	1.15	**0.66**	0.77	0.42	0.25	0.19
159.0	1.48	**0.85**	0.99	0.55	0.32	0.25
163.0	1.21	**0.685**	0.81	0.44	0.26	0.2
168.0	1.43	**0.82**	0.96	0.53	0.31	0.24
173.0	0.63	**0.35**	0.41	0.22	0.12	0.09
178.0	0.45	**0.245**	0.29	0.16	0.09	0.07
183.0	0.8	**0.44**	0.51	0.27	0.15	0.11
188.0	0.57	**0.305**	0.36	0.18	0.1	0.07
193.0	0.37	**0.195**	0.23	0.12	0.06	0.04
198.0	0.21	**0.1**	0.12	0.05	0.01	0.01
203.0	0.16	**0**	0.08	0.02		
205.0	0.09					
208	0.07					
212	0.04					
216						
220						
222.5						

transect 28-2 data

measured velocities in **bold**

other velocities are simulated by PHABSIM

distance	**calc.vel**	**meas vel**	**calc.vel**	**calc.vel**	**calc.vel**	**calc.vel**
from LHP	500cfs	**290cfs**	290cfs	134cfs	68cfs	50cfs
0						
4						
8	0.08		0.01			
10	0.11	**0**	0.05			
15	0.12	**0**	0.06			
20	0.13	**0**	0.06	0.01		
25	0.14	**0**	0.07	0.02		
30	0.12	**0**	0.05			
35	0.12	**0**	0.05			
40	0.15	**0**	0.08	0.03	0	
45	0.18	**0**	0.1	0.04	0.02	0.01
50	0.18	**0**	0.11	0.05	0.02	0.01
55	0.19	**0**	0.11	0.05	0.02	0.01
60	0.18	**0**	0.1	0.04	0.02	0.01
65	0.19	**0**	0.12	0.05	0.02	0.02
70	0.2	**0.1**	0.12	0.05	0.03	0.02
75	0.34	**0.17**	0.2	0.09	0.04	0.03
80	0.2	**0.1**	0.12	0.05	0.02	0.02
85	0.41	**0.21**	0.25	0.12	0.06	0.04
90	1.14	**0.6**	0.72	0.36	0.19	0.14
95	1.4	**0.745**	0.9	0.46	0.25	0.19
100	1.42	**0.765**	0.92	0.49	0.27	0.21
105	1.56	**0.855**	1.03	0.56	0.32	0.25
110	1.49	**0.825**	0.99	0.55	0.32	0.25
115	1.42	**0.8**	0.96	0.53	0.31	0.24
120	0.98	**0.55**	0.66	0.37	0.22	0.17
125	0.8	**0.45**	0.54	0.3	0.18	0.14
130	0.99	**0.56**	0.67	0.38	0.22	0.17
135	0.72	**0.41**	0.49	0.28	0.16	0.13
140	0.82	**0.46**	0.55	0.31	0.18	0.14
145	0.94	**0.53**	0.63	0.36	0.21	0.16
150	1.03	**0.58**	0.69	0.39	0.23	0.18
155	0.73	**0.405**	0.49	0.27	0.16	0.12
160	0.9	**0.5**	0.6	0.33	0.19	0.15
165	0.83	**0.455**	0.55	0.3	0.17	0.13
170	0.43	**0.23**	0.28	0.14	0.08	0.06
173	0.2	**0.1**	0.12	0.06	0.03	0.02
177	0.07		0.01			
180						
184						
188						
192						
196						
200						
204	0.03					
208						
212						
215.9						

transect 36-1 data

measured velocities in **bold**

other velocities are simulated by PHABSIM

distance	calc.vel	meas vel	calc.vel	calc.vel	calc.vel	calc.vel
from LHP	500cfs	**290cfs**	290cfs	134cfs	68cfs	50cfs
0						
4	0.15					
8	0.32					
11	1.05		0.17			
12	2.08	**1.22**	1.29	0.56	0.14	
15	3.05	**1.88**	1.98	0.99	0.46	0.28
18	1.53	**1.055**	1.11	0.7	0.46	0.38
21	1.23	**0.845**	0.89	0.56	0.37	0.3
24	1.86	**1.31**	1.37	0.88	0.6	0.5
27	2.07	**1.445**	1.51	0.97	0.65	0.54
30	2.77	**1.95**	2.04	1.31	0.89	0.74
33	3.21	**2.22**	2.32	1.46	0.97	0.8
36	2.87	**2**	2.09	1.32	0.88	0.73
39	3.12	**2.145**	2.25	1.4	0.92	0.76
42	3.17	**2.16**	2.26	1.39	0.89	0.73
45	2.99	**1.86**	1.96	1.01	0.49	0.32
48	3.05	**2.055**	2.16	1.3	0.82	0.66
51	2.14	**1.44**	1.51	0.9	0.57	0.45
54	1.93	**1.24**	1.3	0.72	0.4	0.3
57	1.34	**0.86**	0.9	0.5	0.28	0.21
60	0.85	**0.55**	0.58	0.32	0.18	0.13
63	0.16	**0.1**	0.11	0.05	0.02	0.01
66	0.09	**0**	0.04			
67	0.08		0.01			
68						
72						
73.9						

transect 36-2 data

measured velocities in **bold**

other velocities are simulated by PHABSIM

distance	calc.vel	meas vel	calc.vel	calc.vel	calc.vel	calc.vel
from LHP	500cfs	**290cfs**	290cfs	134cfs	68cfs	50cfs
0						
4						
8						
12						
14	1.33		0.18			
17	2.52	**1.5**	1.51	0.55		
20	3.16	**2.1**	2.1	1.1	0.54	0.36
23	1.62	**1.1**	1.1	0.6	0.32	0.23
26	4.67	**2.6**	2.62	0.61		
29	3.59	**2.675**	2.67	1.73	1.12	0.9
32	2.77	**2.065**	2.06	1.34	0.87	0.7
35	1.93	**1.44**	1.43	0.93	0.6	0.48
38	3.33	**2.45**	2.44	1.54	0.98	0.78
39	2.83	**2.095**	2.09	1.34	0.86	0.69
42	2.76	**2.015**	2.01	1.26	0.8	0.63
45	2.37	**1.715**	1.71	1.06	0.66	0.52
48	2.27	**1.655**	1.65	1.03	0.65	0.51
51	1.82	**1.295**	1.3	0.79	0.48	0.37
54	1.36	**0.925**	0.93	0.52	0.28	0.2
57	0.63	**0.42**	0.42	0.22	0.11	0.07
60	1.03	**0.6**	0.6	0.2		
63	0.53	**0.31**	0.31	0.1		
66	0.42	**0.24**	0.24	0.07		
67	0.24		0.03			
68	0.2					
72	0.1					
76	0.1					
80						
82.5						

transect 43-1 data

measured velocities in **bold**

other velocities are simulated by PHABSIM

distance is from left channel LHP

distance from LHP	**calc.vel** 500cfs	**velocity (high flow)**	**calc.vel** 290cfs	**calc.vel** 134cfs	**calc.vel** 68cfs	**calc.vel** 50cfs
148						
149						
151.8	0.49		0.07			
154	0.98	**0.68**	0.75	0.43	0.09	
157	3.99	**3.11**	3.39	2.68	2.01	1.71
160	2.21	**1.74**	1.89	1.52	1.17	1.01
163	2.87	**2.30**	2.5	2.08	1.67	1.48
166	4.34	**3.48**	3.78	3.15	2.52	2.24
169	7.11	**5.55**	6.05	4.78	3.59	3.05
172	3.21	**2.61**	2.83	2.42	2	1.81
175	5.82	**3.39**	3.79			
178	5.77	**4.22**	4.62	3.15	1.77	1.07
181	4.72	**3.20**	3.52	1.85		
184	2.03	**1.56**	1.7	1.3	0.92	0.75
187	0.08	**0.06**	0.07	0.05	0.03	0.02
190	1.68	**1.29**	1.41	1.07	0.76	0.62
193	1.43	**1.15**	1.25	1.05	0.85	0.76
196	1.82	**1.47**	1.6	1.35	1.11	1
199	1.83	**1.47**	1.6	1.33	1.07	0.95
202	0.91	**0.73**	0.79	0.67	0.54	0.48
205	1.39	**1.11**	1.21	0.99	0.79	0.69
208	5.06	**3.84**	4.19	3.13	2.15	1.69
211	5.13	**2.57**	2.92			
214	2.16	**1.38**	1.53	0.56		
217	1.76	**0.88**	1			
220	0.46	**0.25**	0.28			
223	4.55	**1.14**	1.49			
226	3.63	**0.91**	1.19			
229	1.2	**0.88**	0.96	0.66	0.37	0.22
232	0.89	**0.66**	0.72	0.51	0.31	0.22
235	0.85	**0.59**	0.65	0.37	0.08	
238	0.71	**0.00**	0.48	0.11		
242.5	0.43	**RWE**	0.06			
245	0.6		0.34			
249	0.27					
253						
257						
261						
263.6						

transect 43-2 data

measured velocities in **bold**

other velocities are simulated by PHABSIM

distance is from left channel LHP

distance from LHP	**calc.vel** 500cfs	**velocity (high flow)**	**calc.vel** 290cfs	**calc.vel** 134cfs	**calc.vel** 68cfs	**calc.vel** 50cfs
162						
166						
170						
173	0.2		0.03			
177	0.42	**0.26**	0.29	0.15	0.05	
180	1.08	**0.64**	0.71	0.31		
183	1.79	**1.24**	1.35	0.94	0.69	0.58
186	2.06	**1.4**	1.53	1.03	0.71	0.57
189	1.53	**1.1**	1.2	0.89	0.7	0.63
192	3.32	**2.43**	2.64	2.02	1.66	1.51
195	5.5	**4**	4.34	3.3	2.67	2.41
198	5.44	**4.005**	4.35	3.37	2.79	2.55
201	3.35	**2.32**	2.53	1.76	1.28	1.08
204	3	**2**	2.19	1.4	0.89	0.66
207	5.91	**4.02**	4.39	2.95	2.04	1.64
210	0.35	**0.22**	0.24	0.13	0.04	
213	1.45	**0.75**	0.84			
216	3.17	**2.05**	2.25	1.34	0.72	0.42
219	4.24	**2.7**	2.96	1.69	0.77	0.27
222	1.86	**1.1**	1.22	0.53		
225	1.06	**0.66**	0.73	0.39	0.13	
228	4.09	**2.6**	2.85	1.63	0.75	0.26
231	4.19	**2.9**	3.16	2.2	1.6	1.35
234	3.49	**2.35**	2.57	1.69	1.12	0.87
237	5.29	**3.48**	3.81	2.37	1.4	0.96
240	3.79	**0**	2.31	0.56		
243	0.47	**0.2**	0.23			
246	4.86	**3.34**	3.64	2.49	1.77	1.47
249	3.55	**2.3**	2.52	1.51	0.81	0.47
252	1.39	**0.9**	0.99	0.59	0.32	0.18
255	2.67	**1.8**	1.97	1.29	0.86	0.67
258	1.53	**1.02**	1.12	0.71	0.45	0.34
261	0.16	**0.1**	0.11	0.06	0.02	
264	0.16	**0**	0.11	0.06	0.02	
267	0.13	**0**	0.08	0.02		
269	0.08		0.01			
270						
274						
275						

transect 45-1R data						
measured velocities in **bold**						
other velocities are simulated by PHABSIM						
distance is from left channel LHP						
distance	**calc.vel**	**velocity**	**calc.vel**	**calc.vel**	**calc.vel**	**calc.vel**
from LHP	500cfs	**(high flow)**	290cfs	134cfs	68cfs	50cfs
182.1						
183.9						
187.9						
191.8	0.4	**0.05**				
196	0.29					
200	0.82	**0**	0.53	0.22		
204	0.63	**0**	0.33			
208	0.99	**0.69**	0.71	0.42	0.22	0.12
212	0.63	**0.48**	0.48	0.35	0.27	0.23
216	0.06	**0.04**	0.04	0.03	0.02	0.01
220	2.58	**1.32**	1.44			
224	0.16	**0.08**	0.09			
228	0.51	**0.39**	0.39	0.28	0.21	0.18
232	2.92	**2.2**	2.22	1.57	1.18	0.97
236	4.23	**3.28**	3.29	2.44	1.95	1.68
240	8.89	**5.54**	5.77	2.41		
244	5.06	**4.02**	4.02	3.09	2.57	2.26
248	4.03	**3.19**	3.19	2.44	2.02	1.77
252	2.98	**2.36**	2.36	1.81	1.5	1.31
256	3.54	**2.46**	2.51	1.5	0.8	0.44
260	2.4	**1.8**	1.82	1.27	0.93	0.76
264	2.29	**1.43**	1.49	0.62		
268	1.11	**0.79**	0.8	0.51	0.32	0.22
272	1.77	**1.21**	1.24	0.71	0.33	0.12
276	0.87	**0.64**	0.65	0.44	0.31	0.24
280	0.31	**0.21**	0.22	0.12	0.06	0.02
284	0.27	**0.19**	0.19	0.12	0.08	0.05
288	0.05	**0.03**	0.03	0.01		
292	0.02	**0.01**	0.01	0		
296	0.01	**0**	0			
300	0.01					
303.2	0.01					
303.9	0.01					
307.9						
311.2						

transect 45-2 data						
measured velocities in **bold**						
other velocities are simulated by PHABSIM						
distance is from left channel LHP						
distance	**calc.vel**	**velocity**	**calc.vel**	**calc.vel**	**calc.vel**	**calc.vel**
from LHP	500cfs	**290cfs**	290cfs	134cfs	68cfs	50cfs
202						
206						
210	0.07		0.03			
211.7	0.09	**0.05**	0.05	0.02		
214						
217	2.56	**1.53**	1.62	0.74	0.22	
220	2.68	**1.64**	1.73	0.84	0.33	0.14
223	0.13	**0.08**	0.08	0.04	0.01	
226	2.24	**1.42**	1.49	0.79	0.39	0.26
229	2.63	**1.53**	1.62	0.68	0.05	
232	3.07	**1.66**	1.78	0.52		
235	0.53	**0.30**	0.32	0.12		
238	1.85	**1.11**	1.17	0.53	0.16	
241	3.58	**2.33**	2.44	1.36	0.76	0.56
244	0.98					
247						
250	1.18		0.16			
253	3.74	**2.54**	2.64	1.6	1.01	0.81
256	7.65	**5.42**	5.62	3.64	2.49	2.09
259	4.57	**3.23**	3.35	2.16	1.47	1.23
262	5	**3.51**	3.64	2.33	1.57	1.3
265	3.92	**2.77**	2.87	1.85	1.26	1.05
268	2.44	**1.70**	1.76	1.11	0.74	0.61
271						
274						
277	1.43	**0.95**	0.99	0.58	0.34	0.26
280	1.84	**1.23**	1.28	0.76	0.46	0.36
283	1.27	**0.87**	0.9	0.56	0.36	0.29
286	4.28	**2.99**	3.1	1.97	1.32	1.09
289	6.8	**4.42**	4.62	2.58	1.44	1.06
292	3.64	**2.47**	2.57	1.56	0.98	0.79
295	2.99	**2.09**	2.17	1.38	0.92	0.76
298	0.7	**0.33**	0.36			
301						
304						
307	3.58	**2.35**	2.46	1.4	0.81	0.61
310	3.23	**2.24**	2.33	1.46	0.96	0.79
313	0.14	**0.05**	0.06			
315.5	0.13		0.04			
322	0.11		0.01			
326						
330						

Input files used for hydraulic simulations (IFG4 Input) – All transects

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"LEWIS RIVER, SWIFT BYPASS, NSO 6, SPAWNING"
"DATA COLLECTED MAY 2000 BY HARDIN-DAVIS, INC"
IOC       00000000000000000000
QARD 50.00
QARD120.00
QARD207.00
QARD321.00
QARD500.00
XSEC     1     10.000.50     92.00   0.01000
         1220.097.70224.096.80228.095.90231.294.90236.094.90240.095.10
         1244.095.00248.094.90252.095.30256.095.10260.094.80264.094.10
         1268.094.20272.094.40273.494.50276.094.00278.093.90281.093.90
         1285.093.80288.093.00291.093.00294.092.80296.093.10299.093.60
         1302.093.60305.093.00308.092.00311.091.60314.091.40317.091.30
         1320.090.80323.091.00326.091.40329.092.00332.092.30335.093.00
         1338.093.00341.093.50344.094.00347.093.60350.093.20353.093.30
         1356.092.30359.091.70362.091.10365.091.20368.091.80371.092.50
         1374.093.20377.094.00380.094.40383.094.50384.096.10386.897.20
NS       1     21.90     21.90     21.90     82.50     82.50     21.90
NS       1     45.70     45.70     87.50     87.50     87.60     87.60
NS       1     87.60     87.60     87.60     32.50     32.50     32.50
NS       1     42.50     42.50     85.50     85.50     54.50     54.50
NS       1     54.50     23.80     23.80     52.60     52.60     52.60
NS       1     24.80     24.80     52.70     52.70     52.70     42.60
NS       1     42.60     42.60     52.70     52.70     62.70     62.70
NS       1     65.60     23.90     23.90     29.70     29.70     23.90
NS       1     23.90     82.90     82.90     82.90     82.90     82.90
CAL1     1     94.48    321.00    315.49
VEL1     1
VEL1     1                0.68 1.41 0.41 0.51 2.59 0.89 3.07 0.93 2.21
VEL1     1 1.57 1.18 1.79 2.20 2.44 2.29 2.33 2.48 2.42 2.34 2.41 2.06
VEL1     1 1.85 0.41 0.76 1.60 1.50 0.93 0.14 1.73 1.15 1.02 1.05 0.65
VEL1     1 0.07 0.48 0.10
CAL2     1     94.16    207.00    205.24
VEL2     1
VEL2     1                                0.62 1.04 1.91 1.88 2.29 2.58
VEL2     1 1.56 0.84 0.82 1.40 1.88 2.17 1.84 1.81 2.05 1.90 1.39 0.90
VEL2     1 0.14 0.14      0.67 1.34 1.48 0.08 1.56 1.15 0.56 1.15 0.22
VEL2     1
CAL3     1     93.88    120.00    119.91
VEL3     1
VEL3     1                                     0.88 0.26 1.90 0.27
VEL3     1      0.21 0.51 1.29 1.69 1.68 1.51 1.47 1.80 1.48 0.84 0.97
VEL3     1 0.15 0.08      0.29 0.39 0.05 0.82 0.94 0.37 0.74      0.11
VEL3     1
ENDJOB
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"LEWIS RIVER, SWIFT BYPASS, NSO 10, T-1"
"DATA COLLECTED MAY 2000 BY HARDIN-DAVIS, INC"
IOC       00000000000000000000
QARD 50.00
QARD 68.00
QARD134.00
QARD290.00
QARD500.00
XSEC     1      0.000.50     91.90   0.01000
         1-10.0100.2-6.5099.80 0.0097.90 2.4096.00 4.0095.50 8.0094.70
         112.0094.7016.0095.4020.0096.1024.0096.6028.0096.5032.0097.40
         136.0095.1040.0094.6044.0096.2047.0096.0052.0096.7056.0096.20
         160.0096.1064.0095.7068.0095.4072.0094.4075.0092.8080.0093.40
         184.0092.4088.0092.7092.0093.4096.0091.90100.091.90104.091.80
         1108.092.10112.091.90116.091.80120.092.10124.092.40128.092.40
         1132.092.40136.092.20140.093.40144.092.60148.091.90152.092.20
         1156.092.40160.091.80164.091.80168.092.60172.093.70175.094.40
         1176.095.10179.697.40
NS       1     83.70     83.70     83.70     83.70     83.70     83.70
NS       1     85.70     87.70     87.70     82.80     82.80     82.80
NS       1     83.80     83.80     83.80     95.70     83.80     83.80
NS       1     83.80     83.80     23.50     82.70     82.70     82.70
NS       1     82.70     82.60     82.60     83.50     83.50     83.50
NS       1     84.70     84.70     84.70     75.60     75.60     87.50
NS       1     74.70     87.80     87.80     87.70     87.70     76.60
NS       1     76.60     87.50     87.50     92.80     92.80     92.80
NS       1     92.80     92.80
CAL1     1     94.36    290.00    351.72
VEL1     1
VEL1     1                                                      0.48 1.32
VEL1     1 0.14 0.50 1.17 1.12 0.68 0.73 0.98 0.86 1.89 3.80 3.50 0.55
VEL1     1 2.93 4.88 0.17 3.55 0.25 3.51 3.64 2.73 2.49 0.71 0.11
VEL1     1
CAL2     1     93.85    134.00      0.00
VEL2     1
VEL2     1
VEL2     1
VEL2     1
VEL2     1
CAL3     1     93.41     68.00      0.00
VEL3     1
VEL3     1
VEL3     1
VEL3     1
VEL3     1
XSEC     2     10.000.50     91.90   0.01000
         2-10.0100.7-5.00100.6 0.0098.20 4.0097.70 8.0097.7010.0096.50
         212.0095.9016.0097.9020.0096.2024.0095.9028.0096.5032.0095.10
         236.0095.6039.0095.7040.0095.9044.0097.0048.0097.3050.0095.00
         254.0094.6058.0094.3062.0093.8066.0093.9070.0093.8074.0093.90
         280.0093.3084.0094.0088.0093.6092.0093.3096.0094.50100.094.30
         2103.095.00104.096.00109.096.00110.095.00112.094.60113.095.00
         2114.096.00118.096.00119.095.00120.093.10124.092.90128.092.20
         2132.091.90136.092.50140.092.00144.091.80148.092.50152.092.30
         2156.092.60160.093.90162.092.90163.095.00164.096.00168.096.00
         2169.095.00172.096.90176.197.50
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NS       2     82.70     82.70     82.70     82.70     82.70     82.60
NS       2     82.60     82.80     82.80     85.70     85.70     87.60
NS       2     87.60     82.90     82.90     82.90     87.90     87.90
NS       2     87.90     87.90     87.90     87.90     87.90     87.90
NS       2     87.80     87.90     87.90     87.90     87.50     84.80
NS       2     84.80     84.80     83.80     83.80     83.80     83.80
NS       2     83.80     83.80     86.70     86.70     86.70     87.50
NS       2     87.50     28.70     87.50     87.50     87.50     84.80
NS       2     87.90     87.90     87.90     87.90     87.90     88.90
NS       2     88.90     88.90     88.90
CAL1     2     94.83    290.00    276.64
VEL1     2
VEL1     2                                                0.34 0.42 0.51 0.30
VEL1     2 0.41 2.45 3.81 2.69 0.73 1.21                        3.67
VEL1     2                0.52 3.95 3.86 1.54 0.58 3.09 1.10 2.64 1.72
VEL1     2 2.45 2.59 2.50
CAL2     2     94.25    134.00      0.00
VEL2     2
VEL2     2
VEL2     2
VEL2     2
VEL2     2
CAL3     2     93.84     68.00      0.00
VEL3     2
VEL3     2
VEL3     2
VEL3     2
VEL3     2
ENDJOB
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NSO17 Swift Bypass, NSO 17, T1-2
Data Collected 2000 by Hardin-Davis
IOC       00000000000000000000
QARD 50.00
QARD 68.00
QARD134.00
QARD290.00
QARD500.00
XSEC     1      0.000.50     93.00   0.01000
         1 0.0098.10 4.0098.00 8.0097.4012.0097.0016.0096.6020.0095.50
         124.0095.3028.0095.9032.0095.9036.0095.8040.0095.7044.5095.40
         148.0094.6052.0094.5056.0093.5060.0093.5064.0093.2068.0093.80
         172.0093.2073.0095.4074.0096.4076.0096.4077.0095.4078.0094.10
         182.0094.3086.0093.2090.0092.6094.0091.9098.0091.60102.092.20
         1106.092.20110.091.50114.091.30118.091.00122.092.30126.092.00
         1130.092.70134.092.90138.093.20142.094.90146.094.90148.595.40
         1152.096.10156.096.50160.096.80164.898.30
NS       1     28.90     28.90     28.70     28.70     82.60     82.60
NS       1     87.60     87.60     87.70     87.50     87.50     87.90
NS       1     87.90     87.90     87.50     87.80     87.80     87.80
NS       1     87.80     87.80     87.80     87.80     87.80     87.50
NS       1     87.50     87.50     78.60     87.50     87.50     87.90
NS       1     87.90     87.90     78.80     78.80     87.50     87.50
NS       1     65.70     65.70     54.50     82.80     28.60     28.60
NS       1     28.60     28.90     82.80     82.80
CAL1     1     95.37    290.00    256.62
VEL1     1
VEL1     1 0.40 0.22 1.39 0.50 0.55 0.28 0.98                      1.36
VEL1     1 0.98 1.30 1.09 1.01 1.25 1.47 1.08 2.02 1.78 1.50 1.03 0.75
VEL1     1 1.12 1.09 0.49 0.12
CAL2     1     94.86    134.00      0.00
VEL2     1
VEL2     1
VEL2     1
VEL2     1
CAL3     1     94.43     68.00      0.00
VEL3     1
VEL3     1
VEL3     1
VEL3     1
XSEC     2     10.000.50     93.00   0.01000
         2 0.00100.6 4.0099.80 8.0099.3012.0098.7016.0097.9020.0097.10
         224.0096.9028.0096.4032.0096.0036.0095.8040.0095.7044.0095.40
         248.0095.2052.0095.5052.8095.4054.0095.1058.0094.3062.0094.40
         266.0093.4070.0093.7074.0093.6078.0093.5082.0092.7086.0092.70
         290.0092.9094.0093.4098.0093.20102.092.10106.091.10110.091.40
         2114.091.70118.091.60122.091.10126.092.00130.092.20134.092.00
         2138.092.50142.093.90146.093.40150.094.20154.095.40156.095.40
         2160.095.80164.095.60166.096.00168.096.60172.898.70
NS       2     21.90     21.90     21.90     21.90     21.90     21.90
NS       2     21.90     21.90     82.70     82.70     87.60     87.60
NS       2     87.80     87.80     87.80     87.80     87.80     82.80
NS       2     87.50     87.50     87.60     87.60     78.60     78.60
NS       2     78.60     75.70     63.50     65.60     86.70     86.70
NS       2     86.70     87.50     87.50     87.50     87.50     87.50
NS       2     42.50     82.60     82.60     82.50     82.90     28.70
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NS       2     28.70     28.70     28.50     28.50     28.50
WSL      2      0.00      0.00      0.00      0.00      0.00
CAL1     2     95.39    290.00    273.17
VEL1     2
VEL1     2                          0.10 0.11 1.75 1.70 0.71 1.06 0.84
VEL1     2 0.69 1.20 0.92 1.10 0.91 0.69 1.66 2.18 2.05 0.89 1.21 0.57
VEL1     2 0.68 1.76 1.06 0.16
CAL2     2     94.87    134.00      0.00
VEL2     2
VEL2     2
VEL2     2
VEL2     2
CAL3     2     94.46     68.00      0.00
VEL3     2
VEL3     2
VEL3     2
VEL3     2
ENDJOB
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Swift Bypass  NSO23 side channel
Data Collected May 2000 by Hardin-Davis
IOC       00000000000000000000
QARD 50.00
QARD 68.00
QARD134.00
QARD290.00
QARD500.00
XSEC     1     10.000.50     94.00   0.01000
         1-25.099.00-20.097.00-18.096.50-17.096.00-16.096.00-15.096.50
         1-10.097.00-5.0097.00 0.0097.10 4.0097.4012.0097.1020.0096.70
         128.0096.5031.2096.5034.0096.2036.0096.1038.0095.9041.0095.50
         144.0094.8047.0094.9050.0094.6053.0094.2056.0094.4059.0094.60
         162.0093.8065.0093.8068.0093.9071.0095.9074.0096.1077.2096.50
         180.0096.6084.0096.8088.0098.5096.0099.00104.099.20108.099.30
         1112.899.90117.098.60121.098.40125.097.80129.097.40133.097.20
         1137.096.80139.096.10144.095.40149.095.30154.095.40159.095.00
         1164.094.90169.094.70174.094.10179.094.20184.094.00189.093.70
         1194.094.70199.093.30204.094.20209.093.50214.094.10219.094.00
         1224.095.10225.596.50228.098.40232.899.90
NS       1     87.50     87.50     87.50     87.50     87.50     87.50
NS       1     87.50     87.50     87.80     87.80     87.80     87.80
NS       1     87.80     87.80     87.90     87.90     87.90     87.90
NS       1     87.90     87.90     87.90     87.90     87.90     87.90
NS       1     87.80     87.80     87.80     87.80     87.80     87.90
NS       1     87.90     87.90     87.90     87.90     87.50     87.50
NS       1     87.50     87.50     72.80     78.60     78.60     72.90
NS       1     72.90     72.90     87.60     87.60     87.50     87.50
NS       1     87.50     87.60     87.60     87.50     87.50     87.70
NS       1     87.70     76.80     76.80     87.70     87.70     87.50
NS       1     28.90     28.90     28.90     28.90
CAL1     1     96.47    290.00    285.62
VEL1     1
VEL1     1           0.86 3.25 1.59 0.88 0.46 3.77 2.48 4.10 5.40 4.44
VEL1     1 3.34 2.26 3.40 0.57 1.92
VEL1     1                                        1.26 0.30 0.51 0.23
VEL1     1 0.68 0.93 0.15 0.76 0.78 0.78 0.33 0.14 0.65 0.79 0.39 0.08
VEL1     1
CAL2     1     96.10    134.00      0.00
VEL2     1
VEL2     1
VEL2     1
VEL2     1
VEL2     1
VEL2     1
CAL3     1     95.84     68.00      0.00
VEL3     1
VEL3     1
VEL3     1
VEL3     1
VEL3     1
VEL3     1
ENDJOB
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Swift Bypass   NSO 26
Data Collected May 2000 by Hardin-Davis
IOC       00000000000000000000
QARD 50.00
QARD 68.00
QARD134.00
QARD290.00
QARD500.00
XSEC     1      0.000.50     95.40   0.01000
         1-66.098.30-64.097.60-63.097.30-61.097.00-59.097.20-57.097.10
         1-55.097.90-53.097.50-51.098.10-49.097.30-47.097.60-45.098.90
         1-39.098.40-33.097.40-32.097.10-30.097.20-28.097.50-26.097.70
         1-24.096.70-22.097.10-20.097.00-18.097.10-15.097.70-12.097.30
         1-9.0097.40 0.0098.40 4.0097.80 6.0097.70 8.0097.3012.0097.10
         116.0096.3020.0096.2024.0095.7028.0095.8031.5096.4032.0097.30
         136.0096.1040.0096.6044.0095.2048.0096.0052.0095.6056.0095.90
         160.0095.8064.0096.4068.0095.0072.0095.1076.0094.8080.0094.30
         184.0096.7088.0095.7092.0095.6096.0096.70100.095.80104.095.00
         1108.095.80112.096.70113.096.30116.096.70120.097.20124.098.50
         1128.099.60132.099.20135.0100.5
NS       1     87.80     87.80     87.80     87.70     87.70     87.70
NS       1     87.70     87.70     87.80     87.80     87.80     87.80
NS       1     87.60     87.60     87.60     84.70     84.70     84.70
NS       1     84.70     84.70     78.80     78.80     78.80     87.70
NS       1     87.70     87.90     87.90     87.90     87.90     87.90
NS       1     87.90     87.60     87.60     87.50     87.50     87.50
NS       1     87.80     87.80     87.80     87.90     87.90     78.60
NS       1     78.60     78.50     78.50     87.80     87.60     87.60
NS       1     87.80     87.80     87.60     87.60     87.60     87.50
NS       1     87.50     87.50     87.50     87.60     87.60     82.80
NS       1     82.80     28.60     28.60
CAL1     1     97.66    290.00    268.52
VEL1     1                0.33 0.42 0.05      0.20
VEL1     1                                0.10 0.10 1.24 1.02
VEL1     1                                0.17 0.55 2.83 1.34 1.58 3.15
VEL1     1 0.18 2.37 1.26 1.18 0.51 2.16 2.66 1.91 1.48 1.48 2.06 2.34
VEL1     1 2.46 2.09 1.21 1.00 0.44 0.34 0.47 0.05
VEL1     1
CAL2     1     97.26    134.00      0.00
VEL2     1
VEL2     1
VEL2     1
VEL2     1
VEL2     1
VEL2     1
CAL3     1     96.97     68.00      0.00
VEL3     1
VEL3     1
VEL3     1
VEL3     1
VEL3     1
VEL3     1
XSEC     2     10.000.50     95.70   0.01000
         2 0.0098.60 4.0098.00 5.0098.20 8.0096.9012.0097.0016.0097.20
         220.0098.1024.0097.8028.0097.7032.0097.9036.0097.7040.0096.70
         244.0097.0048.0097.4052.0096.7056.0096.6060.0097.2064.0096.30
         268.0095.9072.0095.6076.0097.7080.0096.4084.0096.5088.0097.00
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         292.0096.0096.0095.20100.095.70104.096.10108.095.80112.095.70
         2116.095.40120.095.90122.096.60124.097.00126.098.20128.099.10
         2132.098.60136.098.90140.0100.7144.0100.4148.0101.2149.4101.7
NS       2     43.60     43.60     84.50     73.80     73.80     73.80
NS       2     72.60     87.70     87.70     87.70     87.50     87.50
NS       2     87.50     72.80     72.80     87.80     87.80     84.50
NS       2     87.50     87.50     78.70     78.70     78.70     87.60
NS       2     87.60     84.60     84.90     84.70     84.70     87.50
NS       2     87.50     27.80     27.80     82.50     82.50     82.50
NS       2     82.70     82.70     82.50     82.50     82.50     82.50
CAL1     2     98.19    290.00    276.48
VEL1     2                 0.31 0.18           0.04 0.14 0.78      0.67
VEL1     2 0.86 2.34 1.04 1.39 2.57 0.66 2.43 2.45      1.38 1.76 3.30
VEL1     2 2.42 2.38 2.80 0.35 2.79 2.32 1.03 0.67 0.01
VEL1     2
CAL2     2     97.71    134.00      0.00
VEL2     2
VEL2     2
VEL2     2
VEL2     2
CAL3     2     97.33     68.00      0.00
VEL3     2
VEL3     2
VEL3     2
VEL3     2
ENDJOB
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Swift Bypass NSO 28
Data Collected May 2000 by Hardin-Davis
IOC       00000000000000000000
QARD 50.00
QARD 68.00
QARD134.00
QARD290.00
QARD500.00
XSEC     1     10.000.50     95.40   0.01000
         1 0.00100.4 8.0099.5016.0099.1024.0099.0031.0098.5035.0098.10
         139.0098.0043.0098.2047.0098.2050.5098.5056.0098.8064.0098.80
         172.0098.6074.0098.5078.0097.5082.0097.1086.0096.6090.0096.20
         194.0096.1098.0095.80103.095.60108.095.60113.095.10118.094.70
         1123.094.40128.093.60133.093.10138.092.60143.092.60148.092.50
         1155.092.90159.092.50163.092.80168.092.90173.094.30178.094.30
         1183.094.80188.095.40193.095.70198.097.00203.097.60205.098.50
         1208.098.70212.098.90216.099.30220.0100.1222.5101.1
NS       1     52.70     52.70     68.60     68.60     76.50     87.50
NS       1     87.50     87.50     87.50     78.70     78.70     87.60
NS       1     87.50     87.50     76.80     76.80     76.80     75.60
NS       1     75.60     75.60     75.50     72.60     72.60     27.70
NS       1     27.70     27.70     27.70     27.90     27.90     27.90
NS       1     28.90     28.90     28.90     28.70     28.70     28.70
NS       1     28.50     28.50     28.50     24.90     28.80     28.80
NS       1     28.80     28.80     28.50     28.50     28.50
CAL1     1     98.45    290.00    245.26
VEL1     1
VEL1     1                          0.15 0.05 0.11 0.09 0.25 0.39 0.56
VEL1     1 0.67 0.64 0.67 0.88 0.66 0.57 0.66 0.85 0.69 0.82 0.35 0.25
VEL1     1 0.44 0.31 0.20 0.10
CAL2     1     97.79    134.00      0.00
VEL2     1
VEL2     1
VEL2     1
VEL2     1
CAL3     1     97.28     68.00      0.00
VEL3     1
VEL3     1
VEL3     1
VEL3     1
XSEC     2      0.000.50     95.40   0.01000
         2 0.00101.0 4.0099.60 8.0098.4010.0098.0015.0097.8020.0097.70
         225.0097.5030.0097.9035.0097.9040.0097.3045.0096.9050.0096.80
         255.0096.7060.0096.9065.0096.6070.0096.5075.0096.5080.0096.60
         285.0096.3090.0095.7095.0095.40100.094.80105.094.10110.093.60
         2115.093.00120.092.80125.092.70130.092.30135.092.40140.092.60
         2145.092.50150.093.00155.093.50160.093.70165.094.20170.095.50
         2173.096.30177.098.40180.0100.9184.0101.3188.0101.4192.0101.0
         2196.0100.4200.099.30204.098.90208.0100.1212.0101.6215.9102.7
NS       2     87.50     87.50     87.50     75.50     75.50     73.80
NS       2     73.80     87.60     87.60     87.60     78.70     78.70
NS       2     78.70     87.60     87.60     87.50     17.80     27.80
NS       2     27.50     27.50     27.50     38.60     27.60     27.60
NS       2     27.60     27.50     27.50     27.70     27.70     27.60
NS       2     27.60     74.50     74.50     53.60     53.60     53.60
NS       2     64.60     64.60     64.60     64.50     64.50     64.50
NS       2     64.50     82.80     82.80     82.80     82.80     82.80
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CAL1     2     98.44    290.00    236.86
VEL1     2
VEL1     2                0.10 0.17 0.10 0.21 0.60 0.75 0.77 0.86 0.83
VEL1     2 0.80 0.55 0.45 0.56 0.41 0.46 0.53 0.58 0.41 0.50 0.46 0.23
VEL1     2 0.10
CAL2     2     97.80    134.00      0.00
VEL2     2
VEL2     2
VEL2     2
VEL2     2
CAL3     2     97.30     68.00      0.00
VEL3     2
VEL3     2
VEL3     2
VEL3     2
ENDJOB
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Swift Bypass NSO 36
Data Collected May 2000 by Hardin-Davis
IOC       00000000000000000000
QARD 50.00
QARD 68.00
QARD134.00
QARD290.00
QARD500.00
XSEC     1      0.000.50     91.40   0.01000
         1 0.0096.30 4.0095.70 8.0095.6011.0094.9012.0093.4015.0093.00
         118.0090.7021.0090.9024.0090.1027.0090.4030.0090.1033.0090.80
         136.0090.6039.0091.0042.0091.3045.0092.9048.0091.6051.0091.70
         154.0092.5057.0092.5060.0092.5063.0093.1066.0094.6067.0094.90
         168.0096.9072.0096.5073.9096.40
NS       1     87.90     87.90     87.90     87.90     87.90     87.90
NS       1     87.90     87.90     87.90     87.90     87.90     87.90
NS       1     86.90     86.90     86.90     87.90     87.90     87.90
NS       1     27.80     28.70     28.70     28.70     86.90     86.90
NS       1     86.90     86.90     86.90
CAL1     1     94.93    290.00    272.93
VEL1     1                      1.22 1.88 1.06 0.85 1.31 1.45 1.95 2.22
VEL1     1 2.00 2.15 2.16 1.86 2.06 1.44 1.24 0.86 0.55 0.10
VEL1     1
CAL2     1     94.19    134.00      0.00
VEL2     1
VEL2     1
VEL2     1
CAL3     1     93.51     68.00      0.00
VEL3     1
VEL3     1
VEL3     1
XSEC     2     10.000.50     91.40   0.01000
         2 0.0098.30 4.0098.60 8.0095.9012.0097.2014.0095.0017.0093.70
         220.0092.8023.0092.5026.0094.0029.0089.3032.0089.2035.0089.30
         238.0090.2039.0089.8042.0090.5045.0090.8048.0090.6051.0091.30
         254.0092.4057.0092.8060.0093.8063.0093.8066.0093.9067.0095.00
         268.0095.2072.0095.6076.0095.6080.0096.5082.5096.50
NS       2     87.90     87.90     87.90     87.90     87.90     87.90
NS       2     87.90     87.90     87.90     87.90     87.90     87.90
NS       2     87.90     87.90     87.90     87.90     87.90     84.80
NS       2     84.80     84.80     28.60     28.60     28.60     38.60
NS       2     38.60     84.60     85.70     85.70     85.70
CAL1     2     95.03    290.00    288.81
VEL1     2                         1.50 2.10 1.10 2.60 2.68 2.07 1.44
VEL1     2 2.45 2.10 2.02 1.72 1.66 1.30 0.93 0.42 0.60 0.31 0.24
VEL1     2
CAL2     2     94.23    134.00      0.00
VEL2     2
VEL2     2
VEL2     2
CAL3     2     93.59     68.00      0.00
VEL3     2
VEL3     2
VEL3     2
ENDJOB
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Swift Bypass, NSO 43  right side
Data Collected May 2000 by Hardin-Davis
IOC       00000000000000000000
QARD 50.00
QARD 69.00
QARD134.00
QARD290.00
QARD500.00
XSEC     1      0.000.50     93.60   0.01000
         1148.098.40149.098.30151.896.30154.095.20157.094.30160.094.20
         1163.093.90166.093.90169.094.30172.093.60175.095.70178.094.90
         1181.095.30184.094.50187.094.80190.094.50193.093.80196.093.70
         1199.093.90202.093.80205.094.00208.094.60211.095.90214.095.50
         1217.095.90220.095.80223.096.20226.096.20229.094.90232.094.80
         1235.095.20238.095.60242.596.30245.095.90249.096.60253.097.10
         1257.098.30261.098.40263.699.40
NS       1     87.80     87.80     87.80     87.80     87.80     87.80
NS       1     87.80     87.90     75.70     87.70     87.70     87.70
NS       1     87.50     87.50     87.50     87.50     87.50     87.50
NS       1     87.50     87.50     87.50     87.50     87.50     87.50
NS       1     87.50     87.50     87.50     87.50     87.50     87.50
NS       1     87.50     87.80     87.80     87.80     87.80     82.90
NS       1     82.90     82.90     82.90
CAL1     1     96.30    290.00    258.56
VEL1     1                 0.68 3.11 1.74 2.30 3.48 5.55 2.61 3.39 4.22
VEL1     1 3.20 1.56 0.06 1.29 1.15 1.47 1.47 0.73 1.11 3.84 2.57 1.38
VEL1     1 0.88 0.25 1.14 0.91 0.88 0.66 0.59
VEL1     1
CAL2     1     95.73    134.00      0.00
VEL2     1
VEL2     1
VEL2     1
VEL2     1
CAL3     1     95.23     69.00      0.00
VEL3     1
VEL3     1
VEL3     1
VEL3     1
XSEC     2     10.000.50     94.20   0.01000
         2162.099.00166.098.60170.097.70173.097.10177.096.10180.096.30
         2183.095.30186.095.50189.094.70192.094.20195.094.40198.094.00
         2201.095.30204.095.70207.095.50210.096.10213.096.60216.095.90
         2219.096.00222.096.30225.096.10228.096.00231.095.30234.095.60
         2237.095.80240.096.50243.096.80246.095.40249.095.90252.095.90
         2255.095.60258.095.70261.096.10264.096.10267.096.50269.097.10
         2270.098.00274.099.60275.0100.1
NS       2     87.60     87.60     87.60     87.60     87.60     87.80
NS       2     87.80     87.80     87.80     87.80     87.70     87.70
NS       2     87.70     87.70     87.70     87.70     87.50     87.50
NS       2     87.50     87.50     87.50     87.50     87.50     87.50
NS       2     87.50     87.50     87.50     87.50     76.50     87.80
NS       2     87.80     87.80     87.80     82.90     82.90     82.90
NS       2     82.90     82.90     82.90
CAL1     2     97.10    290.00    255.88
VEL1     2                      0.26 0.64 1.24 1.40 1.10 2.43 4.00 4.01
VEL1     2 2.32 2.00 4.02 0.22 0.75 2.05 2.70 1.10 0.66 2.60 2.90 2.35
VEL1     2 3.48      0.20 3.34 2.30 0.90 1.80 1.02 0.10
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VEL1      2
CAL2      2      96.64    134.00       0.00
VEL2      2
VEL2      2
VEL2      2
VEL2      2
CAL3      2      96.19     69.00       0.00
VEL3      2
VEL3      2
VEL3      2
VEL3      2
ENDJOB
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Swift Bypass NSO 45
Data Collected May 2000 by Hardin-Davis
IOC       00000000000000000000
QARD 50.00
QARD 68.00
QARD134.00
QARD290.00
QARD500.00
XSEC     1      0.000.50     97.90   0.01000
         1182.1102.3183.9102.3187.9101.9191.8101.3196.0101.5200.0100.3
         1204.0100.8208.099.80212.098.80216.099.60220.0100.7224.0100.7
         1228.098.90232.099.00236.098.50240.0100.3244.097.90248.098.00
         1252.098.00256.099.80260.099.10264.0100.3268.099.60272.099.90
         1276.099.30280.099.90284.099.60288.0100.3292.0100.5296.0101.1
         1300.0101.5303.2101.3303.9101.6307.9103.1311.2104.8
NS       1     87.70     87.70     87.90     87.90     87.90     87.90
NS       1     87.90     87.90     87.90     87.90     87.60     87.60
NS       1     87.60     87.90     87.90     87.90     87.90     87.70
NS       1     87.90     87.90     87.90     87.90     87.90     87.90
NS       1     87.90     86.80     86.80     87.70     87.70     76.60
NS       1     76.60     76.60     76.60     87.80     87.80
CAL1     1    101.19    290.00    273.39
VEL1     1                 0.05                0.69 0.48 0.04 1.32 0.08
VEL1     1 0.39 2.20 3.28 5.54 4.02 3.19 2.36 2.46 1.80 1.43 0.79 1.21
VEL1     1 0.64 0.21 0.19 0.03 0.01
CAL2     1    100.72    134.00      0.00
VEL2     1
VEL2     1
VEL2     1
CAL3     1    100.11     68.00      0.00
VEL3     1
VEL3     1
VEL3     1
XSEC     2     10.000.50    100.10   0.01000
         2202.0103.9206.0103.5210.0102.8211.7102.4214.0103.9217.0102.1
         2220.0102.0223.0102.1226.0101.8229.0102.2232.0102.4235.0102.3
         2238.0102.1241.0101.6244.0103.1247.0103.7250.0103.0253.0101.1
         2256.0100.1259.0100.2262.0100.4265.0100.2268.0100.6271.0104.6
         2274.0105.1277.0101.4280.0101.3283.0100.9286.0100.5289.0101.6
         2292.0101.1295.0100.5298.0102.6301.0104.6304.0104.0307.0101.5
         2310.0100.7313.0102.8315.5102.9322.0103.0326.0104.1330.0106.1
NS       2     87.60     87.60     87.60     87.60     87.80     87.80
NS       2     87.80     87.80     87.90     87.90     87.90     87.90
NS       2     87.90     87.90     87.90     87.90     87.90     87.90
NS       2     87.80     87.80     87.80     87.80     87.90     87.90
NS       2     87.90     87.90     87.90     87.90     87.90     87.90
NS       2     87.90     87.90     87.90     87.90     87.90     87.90
NS       2     87.90     76.60     76.60     87.90     87.90     87.90
CAL1     2    102.99    290.00    272.47
VEL1     2                 0.05      1.53 1.64 0.08 1.42 1.53 1.66 0.30
VEL1     2 1.11 2.33                 2.54 5.42 3.23 3.51 2.77 1.70
VEL1     2      0.95 1.23 0.87 2.99 4.42 2.47 2.09 0.33           2.35
VEL1     2 2.24 0.05
CAL2     2    102.62    134.00      0.00
VEL2     2
VEL2     2
VEL2     2
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VEL2     2
CAL3     2    102.19     68.00      0.00
VEL3     2
VEL3     2
VEL3     2
VEL3     2
ENDJOB
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Appendix 2D								
Velocity Adjustment Factors for IFIM transects								
Flow (cfs)	Trans 6.1							
50	0.657							
120	0.918							
207	1.014							
321	1.023							
500	0.940							
Flow (cfs)	Trans 10.1	Trans 10.2	Trans 17.1	Trans 17.2	Trans 23.1	Trans 26.1	Trans 26.2	
50	0.489	0.691	0.415	0.395	0.379	0.492	0.583	
68	0.531	0.757	0.501	0.474	0.452	0.564	0.645	
134	0.638	0.880	0.741	0.697	0.665	0.770	0.802	
290	0.809	1.047	1.115	1.051	1.011	1.076	1.024	
500	0.969	1.168	1.448	1.383	1.340	1.374	1.231	
Flow (cfs)	Trans 28.1	Trans 28.2	Trans 36.1	Trans 36.2	Trans 43.1	Trans 43.2	Trans 45.1	Trans 45.2
50	0.351	0.366	0.501	0.422	1.043	0.840	0.771	0.498
68	0.438	0.456	0.573	0.507	1.068	0.875	0.827	0.567
134	0.703	0.726	0.761	0.716	1.104	0.947	0.875	0.749
290	1.166	1.192	1.037	0.992	1.077	1.077	0.985	1.027
500	1.628	1.659	1.280	1.228	1.072	1.231	1.118	1.287