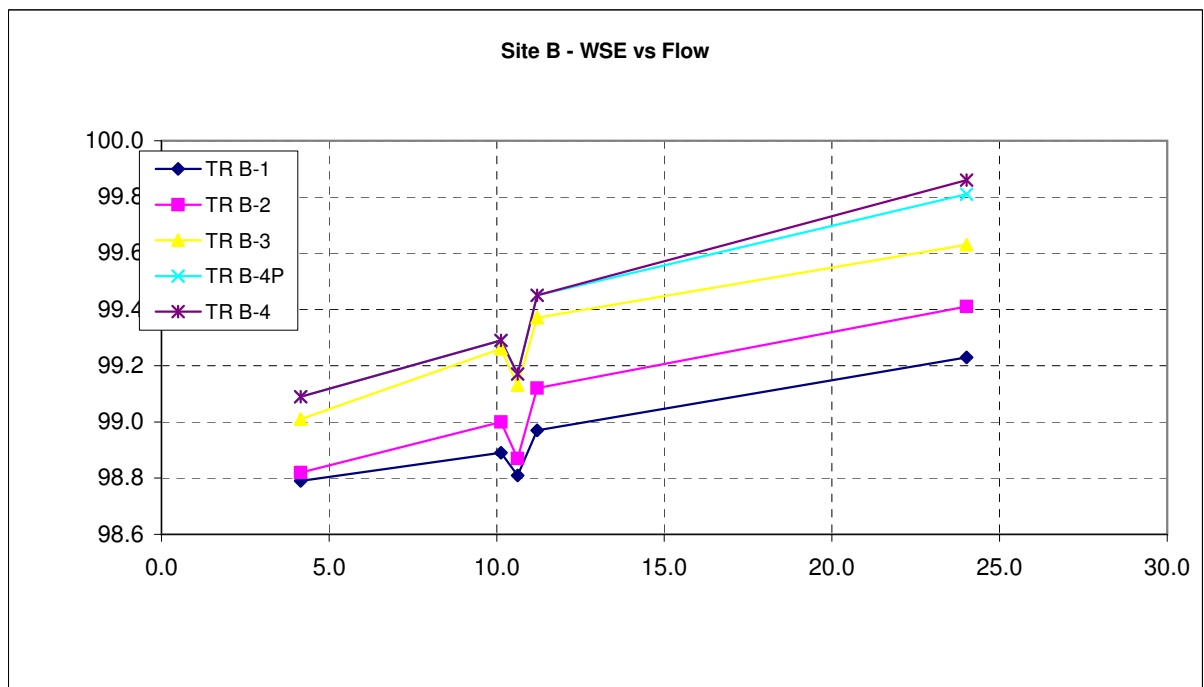
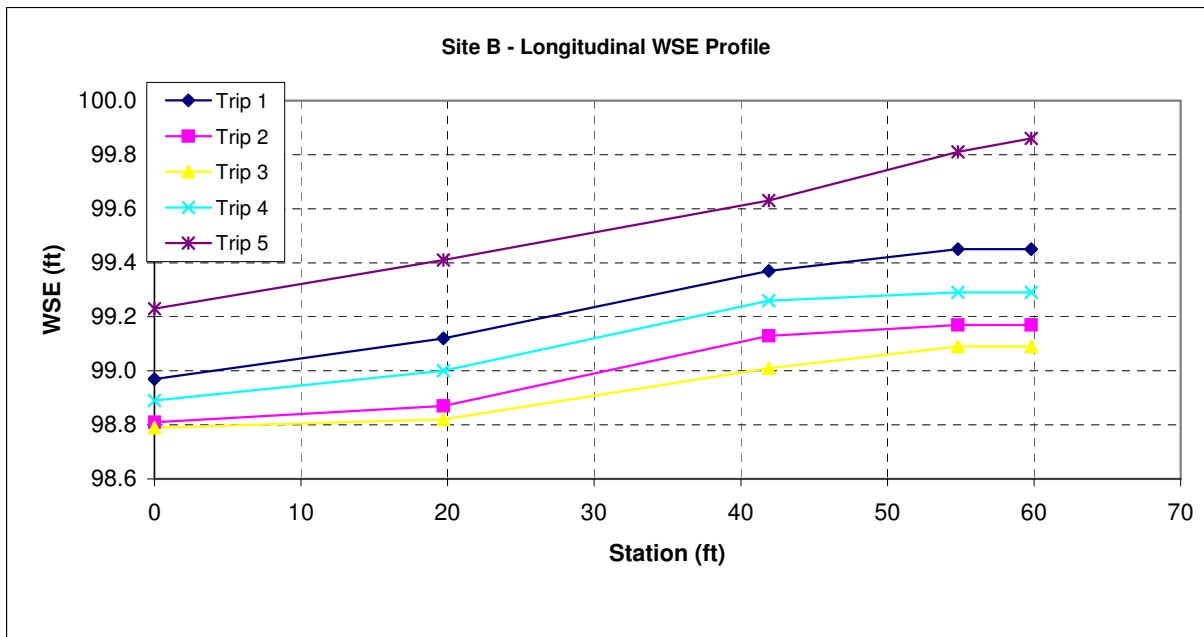


Reach: **Stetson Reach**
 Stream: **Cooper Lake**
 Site: **Site B**
 Habitat Type: **Pool**

			Q(cfs)					WSE (ft)					Vel-Depth Survey				
			4.1	10.1	10.6	11.2	24.0										
TR	length	Sta	Trip 3	Trip 4	Trip 2	Trip 1	Trip 5	Trip 3	Trip 4	Trip 2	Trip 1	Trip 5					
TR B-1	-	0.0	98.79	98.89	98.81	98.97	99.23				Y	Y					
TR B-2	19.7	19.7	98.82	99.00	98.87	99.12	99.41				Y	Y					
TR B-3	22.2	41.9	99.01	99.26	99.13	99.37	99.63				Y	Y					
TR B-4P	12.9	54.8	99.09	99.29	99.17	99.45	99.81				Y	Y					
TR B-4	5	59.8	99.09	99.29	99.17	99.45	99.86				Y	Y					
Average WSE slope			0.50%	0.67%	0.60%	0.80%	1.05%										

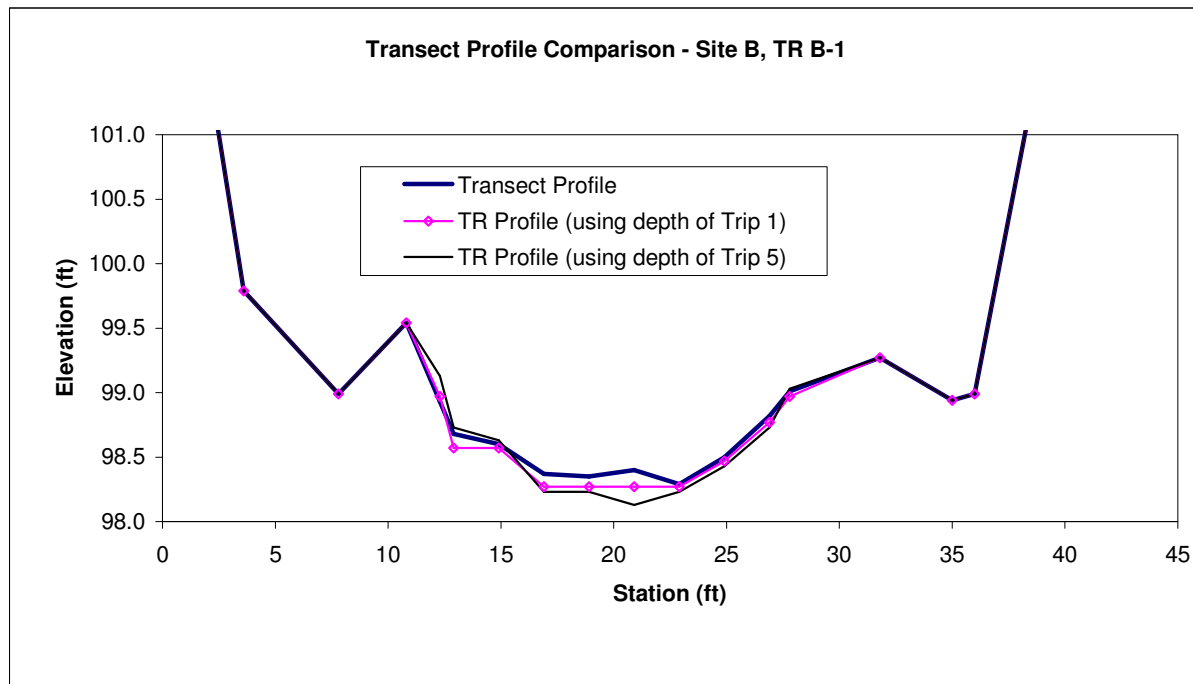


Transect profile Comparison - Site B, TR B-1

Trip 1								Trip 5					
Sta (ft)	HI (ft)	FS (ft)	Elev (ft)	Depth (ft)	Velocity (ft/s)	q (cfs)	Bed Elev (ft)	Depth (ft)	Velocity (ft/s)	q (cfs)	Bed Elev (ft)	subs	code
0	104.37	0.63	103.74				103.74				103.74	org	0
3.6	104.37	4.58	99.79				99.79				99.79	128	5
7.8	104.37	5.38	98.99				98.99				98.99	org	0
10.8	104.37	4.83	99.54				99.54				99.54	org	0
12.3	104.37	5.44	98.93	0.0	0.0	0.00	98.97	0.1	0	0.00	99.13	org	0
12.9	104.37	5.69	98.68	0.4	0.4	0.21	98.57	0.5	0	0.00	98.73	silt	1
14.9	104.37	5.77	98.6	0.4	0.7	0.56	98.57	0.6	1.2	1.44	98.63	23	3
16.9	104.37	6	98.37	0.7	2.0	2.80	98.27	1	2.6	5.20	98.23	64	4
18.9	104.37	6.02	98.35	0.7	1.7	2.38	98.27	1	2.6	5.20	98.23	32	3
20.9	104.37	5.97	98.4	0.7	1.4	1.96	98.27	1.1	2.5	5.50	98.13	23	3
22.9	104.37	6.08	98.29	0.7	1.2	1.68	98.27	1	2	4.00	98.23	16	3
24.9	104.37	5.87	98.5	0.5	1.1	1.10	98.47	0.8	1.8	2.88	98.43	11	3
26.9	104.37	5.55	98.82	0.2	0.1	0.03	98.77	0.5	0.6	0.44	98.73	16	3
27.8	104.37	5.36	99.01	0.0	0.0	0.00	98.97	0.2	0	0.00	99.03	sand	1
31.8	104.37	5.1	99.27				99.27				99.27	6	2
35	104.37	5.43	98.94				98.94				98.94	sand	1
36	104.37	5.38	98.99				98.99				98.99	org	0
41.1	104.37	0.77	103.6				103.60				103.60	org	0

TR Q (cfs)= **10.7**

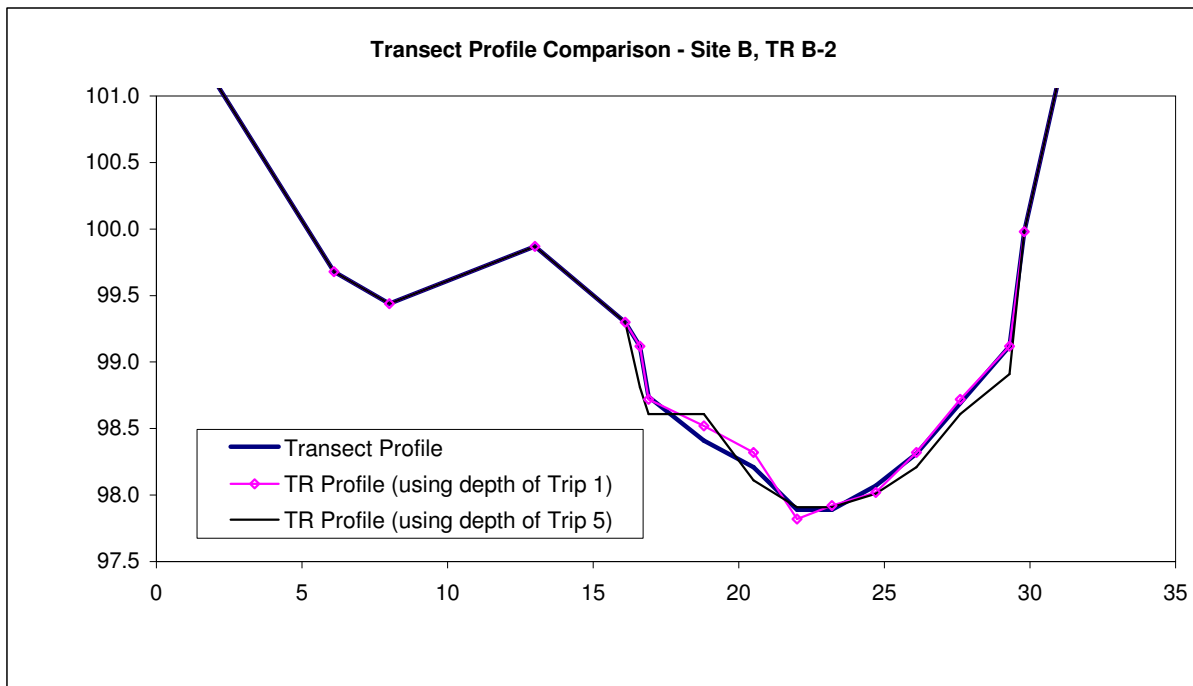
TR Q (cfs)= **24.7**



Transect profile Comparison - Site B, TR B-2

Trip 1								Trip 5					
Sta (ft)	HI (ft)	FS (ft)	Elev (ft)	Depth (ft)	Velocity (ft/s)	q (cfs)	Bed Elev (ft)	Depth (ft)	Velocity (ft/s)	q (cfs)	Bed Elev (ft)	subs	code
0	104.37	-1.36	105.73				105.73				105.73	32	3
1.3	104.37	3.01	101.36				101.36				101.36	64	4
6.1	104.37	4.69	99.68				99.68				99.68	silt	1
8	104.37	4.93	99.44				99.44				99.44	90	5
13	104.37	4.5	99.87				99.87				99.87	org	0
16.1	104.37	5.07	99.3				99.30				99.30	org	0
16.6	104.37	5.25	99.12	0.00	0.00	0.00	99.12	0.6	0	0.00	98.81	org	0
16.9	104.37	5.63	98.74	0.40	0.00	0.00	98.72	0.8	0	0.00	98.61	6	2
18.8	104.37	5.96	98.41	0.60	0.60	0.65	98.52	0.8	0.5	0.72	98.61	16	3
20.5	104.37	6.16	98.21	0.80	1.20	1.54	98.32	1.3	2	4.16	98.11	11	3
22	104.37	6.48	97.89	1.30	2.00	3.51	97.82	1.5	3.3	6.68	97.91	45	4
23.2	104.37	6.48	97.89	1.20	1.30	2.11	97.92	1.5	3.1	6.28	97.91	64	4
24.7	104.37	6.3	98.07	1.10	1.00	1.60	98.02	1.4	1.8	3.65	98.01	45	4
26.1	104.37	6.06	98.31	0.80	0.40	0.46	98.32	1.2	1	1.74	98.21	32	3
27.6	104.37	5.68	98.69	0.40	0.20	0.13	98.72	0.8	0.2	0.26	98.61	8	2
29.3	104.37	5.25	99.12	0.00	0.00	0.00	99.12	0.5	0	0.00	98.91	2	1
29.8	104.37	4.39	99.98				99.98				99.98	org	0
32.6	104.37	1.67	102.7				102.70				102.70	org	0

TR Q (cfs)= 10.0
TR Q (cfs)= 23.5

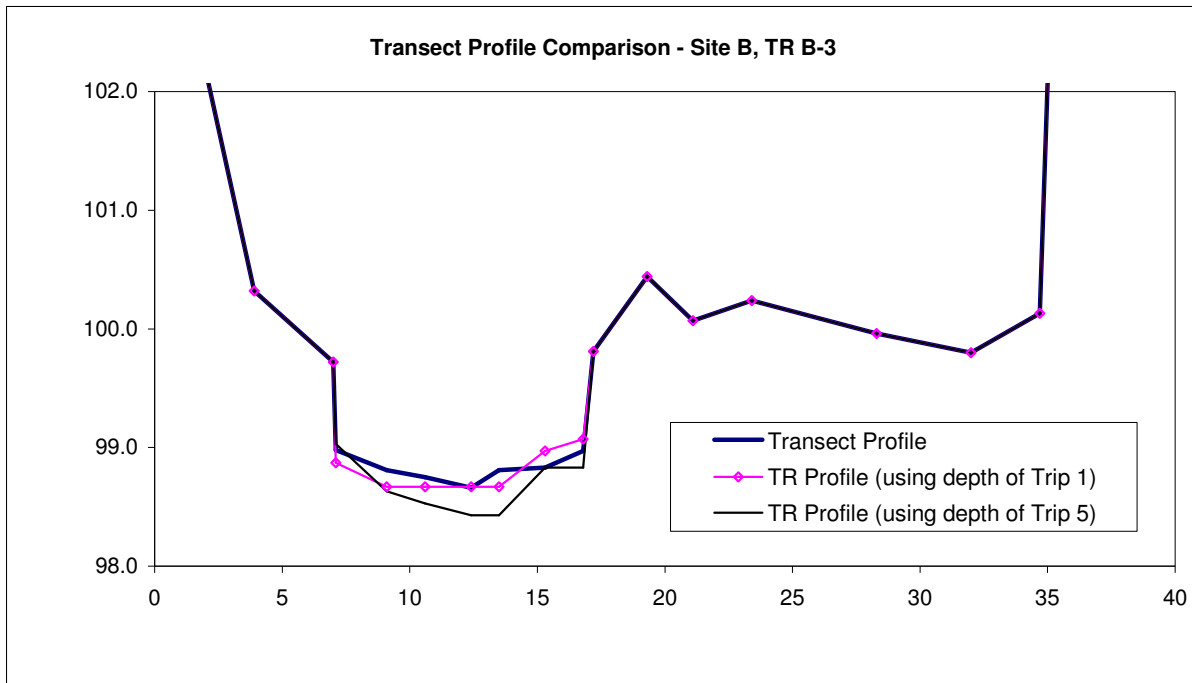


Transect profile Comparison - Site B, TR B-3

Trip 1							Trip 5						
Sta (ft)	HI (ft)	FS (ft)	Elev (ft)	Depth (ft)	Velocity (ft/s)	q (cfs)	Bed Elev (ft)	Depth (ft)	Velocity (ft/s)	q (cfs)	Bed Elev (ft)	subs	code
0	105.76	1.63	104.13				104.13				104.13	org	0
3.9	105.76	5.44	100.32				100.32				100.32	org	0
7	105.76	6.04	99.72				99.72				99.72	org	0
7.1	105.76	6.78	98.98	0.5	1.0	0.50	98.87	0.6	0.7	0.42	99.03	8	2
9.1	105.76	6.95	98.81	0.7	1.5	1.84	98.67	1	2.4	4.20	98.63	32	3
10.6	105.76	7.01	98.75	0.70	2.50	2.89	98.67	1.1	2.9	5.26	98.53	45	4
12.4	105.76	7.1	98.66	0.70	3.20	3.25	98.67	1.2	3.7	6.44	98.43	16	3
13.5	105.76	6.95	98.81	0.70	2.70	2.74	98.67	1.2	3.6	6.26	98.43	64	4
15.3	105.76	6.93	98.83	0.40	0.70	0.46	98.97	0.8	1	1.32	98.83	512	7
16.8	105.76	6.79	98.97	0.30	0.10	0.02	99.07	0.8	0	0.00	98.83	org	0
17.2	105.76	5.95	99.81				99.81				99.81	org	0
19.3	105.76	5.32	100.44				100.44				100.44	org	0
21.1	105.76	5.69	100.07				100.07				100.07	org	0
23.4	105.76	5.52	100.24				100.24				100.24	org	0
28.3	105.76	5.8	99.96				99.96				99.96	org	0
32	105.76	5.96	99.8				99.80				99.80	org	0
34.7	105.76	5.63	100.13				100.13				100.13	org	0
35.3	105.76	1.81	103.95				103.95				103.95	org	0
36.6	105.76	1.81	103.95				103.95				103.95	org	0

TR Q (cfs)= 11.70

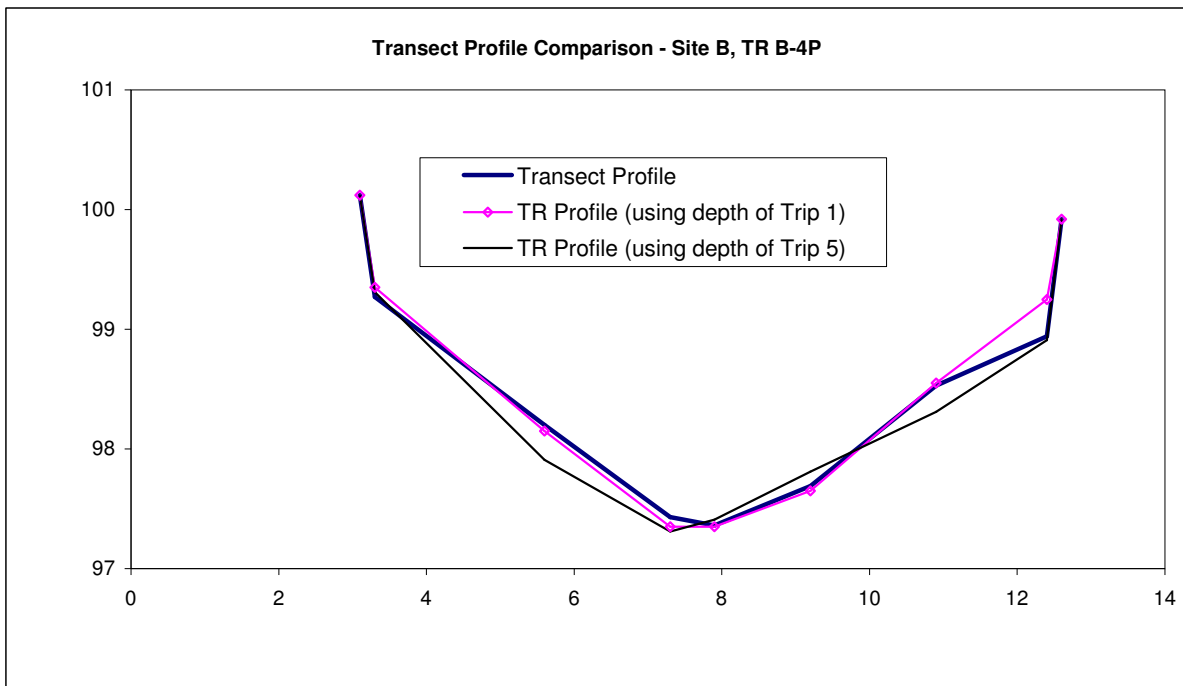
TR Q (cfs)= 23.9



Transect profile Comparison - Site B, TR B-4P

Sta (ft)	HI (ft)	Trip 1					Trip 5					subs	code
		FS (ft)	Elev (ft)	Depth (ft)	Velocity (ft/s)	q (cfs)	Bed Elev (ft)	Depth (ft)	Velocity (ft/s)	q (cfs)	Bed Elev (ft)		
3.1	105.76	5.64	100.12				100.12				100.12	org	0
3.3	105.76	6.49	99.27	0.10	0.00	0.00	99.35	0.5	-0.8	-0.46	99.31	bed	8
5.6	105.76	7.56	98.2	1.30	-0.30	-0.78	98.15	1.9	0	0.00	97.91	bed	8
7.3	105.76	8.33	97.43	2.10	0.40	0.97	97.35	2.5	4.40	12.65	97.31	16	3
7.9	105.76	8.4	97.36	2.10	1.80	3.59	97.35	2.4	3	6.84	97.41	64	4
9.2	105.76	8.07	97.69	1.80	3.40	9.18	97.65	2	3.2	9.60	97.81	64	4
10.9	105.76	7.23	98.53	0.90	0.50	0.72	98.55	1.5	0.6	1.44	98.31	16	3
12.4	105.76	6.82	98.94	0.20	0.00	0.00	99.25	0.9	-0.3	-0.20	98.91	11	3
12.6	105.76	5.84	99.92				99.92				99.92	org	0

TR Q (cfs)= **13.7**
 TR Q (cfs)= **29.9**

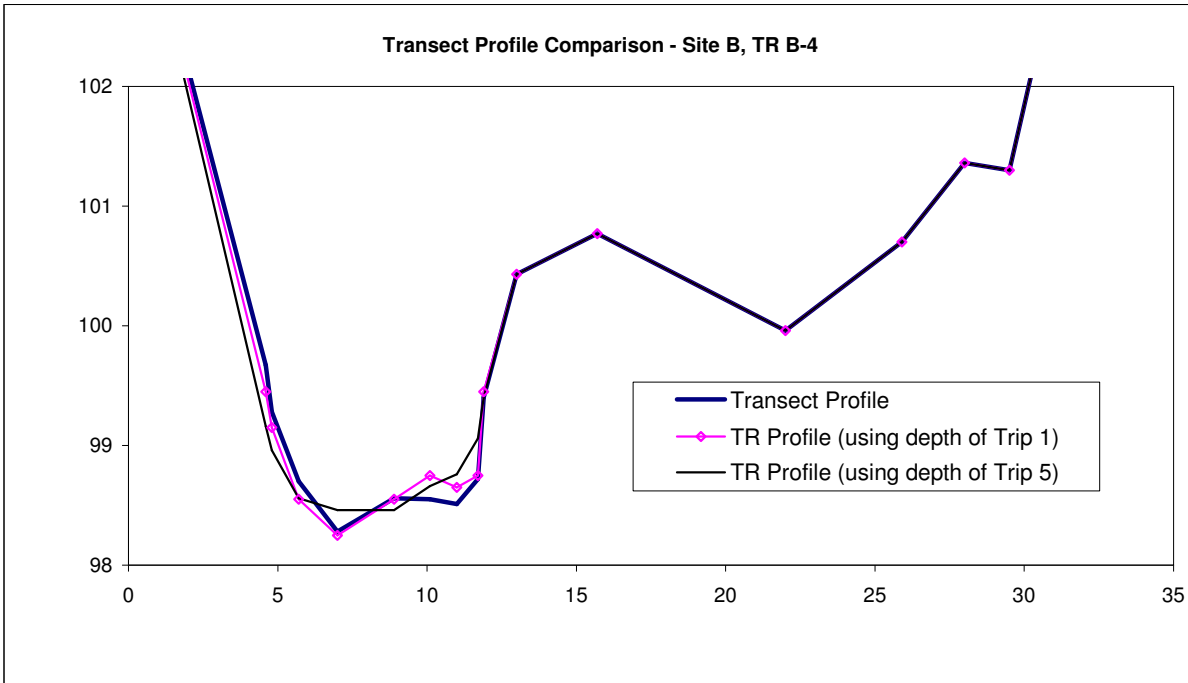


Transect profile Comparison - Site B, TR B-4

Sta (ft)	HI (ft)	FS (ft)	Trip 1				Trip 5				subs	code	
			Elev (ft)	Depth (ft)	Velocity (ft/s)	q (cfs)	Bed Elev (ft)	Depth (ft)	Velocity (ft/s)	q (cfs)			Bed Elev (ft)
0	105.76	1.71	104.05				104.05				104.05	org	0
4.6	105.76	6.09	99.67	0.00	0.00	0.00	99.45	0.7	1.9	0.53	99.16	org	0
4.8	105.76	6.48	99.28	0.30	0.90	0.15	99.15	0.9	2.5	1.24	98.96	bed	8
5.7	105.76	7.06	98.7	0.90	1.80	1.78	98.55	1.3	5	7.15	98.56	bed	8
7	105.76	7.48	98.28	1.20	3.00	5.76	98.25	1.4	3.6	8.06	98.46	bed	8
8.9	105.76	7.2	98.56	0.90	2.80	3.91	98.55	1.4	2.5	5.43	98.46	16	3
10.1	105.76	7.21	98.55	0.70	2.50	1.84	98.75	1.2	0.5	0.63	98.66	4	2
11	105.76	7.25	98.51	0.80	0.50	0.32	98.65	1.1	0	0.00	98.76	45	4
11.7	105.76	7.04	98.72	0.70	0.00	0.00	98.75	0.8	0	0.00	99.06	32	3
11.9	105.76	6.36	99.4	0.00	0.00	0.00	99.45				99.40	org	0
13	105.76	5.33	100.43				100.43				100.43	org	0
15.7	105.76	4.99	100.77				100.77				100.77	org	0
22	105.76	5.8	99.96				99.96				99.96	org	0
25.9	105.76	5.06	100.7				100.70				100.70	org	0
28	105.76	4.4	101.36				101.36				101.36	org	0
29.5	105.76	4.46	101.3				101.30				101.30	org	0
32.5	105.76	1.19	104.57				104.57				104.57	org	0

TR Q (cfs)= **13.8**

TR Q (cfs)= **23.0**



Reach: Stetson Reach
Stream: Cooper Lake
Site: Site B
Habitat Type: Pool

(1) Field Data

- (a) Field data were collected in five trips between 5/2003 and 5/2004.
- (b) Flow data were only collected in Trip 1 on 5/10/2003 and in Trip 5 on 5/6/2004.
- (c) WSE data were collected in all five trips.
- (d) Because no flows were measured for Trip 2 to Trip 4, flows of these three trips were estimated. The estimated flows and the measured WSEs and flows are plotted together in worksheet "Measured hydraulics". The graph "Site B - WSE vs Flow" showed inconsistent relationships between flows and WSEs, which indicated errors in estimated flows and/or surveyed WSEs.

(2) WSE Calibration

WSE: Average WSE is used as the representative transect WSE.

Discharge: Trip 1 Q = Average discharge of TR B-1 and TR B-3. TR B-2, TR B-4P, and TR B-4 were considered as outliers.
 Trip 5 Q = Average discharge of TR B-1, TR B-2, and TR B-3. TR B-4P and TR B-4 were considered as outliers.

Slope: Use Trip 5's average WSE slope (from TR B-1 to TR B-5) = 1.05%

SZF:

TR	channel Invert (ft)		SZF (ft)
	Trip 1	Trip 5	
TR B-1	98.27	98.13	98.27
TR B-2	98.27	98.13	98.27
TR B-3	98.27	98.13	98.27
TR B-4P	98.27	98.13	98.27
TR B-4	98.27	98.13	98.27

Note: Invert is the lowest elevation of the transect.

SZF of upstream transect must be equal or greater than the SZF of downstream transect.

Level Loop and Headpins:

Date	Trip	BM-A	BM-B
5/10/2003	1	100.00	97.81
6/25/2003	2		97.81
9/19/2003	3		97.81
10/10/2003	4	100.00	97.82
5/6/2004	5		97.81

- (b.1) There were no level loop surveys performed in 6/25/03, 9/19/03, and 5/6/04 trips, and BM-B elevation from the previous survey was used for WSE calculation.
- (b.2) To ensure the accuracy of WSE survey, it is recommended a headpin installed for each transect when setting up the transects and a complete level loop be performed during each site visit.
 A recommended complete level loop would include moving the level for a distance to a new location after all HP/BM are surveyed. Then reshoot *all* pins to check if pin elevations are consistent.

(c) Control pins between 5/03 and 10/03 should be stable, but it is not able to determine if the pins were still stable in Trip 5.

Calibration Flow:

This site has five sets of measured WSEs and two sets of velocity-depth surveys. The data showed inconsistent flow-WSE relationship, as shown in worksheet "Measured hydraulics". Due to inconsistent flow ~ WSE relationship, it was decided to only use flows taken in Trip 1 and Trip 5 for calibration. Estimated flows and measured WSEs of Trip 2 to Trip 4 will be not be included for calibration, and will be used for comparison only

WSE Calibration Method:

- (1) MANSQ was used to calibrate WSE for TR B-1.
- (2) WSP was selected to calibrate WSEs for TR B-2 to TR B-5. MANSQ results of TR B-1 was used as the boundary condition for WSP.

WSE Calibration Result:

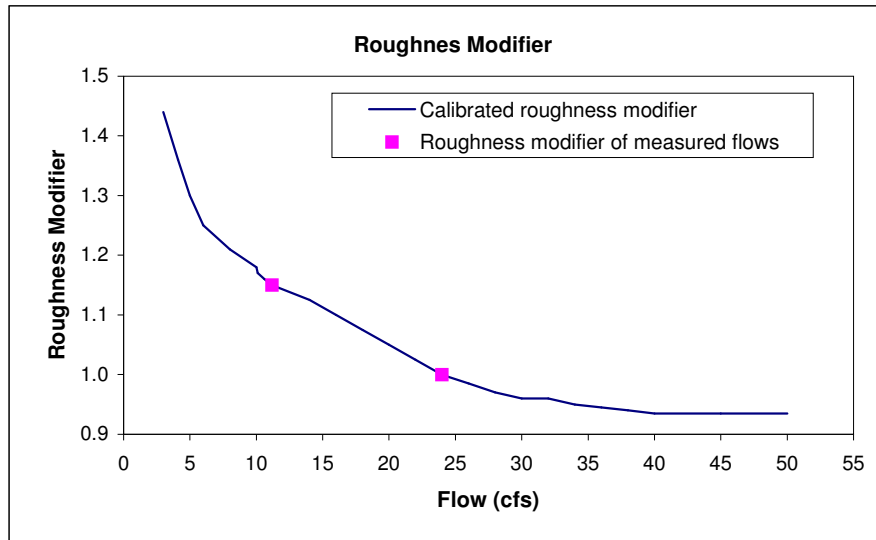
Trip	Survey Date	Q (cfs)	Modeling WSE(ft)					Calibrated WSE(ft)					Δ WSE (ft, measured-calib.)				
			TR-1	TR-2	TR-3	TR-4	TR-5	TR-1	TR-2	TR-3	TR-4	TR-5	TR-1	TR-2	TR-3	TR-4	TR-5
1	5/10/2003	11.2	98.97	99.12	99.37	99.45	99.45	98.96	99.11	99.32	99.42	99.48	0.01	0.01	0.05	0.03	-0.03
2	6/25/2003	10.6	98.81	98.87	99.13	99.17	99.17	98.94	99.09	99.30	99.40	99.45					
3	9/19/2003	4.1	98.79	98.82	99.01	99.09	99.09	98.75	98.84	99.04	99.08	99.14					
4	10/10/2003	10.1	98.89	99.00	99.26	99.29	99.29	98.93	99.07	99.29	99.38	99.43					
5	5/6/2004	24.0	99.23	99.41	99.63	99.81	99.86	99.23	99.41	99.64	99.80	99.84	0.00	0.00	-0.01	0.01	0.02

Note: (a) WSEs of Trip 2 to Trip 4 are listed in the table only for comparison, not for calibration error calculation.

WSP Roughness Modifier

Flow	RAF
3	1.44
4.1	1.36
5	1.30
6	1.25
8	1.21
10	1.18
10.1	1.17
10.6	1.16
11.2	1.15
14	1.13
16	1.10
18	1.08
20	1.05
22	1.02
24	1.00
26.0	0.99
28	0.97
30	0.96
32	0.96
34	0.95
36	0.94

(*) The table on the left lists the Roughness Modifier used in the WSE calibration.



38	0.94
40	0.94
45	0.94
50	0.94

(2) Calibrated Hydraulics

- (a) For MANSQ WSE calibration, $\beta_{TR1}=0.33$ and Trip 5 flow (24cfs) was the calibration flow.
- (b) For velocity calibration, Trip 5 velocity profiles were used as the templates for calibration.
- (c) Hydraulic calibration results are summarized in worksheets cTR B-y, where y=1, 2, 3, 4P, and 4
- (d) WSE Calibration errors for all transects are within acceptable range.
- (e) TR B-1, TR B-2, TR B-3, TR B-4P, and TR B-4 : WSE, Froude number (Fr), Cross-sectional Manning's n, transect average velocity (V), wetted perimeter, and Velocity Adjustment Factor (VAF) all are acceptable and within reasonable ranges.
- (f) Comparison of modeling and calibrated WSEs are shown in worksheet "SimWSE".
- (g) PHABSIM model did not calculate wetted perimeter and Manning's, both of which were calculated outside the model.

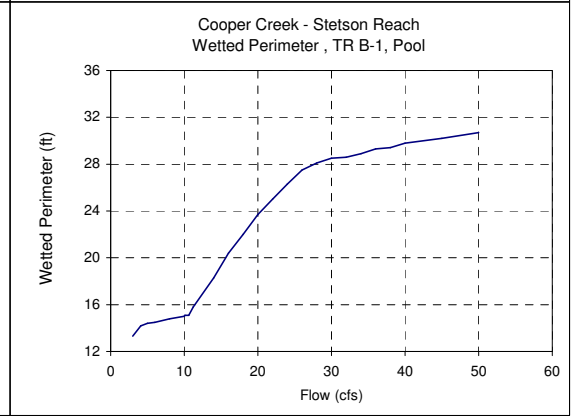
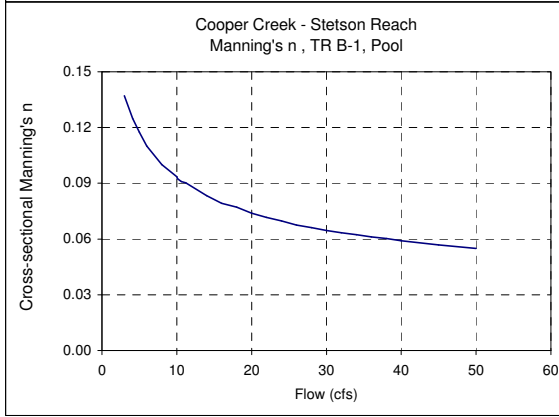
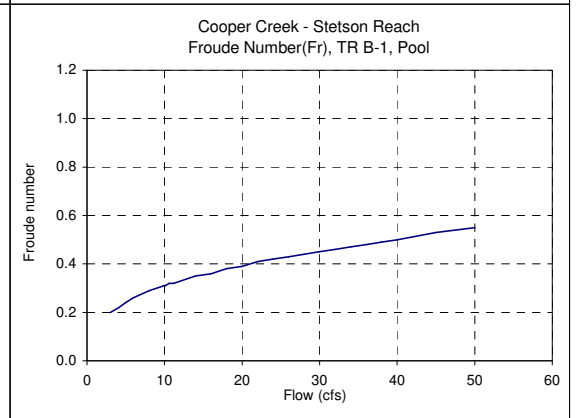
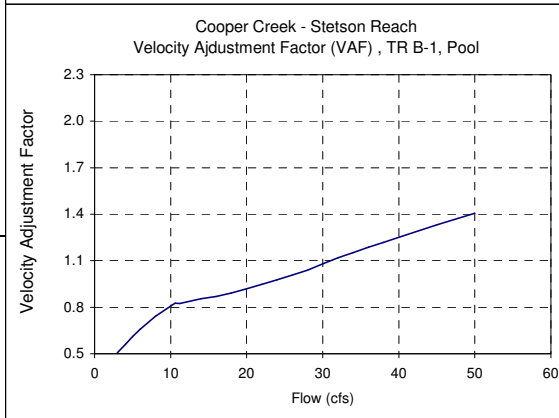
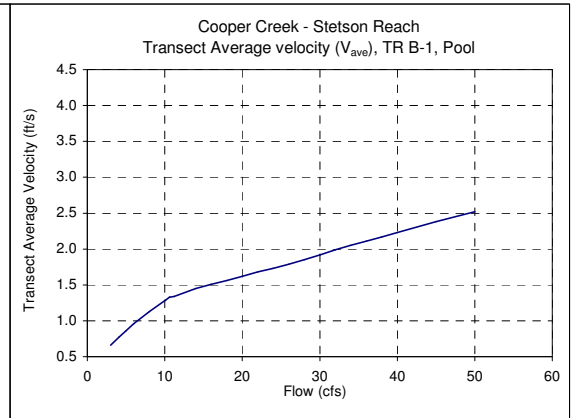
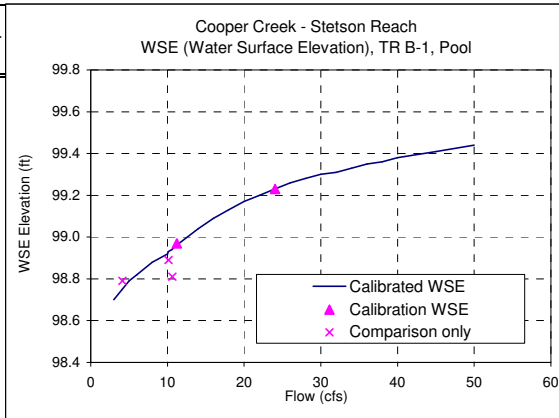
(3) Velocity calibration

- TR B-1: Trip 5's velocity profile was used as template for calibration.
Slightly adjusted Manning's n values calculated by PHABSIM to make the simulated velocity near the water edge more reasonable.
- TR B-2: Trip 5's velocity profile was used as template for calibration.
Slightly adjusted Manning's n values calculated by PHABSIM to make the simulated velocity near the water edge more reasonable.
- TR B-3: Trip 5's velocity profile was used as template for calibration.
Slightly adjusted Manning's n values calculated by PHABSIM to make the simulated velocity near the water edge more reasonable.
- TR B-4: Trip 5's velocity profile was used as template for calibration.
Slightly adjusted Manning's n values calculated by PHABSIM to make the simulated velocity near the water edge more reasonable.
- TR B-5: Trip 5's velocity profile was used as template for calibration.
Slightly adjusted Manning's n values calculated by PHABSIM to make the simulated velocity near the water edge more reasonable.

The comparison of simulated and measured velocity profiles are included in worksheet "VelComp", which shows the simulated profiles resemble the measured ones.

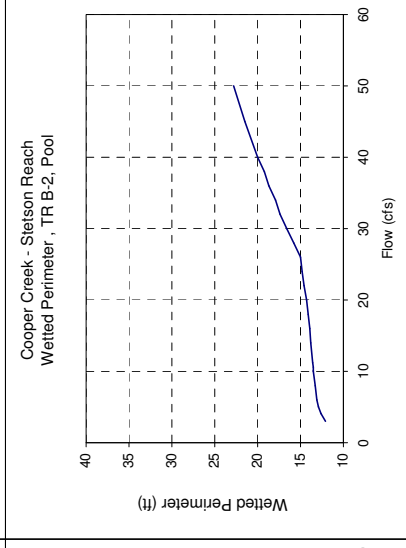
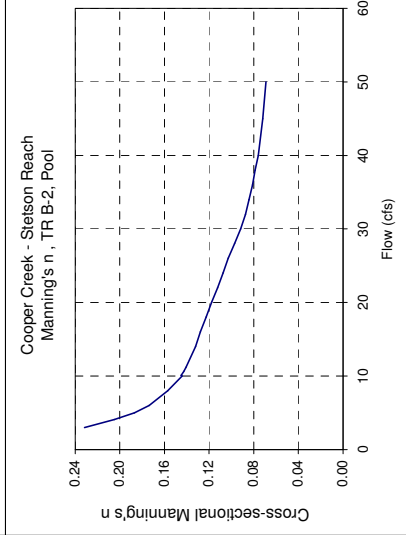
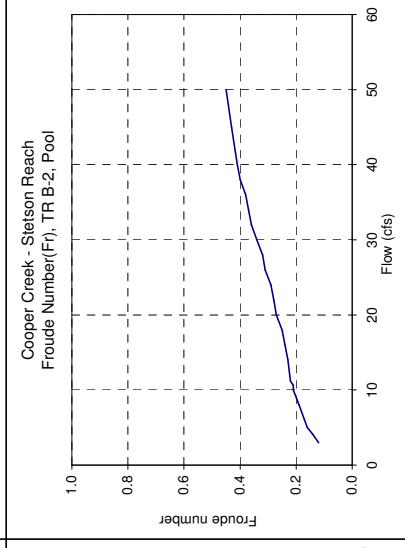
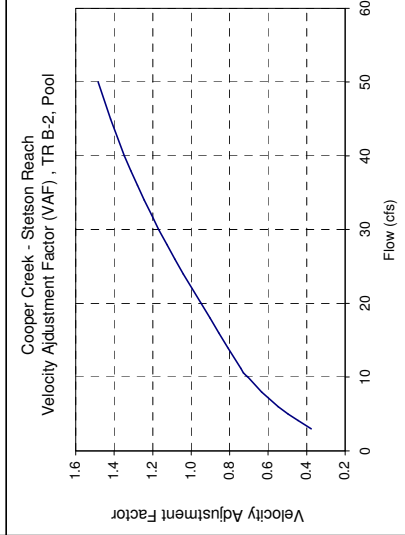
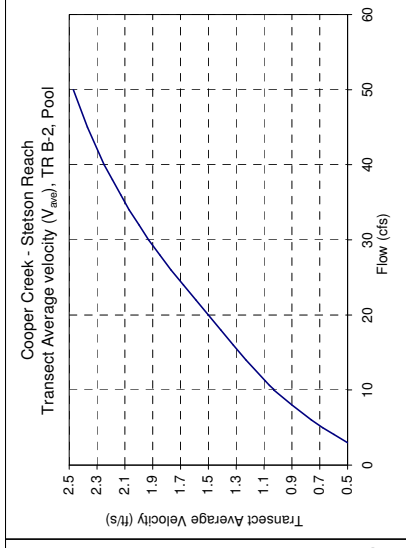
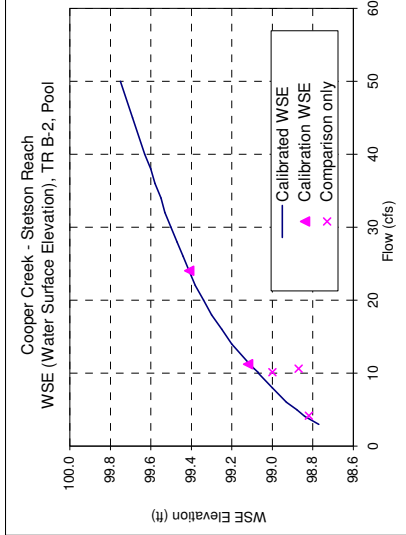
Reach: **Stetson Reach**
 Stream: **Cooper Lake**
 Transect: **B-1**
 Habitat: **Pool**

Modeling		Simul. Q (cfs)	Cal'd					wettered	
Q (cfs)	WSE (ft)		Q (cfs)	WSE (ft)	VAF	Froude Number	Velocity (ft/s)	Manning's n	perimeter (ft)
11.2	98.97	3	98.70	0.51	0.20	0.66	0.137	13.3	
10.6	98.81	4.1	98.75	0.56	0.22	0.77	0.125	14.2	
4.1	98.79	5	98.79	0.61	0.24	0.86	0.118	14.4	
10.1	98.89	6	98.82	0.66	0.26	0.96	0.110	14.5	
24.0	99.23	8	98.88	0.74	0.29	1.13	0.100	14.8	
		10	98.92	0.81	0.31	1.28	0.094	15	
		10.1	98.93	0.81	0.31	1.29	0.093	15.1	
		10.6	98.94	0.83	0.32	1.33	0.091	15.1	
		11.2	98.96	0.82	0.32	1.34	0.090	15.8	
		14	99.04	0.85	0.35	1.45	0.083	18.3	
		16	99.09	0.87	0.36	1.51	0.079	20.4	
		18	99.13	0.89	0.38	1.56	0.077	22	
		20	99.17	0.92	0.39	1.62	0.074	23.7	
		22	99.20	0.95	0.41	1.68	0.072	25	
		24	99.23	0.98	0.42	1.73	0.070	26.3	
		26	99.26	1.01	0.43	1.79	0.068	27.5	
		28	99.28	1.04	0.44	1.85	0.066	28.1	
		30	99.30	1.08	0.45	1.92	0.065	28.5	
		32	99.31	1.12	0.46	1.99	0.063	28.6	
		34	99.33	1.15	0.47	2.05	0.062	28.9	
		36	99.35	1.19	0.48	2.11	0.061	29.3	
		38	99.36	1.22	0.49	2.17	0.060	29.4	
		40	99.38	1.25	0.50	2.23	0.059	29.8	
		45	99.41	1.33	0.53	2.38	0.057	30.2	
		50	99.44	1.41	0.55	2.52	0.055	30.7	



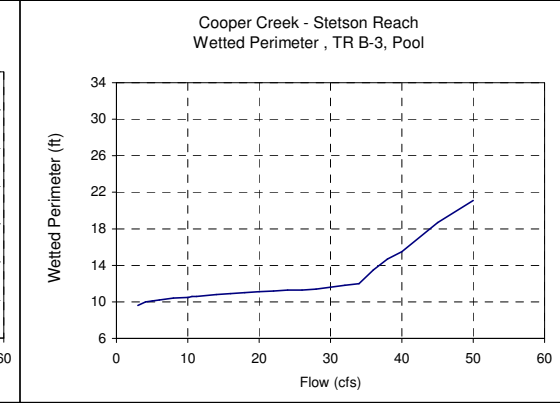
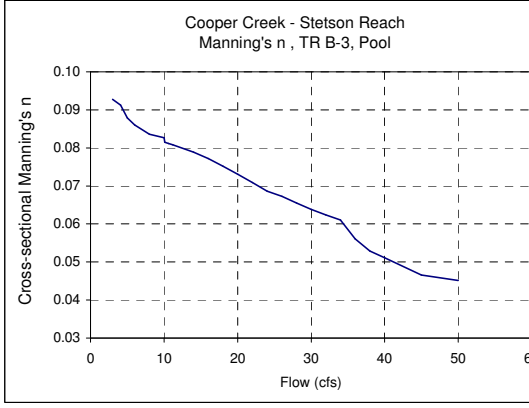
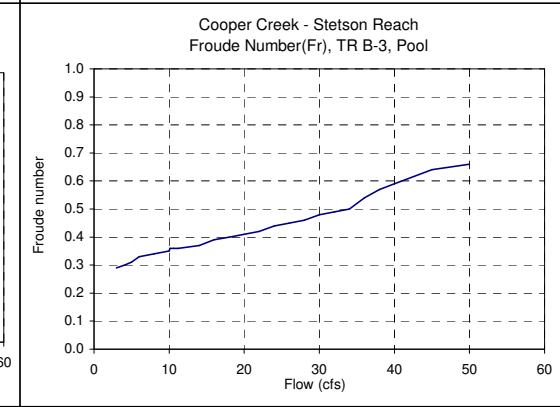
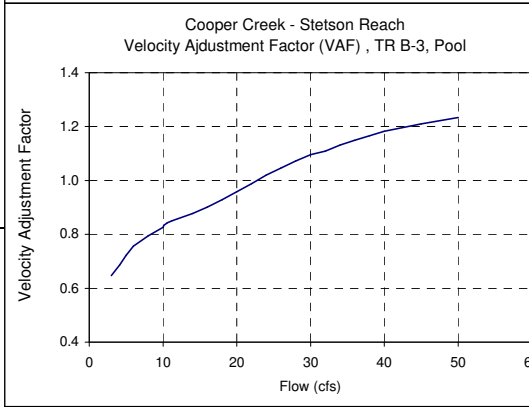
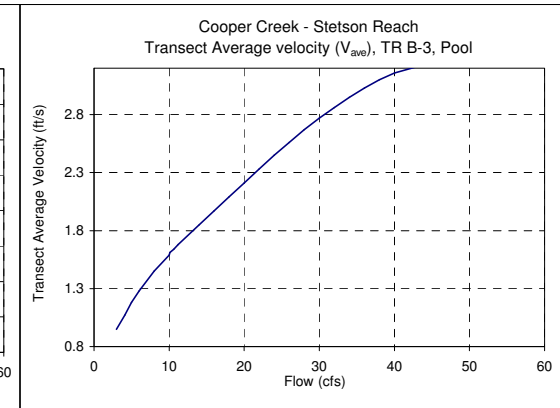
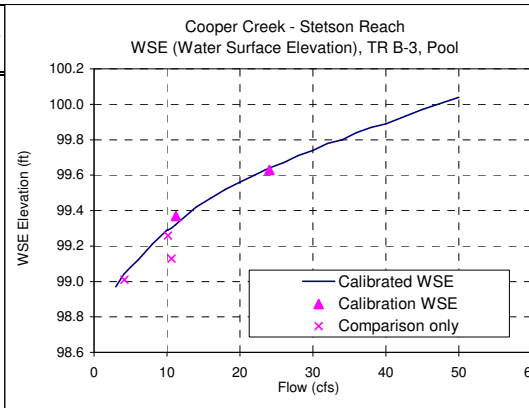
Reach: **Stetson Reach**
 Stream: **Cooper Lake**
 Transect: **B-2**
 Habitat: **Pool**

Modeling		Simul. Q (cfs)	Cal'd WSE (ft)	VAF	Froude Number	Velocity (ft/s)	Manning's n	wetted perimeter (ft)
Q (cfs)	WSE (ft)							
11.2	99.12	3	98.77	0.38	0.12	0.50	0.232	12.1
10.6	98.87	4.1	98.84	0.44	0.14	0.60	0.205	12.6
4.1	98.82	5	98.88	0.50	0.16	0.68	0.187	12.9
10.1	99.00	6	98.93	0.55	0.17	0.76	0.174	13.1
24.0	99.41	8	99.00	0.63	0.19	0.90	0.157	13.3
		10	99.07	0.71	0.21	1.03	0.144	13.5
		10.1	99.07	0.71	0.21	1.03	0.145	13.5
		10.6	99.09	0.73	0.21	1.06	0.143	13.5
		11.2	99.11	0.74	0.22	1.09	0.141	13.6
		14	99.20	0.81	0.23	1.23	0.132	13.8
		16	99.25	0.86	0.24	1.32	0.128	13.9
		18	99.30	0.90	0.25	1.41	0.123	14.1
		20	99.34	0.95	0.27	1.50	0.118	14.3
		22	99.38	1.00	0.28	1.59	0.112	14.6
		24	99.41	1.04	0.29	1.68	0.108	14.8
		26	99.44	1.08	0.31	1.77	0.103	15
		28	99.47	1.13	0.32	1.85	0.097	15.8
		30	99.50	1.17	0.34	1.93	0.092	16.6
		32	99.53	1.21	0.36	2.00	0.087	17.4
		34	99.55	1.24	0.37	2.07	0.084	17.9
		36	99.58	1.28	0.38	2.13	0.081	18.7
		38	99.60	1.31	0.40	2.19	0.079	19.2
		40	99.63	1.35	0.41	2.25	0.076	20
		45	99.69	1.42	0.43	2.37	0.072	21.5
		50	99.75	1.48	0.45	2.47	0.069	22.8



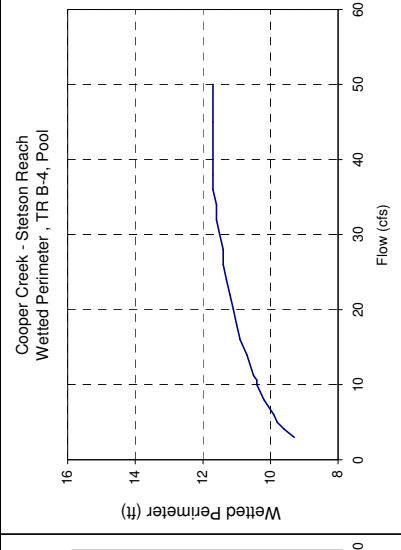
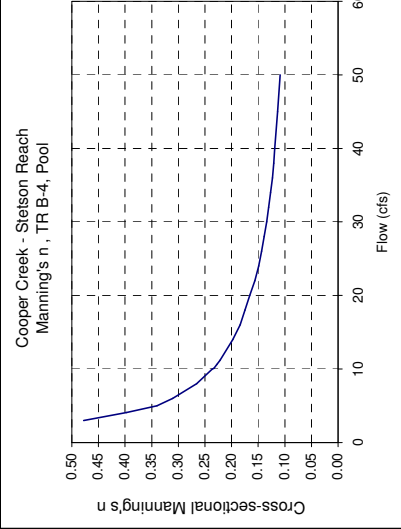
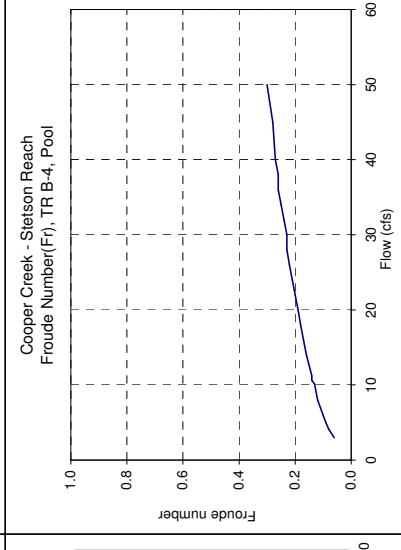
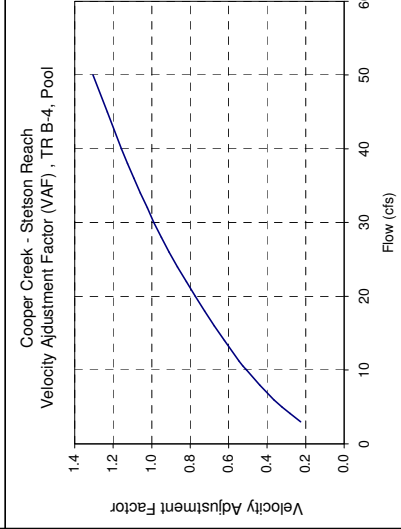
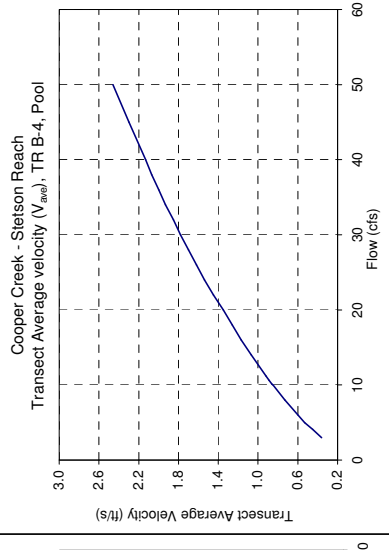
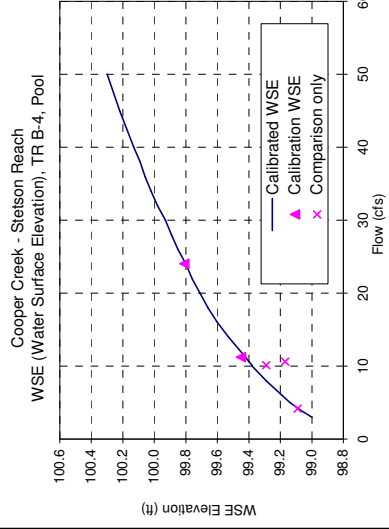
Reach: Stetson Reach
 Stream: Cooper Lake
 Transect: B-3
 Habitat: Pool

Modeling		Simul.	Cal'd					wetted
Q	WSE	Q	WSE	VAF	Froude	Velocity	Manning's	perimeter
(cfs)	(ft)	(cfs)	(ft)	Number	Number	(ft/s)	n	(ft)
11.2	99.37	3	98.97	0.65	0.29	0.95	0.093	9.6
10.6	99.13	4.1	99.04	0.69	0.30	1.07	0.091	10
4.1	99.01	5	99.08	0.72	0.31	1.18	0.088	10.1
10.1	99.26	6	99.12	0.76	0.33	1.28	0.086	10.2
24.0	99.63	8	99.21	0.79	0.34	1.45	0.084	10.4
		10	99.29	0.83	0.35	1.59	0.083	10.5
		10.1	99.29	0.83	0.36	1.61	0.082	10.5
		10.6	99.30	0.84	0.36	1.64	0.081	10.6
		11.2	99.32	0.85	0.36	1.68	0.081	10.6
		14	99.42	0.88	0.37	1.85	0.079	10.8
		16	99.47	0.90	0.39	1.97	0.077	10.9
		18	99.52	0.93	0.40	2.09	0.075	11
		20	99.56	0.96	0.41	2.21	0.073	11.1
		22	99.60	0.99	0.42	2.33	0.071	11.2
		24	99.64	1.02	0.44	2.45	0.069	11.3
		26	99.67	1.05	0.45	2.56	0.067	11.3
		28	99.71	1.07	0.46	2.67	0.066	11.4
		30	99.74	1.10	0.48	2.77	0.064	11.6
		32	99.78	1.11	0.49	2.86	0.062	11.8
		34	99.80	1.13	0.50	2.95	0.061	12
		36	99.84	1.15	0.54	3.03	0.056	13.5
		38	99.87	1.17	0.57	3.10	0.053	14.7
		40	99.89	1.18	0.59	3.16	0.051	15.5
		45	99.97	1.21	0.64	3.25	0.047	18.7
		50	100.04	1.23	0.66	3.29	0.045	21.1



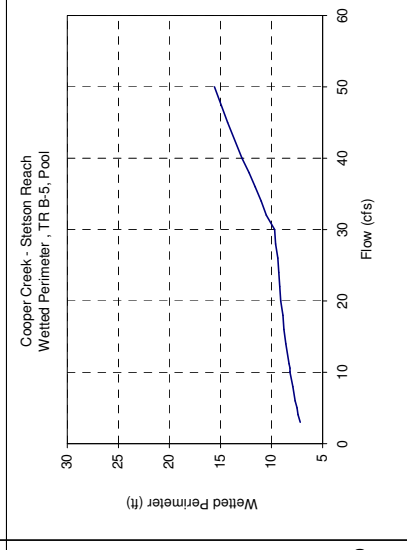
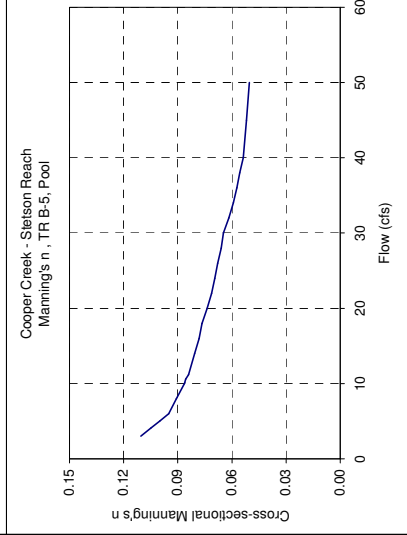
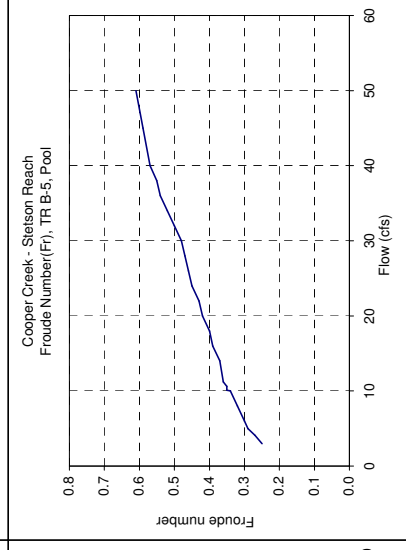
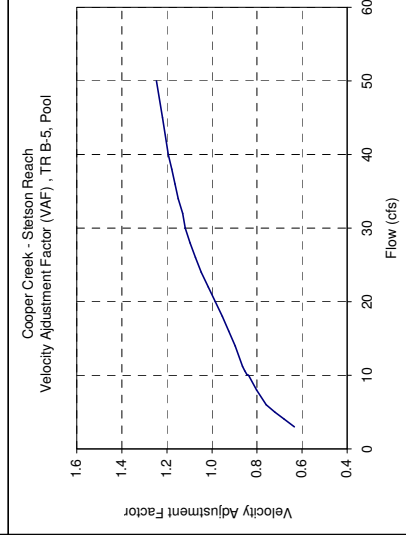
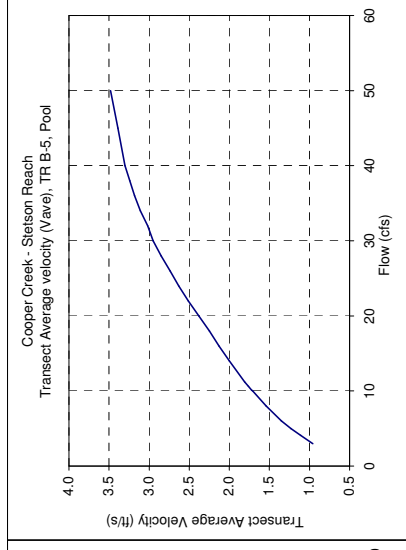
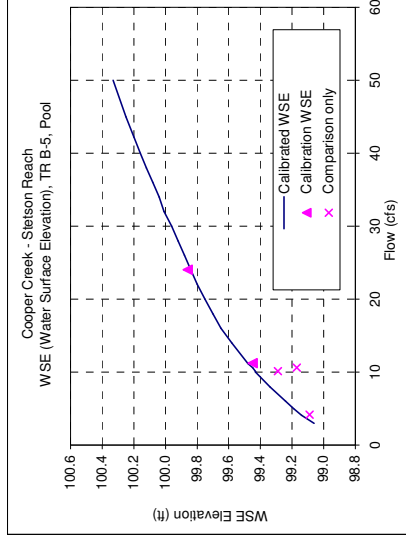
Reach **Stetson Reach**
 Stream **Cooper Lake**
 Transect : **B-4P**
 Habitat: **Pool**

Modeling Q (cfs)	WSE (ft)	Simul. Q (cfs)	Cal'd WSE (ft)	WAF	Froude Number	Velocity (ft/s)	Manning's n	wetted perimeter (ft)
11.2	99.45	3	99.00	0.23	0.06	0.36	0.478	9.3
10.6	99.17	4.1	99.08	0.28	0.08	0.45	0.397	9.6
4.1	99.09	5	99.14	0.32	0.09	0.53	0.340	9.8
10.1	99.29	6	99.19	0.37	0.10	0.60	0.310	9.9
24.0	99.81	8	99.29	0.44	0.12	0.73	0.266	10.2
		10	99.38	0.51	0.13	0.85	0.236	10.4
		10.1	99.38	0.51	0.13	0.86	0.233	10.4
		10.6	99.40	0.53	0.14	0.89	0.228	10.4
		11.2	99.42	0.55	0.14	0.92	0.222	10.5
		14	99.53	0.62	0.16	1.07	0.198	10.7
		16	99.60	0.67	0.17	1.17	0.184	10.9
		18	99.66	0.72	0.18	1.26	0.175	11
		20	99.71	0.77	0.19	1.35	0.166	11.1
		22	99.76	0.82	0.20	1.45	0.156	11.2
		24	99.80	0.87	0.21	1.54	0.149	11.3
		26	99.85	0.91	0.22	1.62	0.143	11.4
		28	99.89	0.95	0.23	1.70	0.139	11.4
		30	99.93	0.99	0.23	1.78	0.134	11.5
		32	99.98	1.02	0.24	1.85	0.131	11.6
		34	100.02	1.06	0.25	1.93	0.127	11.6
		36	100.06	1.09	0.26	2.00	0.123	11.7
		38	100.09	1.12	0.26	2.07	0.121	11.7
		40	100.13	1.16	0.27	2.13	0.119	11.7
		45	100.22	1.23	0.28	2.30	0.113	11.7
		50	100.30	1.30	0.30	2.46	0.109	11.7

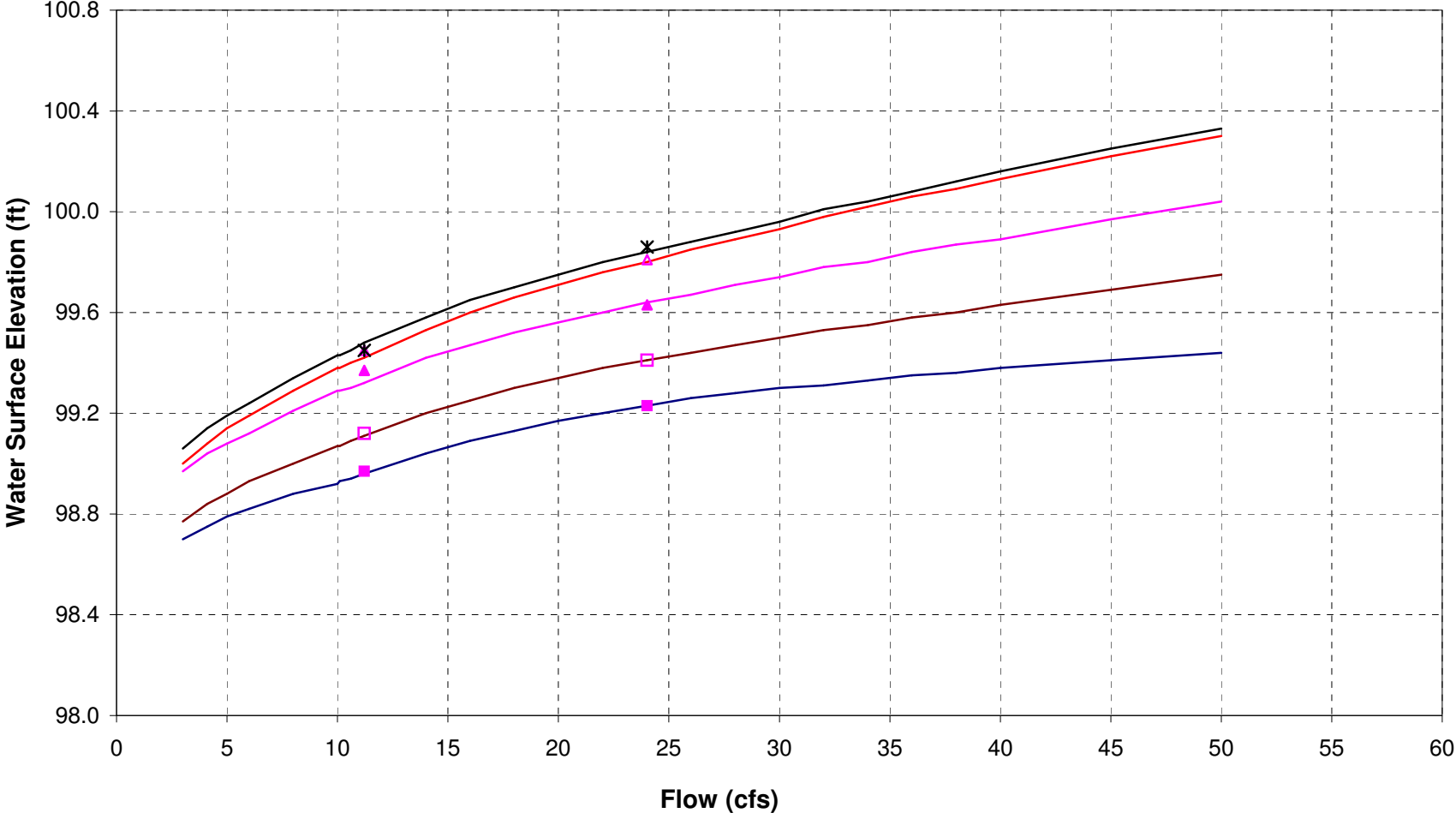


Reach **Stetson Reach**
 Stream **Cooper Lake**
 Transect : **B-4**
 Habitat: **Pool**

Modeling Q (cfs)	WSE (ft)	Simul. Q (cfs)	Cal'd WSE (ft)	WSE Velocity (ft/s)	Froude Number	Velocity (ft/s)	Manning's n	wetted perimeter (ft)
11.2	99.45	3	99.06	0.63	0.25	0.96	0.110	7.2
10.6	99.17	4.1	99.14	0.68	0.27	1.11	0.105	7.4
4.1	99.09	5	99.19	0.72	0.29	1.23	0.100	7.5
10.1	99.29	6	99.24	0.76	0.30	1.35	0.095	7.7
24.0	99.86	8	99.34	0.80	0.32	1.54	0.091	7.9
		10	99.43	0.84	0.34	1.71	0.086	8.2
		10.1	99.43	0.84	0.35	1.72	0.086	8.2
		10.6	99.45	0.85	0.35	1.76	0.086	8.2
		11.2	99.48	0.86	0.36	1.81	0.084	8.3
		14	99.58	0.90	0.37	2.00	0.081	8.6
		16	99.65	0.92	0.39	2.13	0.078	8.8
		18	99.70	0.95	0.40	2.25	0.077	8.9
		20	99.75	0.99	0.42	2.38	0.074	9.1
		22	99.80	1.02	0.43	2.51	0.071	9.2
		24	99.84	1.05	0.45	2.63	0.069	9.3
		26	99.88	1.07	0.46	2.74	0.068	9.4
		28	99.92	1.10	0.47	2.85	0.066	9.6
		30	99.96	1.12	0.48	2.95	0.065	9.7
		32	100.01	1.13	0.50	3.02	0.062	10.5
		34	100.04	1.15	0.52	3.11	0.059	11
		36	100.08	1.16	0.54	3.18	0.057	11.6
		38	100.12	1.18	0.55	3.24	0.056	12.2
		40	100.16	1.19	0.57	3.30	0.054	12.9
		45	100.25	1.22	0.59	3.39	0.052	14.3
		50	100.33	1.25	0.61	3.48	0.050	15.6

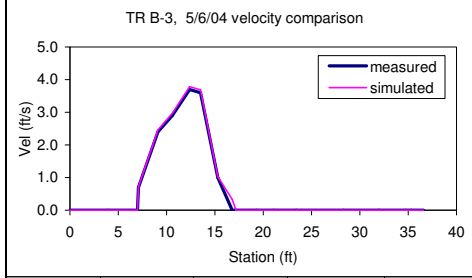
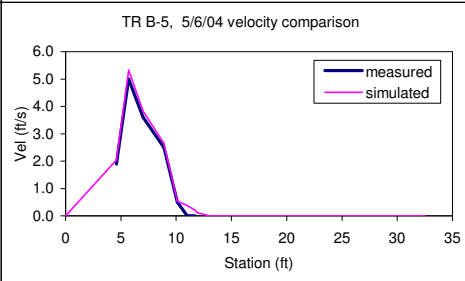
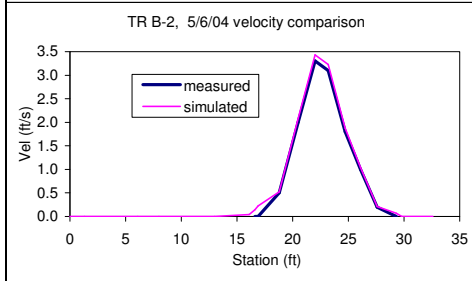
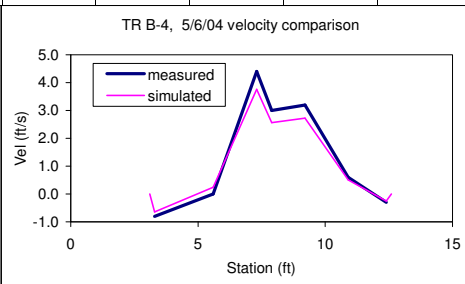
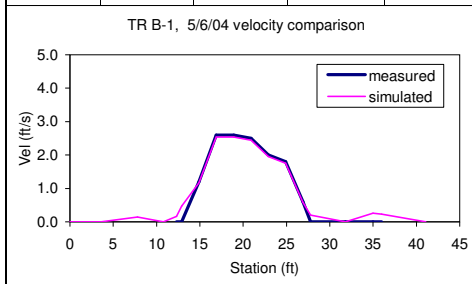


**Cooper Creek - Stetson Reach, Site B
Comparison of Modeling and Simulated WSEs**



Reach: Stetson Reach
Stream: Cooper Lake
Habitat: Pool
CalibrationFlow: 5/6/04 (Q=24cfs)

Comparison of Measured and Simulated Velocity Profile



TR B-1			TR B-2			TR B-3			TR B-4P			TR B-5		
Sta	meas.	simul.	Sta	meas.	simul.	Sta	meas.	simul.	Sta	meas.	simul.	Sta	meas.	simul.
0.0		0.00	0.0		0.00	0.0	0.00	0.00	3.1		0.00	0.0		0.00
3.6		0.00	1.3		0.00	3.9	0.00	0.00	3.3	-0.80	-0.64	4.6	1.90	2.05
7.8		0.14	6.1		0.00	7.0	0.00	0.00	5.6	0.00	0.24	4.8	2.50	2.68
10.8		0.00	8.0		0.00	7.1	0.70	0.72	7.3	4.40	3.75	5.7	5.00	5.32
12.3	0.00	0.16	13.0		0.00	9.1	2.40	2.46	7.9	3.00	2.56	7.0	3.60	3.83
12.9	0.00	0.47	16.1		0.04	10.6	2.90	2.97	9.2	3.20	2.72	8.9	2.50	2.66
14.9	1.20	1.17	16.6	0.00	0.14	12.4	3.70	3.79	10.9	0.60	0.51	10.1	0.50	0.53
16.9	2.60	2.54	16.9	0.00	0.23	13.5	3.60	3.69	12.4	-0.30	-0.25	11.0	0.00	0.37
18.9	2.60	2.54	18.8	0.50	0.52	15.3	1.00	1.03	12.6		0.00	11.7	0.00	0.21
20.9	2.50	2.44	20.5	2.00	2.08	16.8	0.00	0.34				11.9		0.12
22.9	2.00	1.95	22.0	3.30	3.43	17.2	0.00	0.00				13.0		0.00
24.9	1.80	1.76	23.2	3.10	3.23	19.3	0.00	0.00				15.7		0.00
26.9	0.60	0.59	24.7	1.80	1.87	21.1	0.00	0.00				22.0		0.00
27.8	0.00	0.20	26.1	1.00	1.04	23.4	0.00	0.00				25.9		0.00
31.8	0.00	0.00	27.6	0.20	0.21	28.3	0.00	0.00				28.0		0.00
35.0	0.00	0.26	29.3	0.00	0.07	32.0	0.00	0.00				29.5		0.00
36.0	0.00	0.23	29.8		0.00	34.7	0.00	0.00				32.5		0.00
41.1		0.00	32.6		0.00	35.3	0.00	0.00						
						36.6	0.00	0.00						