

Table 1-1. Tidal Conditions

Tidal Datum	Elevation (MLLW, feet)
Highest Observed Water Level (10/15/1947)	10.902
Mean Higher High Water (MHHW)	7.503
Mean High Water (MHW)	7.133
North American Vertical Datum-1988 (NAVD)	4.052
Mean Sea Level (MSL)	3.822
Mean Tide Level (MTL)	3.671
Mean Low Water (MLW)	0.217
Mean Lower Low Water (MLLW)	0.000
Lowest Observed Water Level (03/20/1936)	-4.596

Table 4-1. Convergence Test Model Runs

Description	Designation	Resolution	Scale	
			Longitudinal	Latitudinal
<u>Front River Grids</u>				
Base Grid	5W	Medium	200 m	5 cells
1/2 dX	5W HX	Coarse	400 m	5 cells
2 dX	5W DX	Fine	100 m	5 cells
3 wide	3W	Coarse Xsect	200 m	3 cells
7 wide	7W	Fine Xsect	200 m	7 cells
<u>Back River Grids</u>				
Base Grid	2W	Medium	200 m	2 cells
Fine Grid	4W	Fine	200 m	4 cells

Table 4-2. Convergence Test Results for Front River

		Medium - Coarse		Fine - Medium	
		FtJack	PtWent	FtJack	PtWent
Elevation – lateral	mean%	0.0%	0.0%	0.0%	0.0%
	max %	0.0%	0.0%	0.0%	0.0%
Elevation – longitudinal	mean%	-0.1%	0.1%	0.0%	0.0%
	max %	0.6%	0.5%	0.1%	0.2%
Currents – lateral	mean%	0.0%	0.0%	0.0%	0.0%
	max %	0.0%	0.1%	0.1%	0.2%
Currents – longitudinal	mean%	-0.1%	0.1%	-0.1%	-0.3%
	max %	0.8%	1.3%	0.3%	0.5%
Salinity – lateral	mean%	0.2%	0.7%	0.2%	0.4%
	max %	0.6%	1.3%	0.6%	1.4%
Salinity – longitudinal	mean%	3.2%	3.7%	0.8%	1.5%
	max %	4.9%	1.7%	2.6%	4.5%
Volume Flux – lateral	mean%	0.0%	0.0%	0.0%	0.0%
	max %	0.0%	0.0%	0.1%	0.1%
Volume Flux – longitude	mean%	0.1%	0.0%	0.0%	-0.1%
	max %	1.0%	0.9%	0.2%	0.5%
Salt Flux – lateral	mean%	0.0%	0.0%	0.0%	0.0%
	max %	0.0%	0.2%	0.0%	0.1%
Salt Flux – longitudinal	mean%	0.0%	1.1%	0.0%	0.8%
	max %	2.0%	4.0%	0.8%	1.6%

Table 4-3. Convergence Test Results for Little Back River

		Fine - Coarse					
		GPA-13	Lucknow	USF&W	GPA-15	GPA-07	GPA-05
Elevation	mean%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	max %	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%
Currents	mean%	-0.2%	-0.2%	-0.2%	-0.2%	-0.2%	-0.1%
	max %	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Salinity	mean%	0.0%	0.1%	0.1%	0.2%	0.1%	0.0%
	max %	0.9%	0.7%	0.5%	0.4%	0.3%	0.0%
Volume Flux	mean%	-0.2%	-0.2%	-0.2%	-0.1%	-0.1%	-0.1%
	max %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Salt Flux	mean%	0.0%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%
	max %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Table 4-4. Results of Sigma Transport Test

Station		24 Hour Test		1 Week Test	
		Variation (ppt)	% of Signal	Variation (ppt)	% of Signal
GPA-4	Maximum	0.06	0.3	0.44	2.6
	Bottom	0.06	0.3	0.29	1.5
GPA-1	Surface	0.00	0.0	0.00	0.0
	Bottom	0.01	0.1	0.24	1.3
GPA-2	Surface	0.00	0.0	0.00	0.0
	Bottom	0.00	0.0	0.17	0.9
GPA-3	Surface	0.00	0.0	0.00	0.0
	Bottom	0.01	0.1	0.23	1.4
GPA-5	Surface	0.00	0.0	0.00	0.0
	Bottom	0.00	0.0	0.01	0.1
GPA-6	Surface	0.00	0.0	0.00	0.0
	Bottom	0.00	0.0	0.00	0.0
GPA-7	Surface	0.00	0.0	0.00	0.0
	Bottom	0.00	0.0	0.04	0.2
GPA-8	Surface	0.00	0.0	0.00	0.0
	Bottom	0.00	0.0	0.37	1.9
GPA-9	Surface	0.00	0.0	0.00	0.0
	Bottom	0.01	0.1	0.17	1.0
GPA-10	Surface	0.00	0.0	0.00	0.0
	Bottom	0.01	0.1	0.27	1.6
GPA-11	Surface	0.00	0.0	0.00	0.0
	Bottom	0.01	0.1	0.17	0.9
GPA-12	Surface	0.00	0.0	0.00	0.0
	Bottom	0.00	0.0	0.01	0.1
GPA-13	Surface	0.00	0.0	0.00	0.0
	Bottom	0.00	0.0	0.00	0.0
GPA-14	Surface	0.00	0.0	0.00	0.0
	Bottom	0.00	0.0	0.00	0.0
GPA-15	Surface	0.00	0.0	0.00	0.0
	Bottom	0.00	0.0	0.38	2.2
Prurrysb	Surface	0.00	0.0	0.00	0.0
	Bottom	0.00	0.0	0.00	0.0
Clyo	Surface	0.00	0.0	0.00	0.0
	Bottom	0.00	0.0	0.00	0.0
USF&WDoc	Surface	0.00	0.0	0.00	0.0
	Bottom	0.00	0.0	0.01	0.1
LucknowC	Surface	0.00	0.0	0.00	0.0
	Bottom	0.00	0.0	0.00	0.0
RifleCut	Surface	0.00	0.0	0.00	0.0
	Bottom	0.01	0.1	0.44	2.6

Table 5-1. Summary of 1999 Survey Information Used to Develop Model Bathymetry

Survey	Location	Coverage (RM)	Description of Coverage
July 1999 - Exam Survey	Front River	21.3 to -11.4 (offshore)	Navigation Channel
	Savannah River - South Channel	10.0 to -1.4	South Channel from just down river of Forth Jackson to Atlantic Ocean
January 1999 - Sedimentation Basin Exam Survey	Back River	11.2 to 13.6	Sedimentation Basin
1999 - Abercorn to Ebenezer	Savannah River	48.7 to 27.4	Between I-95 Bridge and Ebenezer Landing
	Abercorn Creek	Savannah River Entrance to Creek at RM 28.6	Abercorn Creek, City of Savannah Fresh Water Intake
	Big Collis Creek	Savannah River Entrance to Creek at RM 29.5	Big Collis Creek
1997 - USACE Contracted Survey	Front River	21.5 to 27.8	Upriver of Holihan Bridge to I-95 Bridge
	Middle River	19.6 to 24.4	All of Middle River: McCoys Cut to Front River
	Back River	14.0 to 27.6	Middle River to upriver of Tide Gate
Offshore Data Set	North to South: Hilton Island to Tybee Island	-	Offshroe Hilton Head, Calabougue Sound, Tybee Roads, and offshore Tybee Island

Table 5-2. Summary of 1997 Survey Information Used to Develop Model Bathymetry

1997 Data Set			
Survey	Location	Coverage (RM)	Description of Coverage
1997 - Annual Survey	Front River	21.3 to -11.4 (offshore)	Navigation Channel
	Back River	11.2 to 13.6	Sedimentation Basin
	Savannah River - South Channel	10.0 to -1.4 (offshore)	South Channel from just down river of Forth Jackson to Atlantic Ocean
1997 - USACE Contracted Survey	Front River	21.5 to 27.8	Upriver of Holihan Bridge to I-95 Bridge
	Middle River	19.6 to 24.4	All of Middle River: McCoys Cut to Front River
	Back River	14.0 to 27.6	Middle River to upriver of Tide Gate
Offshore Data Set	North to South: Hilton Island to Tybee Island	-	Offshroe Hilton Head, Calabougue Sound, Tybee Roads, and offshore Tybee Island

Table 5-3. Marsh Boundary Condition Parameters

Marsh Cell Pairs		Marsh Surface Area (m ²)	Marsh Cell Pairs		Marsh Surface Area (m ²)
I index	J index		I index	J index	
2	120	1.784	26	111	0.988
2	121		26	112	
2	153	2.3	33	204	16
2	154		34	204	
12	135	2.888	28	84	4.71
13	135		28	85	
11	117	1.784	31	69	3.76
11	118		31	70	
16	155	3	38	97	0.954
16	156		38	98	
16	141	1	38	111	0.954
16	142		38	112	
16	105	0.788	42	206	16
16	106		43	206	
30	130	4	45	147	4
30	131		45	148	
30	140	4	18	120	1.784
30	141		18	121	
30	147	4	20	84	1
30	148		20	85	
25	137	4	15	15	10
25	138		16	15	
26	117	0.988	22	7	10
26	118		22	8	
30	159	4	3	192	2.3
30	160		4	192	
26	104	0.988	16	215	10
26	105		17	215	
Minimum area		0.79			
Average area		4.21			
Maximum area		16.00			
Total surface area		117.97			

Note: For all marsh boundaries: Manning's n = 0.03
 Length parameter = 1000m
 Marsh porosity = 1
 Marsh elevation = 0.58m

Table 6-1. Simulation, Calibration, and Validation Periods for Hydrodynamic Model

Year	Spinup	Simulation Period	Calibration/ Validation Period	Sub Calibration/Validation Periods				
				1	2	3	4	5
1999	7/7/99 - 7/23/99	7/24/99 - 10/31/99	8/4/99 - 9/8/99	8/1/99 - 8/14/99	8/15/99 - 8/29/99	8/30/99 - 9/12/99	9/13/99 - 9/27/99	9/28/99 - 10/12/99
1997	7/1/97 - 7/14/97	7/15/97 - 10/31/97	7/23/97 - 10/4/97	7/23/97 - 8/6/97	8/7/97 - 8/21/97	8/22/97 - 9/5/97	9/6/97 - 9/19/97	9/20/97 - 10/4/97

Table 6-2. Federal Expectations Criteria Summary

Parameter	Percentiles					Timing of Maxima (Min)
	5%	10%	50%	90%	95%	
Elevation (cm)	+/- 2	-	+/- 2	-	+/- 2	+/- 30
Salinity (ppt)	50% > 5 ppt	-	+/- 10%	-	+/- 10%	+/- 30
	50% < 5 ppt	-	-	+/- 0.5	+/- 0.5	+/- 30
Temperature (°C) *	-	-	+/- 1	-	-	-
Surface Currents (m/s) **	+/- 25%	-	-	-	+/- 25%	+/- 30
Volume Flows (m/s) **	+/- 25%	-	-	-	+/- 25%	-

* 50% represent Absolute Mean Error for temperature

** 5% and 95% represent the max. ebb and flood conditions for current and flow

Table 7-1. Simulated versus Measured Water Surface Elevation Statistics and Percentiles for Calibration Period (August 4-September 8, 1999)

Station Name	River Mile	Simulated Elevation (m)			Measured Elevation (m)			Difference			Error		
		5%	50%	95%	5%	50%	95%	5%	50%	95%	Mean Error	Absolute Mean Error	RMS Error
FRONT RIVER													
GPA-26	0.8	-0.84	0.45	1.57	-0.86	0.41	1.57	0.03	0.04	0.01	0.02	0.03	0.03
GPA-02	4.5	-0.88	0.46	1.53	-0.93	0.39	1.53	0.04	0.06	0.00	0.03	0.05	0.07
GPA-04	10.4	-0.90	0.66	1.75	-0.97	0.52	1.69	0.07	0.15	0.06	0.11	0.11	0.13
GPA-21	13.9	-0.91	0.69	1.78	-1.00	0.48	1.61	0.09	0.21	0.17	0.16	0.16	0.18
Broad St.	14.6	-0.94	0.76	1.83	-1.00	0.54	1.70	0.06	0.22	0.13	0.14	0.15	0.16
GPA-06	16.6	-0.82	0.77	1.83	-0.92	0.53	1.67	0.10	0.24	0.16	0.17	0.17	0.19
GPA-22	18.7	-1.00	0.85	1.90	-1.10	0.59	1.72	0.10	0.25	0.18	0.18	0.18	0.20
GPA-08	20.5	-0.98	0.83	1.91	-1.01	0.59	1.71	0.03	0.25	0.20	0.16	0.16	0.18
Houlihan	21.5	-1.02	0.76	1.82	-1.05	0.47	1.64	0.03	0.29	0.18	0.18	0.18	0.21
GPA-09	21.5	-0.98	0.85	1.89	-1.02	0.58	1.70	0.03	0.27	0.20	0.17	0.17	0.19
GPA11r	23.4	-0.96	0.83	1.88	-0.89	0.56	1.60	-0.07	0.27	0.28	0.17	0.20	0.23
I95	27.7	-0.87	0.91	1.91	-0.61	0.82	1.69	-0.26	0.09	0.23	0.02	0.17	0.20
GPA-14	27.7	-0.87	0.91	1.91	-0.61	0.82	1.69	-0.26	0.09	0.23	0.02	0.17	0.20
Average: Front River:								0.00	0.19	0.16	0.12	0.15	0.17
BACK RIVER													
GPA-05	14.5	-0.90	0.76	1.86	-0.96	0.59	1.67	0.06	0.16	0.19	0.14	0.14	0.16
Lknow	24	-0.92	0.88	1.88	-0.72	0.86	1.78	-0.20	0.02	0.10	-0.02	0.11	0.14
Average: Back River:								-0.07	0.09	0.15	0.06	0.13	0.15
UPRIVER OF I-95													
GPA-16	30.2	-0.29	1.04	1.93	-0.23	0.96	1.70	-0.06	0.08	0.23	0.05	0.12	0.14
Hardeeville	34.5	1.26	1.88	2.37	1.28	1.83	2.17	-0.02	0.05	0.21	0.07	0.10	0.13
GPA-17	43.0	1.90	2.41	2.79	2.26	2.61	2.83	-0.36	-0.20	-0.05	-0.19	0.21	0.25
Average: Upriver I-95:								-0.15	-0.02	0.13	-0.02	0.14	0.17

Table 7-2. Comparison of Water Surface Elevation Harmonics for Calibration Period (August 4-September 8, 1999)

Station Name	River Mile	Length (Days)	Measured Amplitude (m)							Simulated Amplitude (m)							Differences in M2 Constituent (m)	Percent Error
			M2	N2	S2	K1	O1	M4	M6	M2	N2	S2	K1	O1	M4	M6		
Ft. Pulaski	0.8	76.0	1.00	0.18	0.16	0.11	0.09	0.05	0.01	1.00	0.18	0.15	0.11	0.09	0.06	0.00	0.00	0%
GPA-02	4.5	24.0	1.10	0.17	0.13	0.14	0.08	0.07	0.01	1.07	0.18	0.13	0.14	0.09	0.10	0.01	-0.03	-3%
GPA-04	10.4	43.0	1.14	0.17	0.16	0.13	0.09	0.09	0.02	1.12	0.17	0.15	0.13	0.08	0.13	0.02	-0.02	-2%
GPA-21	13.9	33.0	1.12	0.21	0.17	0.09	0.09	0.11	0.01	1.10	0.22	0.18	0.09	0.09	0.14	0.03	-0.02	-2%
Broad Street	14.6	76.0	1.14	0.19	0.16	0.12	0.10	0.11	0.02	1.14	0.20	0.17	0.11	0.09	0.16	0.04	0.00	0%
GPA-06	16.6	51.0	1.15	0.18	0.16	0.10	0.10	0.11	0.02	1.14	0.19	0.16	0.10	0.09	0.17	0.04	-0.01	-1%
GPA-22	18.7	40.0	1.22	0.18	0.17	0.15	0.11	0.11	0.03	1.22	0.18	0.17	0.14	0.09	0.18	0.03	0.00	0%
GPA-08	20.5	66.0	1.17	0.19	0.16	0.11	0.10	0.12	0.03	1.20	0.20	0.17	0.12	0.09	0.19	0.04	0.03	3%
Houlihan	21.5	37.0	1.14	0.21	0.18	0.09	0.10	0.13	0.03	1.16	0.23	0.21	0.09	0.09	0.20	0.05	0.02	2%
GPA-09	21.5	66.0	1.17	0.19	0.16	0.11	0.09	0.12	0.03	1.20	0.20	0.17	0.12	0.09	0.20	0.05	0.03	3%
GPA-11	23.4	57.0	1.07	0.15	0.13	0.10	0.11	0.13	0.03	1.18	0.18	0.16	0.11	0.09	0.21	0.06	0.11	9%
I95	27.7	76.0	0.95	0.14	0.11	0.12	0.12	0.14	0.04	1.15	0.19	0.16	0.11	0.10	0.21	0.07	0.20	17%
GPA-05	14.5	39.0	1.07	0.19	0.14	0.10	0.09	0.12	0.02	1.10	0.20	0.16	0.09	0.09	0.14	0.03	0.03	3%
Limehouse	24.0	76.0	1.03	0.16	0.13	0.12	0.12	0.16	0.05	1.14	0.19	0.16	0.11	0.10	0.22	0.07	0.11	10%
GPA-16	30.2	55.0	0.81	0.10	0.09	0.10	0.11	0.14	0.05	0.94	0.14	0.12	0.10	0.09	0.15	0.07	0.13	14%
Hardeeville	34.5	76.0	0.22	0.04	0.02	0.04	0.04	0.03	0.01	0.33	0.06	0.04	0.06	0.06	0.04	0.01	0.11	33%
GPA-17	43.0	54.0	0.04	0.01	0.00	0.02	0.02	0.01	0.00	0.21	0.04	0.02	0.04	0.03	0.02	0.01	0.17	81%

Station Name	River Mile	Length (Days)	Measured Phase (degrees)							Simulated Phase (degrees)							Differences in M2 Constituent	
			M2	N2	S2	K1	O1	M4	M6	M2	N2	S2	K1	O1	M4	M6	Degrees	Minutes
Ft. Pulaski	0.8	76	235.9	222.1	259.4	141.0	134.4	320.4	358.8	231.2	218.6	255.2	140.0	131.9	307.5	51.8	4.6	9.6
GPA-02	4.5	24	240.0	227.5	276.9	145.0	144.3	329.3	52.7	231.5	220.4	276.9	139.2	142.8	311.1	29.0	8.5	17.7
GPA-04	10.4	43	245.3	237.4	282.0	152.4	145.3	331.9	87.5	235.4	225.5	269.0	147.2	139.0	311.0	62.0	9.9	20.5
GPA-21	13.9	33	255.1	242.0	285.0	141.9	136.6	344.3	120.0	240.2	227.4	264.0	135.6	129.9	316.8	76.4	14.9	30.8
Broad Street	14.6	76	251.7	243.9	283.4	151.5	144.1	338.0	128.5	239.5	229.9	267.7	144.0	135.8	313.5	70.0	12.2	25.2
GPA-06	16.6	51	252.9	248.4	281.5	152.7	141.7	338.2	125.1	241.1	235.8	267.4	146.3	133.5	315.8	72.1	11.8	24.4
GPA-22	18.7	40	251.9	247.3	295.3	157.7	155.3	337.9	153.8	239.6	232.3	276.0	148.6	139.2	309.6	68.5	12.3	25.5
GPA-08	20.5	66	256.1	245.9	290.3	156.1	146.5	341.8	149.9	242.0	230.2	272.0	145.8	135.6	312.5	71.2	14.1	29.2
Houlihan	21.5	37	260.7	256.2	287.4	153.6	149.6	346.8	168.1	245.7	238.5	268.0	140.0	136.1	319.0	78.2	15.0	31.0
GPA-09	21.5	66	257.1	247.2	291.5	154.7	149.6	342.5	151.9	243.4	232.2	274.1	147.0	136.8	314.8	72.7	13.8	28.5
GPA-11	23.4	57	267.3	271.9	306.6	169.8	150.9	15.5	162.9	246.4	242.2	275.8	150.3	134.8	323.1	81.2	20.9	43.2
I95	27.7	76	280.9	293.2	332.0	182.3	170.7	48.4	206.4	248.9	244.0	282.4	150.5	141.6	329.8	94.3	32.1	66.4
GPA-05	14.5	39	257.5	249.6	288.9	149.4	133.8	350.6	107.0	240.6	226.9	262.4	141.7	126.1	316.6	73.7	16.9	35.0
Limehouse	24	76	278.2	288.8	329.9	180.7	169.3	38.7	199.3	248.3	243.8	282.0	151.3	142.6	328.2	82.7	30.0	62.1
GPA-16	30.2	55	290.4	310.6	336.8	191.2	168.4	76.6	247.9	257.5	266.6	289.5	157.0	140.1	358.3	131.8	32.8	68.0
Hardeeville	34.5	76	339.3	338.9	12.4	202.8	193.2	203.9	52.5	303.4	287.5	322.8	180.4	162.6	117.3	259.3	35.9	74.3
GPA-17	43.0	54	9.4	41.6	352.5	283.1	237.9	280.9	175.9	323.6	315.3	343.8	191.6	168.1	169.1	307.8	45.8	94.8

Table 7-3. Simulated versus Measured Velocity Statistics and Percentiles for Calibration Period (August 4-September 8, 1999)

Station Name	River Mile	Depth	Simulated Currents			Measured Currents			Difference			Error		
			5%	50%	95%	5%	50%	95%	5%	50%	95%	Mean Error	Absolute Mean Error	RMS Error
FRONT RIVER														
GPA-04	10.4	Surface	-1.10	-0.21	0.50	-0.96	0.12	0.86	-0.14	-0.33	-0.36	-0.26	0.28	0.32
		Bottom	-0.45	0.32	0.53	-0.74	0.17	0.74	0.29	0.15	-0.20	0.07	0.19	0.23
GPA-06	16.6	Surface	-1.12	0.12	0.63	-1.02	-0.15	0.64	-0.11	0.27	-0.01	0.09	0.25	0.33
		Bottom	-0.60	0.24	0.52	-0.61	0.05	0.55	0.01	0.19	-0.03	0.08	0.17	0.24
GPA-14	27.7	Surface	-0.55	-0.12	0.22	-0.34	-0.11	0.20	-0.21	-0.01	0.02	-0.05	0.09	0.11
GPA-18	28.9	Surface	-0.44	0.03	0.27	-0.43	-0.07	0.48	-0.01	0.10	-0.21	-0.04	0.12	0.15
GPA-16	30.2	Surface	-0.56	-0.30	-0.02	-0.68	-0.37	-0.01	0.12	0.07	-0.01	0.07	0.08	0.10
GPA-17	43.0	Surface	-0.38	-0.32	-0.22	-0.66	-0.56	-0.47	0.27	0.24	0.25	0.25	0.25	0.25
Average: Front River:									0.03	0.09	-0.07	0.03	0.18	0.22

Table 7-4. Simulated versus Measured Volume Flux for 1999

Station Name	Modeled Flow (m ³ /s)	Measured Flow (m ³ /s)	Difference (%)
FJ(GPA4)	2519	2856	-11.8
	-5605	-5108	9.7
	-5276	-4687	12.6
FR2(GPA9)	-823	-919	-10.4
	-1970	-1524	29.3
	-1989	-1538	29.3
FR3(GPA21)	1210	1650	-26.7
	-3550	-3008	18.0
	-3150	-2810	12.1
MR2(GPA10)	220	164	34.1
	-590	-468	26.1
	342	370	-7.6
	-611	-491	24.4
LBR2(GPA15)	159	110	44.5
	-591	-258	129.1
	-678	-271	150.2
BR	750	929	-19.3
	1502	958	56.8
	-1700	-1682	1.1
	-1560	-1600	-2.5
	1300	1185	9.7
I95(GPA14)	-693	-733	-5.5
	322	369	-12.7
	406	441	-7.9
MR1	143	95	50.5
GPA17	-183	-158	15.8
GPA18	163	105	55.2
GPA16	59	75	-21.3
EIE	68	86	-20.9
SCU	555	442	25.6
KC	55	48	12.7
	-71	-63	12.7
FR1	-1229	-1079	13.9
	-1048	-945	10.9
	695	658	5.6
LBR1	-110	-56	96.4
UC	-128	-176	-27.3
	112	104	7.7
	-112	-173	-35.3
FW1	-172	-76	126.3
FW2U	37	61	-39.3
	-230	-176	30.7
FW3	122	103	18.4
	-384	-247	55.5
FW4	150	163	-8.0
	222	250	-11.2
FW5	253	398	-36.4
	665	681	-2.3
	-924	-819	12.8
FW6	-1043	-1164	-10.4
	830	985	-15.7

Table 7-5. Simulated versus Measured Salinity Statistics and Percentiles for Calibration Period (August 4-September 8, 1999)

Station Name	River Mile	Depth	Simulated Salinity (ppt)			Measured Salinity (ppt)			Difference			Error			
			10%	50%	90%	10%	50%	90%	10%	50%	90%	Mean Error	Absolute Mean Error	RMS Error	
FRONT RIVER															
GPA-26	0.8	Surface	21.5	28.4	31.4	19.5	26.3	30.5	2.0	2.1	0.9	1.8	2.5	3.2	
		Bottom	29.6	32.4	35.0	26.1	30.0	32.9	3.5	2.4	2.1	2.7	2.7	3.0	
GPA-02	4.5	Surface	12.8	19.3	27.7	14.5	20.4	26.7	-1.7	-1.1	1.0	-0.6	2.2	2.7	
		Bottom	25.4	29.9	33.6	22.5	27.4	31.3	2.8	2.5	2.3	2.5	2.6	3.0	
GPA-03	5.5	Bottom	11.7	14.4	16.8	16.3	18.5	20.5	-4.6	-4.2	-3.7	-4.2	4.2	4.6	
GPA-04	10.4	Surface	6.0	8.3	11.6	8.2	11.5	16.2	-2.2	-3.2	-4.6	-3.2	3.2	3.7	
		Bottom	16.8	23.4	28.9	14.6	19.2	27.0	2.3	4.3	1.8	3.3	3.4	4.0	
GPA-21	13.9	Surface	4.1	6.6	9.8	5.2	7.6	11.2	-1.1	-0.9	-1.4	-1.1	1.4	1.7	
		Bottom	10.9	18.2	24.9	12.0	17.0	25.3	-1.1	1.2	-0.3	0.5	1.8	2.2	
GPA-06	16.6	Surface	3.3	5.4	8.7	3.5	5.9	8.7	-0.2	-0.5	0.0	-0.3	1.2	1.6	
		Bottom	10.7	16.4	21.8	9.4	15.0	23.2	1.3	1.4	-1.4	0.7	1.8	2.1	
GPA-22	18.7	Surface	1.4	2.9	4.3	0.7	2.6	5.4	0.7	0.3	-1.1	0.0	0.9	1.2	
		Bottom	6.4	11.1	16.1	3.0	7.9	12.5	3.3	3.1	3.6	3.3	3.5	4.2	
GPA-08	20.5	Surface	0.5	2.0	3.5	0.1	0.6	4.0	0.5	1.3	-0.6	0.5	0.9	1.1	
		Bottom	3.1	7.2	12.9	0.3	4.2	12.3	2.8	3.0	0.7	2.3	3.0	3.5	
GPA-09	21.5	Surface	0.3	1.3	2.9	0.1	1.2	4.9	0.2	0.1	-2.1	-0.4	1.0	1.4	
		Bottom	1.1	3.7	7.4	0.1	2.0	7.6	1.0	1.8	-0.2	0.8	1.7	2.3	
Houlihan	21.5	Middle	1.0	3.4	6.5	0.0	1.3	5.4	1.0	2.1	1.1	1.5	1.6	1.9	
GPA-11r	23.4	Bottom	0.0	0.7	2.9	0.1	0.1	2.9	0.0	0.6	0.0	0.1	0.7	1.4	
GPA-14	27.7	Bottom	0.0	0.0	0.0	0.0	0.1	0.1	0.0	-0.1	0.0	0.0	0.0	0.1	
Average: Front River:									0.5	0.8	-0.1	0.5	2.0	2.4	
MIDDLE RIVER															
GPA-10	21.8	Surface	0.8	1.5	3.1	0.3	1.1	3.4	0.5	0.4	-0.3	0.2	0.6	0.7	
GPA-12	23.7	Surface	0.0	0.4	1.2	0.1	0.4	2.3	0.0	0.0	-1.2	-0.4	0.5	1.0	
Average: Middle River:									0.2	0.2	-0.7	-0.1	0.5	0.8	
BACK RIVER															
GPA-05	14.5	Bottom	2.8	6.9	11.5	2.7	8.6	12.9	0.2	-1.7	-1.4	-1.1	1.9	2.6	
GPA-07	18.9	Surface	0.9	1.4	2.1	0.2	0.8	4.0	0.6	0.7	-1.9	-0.1	1.0	1.6	
GPA-15	20.9	Surface	0.4	0.9	1.8	0.1	0.3	0.9	0.3	0.6	0.9	0.6	0.6	0.7	
USFW	22.1	Middle	0.3	0.7	1.2	0.1	0.1	0.3	0.2	0.6	1.0	0.6	0.6	0.7	
Limehouse	24.2	Middle	0.2	0.4	0.7	0.0	0.2	0.5	0.1	0.2	0.2	0.2	0.2	0.3	
Average: Back River:									0.3	0.1	-0.2	0.0	0.9	1.2	

Table 7-6. Simulated versus Measured Temperature Statistics and Percentiles for Calibration Period (August 4-September 8, 1999)

Station Name	River Mile	Depth	Simulated Temp. (°C)			Measured Temp. (°C)			Difference (°C)			Error (°C)		
			10%	50%	90%	10%	50%	90%	10%	50%	90%	Mean Error	Absolute Mean Error	RMS Error
FRONT RIVER														
GPA-26	0.8	Surface	27.4	29.3	30.8	27.8	29.9	31.3	-0.3	-0.6	-0.5	-0.4	0.5	0.6
		Bottom	27.8	30.0	30.8	27.8	30.2	31.1	-0.1	-0.2	-0.4	-0.2	0.3	0.4
GPA-02	4.5	Surface	27.3	29.5	30.7	27.9	30.1	31.4	-0.6	-0.6	-0.7	-0.6	0.6	0.7
		Bottom	29.7	30.6	30.7	30.0	30.8	31.3	-0.3	-0.2	-0.6	-0.4	0.4	0.4
GPA-03	5.5	Bottom	27.3	29.6	30.5	28.0	30.5	31.7	-0.7	-0.8	-1.1	-0.8	0.8	0.9
GPA-04	10.4	Surface	26.9	29.3	30.5	27.6	30.3	31.4	-0.7	-1.1	-0.9	-0.8	0.8	0.8
		Bottom	27.7	29.9	30.6	27.9	30.3	31.5	-0.2	-0.4	-0.9	-0.4	0.5	0.6
GPA-21	13.9	Surface	26.8	29.1	30.4	27.6	30.1	31.4	-0.8	-1.0	-1.0	-0.9	0.9	0.9
		Bottom	27.3	30.1	30.5	27.8	30.6	31.5	-0.5	-0.5	-1.0	-0.6	0.7	0.7
GPA-06	16.6	Surface	26.4	28.2	29.5	27.1	28.6	30.4	-0.7	-0.5	-0.9	-0.6	0.6	0.7
		Bottom	27.2	29.0	30.3	27.6	29.2	30.8	-0.4	-0.2	-0.5	-0.3	0.4	0.4
GPA-22	18.7	Surface	26.3	28.7	30.4	26.7	29.1	31.0	-0.4	-0.4	-0.6	-0.4	0.5	0.6
		Bottom	27.2	29.6	30.4	27.3	29.7	31.2	-0.1	-0.1	-0.8	-0.2	0.5	0.6
GPA-08	20.5	Surface	26.1	28.8	30.4	26.3	29.1	30.9	-0.2	-0.3	-0.5	-0.2	0.5	0.6
		Bottom	26.8	29.5	30.4	26.6	29.4	31.1	0.2	0.1	-0.7	-0.1	0.6	0.8
GPA-09	21.5	Surface	26.1	28.7	30.3	26.3	29.1	31.0	-0.1	-0.4	-0.7	-0.3	0.6	0.7
		Bottom	26.5	29.2	30.4	26.4	29.4	31.0	0.1	-0.2	-0.6	-0.1	0.6	0.8
GPA-11r	23.4	Surface	26.2	28.1	30.0	26.1	27.9	30.3	0.1	0.2	-0.4	0.0	0.5	0.6
GPA-14	27.7	Surface	25.7	27.3	29.5	25.8	27.0	29.3	-0.1	0.2	0.2	0.1	0.4	0.5
Average: Front River:									-0.3	-0.4	-0.7	-0.4	0.6	0.6
MIDDLE RIVER														
GPA-10	21.8	Bottom	26.3	29.0	30.4	26.4	29.3	30.8	0.0	-0.3	-0.4	0.0	0.5	0.7
GPA-12	23.7	Bottom	26.1	28.4	30.3	26.0	28.1	30.8	0.1	0.3	-0.5	0.0	0.6	0.7
Average: Middle River:									0.0	0.0	-0.5	0.0	0.6	0.7
BACK RIVER														
GPA-05	14.5	Bottom	27.0	29.9	30.5	27.4	30.2	31.3	-0.4	-0.3	-0.8	-0.4	0.6	0.7
GPA-07	18.9	Bottom	26.7	29.0	30.5	26.5	29.2	30.7	0.2	-0.2	-0.3	0.0	0.5	0.6
GPA-15	20.9	Surface	26.8	29.0	30.5	26.0	29.1	30.4	0.8	-0.1	0.1	0.3	0.6	0.7
Average: Back River:									0.2	-0.2	-0.3	0.0	0.6	0.7
UPRIVER of I-95														
GPA-18	28.9	Surface	25.7	27.3	29.5	25.7	27.2	29.5	0.1	0.1	0.0	-0.1	0.5	0.6
GPA-16	30.2	Surface	25.8	27.3	29.5	25.7	26.9	29.1	0.1	0.4	0.4	0.3	0.4	0.6
GPA-17	43.0	Surface	25.7	27.3	29.6	25.2	26.2	28.7	0.5	1.0	0.9	0.7	0.7	0.9
Average: I-95 UpRiver:									0.2	0.5	0.4	0.3	0.5	0.7

Table 7-7a. Comparison of 1999 Calibration Results Against Federal Criteria: Water Surface Elevation

Station Name	River Mile	Simulated (m)					Measured (m)					Difference (m)					Stations Meeting* Expectation Criteria				
		5%	50%	95%	M2-Amp	M2 Phs (deg)	5%	50%	95%	M2-Amp	M2 Phs (deg)	5%	50%	95%	M2-Amp	M2 Phs (min)	5%	50%	95%	M2-Amp	M2 Phs (min)
FRONT RIVER																					
GPA-26	0.8	-0.84	0.40	1.57	1	232	-0.86	0.38	1.57	1	236	0.03	0.02	0.01	0.00	-10	0	1	1	1	1
GPA-02	4.5	-0.88	0.38	1.53	1.07	264	-0.93	0.35	1.53	1.1	272	0.04	0.03	0.00	-0.03	-17	0	0	1	0	1
GPA-04	10.4	-0.90	0.54	1.75	1.15	200	-0.97	0.43	1.69	1.16	210	0.07	0.11	0.06	-0.01	-21	0	0	0	1	1
GPA-21	13.9	-0.91	0.55	1.78	0.95	182	-1.00	0.40	1.61	0.99	197	0.09	0.15	0.17	-0.04	-30	0	0	0	0	1
Broad St.	14.6	-0.94	0.59	1.83	1.15	240	-1.00	0.45	1.70	1.15	252	0.06	0.14	0.13	0.00	-25	0	0	0	1	1
GPA-06	16.6	-0.82	0.61	1.83	1.17	329	-0.92	0.44	1.67	1.18	341	0.10	0.17	0.16	-0.01	-24	0	0	0	1	1
GPA-22	18.7	-1.00	0.64	1.90	1.27	240	-1.10	0.46	1.72	1.27	252	0.10	0.18	0.18	0.00	-26	0	0	0	1	1
GPA-08	20.5	-0.98	0.64	1.91	1.2	166	-1.01	0.48	1.71	1.17	180	0.03	0.16	0.20	0.03	-29	0	0	0	0	1
Houlihan	21.5	-1.02	0.57	1.82	1.25	240	-1.05	0.39	1.64	1.23	256	0.03	0.18	0.18	0.02	-32	0	0	0	1	0
GPA-09	21.5	-0.98	0.64	1.89	1.17	197	-1.02	0.47	1.70	1.13	211	0.03	0.17	0.20	0.04	-29	0	0	0	0	1
GPA11r	23.4	-0.96	0.63	1.88	1.14	101	-0.89	0.46	1.60	1.03	122	-0.07	0.17	0.28	0.11	-43	0	0	0	0	0
I95	27.7	-0.87	0.70	1.91	1.15	249	-0.61	0.68	1.69	0.96	281	-0.26	0.02	0.23	0.19	-66	0	1	0	0	0
Average: Front River:												0.02	0.13	0.15	0.03	-29	0%	17%	17%	50%	75%
BACK RIVER																					
GPA-05	14.5	-0.90	0.61	1.86	1.21	151	-0.96	0.47	1.67	1.15	169	0.06	0.14	0.19	0.06	-38	0	0	0	0	0
Lknow	24	-0.92	0.68	1.88	1.14	249	-0.72	0.70	1.78	1.04	278	-0.20	-0.02	0.10	0.10	-62	0	1	0	0	0
Average: Back River:												-0.07	0.06	0.15	0.08	-50	0%	50%	0%	0%	0%
UPRIVER OF I-95																					
GPA-16	30.2	-0.29	0.91	1.93	0.92	174	-0.23	0.85	1.70	0.81	205	-0.06	0.06	0.23	0.11	-65	0	0	0	0	0
Hardeeville	34.5	1.26	1.86	2.37	0.33	304	1.28	1.79	2.17	0.21	340	-0.02	0.07	0.21	0.12	-74	1	0	0	0	0
GPA-17	43.0	1.90	2.39	2.79	0.23	193	2.26	2.58	2.83	0.05	242	-0.36	-0.19	-0.05	0.18	-103	0	0	0	0	0
Average: Upriver I-95:												-0.15	-0.02	0.13	0.14	-81	33%	0%	0%	0%	0%
Overall Average:												0.0	0.1	0.1	0.1	-41	6%	18%	12%	35%	53%

* Expectation criteria suggests +/- 2cm for 5th and 95 percentile amplitudes and +/- 30min for phase

Shading indicates stations meeting criteria

Table 7-7b. Comparison of 1999 Calibration Results Against Federal Criteria: Tidal Harmonics

Station Name	River Mile	Length (Days)	Measured Amplitude (m)					Simulated Amplitude (m)					Difference (simulated - measured)					Comparison to Federal Expectations Criteria								
			M2	N2	S2	K1	O1	M2	N2	S2	K1	O1	M2	N2	S2	K1	O1	M2	N2	S2	K1	O1				
Ft. Pulaski	0.8	69.0	1	0.18	0.15	0.11	0.08	1	0.18	0.15	0.11	0.08	0.00	0.00	0.00	0.00	0.00	1	1	1	1	1				
GPA-02	4.5	23.3	1.1	-	0.12	0.14	0.08	1.07	-	0.12	0.14	0.08	-0.03	-	0.00	0.00	0.00	0	-	1	1	1				
GPA-04	10.4	18.0	1.16	-	0.16	0.1	0.09	1.15	-	0.16	0.1	0.08	-0.01	-	0.00	0.00	-0.01	1	-	1	1	1				
GPA-21	13.9	11.1	0.99	-	-	0.08	-	0.95	-	-	0.09	-	-0.04	-	-	0.01	-	0	-	-	1	-				
Broad Street	14.6	69.0	1.15	0.19	0.16	0.12	0.09	1.15	0.2	0.17	0.11	0.09	0.00	0.01	0.01	-0.01	0.00	1	1	1	1	1				
GPA-06	16.6	25.0	1.18	-	0.17	0.12	0.1	1.17	-	0.17	0.12	0.09	-0.01	-	0.00	0.00	-0.01	1	-	1	1	1				
GPA-22	18.7	18.5	1.27	-	0.2	0.15	0.11	1.27	-	0.2	0.16	0.1	0.00	-	0.00	0.01	-0.01	1	-	1	1	1				
GPA-08	20.5	62.3	1.17	0.18	0.15	0.11	0.1	1.2	0.2	0.16	0.12	0.09	0.03	0.02	0.01	0.01	-0.01	0	1	1	1	1				
Houlihan	21.5	25.4	1.23	-	0.19	0.15	0.1	1.25	-	0.19	0.15	0.09	0.02	-	0.00	0.00	-0.01	1	-	1	1	1				
GPA-09	21.5	36.8	1.13	0.2	0.16	0.09	0.1	1.17	0.22	0.17	0.09	0.09	0.04	0.02	0.01	0.00	-0.01	0	1	1	1	1				
GPA-11	23.4	25.9	1.03	-	0.15	0.09	0.09	1.14	-	0.15	0.09	0.09	0.11	-	0.00	0.00	0.00	0	-	1	1	1				
I95	27.7	69.0	0.96	0.14	0.11	0.12	0.11	1.15	0.19	0.16	0.12	0.09	0.19	0.05	0.05	0.00	-0.02	0	0	0	1	1				
GPA-05	14.5	13.0	1.15	-	-	0.1	-	1.21	-	-	0.1	-	0.06	-	-	0.00	-	0	-	-	1	-				
LucknowCan	24.0	69.0	1.04	0.16	0.13	0.12	0.12	1.14	0.19	0.16	0.12	0.09	0.10	0.03	0.03	0.00	-0.03	0	0	0	1	0				
GPA-16	30.2	21.0	0.81	-	0.1	0.1	0.11	0.92	-	0.1	0.11	0.09	0.11	-	0.00	0.01	-0.02	0	-	1	1	1				
Hardeeville	34.5	69.0	0.21	0.05	0.02	0.04	0.04	0.33	0.07	0.04	0.06	0.06	0.12	0.02	0.02	0.02	0.02	0	1	1	1	1				
GPA-17	43.0	8.4	0.05	-	-	0.02	NaN	0.23	-	-	0.05	-	0.18	-	-	0.03	-	0	-	-	0	-				
																	0.05	0.02	0.01	0.00	-0.01	35%	71%	86%	94%	93%

Station Name	River Mile	Length (Days)	Measured Phase (degrees)					Simulated Phase (degrees)					Difference (simulated - measured) in Degrees					Difference (simulated - measured) in Minutes					Comparison to Federal Expectations Criteria				
			M2	N2	S2	K1	O1	M2	N2	S2	K1	O1	M2	N2	S2	K1	O1	M2	N2	S2	K1	O1	M2	N2	S2	K1	O1
Ft. Pulaski	0.8	69	236	220	261	141	134	232	217	257	140	131	-5	-4	-4	-1	-3	-10	-8	-8	-3	-11	1	1	1	1	1
GPA-02	4.5	23.33	272	-	248	308	14	264	-	248	305	9	-8	-	0	-2	-5	-17	-	0	-9	-19	1	-	1	1	1
GPA-04	10.4	18.01	210	-	318	350	276	200	-	318	346	266	-10	-	0	-4	-10	-21	-	0	-17	-42	1	-	1	1	0
GPA-21	13.9	11.1	197	-	-	278	-	182	-	-	272	-	-15	-	-	-7	-	-30	-	-	-26	-	0	-	-	1	-
Broad Street	14.6	69	252	242	286	151	143	240	228	270	144	135	-12	-14	-15	-7	-8	-25	-30	-31	-28	-34	1	1	0	1	0
GPA-06	16.6	24.95	341	-	335	6	30	329	-	335	359	19	-12	-	0	353	-10	-24	-	0	1409	-45	1	-	1	0	0
GPA-22	18.7	18.54	252	-	279	155	162	240	-	279	144	151	-13	-	0	-11	-11	-26	-	0	-42	-45	1	-	1	0	0
GPA-08	20.5	62.28	180	228	110	62	163	166	212	92	51	152	-14	-16	-18	-10	-12	-29	-33	-36	-41	-50	1	0	0	0	0
Houlihan	21.5	25.36	256	-	288	155	162	240	-	288	144	148	-16	-	0	-10	-14	-32	-	0	-42	-58	0	-	1	0	0
GPA-09	21.5	36.76	211	226	238	279	327	197	211	219	269	317	-14	-15	-19	-10	-10	-29	-32	-39	-40	-44	1	0	0	0	0
GPA-11	23.4	25.9	122	-	217	270	255	101	-	217	250	236	-21	-	0	-20	-19	-43	-	0	-81	-82	0	-	1	0	0
I95	27.7	69	281	292	334	181	169	249	242	285	150	141	-32	-50	-49	-31	-28	-66	-104	-99	-123	-123	0	0	0	0	0
GPA-05	14.5	13.01	169	-	-	318	-	151	-	-	303	-	-18	-	-	-15	-	-38	-	-	-60	-	0	-	-	0	-
LucknowCan	24	69	278	288	332	180	168	249	242	284	151	142	-30	-45	-48	-29	-26	-62	-96	-96	-115	-112	0	0	0	0	0
GPA-16	30.2	21.03	205	-	314	360	272	174	-	314	331	250	-31	-	0	-28	-23	-65	-	0	-113	-97	0	-	1	0	0
Hardeeville	34.5	69	340	337	9	201	194	304	286	323	180	162	-36	-51	314	-21	-31	-74	-108	628	-84	-135	0	0	0	0	0
GPA-17	43.0	8.4	242	-	-	92	-	193	-	-	6	-	-50	-	-	-87	-	-103	-	-	-346	-	0	-	-	0	-
																	-41	-59	23	14	-64	47%	29%	57%	29%	14%	

* Expectation criteria suggests +/- 2cm for 5th and 95 percentile amplitudes and +/- 30min for phase

Shading indicates stations meeting criteria

Table 7-7c. Comparison of 1999 Calibration Results Against Federal Criteria: Currents

Station Name	River Mile	Depth	Simulated Currents (m/s)				Measured Currents (m/s)				Difference (m/s)				Stations Meeting* Expectation Criteria			
			5%	95%	M2 amp	M2 phs	5%	95%	M2 amp	M2 phs	5%	95%	M2 amp	M2 phs	5%	95%	M2 amp	M2 phs
FRONT RIVER																		
GPA-04	10.4	Surface	-1.10	0.50	0.79	182.15	-0.96	0.86	0.87	169.34	-0.14	-0.36	-0.08	27	1	0	1	1
		Bottom	-0.45	0.53	0.47	192.77	-0.74	0.74	0.67	165.97	0.29	-0.21	-0.20	55	0	0	0	0
GPA-06	16.6	Surface	-1.12	0.63	0.74	196.16	-1.02	0.64	0.66	209.52	-0.10	-0.01	0.08	-28	1	1	1	1
		Bottom	-0.60	0.52	0.50	193.86	-0.61	0.55	0.47	203.16	0.01	-0.03	0.03	-19	1	1	1	1
GPA-14	27.7	Surface	-0.55	0.22	0.26	207.82	-0.34	0.20	0.28	250.51	-0.21	0.02	-0.02	-88	0	1	1	0
GPA-18	28.9	Surface	-0.44	0.27	0.30	239.97	-0.43	0.48	0.37	245.92	-0.01	-0.21	-0.07	-12	1	0	1	1
GPA-16	30.2	Surface	-0.56	-0.02	0.23	210.75	-0.68	-0.01	0.28	239.13	0.12	-0.01	-0.05	-59	1	0	1	0
GPA-17	43.0	Surface	-0.38	-0.22	0.03	278.54	-0.66	-0.47	0.03	9.85	0.28	0.25	0.00	-189	0	0	1	0
Average: Front River:											0.03	-0.07	-0.04	-39	63%	38%	88%	50%

* Expectation criteria suggests +/- 25% for 5th and 95 percentiles and +/- 30 min for phase

Shading indicates stations meeting criteria

Table 7-7d. Comparison of 1999 Calibration Results Against Federal Criteria: Flow

	Simulated Flow (m ³ /s)	Measured Flow (m ³ /s)	%Difference	Stations Meeting* Expectation Criteria
FJ(GPA4)	2519	2856	-11.8	1
	-5605	-5108	9.7	1
	-5276	-4687	12.6	1
FR2 (GPA9)	-823	-919	-10.4	1
	-1970	-1524	29.3	0
	-1989	-1538	29.3	0
MR2 (GPA10)	-590	-468	26.1	0
	342	370	-7.6	1
	-611	-491	24.4	1
LBR2(GPA15)	159	110	44.5	0
	-591	-258	129.1	0
	-678	-271	150.2	0
BR	750	929	-19.3	1
	-1700	-1682	1.1	1
	-1560	-1600	-2.5	1
	1300	1185	9.7	1
I95(GPA14)	-693	-733	-5.5	1
	322	369	-12.7	1
	406	441	-7.9	1
MR1	123	95	29.5	0
GPA17	-183	-158	15.8	1
GPA18	157	105	49.5	0
GPA16	59	75	-21.3	1
EIE	68	86	-20.9	1
SCU	472	442	6.8	1
KC	55	48	14.6	1
	-71	-63	12.7	1
	-1229	-1079	13.9	1
FR1	-1048	-945	10.9	1
	695	658	5.6	1
	-110	-56	96.4	0
LBR1	-128	-176	-27.3	0
	110	104	5.8	1
	-118	-174	-32.2	0
FW2U	55	61	-9.8	1
	-230	-176	30.7	0
FW3	122	103	18.4	1
	-354	-247	43.3	0
FW4	150	163	-8.0	1
	222	250	-11.2	1
FW5	253	398	-36.4	0
	665	681	-2.3	1
	-924	-819	12.8	1
FW6	-1043	-1164	-10.4	1
	830	985	-15.7	1
Overall Average:				69%

* Expectation criteria suggests +/- 25% for 5th and 95 percentiles

Shading indicates stations meeting criteria

Table 7-7e. Comparison of 1999 Calibration Results Against Federal Criteria: Salinity

Station Name	River Mile	Depth	Simulated (ppt)			Measured (ppt)			Difference (ppt)				Stations Meeting Expectation Criteria		
			50%	90%	M2 Phase (deg)	50%	90%	M2 Phase (deg)	50%	90%	M2 Phase (deg)	M2 Phase (min)	50%	90%	Phase
FRONT RIVER															
GPA-26	0.8	Surface	28.4	31.4	259	26.3	30.5	243	2.1	0.9	15	31	1	1	0
		Bottom	32.4	35.0	288	30.0	32.9	261	2.4	2.1	27	56	1	1	0
GPA-02	4.5	Surface	19.3	27.7	252	20.4	26.7	265	-1.1	1.0	-14	-28	1	1	1
		Bottom	29.9	33.6	275	27.4	31.3	280	2.5	2.3	-5	-9	1	1	1
GPA-04	10.4	Surface	8.3	11.6	229	11.5	16.2	259	-3.2	-4.6	-29	-61	0	0	0
		Bottom	23.4	28.9	276	19.2	27.0	262	4.3	1.8	14	30	0	1	1
GPA-21	13.9	Surface	6.6	9.8	283	7.6	11.2	280	-0.9	-1.4	3	6	0	0	1
		Bottom	18.2	24.9	279	17.0	25.3	291	1.2	-0.3	-12	-25	1	1	1
GPA-06	16.6	Surface	5.4	8.7	269	5.9	8.7	269	-0.5	0.0	-1	-1	1	1	1
		Bottom	16.4	21.8	292	15.0	23.2	278	1.4	-1.4	14	28	1	1	1
GPA-22	18.7	Surface	2.9	4.3	278	2.6	5.4	322	0.3	-1.1	-44	-91	1	0	0
		Bottom	11.1	16.1	328	7.9	12.5	291	3.1	3.6	37	76	0	0	0
GPA-08	20.5	Surface	2.0	3.5	294	0.6	4.0	294	1.3	-0.6	-1	-2	0	0	1
		Bottom	7.2	12.9	252	4.2	12.3	260	3.0	0.7	-8	-17	0	0	1
GPA-09	21.5	Surface	1.3	2.9	291	1.2	4.9	273	0.1	-2.1	18	38	1	0	0
		Bottom	3.7	7.4	263	2.0	7.6	261	1.8	-0.2	2	4	0	1	1
GPA-11r	23.4	Bottom	0.7	2.9	288	0.1	2.9	289	0.6	0.0	-2	-3	0	1	1
GPA-14	27.7	Bottom	0.0	0.0	255	0.1	0.1	330	-0.1	0.0	-74	-153.9	1	1	0
Average: Front River:									1.0	0.0	-3	-6.8	56%	61%	61%
MIDDLE RIVER															
GPA-10	21.8	Surface	1.5	3.1	262	1.1	3.4	275	0.4	-0.3	-13	-27	1	1	1
GPA-12	23.7	Surface	0.4	1.2	197	0.4	2.3	285	0.0	-1.2	-88	-182	1	0	0
Average: Middle River:									0.2	-0.7	-50	-104.1	100%	50%	50%
BACK RIVER															
GPA-05	14.5	Bottom	6.9	11.5	236	8.6	12.9	258	-1.7	-1.4	-22	-45	0	0	0
GPA-07	18.9	Surface	1.4	2.1	275	0.8	4.0	280	0.7	-1.9	-5	-11	0	0	1
GPA-15	20.9	Surface	0.9	1.8	286	0.3	0.9	302	0.6	0.9	-16	-34	0	0	0
USFW	22.1	Middle	0.7	1.2	259	0.1	0.3	291	0.6	1.0	-32	-65	0	0	0
Limehouse	24.2	Middle	0.4	0.7	225	0.2	0.5	303	0.2	0.2	-78	-161	1	1	0
Average: Back River:									0.1	-0.2	-30.6	-63.4	20%	20%	20%
Overall Average:													52%	52%	52%

* Expectation criteria suggests +/- 10% for mean salinity >5ppt; +/- 0.5ppt for salinity <5ppt and +/-30 minutes for phase

Shading indicates stations meeting criteria

Table 7-7f. Comparison of 1999 Calibration Results Against Federal Criteria: Temperature

Station Name	River Mile	Depth	Simulated 50%	Measured 50%	Difference 50%	Stations Meeting* Expectations Criteria
FRONT RIVER						
GPA-26	0.8	Surface	29.3	29.9	-0.6	1
		Bottom	30.0	30.2	-0.2	1
GPA-02	4.5	Surface	29.5	30.1	-0.6	1
		Bottom	30.6	30.8	-0.2	1
GPA-03	5.5	Bottom	29.6	30.5	-0.8	1
GPA-04	10.4	Surface	29.3	30.3	-1.1	0
		Bottom	29.9	30.3	-0.4	1
GPA-21	13.9	Surface	29.1	30.1	-1.0	1
		Bottom	30.1	30.6	-0.5	1
GPA-06	16.6	Surface	28.2	28.6	-0.5	1
		Bottom	29.0	29.2	-0.2	1
GPA-22	18.7	Surface	28.7	29.1	-0.4	1
		Bottom	29.6	29.7	-0.1	1
GPA-08	20.5	Surface	28.8	29.1	-0.3	1
		Bottom	29.5	29.4	0.1	1
GPA-09	21.5	Surface	28.7	29.1	-0.4	1
		Bottom	29.2	29.4	-0.2	1
GPA-11r	23.4	Surface	28.1	27.9	0.2	1
GPA-14	27.7	Surface	27.3	27.0	0.2	1
Average: Front River:					-0.4	95%
MIDDLE RIVER						
GPA-10	21.8	Bottom	29.0	29.3	-0.3	1
GPA-12	23.7	Bottom	28.4	28.1	0.3	1
Average: Middle River:					0.0	100%
BACK RIVER						
GPA-05	14.5	Bottom	29.9	30.2	-0.3	1
GPA-07	18.9	Bottom	29.0	29.2	-0.2	1
GPA-15	20.9	Surface	29.0	29.1	-0.1	1
Average: Back River:					-0.2	100%
UPRIVER of I-95						
GPA-18	28.9	Surface	27.3	27.2	0.1	1
GPA-16	30.2	Surface	27.3	26.9	0.4	1
GPA-17	43.0	Surface	27.3	26.2	1.0	0
Average: I-95 UpRiver:					0.5	67%
Overall Average:						93%

* Expectation criteria suggests +/- 1°C for 50th percentiles

Shading indicates stations meeting criteria

Table 8-1. Simulated versus Measured Water Surface Elevation Statistics and Percentiles for Verification Period (July 15-September 30, 1997)

Station Name	River Mile	Simulated Elevation (m)			Measured Elevation (m)			Difference			Error		
		5%	50%	95%	5%	50%	95%	5%	50%	95%	Mean Error	Absolute Mean Error	RMS Error
FRONT RIVER													
FortPulaski	0.8	-0.85	0.40	1.41	-0.96	0.38	1.46	0.11	0.02	-0.04	0.02	0.05	0.06
GPA-02	4.5	-0.84	0.48	1.47	-0.92	0.51	1.64	0.08	-0.03	-0.16	-0.04	0.10	0.12
GPA-04	10.4	-0.89	0.59	1.61	-1.04	0.48	1.66	0.15	0.11	-0.05	0.08	0.10	0.12
Broad Street	14.6	-0.90	0.69	1.69	-1.06	0.52	1.63	0.16	0.17	0.06	0.12	0.12	0.14
GPA-06	16.6	-0.91	0.68	1.67	-1.05	0.51	1.66	0.14	0.16	0.01	0.11	0.12	0.15
GPA-08	20.5	-0.96	0.75	1.77	-1.02	0.63	1.77	0.06	0.12	0.00	0.05	0.08	0.10
Houlihan	21.5	-0.94	0.77	1.75	-0.99	0.63	1.74	0.06	0.14	0.01	0.07	0.09	0.11
GPA-09	21.5	-0.96	0.79	1.77	-0.91	0.62	1.71	-0.05	0.17	0.05	0.08	0.13	0.18
GPA-11r	23.4	-0.99	0.79	1.79	-0.87	0.73	1.66	-0.13	0.06	0.13	0.00	0.12	0.15
I95	27.7	-0.79	0.83	1.76	-0.73	0.83	1.74	-0.06	0.01	0.02	-0.02	0.10	0.13
Average: Front River:								0.05	0.09	0.00	0.05	0.10	0.13
MIDDLE RIVER													
GPA-10	21.8	-0.96	0.76	1.74	-0.99	0.64	1.74	0.03	0.12	0	0.05	0.15	0.19
GPA-12	23.7	-0.88	0.81	1.73	-0.75	0.72	1.67	-0.13	0.09	0.06	0.03	0.16	0.21
Average: Middle River:								-0.05	0.11	0.03	0.04	0.16	0.20
BACK RIVER													
GPA-05	14.5	-0.88	0.64	1.65	-1.00	0.52	1.57	0.12	0.13	0.08	0.10	0.11	0.13
GPA-07	18.9	-0.85	0.77	1.77	-0.85	0.66	1.67	0.00	0.11	0.10	0.07	0.20	0.25
Lucknow	24.2	-0.88	0.80	1.72	-0.59	0.81	1.66	-0.29	-0.01	0.06	-0.06	0.12	0.18
GPA-13	26.6	-0.93	0.79	1.73	-0.74	0.81	1.71	-0.19	-0.02	0.02	-0.06	0.12	0.17
Average: Back River:								-0.09	0.05	0.07	0.01	0.14	0.18

Table 8-2. Comparison of Water Surface Elevation Harmonics for Calibration Period (July 15-September 30, 1997)

Station Name	River Mile	Length (Days)	Measured Amplitude							Simulated Amplitude							Differences in M2 Constituent (m)	Percent Error
			M2	N2	S2	K1	O1	M4	M6	M2	N2	S2	K1	O1	M4	M6		
FortPulaski	0.8	77	1.00	0.25	0.15	0.12	0.08	0.05	0.01	0.94	0.23	0.14	0.11	0.08	0.04	0.00	-0.06	-6%
GPA-02	4.5	41	1.03	0.24	0.17	0.09	0.08	0.06	0.01	0.95	0.23	0.15	0.09	0.07	0.07	0.01	-0.08	-8%
GPA-04	10.4	24	1.19	0.27	0.08	0.15	0.11	0.09	0.02	1.09	0.27	0.08	0.16	0.08	0.11	0.01	-0.10	-8%
Broadstreet	14.6	77	1.15	0.27	0.15	0.13	0.10	0.10	0.02	1.08	0.27	0.15	0.12	0.09	0.13	0.03	-0.07	-6%
GPA-06	16.6	55	1.16	0.28	0.15	0.14	0.10	0.10	0.02	1.09	0.27	0.14	0.14	0.09	0.13	0.02	-0.07	-6%
GPA-08	20.5	44	1.16	0.26	0.18	0.10	0.09	0.11	0.03	1.10	0.26	0.16	0.10	0.08	0.15	0.04	-0.06	-5%
Houlihan	21.5	77	1.18	0.28	0.15	0.13	0.10	0.11	0.03	1.12	0.27	0.15	0.12	0.09	0.16	0.04	-0.06	-5%
GPA-09	21.5	45	1.13	0.25	0.15	0.09	0.08	0.12	0.03	1.10	0.26	0.16	0.10	0.08	0.16	0.04	-0.03	-3%
GPA-11	23.4	32	1.06	0.26	0.13	0.15	0.13	0.12	0.03	1.13	0.28	0.14	0.15	0.10	0.17	0.04	0.07	7%
I-95	27.7	77	0.96	0.21	0.10	0.13	0.13	0.13	0.04	1.07	0.25	0.13	0.12	0.09	0.16	0.05	0.11	11%
GPA-05	14.5	32	1.12	0.27	0.14	0.15	0.10	0.10	0.01	1.08	0.28	0.14	0.15	0.09	0.11	0.02	-0.04	-4%
Lucknow	24.2	77	1.05	0.24	0.12	0.13	0.13	0.15	0.05	1.07	0.26	0.13	0.12	0.09	0.17	0.05	0.02	2%
GPA-07	18.9	21	1.06	0.25	0.15	0.08	0.09	0.13	0.04	1.09	0.26	0.15	0.09	0.09	0.15	0.05	0.03	3%
GPA-13	26.6	45	1.02	0.25	0.11	0.15	0.14	0.15	0.06	1.10	0.26	0.13	0.14	0.10	0.18	0.05	0.08	8%
GPA-10	21.8	35	1.15	0.29	0.19	0.15	0.11	0.11	0.03	1.13	0.28	0.14	0.15	0.10	0.16	0.03	-0.02	-2%
GPA-12	23.7	77	1.00	0.28	0.14	0.12	0.12	0.11	0.03	1.08	0.26	0.13	0.12	0.09	0.17	0.05	0.08	8%

Station Name	River Mile	Length (Days)	Measured Phase							Simulated Phase							Differences in M2 Constituent	
			M2	N2	S2	K1	O1	M4	M6	M2	N2	S2	K1	O1	M4	M6	Degrees	Minutes
FortPulaski	0.8	77	233.8	224.8	257.5	144.3	136.9	319.6	0.4	235.0	227.2	259.6	145.0	137.5	318.5	28.4	-1.2	-2.4
GPA-02	4.5	19.69	240.8	228.9	265.0	150.2	149.5	334.1	45.6	237.7	225.9	258.2	151.6	146.9	324.3	42.4	3.1	6.5
GPA-04	10.4	11.17	246.6	236.6	266.4	146.1	142.8	336.8	93.7	241.6	242.7	266.4	139.8	140.7	323.5	85.9	5.1	10.5
Broadstreet	14.6	77	248.4	243.5	280.5	154.6	145.5	336.7	125.4	242.9	237.1	272.6	149.7	141.0	319.5	88.0	5.5	11.5
GPA-06	16.6	28.94	249.2	243.8	286.1	154.2	144.5	336.9	124.6	242.2	237.5	278.5	147.8	137.1	317.5	84.4	7.0	14.4
GPA-08	20.5	14.85	255.8	247.8	284.1	163.5	155.4	345.7	152.1	246.3	237.1	271.6	155.9	147.0	321.2	93.7	9.5	19.7
Houlihan	21.5	77	255.3	251.8	290.6	161.4	151.7	344.9	154.8	246.4	241.6	278.3	152.1	143.0	320.5	94.5	8.9	18.5
GPA-09	21.5	22.06	256.7	249.1	292.2	165.6	160.7	350.8	164.0	247.4	238.5	273.4	156.6	147.7	323.3	96.0	9.3	19.3
GPA-11	23.4	32.9	267.9	273.6	326.1	175.0	163.1	25.1	176.0	247.2	245.9	291.7	150.9	138.8	324.0	95.8	20.8	43.0
I-95	27.7	77	276.8	282.0	327.7	185.1	168.5	47.1	211.1	251.7	249.0	286.8	156.2	146.1	336.4	115.4	25.2	52.1
GPA-05	14.5	33.35	251.9	252.1	299.3	157.6	146.2	349.7	126.9	240.4	237.0	279.1	146.2	133.4	316.5	80.7	11.5	23.8
Lucknow	24.2	77	274.7	280.2	325.3	184.4	167.7	41.0	208.5	250.8	248.3	285.7	156.7	146.7	333.4	101.5	23.9	49.5
GPA-07	18.9	10.05	284.5	285.6	290.1	189.8	168.9	62.4	225.0	251.3	250.2	290.1	153.6	153.2	342.0	106.9	33.2	68.8
GPA-13	26.6	44.92	276.3	288.6	336.9	188.7	169.7	44.5	216.9	249.7	251.2	289.9	154.3	141.2	331.2	104.9	26.6	55.1
GPA-10	21.8	35.46	265.0	252.3	314.0	166.4	158.2	7.5	163.7	246.3	245.2	288.8	150.0	139.5	321.6	93.2	18.7	38.6
GPA-12	23.7	34.52	268.4	269.5	310.0	177.4	165.6	26.9	188.5	250.6	247.8	285.2	156.3	146.3	332.6	103.4	17.7	36.7

Table 8-3. Simulated versus Measured Velocity Statistics and Percentiles for Verification Period (July 15-September 30, 1997)

Station Name	River Mile	Depth	Simulated Currents			Measured Currents			Difference			Error		
			5%	50%	95%	5%	50%	95%	5%	50%	95%	Mean Error	Absolute Mean Error	RMS Error
GPA-04	10.4	Surface	-0.98	-0.26	0.40	-0.90	0.09	0.83	-0.09	-0.35	-0.43	-0.27	0.28	0.34
		Bottom	-0.42	0.30	0.48	-0.68	0.18	0.78	0.26	0.12	-0.30	0.05	0.22	0.26
GPA-08	20.5	Surface	-1.14	0.12	0.58	-0.88	-0.16	0.79	-0.26	0.28	-0.20	-0.01	0.21	0.26
		Bottom	-0.80	0.20	0.49	-0.76	-0.09	0.59	-0.04	0.29	-0.09	0.09	0.20	0.27
GPA-15	20.9	Middle	-0.82	-0.06	0.65	-0.77	-0.09	0.59	-0.05	0.03	0.06	0.02	0.40	0.54
GPA-10	21.8	Middle	-0.56	-0.11	0.26	-0.64	-0.14	0.47	0.08	0.03	-0.21	-0.04	0.13	0.16
Average:									-0.02	0.07	-0.20	-0.03	0.24	0.31

Table 8-4. Simulated versus Measured Volume Flux for 1997

Station	Modeled Flow (m ³ /s)	Measured Flow (m ³ /s)	Difference (%)
BR (GPA5)	904	1051	-14.0
	988	1109	-10.9
	-1207	-1197	0.8
FJ (GPA4)	2500	2608	-4.1
	3400	3200	6.3
	3100	3050	1.6
	-4020	-3800	5.8
	-5102	-4560	11.9
FR1	247	350	-29.4
	-857	-663	29.3
I95(GPA14)	188	221	-14.9
	-644	-632	1.9
LBR1	-27	-47	-42.6
MR1(GPA12)	52	38	36.8
	-148	-70	111.4
FR3(GPA21)	1442	1650	-12.6
	1919	3029	-36.6
	1580	1550	1.9
FR2(GPA9)	874	856	2.1
	-1287	-1081	19.1
	210	250	-16.0
MR2(GPA10)	148	145	2.1
LBR2(GPA15)	180	182	-1.1

Table 8-5. Simulated versus Measured Salinity Statistics and Percentiles for Verification Period (July 15-September 30, 1997)

Station Name	River Mile	Depth	Simulated Salinity (ppt)			Measured Salinity (ppt)			Difference			Error		
			10%	50%	90%	10%	50%	90%	10%	50%	90%	Mean Error	Absolute Mean Error	RMS Error
FRONT RIVER														
GPA-02	4.5	Surface	11.1	16.4	23.2	10.0	15.1	22.0	1.1	1.3	1.2	1.1	2.4	3.0
		Bottom	21.6	26.4	29.5	19.8	25.4	29.1	1.8	1.1	0.5	1.1	1.8	2.3
GPA-04	10.4	Surface	4.0	6.4	10.2	4.9	9.1	14.9	-1.0	-2.7	-4.7	-2.8	2.9	3.6
		Bottom	10.9	19.6	24.0	12.5	18.1	22.9	-1.6	1.5	1.2	0.7	2.1	2.7
GPA-06	16.6	Surface	0.9	3.1	5.9	1.3	3.7	7.0	-0.4	-0.7	-1.2	-0.8	1.2	1.5
		Bottom	1.8	11.1	17.1	2.5	9.9	17.0	-0.7	1.2	0.1	0.4	2.3	2.8
GPA-08	20.5	Surface	0.1	0.7	2.4	0.1	0.4	5.2	0.1	0.3	-2.8	-0.6	0.9	1.8
		Bottom	0.2	4.0	9.5	0.1	1.3	10.2	0.1	2.7	-0.7	1.1	1.9	2.5
Houlihan	21.5		0.1	1.4	4.6	0.0	0.2	4.8	0.1	1.2	-0.2	0.5	1.0	1.4
GPA-09	21.5	Bottom	0.1	1.2	4.5	0.1	0.3	6.0	0.0	1.0	-1.5	0.2	1.0	1.5
GPA-11r	23.4	Bottom	0.0	0.0	1.2	0.0	0.1	0.2	0.0	0.0	1.0	0.2	0.3	0.5
I-95	27.7	Bottom	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	-0.1	0.0	0.0	0.0
Average: Front River:									0.0	0.6	-0.7	0.1	1.5	2.0
MIDDLE RIVER														
GPA-10	21.8	Bottom	0.2	0.6	1.7	0.1	0.5	3.0	0.1	0.1	-1.3	-0.3	0.6	1.0
GPA-12	23.7	Bottom	0.0	0.1	0.4	0.1	0.1	0.9	-0.1	0.0	-0.5	-0.2	0.2	0.5
Average: Middle River:									0.0	0.0	-0.9	-0.3	0.4	0.7
BACK RIVER														
GPA-05	14.5	Bottom	0.8	3.7	9.1	0.8	5.0	10.7	-0.1	-1.3	-1.6	-1.1	2.5	3.0
GPA-07	18.9	Bottom	0.1	0.4	1.3	0.1	0.4	3.2	0.1	0.1	-2.0	-0.5	0.8	1.6
GPA-15	20.9	Bottom	0.1	0.5	1.4	0.1	0.2	1.1	0.1	0.3	0.4	0.3	0.3	0.4
USFWS	22.1		0.0	0.2	0.5	0.0	0.0	0.3	0.0	0.1	0.2	0.1	0.1	0.2
Lucknow	24.2		0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.1
GPA-13	26.6		0.0	0.0	0.0	0.0	0.1	0.2	0.0	-0.1	-0.2	-0.1	0.1	0.2
Average: Back River:									0.0	-0.1	-0.5	-0.2	0.6	0.9

Table 8-6a. Comparison of 1997 Verification Results Against Federal Criteria: Water Surface Elevation

Station Name	River Mile	Simulated (m)					Measured (m)					Difference (m)					Stations Meeting* Expectation Criteria				
		5%	50%	95%	M2-Amp	M2 Phs (deg)	5%	50%	95%	M2-Amp	M2 Phs (deg)	5%	50%	95%	M2-Amp	M2 Phs (min)	5%	50%	95%	M2-Amp	M2 Phs (min)
FRONT RIVER																					
FortPulaski	0.8	-0.85	0.40	1.41	0.94	235	-0.96	0.38	1.46	1	234	0.11	0.02	-0.05	-0.06	2	0	1	0	0	1
GPA-02	4.5	-0.84	0.48	1.47	0.95	238	-0.92	0.51	1.64	1.03	241	0.08	-0.03	-0.17	-0.08	-6	0	0	0	0	1
GPA-04	10.4	-0.89	0.59	1.61	1.09	242	-1.04	0.48	1.66	1.19	247	0.15	0.11	-0.05	-0.10	-10	0	0	0	0	1
Broad St.	14.6	-0.90	0.69	1.69	1.08	243	-1.06	0.52	1.63	1.15	248	0.16	0.17	0.06	-0.07	-11	0	0	0	0	1
GPA-06	16.6	-0.91	0.68	1.67	1.09	242	-1.05	0.51	1.66	1.16	249	0.14	0.17	0.01	-0.07	-14	0	0	1	0	1
GPA-08	20.5	-0.96	0.75	1.77	1.1	246	-1.02	0.63	1.77	1.16	256	0.06	0.12	0.00	-0.06	-20	0	0	1	0	1
Houlihan	21.5	-0.94	0.77	1.75	1.12	246	-0.99	0.63	1.74	1.18	255	0.05	0.14	0.01	-0.06	-19	0	0	1	0	1
GPA-09	21.5	-0.96	0.79	1.77	1.1	247	-0.91	0.62	1.71	1.13	257	-0.05	0.17	0.06	-0.03	-19	0	0	0	0	1
GPA11r	23.4	-0.99	0.79	1.79	1.13	247	-0.87	0.73	1.66	1.06	268	-0.12	0.06	0.13	0.07	-43	0	0	0	0	0
I95	27.7	-0.79	0.83	1.76	1.07	252	-0.73	0.83	1.74	0.96	277	-0.06	0.00	0.02	0.11	-52	0	1	1	0	0
Average: Front River:												0.05	0.09	0.00	-0.03	-19	0%	20%	40%	0%	80%
MIDDLE RIVER																					
GPA-10	21.8	-0.96	0.76	1.74	1.13	246	-0.99	0.64	1.74	1.15	265	0.03	0.12	0.00	-0.02	-39	0	0	1	1	0
GPA-12	23.7	-0.88	0.81	1.73	1.08	251	-0.75	0.72	1.67	1	268	-0.13	0.09	0.06	0.08	-37	0	0	0	0	0
Average: Middle River:												-0.05	0.11	0.03	0.03	-38	0%	0%	50%	50%	0%
BACK RIVER																					
GPA-05	14.5	-0.88	0.64	1.65	1.08	240	-1.00	0.52	1.57	1.12	252	0.12	0.12	0.08	-0.04	-24	0	0	0	0	1
GPA-07	18.9	-0.85	0.77	1.77	1.09	251	-0.85	0.66	1.67	1.06	284	0.00	0.11	0.10	0.03	-69	1	0	0	0	0
Lucknow	24.2	-0.88	0.80	1.72	1.07	251	-0.59	0.81	1.66	1.05	275	-0.29	-0.01	0.06	0.02	-49	0	1	0	1	0
GPA-13	26.6	-0.93	0.79	1.73	1.1	250	-0.74	0.81	1.71	1.02	276	-0.19	-0.02	0.02	0.08	-55	0	1	1	0	0
Average: Back River:												-0.09	0.05	0.07	0.02	-49	25%	50%	25%	25%	25%
Overall Average:												0.0	0.1	0.0	0.0	-29	6%	25%	38%	13%	56%

* Expectation criteria suggests +/- 2cm for 5th and 95 percentile amplitudes and +/- 30min for phase

Shading indicates stations meeting criteria

Table 8-6b. Comparison of 1997 Verification Results Against Federal Criteria: Tidal Harmonics

Station Name	River Mile	Length (Days)	Measured Amplitude (m)							Simulated Amplitude (m)							Difference (simulated - measured)							Comparison to Federal Expectations Criteria							
			M2	N2	S2	K1	O1	M4	M6	M2	N2	S2	K1	O1	M4	M6	M2	N2	S2	K1	O1	M4	M6	M2	N2	S2	K1	O1	M4	M6	
FortPulaski	0.8	77.0	1	0.25	0.15	0.12	0.08	0.05	0.01	0.94	0.23	0.14	0.11	0.08	0.04	0	-0.06	-0.02	-0.01	-0.01	0.00	-0.01	-0.01	0	1	1	1	1	1	1	1
GPA-02	4.5	41.0	1.03	0.24	0.17	0.09	0.08	0.06	0.01	0.95	0.23	0.15	0.09	0.07	0.07	0.01	-0.08	-0.01	-0.02	0.00	-0.01	0.01	0.00	0	-	1	1	1	1	1	1
GPA-04	10.4	24.0	1.19	0.27	0.08	0.15	0.11	0.09	0.02	1.09	0.27	0.08	0.16	0.08	0.11	0.01	-0.10	0.00	0.00	0.01	-0.03	0.02	-0.01	0	-	1	1	0	1	1	1
Broadstreet	14.6	77.0	1.15	0.27	0.15	0.13	0.1	0.1	0.02	1.08	0.27	0.15	0.12	0.09	0.13	0.03	-0.07	0.00	0.00	-0.01	-0.01	0.03	0.01	0	-	-	1	-	0	1	1
GPA-06	16.6	55.0	1.16	0.28	0.15	0.14	0.1	0.1	0.02	1.09	0.27	0.14	0.14	0.09	0.13	0.02	-0.07	-0.01	-0.01	0.00	-0.01	0.03	0.00	0	1	1	1	1	0	1	1
GPA-08	20.5	44.0	1.16	0.26	0.18	0.1	0.09	0.11	0.03	1.1	0.26	0.16	0.1	0.08	0.15	0.04	-0.06	0.00	-0.02	0.00	-0.01	0.04	0.01	0	-	1	1	1	0	1	1
Houlihan	21.5	77.0	1.18	0.28	0.15	0.13	0.1	0.11	0.03	1.12	0.27	0.15	0.12	0.09	0.16	0.04	-0.06	-0.01	0.00	-0.01	-0.01	0.05	0.01	0	-	1	1	1	0	1	1
GPA-09	21.5	45.0	1.13	0.25	0.15	0.09	0.08	0.12	0.03	1.1	0.26	0.16	0.1	0.08	0.16	0.04	-0.03	0.01	0.01	0.01	0.00	0.04	0.01	0	1	1	1	1	0	1	1
GPA-11	23.4	32.0	1.06	0.26	0.13	0.15	0.13	0.12	0.03	1.13	0.28	0.14	0.15	0.1	0.17	0.04	0.07	0.02	0.01	0.00	-0.03	0.05	0.01	0	-	1	1	0	0	1	1
I-95	27.7	77.0	0.96	0.21	0.1	0.13	0.13	0.13	0.04	1.07	0.25	0.13	0.12	0.09	0.16	0.05	0.11	0.04	0.03	-0.01	-0.04	0.03	0.01	0	0	0	1	0	0	1	1
GPA-05	14.5	32.0	1.12	0.27	0.14	0.15	0.1	0.1	0.01	1.08	0.28	0.14	0.15	0.09	0.11	0.02	-0.04	0.01	0.00	0.00	-0.01	0.01	0.01	0	-	1	1	1	1	1	1
Lucknow	24.2	77.0	1.05	0.24	0.12	0.13	0.13	0.15	0.05	1.07	0.26	0.13	0.12	0.09	0.17	0.05	0.02	0.02	0.01	-0.01	-0.04	0.02	0.00	1	1	1	1	0	1	1	1
GPA-07	18.9	21.0	1.06	0.25	0.15	0.08	0.09	0.13	0.04	1.09	0.26	0.15	0.09	0.09	0.15	0.05	0.03	0.01	0.00	0.01	0.00	0.02	0.01	0	-	-	1	-	1	1	1
GPA-13	26.6	45.0	1.02	0.25	0.11	0.15	0.14	0.15	0.06	1.1	0.26	0.13	0.14	0.1	0.18	0.05	0.08	0.01	0.02	-0.01	-0.04	0.03	-0.01	0	1	1	1	0	0	1	1
GPA-10	21.8	35.0	1.15	0.29	0.19	0.15	0.11	0.11	0.03	1.13	0.28	0.14	0.15	0.1	0.16	0.03	-0.02	-0.01	-0.05	0.00	-0.01	0.05	0.00	1	-	0	1	1	0	1	1
GPA-12	23.7	77.0	1	0.28	0.14	0.12	0.12	0.11	0.03	1.08	0.26	0.13	0.12	0.09	0.17	0.05	0.08	-0.02	-0.01	0.00	-0.03	0.06	0.02	0	-	-	1	-	0	1	1
																	-0.01	0.00	0.00	0.00	-0.02	0.03	0.00	13%	83%	85%	100%	62%	38%	100%	

Station Name	River Mile	Length (Days)	Measured Phase (degrees)							Simulated Phase (degrees)							Difference (simulated - measured) in Degrees							Difference (simulated - measured) in Minutes							Comparison to Federal Expectations Criteria							
			M2	N2	S2	K1	O1	M4	M6	M2	N2	S2	K1	O1	M4	M6	M2	N2	S2	K1	O1	M4	M6	M2	N2	S2	K1	O1	M4	M6	M2	N2	S2	K1	O1	M4	M6	
FortPulaski	0.8	77	234	225	257	144	137	320	0	235	227	260	145	137	318	28	1	2	2	1	1	-1	28	2	5	4	3	3	-1	19	1	1	1	1	1	1	1	
GPA-02	4.5	19.69	241	229	265	150	149	334	46	238	226	258	152	147	324	42	-3	-3	-7	1	-3	-10	-3	-6	-	-14	6	-11	-10	-2	1	-	1	1	1	1	1	1
GPA-04	10.4	11.17	247	237	266	146	143	337	94	242	243	266	140	141	324	86	-5	6	0	-6	-2	-13	-8	-10	-	0	-25	-9	-14	-5	1	-	1	1	1	1	1	
Broadstreet	14.6	77	248	244	280	155	145	337	125	243	237	273	150	141	320	88	-6	-6	-8	-5	-5	-17	-37	-11	-	-	-20	-	-18	-26	1	-	-	1	-	1	1	
GPA-06	16.6	28.94	249	244	286	154	144	337	125	246	237	278	148	137	318	84	-7	-6	-8	-6	-7	-19	-40	-14	-13	-15	-26	-32	-20	-28	1	1	1	1	0	1	1	
GPA-08	20.5	14.85	256	248	284	163	155	346	152	242	237	272	156	147	321	94	-10	-11	-13	-8	-8	-24	-58	-20	-	-25	-30	-36	-25	-40	1	-	1	0	0	1	0	
Houlihan	21.5	77	255	252	291	161	152	345	155	246	242	278	152	143	321	95	-9	-10	-12	-9	-9	-24	-60	-19	-	-25	-37	-38	-25	-42	1	-	1	0	0	1	0	
GPA-09	21.5	22.06	257	249	292	166	161	351	164	247	239	273	157	148	323	96	-9	-11	-19	-9	-13	-28	-68	-19	-22	-38	-36	-56	-28	-47	1	1	0	0	0	1	0	
GPA-11	23.4	32.9	268	274	326	175	163	25	176	247	246	292	151	139	324	96	-21	-28	-34	-24	-24	299	-80	-43	-	-69	-96	-105	309	-55	0	-	0	0	0	0	0	
I-95	27.7	77	277	282	328	185	169	47	211	252	249	287	156	146	336	115	-25	-33	-41	-29	-22	289	-96	-52	-70	-82	-115	-97	299	-66	0	0	0	0	0	0	0	
GPA-05	14.5	33.35	252	252	299	158	146	350	127	240	237	279	146	133	317	81	-12	-15	-20	-11	-13	-33	-46	-24	-	-40	-45	-55	-34	-32	1	-	0	0	0	0	0	
Lucknow	24.2	77	275	280	325	184	168	41	208	251	248	286	157	147	333	102	-24	-32	-40	-28	-21	292	-107	-49	-67	-79	-111	-90	303	-74	0	0	0	0	0	0	0	
GPA-07	18.9	10.05	284	286	290	190	169	62	225	251	250	290	154	153	342	107	-33	-35	0	-36	-16	280	-118	-69	-	-145	-	289	-81	0	-	-	0	-	0	0		
GPA-13	26.6	44.92	276	289	337	189	170	44	217	250	251	290	154	141	331	105	-27	-37	-47	-34	-29	287	-112	-55	-79	-94	-137	-123	297	-77	0	0	0	0	0	0	0	
GPA-10	21.8	35.46	265	252	314	166	158	7	164	246	245	289	150	139	322	93	-19	-7	-25	-16	-19	314	-70	-39	-	-50	-65	-81	325	-49	0	-	0	0	0	0	0	
GPA-12	23.7	34.52	268	269	310	177	166	27	188	251	248	285	156	146	333	103	-18	-22	-25	-21	-19	306	-85	-37	-	-84	-	316	-59	0	-	-	0	-	0	0		
																	-29	-41	-40	-60	-56	123	-41	56%	50%	46%	31%	23%	50%	31%								

* Expectation criteria suggests +/- 2cm for 5th and 95 percentile amplitudes and +/- 30min for phase
 Shading indicates stations meeting criteria

Table 8-6c. Comparison of 1997 Verification Results Against Federal Criteria: Currents

Station Name	River Mile	Depth	Simulated Currents (m/s)				Measured Currents (m/s)				Difference (m/s)				Stations Meeting* Expectation Criteria			
			5%	95%	M2 amp	M2 phs	5%	95%	M2 amp	M2 phs	5%	95%	M2 amp	M2 phs	5%	95%	M2 amp	M2 phs
FRONT RIVER																		
GPA-04	10.4	Surface	-0.98	0.40	0.64	171.52	-0.90	0.83	0.80	169.71	-0.08	-0.43	-0.16	4	1	0	1	1
		Bottom	-0.42	0.48	0.35	191.36	-0.68	0.78	0.63	164.08	0.26	-0.30	-0.28	56	0	0	0	0
GPA-08	20.5	Surface	-1.14	0.58	0.71	203.79	-0.88	0.79	0.74	168.91	-0.26	-0.21	-0.03	72	0	0	1	0
		Bottom	-0.80	0.49	0.46	196.84	-0.76	0.59	0.59	172.31	-0.04	-0.10	-0.13	51	1	1	1	0
GPA-15	20.9	Middle	-0.82	0.65	0.12	255.68	-0.77	0.59	0.56	188.34	-0.05	0.06	-0.44	139	1	1	0	0
GPA-10	21.8	Middle	-0.56	0.26	0.32	162.07	-0.64	0.47	0.46	191.08	0.08	-0.21	-0.14	-60	1	0	0	0
Average: Front River:																		
											-0.02	-0.20	-0.20	44	67%	33%	50%	17%

* Expectation criteria suggests +/- 25% for 5th and 95 percentiles and +/- 30 min for phase

Shading indicates stations meeting criteria

Table 8-6d. Comparison of 1997 Verification Results Against Federal Criteria: Flows

Station Name	Simulated Flow (m ³ /s)	Measured Flow (m ³ /s)	%Difference	Stations Meeting* Expectation Criteria
BR (GPA5)	904	1051	-14	1
	988	1109	-11	1
	-1207	-1197	1	1
FJ (GPA4)	2500	2608	-4	1
	3400	3200	6	1
	3100	3050	2	1
	-4020	-3800	6	1
	-5102	-4560	12	1
FR1	247	350	-29	0
	-857	-663	29	0
I95(GPA14)	188	221	-15	1
	-644	-632	2	1
LBR1	-27	-47	-43	0
MR1(GPA12)	52	38	37	0
	-148	-70	111	0
FR3(GPA21)	1442	1650	-13	1
	1919	3029	-37	0
	1580	1550	2	1
	-3033	-3688	-18	1
FR2(GPA9)	874	856	2	1
	-1287	-1081	19	1
	210	250	-16	1
MR2(GPA10)	148	145	2	1
LBR2(GPA15)	180	182	-1	1

* Expectation criteria suggests +/- 25% for 5th and 95 percentiles

Shading indicates stations meeting criteria

Table 8-6e. Comparison of 1997 Verification Results Against Federal Criteria: Salinity

Station Name	River Mile	Depth	Simulated (ppt)			Measured (ppt)			Difference (ppt)				Stations Meeting* Expectation Criteria		
			50%	90%	M2 Phase (deg)	50%	90%	M2 Phase (deg)	50%	90%	M2 Phase (deg)	M2 Phase (min)	50%	90%	Phase
FRONT RIVER															
GPA-02	4.5	Surface	16.4	23.2	249	15.1	22.0	254	1.3	1.2	-5	-11	1	1	1
		Bottom	26.4	29.5	281	25.4	29.1	280	1.1	0.5	2	3	1	1	1
GPA-04	10.4	Surface	6.4	10.2	239	9.1	14.9	296	-2.7	-4.7	-57	-119	0	0	0
		Bottom	19.6	24.0	273	18.1	22.9	263	1.5	1.2	10	21	1	1	1
GPA-06	16.6	Surface	3.1	5.9	270	3.7	7.0	256	-0.7	-1.2	14	30	0	0	1
		Bottom	11.1	17.1	289	9.9	17.0	271	1.2	0.1	18	37	0	1	0
GPA-08	20.5	Surface	0.7	2.4	285	0.4	5.2	265	0.3	-2.8	20	41	1	0	0
		Bottom	4.0	9.5	251	1.3	10.2	256	2.7	-0.7	-4	-9	0	0	1
Houlihan	21.5		1.4	4.6	264	0.2	4.8	261	1.2	-0.2	3	7	0	1	1
GPA-09	21.5	Bottom	1.2	4.5	265	0.3	6.0	257	1.0	-1.5	8	17	0	0	1
GPA-11r	23.4	Bottom	0.0	1.2	283	0.1	0.2	280	0.0	1.0	4	8	1	0	1
I-95	27.7	Bottom	0.0	0.0	-	0.0	0.1	-	0.0	-0.1	-	-	1	1	-
Average: Front River:									0.6	-0.6	1	2	50%	50%	73%
MIDDLE RIVER															
GPA-10	21.8	Bottom	0.6	1.7	260	0.5	3.0	259	0.1	-1.3	2	3	1	0	1
GPA-12	23.7	Bottom	0.1	0.4	207	0.1	0.9	275	0.0	-0.5	-68	-141	1	0	0
Average: Middle River:									0.0	-0.9	-33	-69	100%	0%	50%
BACK RIVER															
GPA-05	14.5	Bottom	3.7	9.1	232	5.0	10.7	255	-1.3	-1.6	-22	-46	0	0	0
GPA-07	18.9	Bottom	0.4	1.3	276	0.4	3.2	272	0.1	-2.0	4	8	1	0	1
GPA-15	20.9	Bottom	0.5	1.4	287	0.2	1.1	271	0.3	0.4	16	33	1	1	0
USFWS	22.1		0.2	0.5	262	0.0	0.3	302	0.1	0.2	-40	-83	1	1	0
Lucknow	24.2		0.0	0.2	241	0.0	0.2	315	0.0	0.0	-74	-154	1	1	0
GPA-13	26.6		0.0	0.0	236	0.1	0.2	265	-0.1	-0.2	-29	-59	1	1	0
Average: Back River:									-0.1	-0.5	-24	-50	83%	67%	17%
Overall Average:													65%	50%	53%

* Expectation criteria suggests +/- 10% for mean salinity>5ppt; +/- 0.5ppt for salinity<5ppt and +/-30 minutes for phase

Shading indicates stations meeting criteria

Table 9-1. Summary Table of Sensitivity Runs Performed for Hydrodynamic Model

Sensitivity Test Description	Modified Parameter	Run Title	Baseline (BL)	Upper (UP)	Lower (LW)
Bottom Friction	Cd	SENFBF	Aug-99	+10%	-10%
Horizontal Diffusivity	Ah	SENHD	Aug-99	+25%	-25%
Vertical Diffusivity	Time Series Vertical Diffusivity	SENVMH	Aug-99	+10%	-10%
Upstream Flow	Freshwater Inflow C1yo	SENFRH	Aug-99	+10%	-10%
Offshore Salinity	Boundary Concentration	SENSAL	Aug-99	+1ppt	-1ppt

Table 9-2. Sensitivity of 50th Percentile Salinities

Station	Base Case Salinity (ppt)	Vertical Mixing		Boundary Salinity		Horizontal Mixing		Upstream Inflow		Bottom Friction	
		+10%	-10%	+1ppt	-1ppt	+25%	-25%	+10%	-10%	+10%	-10%
Front River Bottom											
GPA26b	32.42	-0.1	0.1	1.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0
GPA02b	29.95	-0.2	0.2	1.0	-1.0	0.0	0.0	-0.1	0.0	-0.1	0.1
GPA04b	23.56	-0.6	0.6	0.9	-0.9	-0.1	0.1	-0.2	0.2	-0.3	0.3
GPA21b	18.31	-0.8	0.9	0.8	-0.8	-0.2	0.2	-0.3	0.3	-0.3	0.3
GPA06b	16.36	-0.9	1.1	0.8	-0.8	-0.2	0.2	-0.3	0.3	-0.3	0.3
GPA22b	11.02	-1.0	1.1	0.6	-0.7	-0.2	0.2	-0.4	0.4	-0.3	0.3
GPA08b	7.33	-0.9	0.9	0.5	-0.5	-0.2	0.2	-0.5	0.5	-0.3	0.2
GPA09b	3.84	-0.5	0.5	0.3	-0.3	-0.1	0.2	-0.3	0.4	-0.1	0.2
GPA11rb	0.75	-0.1	0.3	0.1	-0.1	0.0	0.0	-0.3	0.3	0.0	0.1
Front River Surface											
GPA26s	28.52	0.3	-0.4	0.8	-0.8	0.0	0.0	-0.1	0.2	0.0	0.0
GPA02s	19.5	0.5	-0.7	0.6	-0.6	-0.1	0.1	-0.3	0.3	-0.2	0.2
GPA04s	8.43	0.2	-0.1	0.3	-0.3	0.0	0.1	-0.3	0.4	0.0	0.0
GPA21s	6.72	0.0	0.0	0.3	-0.3	-0.1	0.1	-0.4	0.4	-0.1	0.1
GPA06s	5.43	0.0	0.0	0.3	-0.3	-0.1	0.1	-0.4	0.4	-0.1	0.1
GPA22s	2.95	-0.1	0.1	0.2	-0.2	-0.1	0.0	-0.3	0.3	-0.1	0.1
GPA08s	2.3	-0.1	0.1	0.2	-0.2	0.0	0.0	-0.3	0.3	-0.1	0.1
GPA09s	1.38	-0.1	0.1	0.1	-0.1	0.0	0.0	-0.2	0.2	0.0	0.1
Middle River											
GPA10s	1.49	-0.1	0.1	0.1	-0.1	0.0	0.0	-0.2	0.2	-0.1	0.1
GPA12rs	0.36	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.1	0.0	0.0
Little Back River											
GPA05b	7.04	-0.6	0.7	0.4	-0.4	-0.1	0.1	-0.3	0.3	-0.1	0.1
GPA07s	1.43	-0.1	0.1	0.1	-0.1	0.0	0.0	-0.2	0.2	-0.1	0.0
GPA15s	0.84	0.0	0.1	0.0	0.0	0.1	0.0	-0.1	0.2	0.0	0.0
USFWS	0.72	0.0	0.1	0.0	0.0	0.0	0.0	-0.1	0.1	0.0	0.0
Limehouse	0.33	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.1	0.0	0.0

Table 9-3. Sensitivity of 90th Percentile Salinities

Station	Base Case Salinity (ppt)	Vertical Mixing		Boundary Salinity		Horizontal Mixing		Upstream Inflow		Bottom Friction	
		+10%	-10%	+1ppt	-1ppt	+25%	-25%	+10%	-10%	+10%	-10%
Front River Bottom											
GPA26b	34.97	0.0	0.1	1.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0
GPA02b	33.58	-0.2	0.2	1.0	-1.0	0.0	0.0	0.0	0.1	-0.1	0.1
GPA04b	28.87	-0.6	0.6	1.0	-1.0	-0.1	0.1	-0.1	0.1	-0.2	0.2
GPA21b	25	-0.8	0.8	0.9	-1.0	-0.1	0.1	-0.1	0.1	-0.3	0.3
GPA06b	21.79	-0.9	1.0	0.9	-0.8	-0.2	0.2	-0.2	0.2	-0.3	0.3
GPA22b	16.25	-1.0	1.1	0.7	-0.7	-0.2	0.2	-0.3	0.4	-0.3	0.3
GPA08b	13.15	-1.0	1.1	0.6	-0.6	-0.2	0.2	-0.4	0.4	-0.3	0.2
GPA09b	7.58	-0.6	0.7	0.5	-0.4	-0.2	0.2	-0.4	0.4	-0.2	0.2
GPA11rb	3	-0.3	0.4	0.2	-0.2	-0.1	0.1	-0.4	0.4	-0.2	0.1
Front River Surface											
GPA26s	31.38	0.2	-0.2	0.9	-0.9	0.0	0.0	-0.1	0.1	0.0	0.0
GPA02s	27.78	0.3	-0.5	0.9	-0.9	0.0	0.1	-0.2	0.2	-0.2	0.2
GPA04s	11.81	0.2	-0.2	0.4	-0.4	-0.1	0.1	-0.3	0.3	-0.1	0.0
GPA21s	9.96	0.0	-0.1	0.4	-0.4	-0.1	0.1	-0.4	0.4	-0.2	0.1
GPA06s	8.69	0.0	0.0	0.4	-0.4	-0.1	0.1	-0.4	0.5	-0.2	0.1
GPA22s	4.43	-0.1	0.1	0.2	-0.2	0.0	0.0	-0.3	0.4	-0.1	0.1
GPA08s	3.98	0.0	0.0	0.2	-0.2	0.0	0.0	-0.3	0.4	-0.1	0.1
GPA09s	3.04	-0.1	0.1	0.2	-0.2	-0.1	0.0	-0.3	0.3	-0.1	0.1
Middle River											
GPA10s	3.22	-0.2	0.2	0.2	-0.2	-0.1	0.1	-0.3	0.3	-0.1	0.1
GPA12rs	1	-0.1	0.1	0.1	-0.1	0.0	0.0	-0.2	0.2	-0.1	0.1
Little Back River											
GPA05b	11.68	-0.7	0.8	0.5	-0.5	-0.1	0.1	-0.3	0.3	-0.2	0.1
GPA07s	2.22	-0.1	0.1	0.1	-0.1	0.0	0.0	-0.2	0.3	-0.1	0.0
GPA15s	1.86	-0.1	0.1	0.1	-0.1	0.0	0.0	-0.2	0.2	-0.1	0.0
USFWS	1.26	-0.1	0.1	0.1	-0.1	0.0	0.0	-0.2	0.2	-0.1	0.1
Limehouse	0.65	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.2	-0.1	0.1

Table 9-4. Sensitivity of 50th Percentile Water Levels

Station	Base Case WSE (m)	Vertical Mixing		Boundary Salinity		Horizontal Mixing		Upstream Inflow		Bottom Friction	
		+10%	-10%	+1ppt	-1ppt	+25%	-25%	+10%	-10%	+10%	-10%
Front River											
Ft.Pulaski	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GPA-02	0.45	-0.01	0.00	0.00	-0.01	0.00	-0.01	0.00	-0.01	0.00	-0.01
GPA-04	0.66	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BroadSt.	0.76	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	0.00
GPA-21	0.69	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00
GPA-06	0.77	0.00	-0.01	0.00	-0.01	0.00	0.00	0.00	-0.01	0.00	0.00
GPA-08	0.83	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01
Houlihan	0.76	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
GPA-09	0.84	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.01
GPA-11	0.87	0.00	0.00	0.01	-0.01	0.00	0.00	0.00	0.00	0.00	0.01
GPA-14	0.91	0.01	0.00	0.01	-0.01	0.00	0.00	0.01	0.00	0.00	0.00
I-95	0.91	0.01	0.00	0.01	-0.01	0.00	0.00	0.01	0.00	0.00	0.00
Back River											
GPA-05	0.76	0.00	-0.01	0.00	-0.01	0.00	0.00	0.00	-0.01	-0.01	0.00
LucknowCan	0.88	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	-0.01	0.00	0.00
Upper River											
GPA-16	1.04	0.00	-0.01	0.00	-0.01	0.00	0.00	0.01	-0.02	0.00	-0.01
GPA-22	0.85	0.00	-0.01	0.00	-0.01	0.00	-0.01	0.00	-0.01	-0.01	0.00
Hardeeville	1.88	0.00	-0.01	0.00	-0.01	0.00	0.00	0.13	-0.13	0.07	-0.07
GPA-17	2.41	0.00	-0.01	0.00	-0.01	0.00	-0.01	0.17	-0.18	0.09	-0.10

Table 9-5. Sensitivity of 95th Percentile Water Levels

Station	Base Case WSE (m)	Vertical Mixing		Boundary Salinity		Horizontal Mixing		Upstream Inflow		Bottom Friction	
		+10%	-10%	+1ppt	-1ppt	+25%	-25%	+10%	-10%	+10%	-10%
Front River											
Ft.Pulaski	1.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GPA-02	1.52	-0.01	0.00	0.00	-0.01	0.00	-0.01	0.00	-0.01	0.00	-0.01
GPA-04	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BroadSt.	1.83	0.00	-0.01	0.00	-0.01	0.00	0.00	0.00	-0.01	0.00	0.00
GPA-21	1.78	0.00	-0.01	0.00	-0.01	0.00	-0.01	0.00	-0.01	-0.01	0.00
GPA-06	1.83	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	-0.01	0.00	0.00
GPA-08	1.91	0.00	-0.01	0.00	-0.01	0.00	-0.01	0.00	-0.01	-0.01	0.00
Houlihan	1.82	0.00	-0.01	0.00	-0.01	0.00	0.00	0.00	-0.01	0.00	0.00
GPA-09	1.89	0.00	0.00	0.01	-0.01	0.00	0.00	0.00	0.00	0.00	0.01
GPA-11	1.91	0.00	-0.01	0.01	-0.01	0.00	0.00	0.00	-0.01	0.00	0.00
GPA-14	1.91	0.00	0.00	0.01	-0.01	0.00	0.00	0.01	0.00	0.00	0.01
I-95	1.91	0.00	0.00	0.01	-0.01	0.00	0.00	0.01	0.00	0.00	0.01
Back River											
GPA-05	1.86	0.00	-0.01	0.00	-0.01	0.00	0.00	0.00	-0.01	0.00	0.00
LucknowCan	1.88	0.00	-0.01	0.00	-0.01	0.00	0.00	0.00	-0.01	-0.01	0.00
Upper River											
GPA-16	1.94	0.01	0.00	0.01	0.00	0.00	0.00	0.02	-0.01	0.00	0.00
GPA-22	1.90	0.00	-0.01	0.00	-0.01	0.00	0.00	0.00	-0.01	-0.01	0.00
Hardeeville	2.37	0.00	0.00	0.01	0.00	0.00	0.00	0.12	-0.10	0.06	-0.05
GPA-17	2.79	0.00	-0.01	0.00	-0.01	0.00	-0.01	0.18	-0.18	0.09	-0.10