

Savannah Harbor Expansion Project (SHEP) Fish Passage at New Savannah Bluff Lock and Dam

Recreation Analysis

Boat Docks

Impacts on Boat Docks in NSBLD Pool

This analysis identifies the impacts on boat docks in the NSBLD pool. It compares the water depths from the No Action Alternative (NAA), which is the SHEP 2012 Plan, to the action alternatives at 161 docks. This analysis focuses on those docks that would have adverse impacts as a result of a change from the NAA.

The most common boats typically seen navigating the NSBLD pool are power boats including roundabouts, pontoons, bass boats, and ski boats. Most of those water craft can operate with 2 feet or more of water depth. According to United Facilities Criteria (UFC), Design: Small Craft Berthing Facilities, 1 September 2012, the minimum water depth should extend at least 2 ft (.61 m) for a soft harbor bottom below the keel. With less than 2 feet of water depth, there would most likely be adverse impacts to accessing the docks with the engine fully submerged. Hence, boat docks with less than 2 feet of water depth in the action alternatives, but with equal to or greater than 2 feet of water depth in the NAA, would be considered adversely impacted.

This analysis evaluates impacts on docks for flows at 3,600 cubic feet per second (cfs), 5,000 cfs, and 8,000 cfs. Flows at or less than 3,600 cfs represent drought conditions that occur less than one percent of the time of any given year. Flows greater than 3,600 cfs occur 99 percent of the time during any given year. Flows at 5,000 cfs represent the lower end of average normal flows while flows at 8,000 cfs represent the higher end of average normal flows. Flows at or less than 5,000 cfs occur 23 percent of the time during any given year. Flows greater than 5,000 cfs occur 77 percent of the time during any given year. Flows at or less than 8,000 cfs occur 69 percent of the time during any given year. Flows greater than 8,000 cfs occur 31 percent of the time during any given year. Flows between 5,000 and 8,000 cfs occur 46 percent of the time during any given year. Flows between 3,600 and 8,000 cfs occur 68 percent of the time during any given year.

Table 1 displays the total number of docks by impact zone for each alternative at 3,600 cfs. There are five impact zones: no impact; minor impact; moderate impact; high impact; and adverse impact.

Table 1: Total Number of Docks by Impact Zone for Each Alternative (3,600 cfs)

Impact Zone	Depth Below Dock	Existing	NAA SHEP Plan	Alt 1-1	Alt 2-3	Alt 2-6a	Alt 2-6b	Alt 2-6c	Alt 2-6d	Alt 2-8
No Impact	=>3.5	137	135	128	116	126	116	118	123	126
Minor Impact	<3.5 and =>3	3	2	5	2	4	1	5	2	4
Moderate Impact	<3 and => 2.5	6	6	2	5	3	6	2	1	3
High Impact	<2.5 and =>2	7	4	3	2	2	2	1	6	2
Adverse Impact	< 2	8	14	23	36	26	36	35	29	26

Table 2 displays the change in the number of docks by impact zone for each alternative from the NAA at 3,600 cfs. A negative means that less docks would be impacted in that zone.

Table 2: Change in Number of Docks Impacted by Zone for Each Alternative in Comparison to NAA (3,600 cfs)

Impact Zone	Depth Below Dock	NAA SHEP Plan	Alt 1-1	Alt 2-3	Alt 2-6a	Alt 2-6b	Alt 2-6c	Alt 2-6d	Alt 2-8
No Impact	=>3.5	0	-7	-19	-9	-19	-17	-12	-9
Minor Impact	<3.5 and =>3	0	3	0	2	-1	3	0	2
Moderate Impact	<3 and => 2.5	0	-4	-1	-3	0	-4	-5	-3
High Impact	<2.5 and =>2	0	-1	-2	-2	-2	-3	2	-2
Adverse Impact	< 2	0	9	22	12	22	21	15	12

Existing Condition at 3,600 cfs

For the Existing Condition at 3,600 cfs, 8 docks have less than 2 feet of water depth below the dock. See Table 3.

Table 3: Existing Condition Adverse Impacts Docks for Motor Boats (3,600 cfs)

Address	Depth Below Dock
1439 Waters Edge Drive, Augusta, GA	1.38
1435 Waters Edge Drive, Augusta, GA	1.96
1425 Waters Edge Drive, Augusta, GA	1.44
1421 Waters Edge Drive, Augusta, GA	1.59
39 Savannah River Place, N. Augusta, SC	1.08
106 Altamaha Drive, N. Augusta, SC	1.73
474 River North Drive, N. Augusta, GA	1.60
75 Alberclaus Drive, Augusta, GA	1.59

No Action Alternative – SHEP Plan at 3,600 cfs

For the No Action Alternative at 3,600 cfs, 14 docks would have less than 2 feet of water depth below the dock. See table 4.

Table 4: NAA Adverse Impacts on Docks for Motor Boats (3,600 cfs)

Address	Depth Below Dock
1439 Waters Edge Drive, Augusta, GA	1.00
1437 Waters Edge Drive, Augusta, GA	1.86
1435 Waters Edge Drive, Augusta, GA	1.58
1431 Waters Edge Drive, Augusta, GA	1.78
1425 Waters Edge Drive, Augusta, GA	1.06
1421 Waters Edge Drive, Augusta, GA	1.22
1419 Waters Edge Drive, Augusta, GA	1.91
1405 Waters Edge Drive, Augusta, GA	1.82
39 Savannah River Place, N. Augusta, SC	0.68
442 River North Drive, N. Augusta, SC	1.63
474 River North Drive, N. Augusta, SC	1.20
114 Altamaha Drive, N. Augusta, SC	1.71
106 Altamaha Drive, N. Augusta, SC	1.33
75 Alberclaus Drive, Augusta, GA	1.17

Alternative 1-1, Retain Dam with Georgia-side Fish Passage at 3,600 cfs

Alternative 1-1, Retain Dam with Georgia-side Fish Passage, includes adverse impacts to 9 additional docks in comparison to the NAA at 3,600 cfs. As seen in Table 5, depending on the location, there would be between 1.22 and 1.95 feet of water depth under those docks in comparison to over 2 feet of water depth for the NAA. The change in depth for those docks from the NAA would be less 0.89 to 0.95 feet.

Table 5: Alternative 1-1 Adverse Impacts on Docks for Motor Boats (3,600 cfs)

Address	Depth Below Dock	NAA Depth Below Dock	Change in Depth
1433 Waters Edge Drive, Augusta, GA	1.22	2.11	-0.89
1423 Waters Edge Drive, Augusta, GA	1.57	2.46	-0.89
1407 Waters Edge Drive, Augusta, GA	1.30	2.19	-0.89
1403 Waters Edge Drive, Augusta, GA	1.56	2.45	-0.89
1A Tenth Street, Augusta, GA (Public)	1.70	2.60	-0.90
21 Savannah River Place, N. Augusta, SC	1.95	2.89	-0.94
29 Savannah River Place, N. Augusta, SC	1.65	2.58	-0.93
450 River North Drive, N. Augusta, SC	1.65	2.59	-0.94
122 Altamaha Drive, N. Augusta, SC	1.68	2.63	-0.95

Alternative 2-3, Fixed Weir at 3,600 cfs

Alternative 2-3, Fixed Weir, includes adverse impacts to 22 additional docks in comparison to the NAA at 3,600 cfs. As seen in Table 6, depending on the location, there would be between 0 and 1.67 feet of water depth under those docks. The change in depth for those docks from the NAA would be less 2.71 to 4.53 feet.

Table 6: Alternative 2-3 Adverse Impacts on Docks for Motor Boats (3,600 cfs)

Address	Depth Below Dock	NAA Depth Below Dock	Change in Depth
3 Westobou Xing, N. Augusta, SC	0.89	3.60	-2.71
101 Savannah Pointe, N. Augusta, SC	1.66	4.40	-2.74
1445 Waters Edge Drive, Augusta, GA	1.52	4.33	-2.81
1433 Waters Edge Drive, Augusta, GA	-0.70	2.11	-2.81
1429 Waters Edge Drive, Augusta, GA	1.67	4.49	-2.82
1423 Waters Edge Drive, Augusta, GA	-0.36	2.46	-2.82
1407 Waters Edge Drive, Augusta, GA	-0.63	2.19	-2.82
1403 Waters Edge Drive, Augusta, GA	-0.37	2.45	-2.82
1321 Waters Edge Drive, Augusta, GA	1.16	4.00	-2.84
1305 Waters Edge Drive, Augusta, GA	1.49	4.33	-2.84
420 East Shoreline Drive, N. Augusta, SC	1.32	4.26	-2.94
1A Tenth Street, Augusta, GA (Public)	-0.30	2.60	-2.90
21 Savannah River Place, N. Augusta, SC	-0.17	2.89	-3.06
29 Savannah River Place, N. Augusta, SC	-0.47	2.58	-3.05
466 River North Drive, N. Augusta, SC	0.08	3.19	-3.27
458 River North Drive, N. Augusta, SC	-0.12	2.98	-3.10
450 River North Drive, N. Augusta, SC	-0.51	2.59	-3.10
122 Altamaha Drive, N. Augusta, SC	-0.49	2.63	-3.12
152 Altamaha Drive, N. Augusta, SC	1.09	4.20	-3.11
144 Altamaha Drive, N. Augusta, SC	0.59	3.71	-3.12
130 Altamaha Drive, N. Augusta, SC	0.16	3.28	-3.12
2229 Riverside Plantation Rd, Jackson, SC	0.86	5.39	-4.53

Alternative 2-6a, Fixed Weir with Floodplain at 3,600 cfs

Alternative 2-6a, Fixed Weir with Floodplain, includes adverse impacts to 12 additional docks in comparison to the NAA at 3,600 cfs. As seen in Table 7, depending on the location, there would be between 0.84 and 1.92 feet of water depth under those docks. The change in depth for those docks from the NAA would be less 1.27 to 1.46 feet.

Table 7: Alternative 2-6a Adverse Impacts on Docks for Motor Boats (3,600 cfs)

Address	Depth Below Dock	NAA Depth Below Dock	Change in Depth
1433 Waters Edge Drive, Augusta, GA	0.84	2.11	-1.27
1423 Waters Edge Drive, Augusta, GA	1.19	2.46	-1.27
1407 Waters Edge Drive, Augusta, GA	0.92	2.19	-1.27
1403 Waters Edge Drive, Augusta, GA	1.18	2.45	-1.27
1A Tenth Street, Augusta, GA (Public)	1.31	2.60	-1.29
21 Savannah River Place, N. Augusta, SC	1.54	2.89	-1.35
29 Savannah River Place, N. Augusta, SC	1.24	2.58	-1.35
466 River North Drive, N. Augusta, SC	1.83	3.19	-1.36
458 River North Drive, N. Augusta, SC	1.62	2.98	-1.36
450 River North Drive, N. Augusta, SC	1.24	2.59	-1.35
122 Altamaha Drive, N. Augusta, SC	1.27	2.63	-1.36
130 Altamaha Drive, N. Augusta, SC	1.92	3.28	-1.46

Alternative 2-6b, Fixed Weir with Dry Floodplain at 3,600 cfs

Alternative 2-6b, Fixed Weir with Dry Floodplain, includes adverse impacts to 22 additional docks in comparison to the NAA at 3,600 cfs. As seen in Table 8, depending on the location, there would be between 0 and 1.66 feet of water depth under those docks. The change in depth for those docks from the NAA would be less 2.72 to 4.56 feet.

Table 8: Alternative 2-6b Adverse Impacts on Docks for Motor Boats (3,600 cfs)

Address	Depth Below Dock	NAA Depth Below Dock	Change in Depth
3 Westobou Xing, N. Augusta, SC	0.88	3.60	-2.72
101 Savannah Pointe, N. Augusta, SC	1.65	4.40	-2.75
1445 Waters Edge Drive, Augusta, GA	1.51	4.33	-2.82
1433 Waters Edge Drive, Augusta, GA	-0.71	2.11	-2.82
1429 Waters Edge Drive, Augusta, GA	1.66	4.49	-2.83
1423 Waters Edge Drive, Augusta, GA	-0.37	2.46	-2.83
1407 Waters Edge Drive, Augusta, GA	-0.64	2.19	-2.83
1403 Waters Edge Drive, Augusta, GA	-0.38	2.45	-2.83
1321 Waters Edge Drive, Augusta, GA	1.15	4.00	-2.85
1305 Waters Edge Drive, Augusta, GA	1.48	4.33	-2.85

420 East Shoreline Drive, N. Augusta, SC	1.31	4.26	-2.95
1A Tenth Street, Augusta, GA (Public)	-0.31	2.60	-2.91
21 Savannah River Place, N. Augusta, SC	-0.17	2.89	-3.06
29 Savannah River Place, N. Augusta, SC	-0.47	2.58	-3.05
466 River North Drive, N. Augusta, SC	0.07	3.19	-3.28
458 River North Drive, N. Augusta, SC	-0.12	2.98	-3.10
450 River North Drive, N. Augusta, SC	-0.51	2.59	-3.10
122 Altamaha Drive, N. Augusta, SC	-0.50	2.63	-3.13
152 Altamaha Drive, N. Augusta, SC	1.08	4.20	-3.12
144 Altamaha Drive, N. Augusta, SC	0.58	3.71	-3.13
130 Altamaha Drive, N. Augusta, SC	0.15	3.28	-3.13
2229 Riverside Plantation Rd, Jackson, SC	0.83	5.39	-4.56

Alternative 2-6c, Fixed Weir with Dry Floodplain at 3,600 cfs

Alternative 2-6c, Fixed Weir with Dry Floodplain, includes adverse impacts to 21 additional docks in comparison to the NAA at 3,600 cfs. As seen in Table 9, depending on the location, there would be between 0 and 1.99 feet of water depth. The change in depth for those docks from the NAA would be less 2.38 to 3.71 feet.

Table 9: Alternative 2-6c Adverse Impacts on Docks for Motor Boats (3,600 cfs)

Address	Depth Below Dock	NAA Depth Below Dock	Change in Depth
3 Westobou Xing, N. Augusta, SC	1.22	3.60	-2.38
101 Savannah Pointe, N. Augusta, SC	1.99	4.40	-2.41
1445 Waters Edge Drive, Augusta, GA	1.87	4.33	-2.46
1433 Waters Edge Drive, Augusta, GA	-0.35	2.11	-2.46
1423 Waters Edge Drive, Augusta, GA	-0.01	2.46	-2.47
1407 Waters Edge Drive, Augusta, GA	-0.28	2.19	-2.47
1403 Waters Edge Drive, Augusta, GA	-0.02	2.45	-2.47
1321 Waters Edge Drive, Augusta, GA	1.51	4.00	-2.49
1305 Waters Edge Drive, Augusta, GA	1.84	4.33	-2.49
420 East Shoreline Drive, N. Augusta, SC	1.70	4.26	-2.56
1A Tenth Street, Augusta, GA (Public)	0.07	2.60	-2.53
21 Savannah River Place, N. Augusta, SC	-0.23	2.89	-3.12
29 Savannah River Place, N. Augusta, SC	-0.08	2.58	-2.66
466 River North Drive, N. Augusta, SC	0.49	3.19	-2.70
458 River North Drive, N. Augusta, SC	0.29	2.98	-2.69
450 River North Drive, N. Augusta, SC	-0.10	2.59	-2.69
122 Altamaha Drive, N. Augusta, SC	-0.08	2.63	-2.71
152 Altamaha Drive, N. Augusta, SC	1.50	4.20	-2.70
144 Altamaha Drive, N. Augusta, SC	1.00	3.71	-2.71
130 Altamaha Drive, N. Augusta, SC	0.57	3.28	-2.71
2229 Riverside Plantation Rd, Jackson, SC	1.68	5.39	-3.71

Alternative 2-6d, Fixed Weir with Dry Floodplain at 3,600 cfs

Alternative 2-6d, Fixed Weir with Dry Floodplain, includes adverse impacts to 15 additional docks in comparison to the NAA at 3,600 cfs. As seen in Table 10, depending on the location, there would be between 0.09 and 1.97 feet of water depth under those docks. The change in depth for those docks from the NAA would be less 1.95 to 2.19 feet.

Table 10: Alternative 2-6c Adverse Impacts on Docks for Motor Boats (3,600 cfs)

Address	Depth Below Dock	NAA Depth Below Dock	Change in Depth
3 Westobou Xing, N. Augusta, SC	1.65	3.60	-1.95
1433 Waters Edge Drive, Augusta, GA	0.09	2.11	-2.02
1423 Waters Edge Drive, Augusta, GA	0.44	2.46	-2.02
1407 Waters Edge Drive, Augusta, GA	0.17	2.19	-2.02
1403 Waters Edge Drive, Augusta, GA	-0.43	2.45	-2.02
1321 Waters Edge Drive, Augusta, GA	1.97	4.00	-2.03
1A Tenth Street, Augusta, GA (Public)	0.53	2.60	-2.07
21 Savannah River Place, N. Augusta, SC	0.73	2.89	-2.16
29 Savannah River Place, N. Augusta, SC	0.42	2.58	-2.16
466 River North Drive, N. Augusta, SC	1.00	3.19	-2.19
458 River North Drive, N. Augusta, SC	0.79	2.98	-2.19
450 River North Drive, N. Augusta, SC	0.41	2.59	-2.18
122 Altamaha Drive, N. Augusta, SC	0.43	2.63	-2.20
144 Altamaha Drive, N. Augusta, SC	1.51	3.71	-2.20
130 Altamaha Drive, N. Augusta, SC	1.08	3.28	-2.20

Alternative 2-8, Gated Bypass Channel at 3,600 cfs

Alternative 2-8, Gated Bypass Channel, includes adverse impacts to 12 additional docks in comparison to the NAA at 3,600 cfs. As seen in Table 11, depending on the location, there would be between 0.88 and 1.96 feet of water depth under those docks. The change in depth for those docks from the NAA would be less 1.23 to 1.32 feet.

Table 11: Alternative 2-6c Adverse Impacts on Docks for Motor Boats (3,600 cfs)

Address	Depth Below Dock	NAA Depth Below Dock	Change in Depth
1433 Waters Edge Drive, Augusta, GA	0.88	2.11	-1.23
1423 Waters Edge Drive, Augusta, GA	1.23	2.46	-1.23
1407 Waters Edge Drive, Augusta, GA	0.96	2.19	-1.23
1403 Waters Edge Drive, Augusta, GA	1.22	2.45	-1.23
1A Tenth Street, Augusta, GA (Public)	1.35	2.60	-1.25
21 Savannah River Place, N. Augusta, SC	1.58	2.89	-1.31
29 Savannah River Place, N. Augusta, SC	1.28	2.58	-1.30
466 River North Drive, N. Augusta, SC	1.88	3.19	-1.32
458 River North Drive, N. Augusta, SC	1.67	2.98	-1.31
450 River North Drive, N. Augusta, SC	1.28	2.59	-1.31
122 Altamaha Drive, N. Augusta, SC	1.31	2.63	-1.32
130 Altamaha Drive, N. Augusta, SC	1.96	3.28	-1.32

Table 12 displays the total number of docks by impact zone for each alternative based on flows at 5,000 cfs. There are five impact zones: no impact; minor impact; moderate impact; high impact; and adverse impact.

Table 12: Total Number of Docks by Impact Zone for Each Alternative (5,000 cfs)

Impact Zone	Depth Below Dock	Existing	NAA SHEP Plan	Alt 1-1	Alt 2-3	Alt 2-6a	Alt 2-6b	Alt 2-6c	Alt 2-6d	Alt 2-8
No Impact	=>3.5	140	140	136	124	134	124	125	127	136
Minor Impact	<3.5 and =>3	8	7	2	2	2	2	4	6	2
Moderate Impact	<3 and => 2.5	5	5	8	4	4	4	4	1	3
High Impact	<2.5 and =>2	4	4	3	3	6	3	3	3	7
Adverse Impact	< 2	4	5	12	28	15	28	25	24	13

Table 13 displays the change in the number of docks by impact zone for each alternative from the NAA at 5,000 cfs.

Table 13: Change in Number of Docks Impacted by Zone for Each Alternative in Comparison to NAA (at 5,000 cfs)

Impact Zone	Depth Below Dock	NAA SHEP Plan	Alt 1-1	Alt 2-3	Alt 2-6a	Alt 2-6b	Alt 2-6c	Alt 2-6d	Alt 2-8
No Impact	=>3.5	0	-4	-16	-6	-16	-15	-13	-4
Minor Impact	<3.5 and =>3	0	-5	-5	-5	-5	-3	-1	-5
Moderate Impact	<3 and => 2.5	0	3	-1	-1	-1	-1	-4	-2
High Impact	<2.5 and =>2	0	-1	-1	2	-1	-1	-1	3
Adverse Impact	< 2	0	7	23	10	23	20	19	8

Existing Condition at 5,000 cfs

For the Existing Condition at 5,000 cfs, 4 docks have less than 2 feet of water depth below the dock. See Table 14.

Table 14: Existing Condition Adverse Impacts Docks for Motor Boats (5,000 cfs)

Address	Depth Below Dock
1439 Waters Edge Drive, Augusta, GA	1.89
1425 Waters Edge Drive, Augusta, GA	1.95
39 Savannah River Place, N. Augusta, SC	1.50
75 Alberclaus Drive, Augusta, GA	1.89

No Action Alternative – SHEP Plan at 5,000 cfs

For the No Action Alternative at 5,000 cfs, 5 docks would have less than 2 feet of water depth below the dock. See table 15.

Table 15: NAA Adverse Impacts on Docks for Motor Boats (5,000 cfs)

Address	Depth Below Dock
1439 Waters Edge Drive, Augusta, GA	1.83
1425 Waters Edge Drive, Augusta, GA	1.88
39 Savannah River Place, N. Augusta, SC	1.44
474 River North Drive, N. Augusta, SC	1.93
75 Alberclaus Drive, Augusta, GA	1.82

Alternative 1-1, Retain Dam with Georgia-side Fish Passage at 5,000 cfs

Alternative 1-1, Retain Dam with Georgia-side Fish Passage, includes adverse impacts to 7 additional docks in comparison to the NAA at 5,000 cfs. As seen in Table 16, depending on the location, there would be between 1.29 and 1.97 feet of water depth under those docks in comparison to over 2 feet of water depth for the NAA. The change in depth for those docks from the NAA would be less 0.71 to 0.77 feet.

Table 16: Alternative 1-1 Adverse Impacts on Docks for Motor Boats (5,000 cfs)

Address	Depth Below Dock	NAA Depth Below Dock	Change in Depth
1437 Waters Edge Drive, Augusta, GA	1.97	2.69	-0.72
1435 Waters Edge Drive, Augusta, GA	1.69	2.41	-0.72
1431 Waters Edge Drive, Augusta, GA	1.89	2.61	-0.72
1421 Waters Edge Drive, Augusta, GA	1.33	2.04	-0.71
1405 Waters Edge Drive, Augusta, GA	1.93	2.64	-0.71
114 Altamaha Drive, N. Augusta, SC	1.67	2.44	-0.77
106 Altamaha Drive, N. Augusta, SC	1.29	2.06	-0.77

Alternative 2-3, Fixed Weir at 5,000 cfs

Alternative 2-3, Fixed Weir, includes adverse impacts to 23 additional docks in comparison to the NAA at 5,000 cfs. As seen in Table 17, depending on the location, there would be between 0 and 1.68 feet of water depth under those docks. The change in depth for those docks from the NAA would be less 2.44 to 4.38 feet.

Table 17: Alternative 2-3 Adverse Impacts on Docks for Motor Boats (5,000 cfs)

Address	Depth Below Dock	NAA Depth Below Dock	Change in Depth
1437 Waters Edge Drive, Augusta, GA	0.25	2.69	-2.44
1435 Waters Edge Drive, Augusta, GA	0.00	2.41	-2.44
1433 Waters Edge Drive, Augusta, GA	0.50	2.94	-2.44
1431 Waters Edge Drive, Augusta, GA	0.17	2.61	-2.44
1423 Waters Edge Drive, Augusta, GA	0.84	3.28	-2.44
1421 Waters Edge Drive, Augusta, GA	0.00	2.04	-2.44
1419 Waters Edge Drive, Augusta, GA	0.29	2.73	-2.44
1407 Waters Edge Drive, Augusta, GA	0.57	3.02	-2.45
1405 Waters Edge Drive, Augusta, GA	0.20	2.65	-2.45
1403 Waters Edge Drive, Augusta, GA	0.83	3.28	-2.45
1A Tenth Street, Augusta, GA (Public)	0.86	3.40	-2.54
21 Savannah River Place, N. Augusta, SC	0.93	3.63	-2.70
29 Savannah River Place, N. Augusta, SC	0.63	3.33	-2.70
466 River North Drive, N. Augusta, SC	1.17	3.93	-2.76
458 River North Drive, N. Augusta, SC	0.96	3.72	-2.76
450 River North Drive, N. Augusta, SC	0.57	3.33	-2.76
442 River North Drive, N. Augusta, SC	1.68	4.43	-2.75

122 Altamaha Drive, N. Augusta, SC	0.59	3.36	-2.77
114 Altamaha Drive, N. Augusta, SC	0.00	2.44	-2.76
106 Altamaha Drive, N. Augusta, SC	0.00	2.06	-2.76
144 Altamaha Drive, N. Augusta, SC	1.67	4.44	-2.77
130 Altamaha Drive, N. Augusta, SC	1.24	4.01	-2.77
2229 Riverside Plantation Rd, Jackson, SC	1.48	5.86	-4.38

Alternative 2-6a, Fixed Weir with Floodplain at 5,000 cfs

Alternative 2-6a, Fixed Weir with Floodplain, includes adverse impacts to 10 additional docks in comparison to the NAA at 5,000 cfs. As seen in Table 18, depending on the location, there would be between 0.94 and 1.99 feet of water depth under those docks. The change in depth for those docks from the NAA would be less 1.03 to 1.12 feet.

Table 18: Alternative 2-6a Adverse Impacts on Docks for Motor Boats (5,000 cfs)

Address	Depth Below Dock	NAA Depth Below Dock	Change in Depth
1437 Waters Edge Drive, Augusta, GA	1.66	2.69	-1.03
1435 Waters Edge Drive, Augusta, GA	1.38	2.41	-1.03
1433 Waters Edge Drive, Augusta, GA	1.91	2.94	-1.03
1431 Waters Edge Drive, Augusta, GA	1.58	2.61	-1.03
1421 Waters Edge Drive, Augusta, GA	1.01	2.04	-1.03
1419 Waters Edge Drive, Augusta, GA	1.70	2.73	-1.03
1407 Waters Edge Drive, Augusta, GA	1.99	3.02	-1.03
1405 Waters Edge Drive, Augusta, GA	1.62	2.65	-1.03
114 Altamaha Drive, N. Augusta, SC	1.32	2.44	-1.12
106 Altamaha Drive, N. Augusta, SC	0.94	2.06	-1.12

Alternative 2-6b, Fixed Weir with Dry Floodplain at 5,000 cfs

Alternative 2-6b, Fixed Weir with Dry Floodplain, includes adverse impacts to 23 additional docks in comparison to the NAA. As seen in Table 19, depending on the location, there would be between 0 and 1.66 feet of water depth under those docks. The change in depth for those docks from the NAA would be less 2.45 to 4.41 feet.

Table 19: Alternative 2-6b Adverse Impacts on Docks for Motor Boats (5,000 cfs)

Address	Depth Below Dock	NAA Depth Below Dock	Change in Depth
1437 Waters Edge Drive, Augusta, GA	0.24	2.69	-2.45
1435 Waters Edge Drive, Augusta, GA	0.00	2.41	-2.45
1433 Waters Edge Drive, Augusta, GA	0.49	2.94	-2.45
1431 Waters Edge Drive, Augusta, GA	0.16	2.61	-2.45
1423 Waters Edge Drive, Augusta, GA	0.83	3.28	-2.45
1421 Waters Edge Drive, Augusta, GA	0.00	2.04	-2.45
1419 Waters Edge Drive, Augusta, GA	0.28	2.73	-2.45
1407 Waters Edge Drive, Augusta, GA	0.56	3.02	-2.46

1405 Waters Edge Drive, Augusta, GA	0.18	2.64	-2.46
1403 Waters Edge Drive, Augusta, GA	0.81	3.27	-2.46
1A Tenth Street, Augusta, GA (Public)	0.85	3.40	-2.55
21 Savannah River Place, N. Augusta, SC	0.92	3.63	-2.71
29 Savannah River Place, N. Augusta, SC	0.62	3.33	-2.71
466 River North Drive, N. Augusta, SC	1.16	3.93	-2.77
458 River North Drive, N. Augusta, SC	0.95	3.72	-2.77
450 River North Drive, N. Augusta, SC	0.56	3.33	-2.77
442 River North Drive, N. Augusta, SC	1.66	4.43	-2.77
122 Altamaha Drive, N. Augusta, SC	0.58	3.36	-2.78
114 Altamaha Drive, N. Augusta, SC	0.00	2.44	-2.78
106 Altamaha Drive, N. Augusta, SC	0.00	2.06	-2.78
144 Altamaha Drive, N. Augusta, SC	1.66	4.44	-2.78
130 Altamaha Drive, N. Augusta, SC	1.23	4.01	-2.78
2229 Riverside Plantation Rd, Jackson, SC	1.45	5.86	-4.41

Alternative 2-6c, Fixed Weir with Dry Floodplain at 5,000 cfs

Alternative 2-6c, Fixed Weir with Dry Floodplain, includes adverse impacts to 20 additional docks in comparison to the NAA. As seen in Table 20, depending on the location, there would be between 0 and 1.6 feet of water depth under those docks. The change in depth for those docks from the NAA would be less 2.14 to 2.41 feet.

Table 20: Alternative 2-6c Adverse Impacts on Docks for Motor Boats (5,000 cfs)

Address	Depth Below Dock	NAA Depth Below Dock	Change in Depth
1437 Waters Edge Drive, Augusta, GA	0.55	2.69	-2.14
1435 Waters Edge Drive, Augusta, GA	0.27	2.41	-2.14
1433 Waters Edge Drive, Augusta, GA	0.80	2.94	-2.14
1431 Waters Edge Drive, Augusta, GA	0.47	2.61	-2.14
1423 Waters Edge Drive, Augusta, GA	1.14	3.28	-2.14
1421 Waters Edge Drive, Augusta, GA	0.00	2.04	-2.15
1419 Waters Edge Drive, Augusta, GA	0.58	2.73	-2.15
1407 Waters Edge Drive, Augusta, GA	0.87	3.02	-2.15
1405 Waters Edge Drive, Augusta, GA	0.49	2.64	-2.15
1403 Waters Edge Drive, Augusta, GA	1.12	3.27	-2.15
1A Tenth Street, Augusta, GA (Public)	1.18	3.40	-2.22
21 Savannah River Place, N. Augusta, SC	1.28	3.63	-2.35
29 Savannah River Place, N. Augusta, SC	0.98	3.33	-2.35
466 River North Drive, N. Augusta, SC	1.53	3.93	-2.40
458 River North Drive, N. Augusta, SC	1.32	3.72	-2.40
450 River North Drive, N. Augusta, SC	0.93	3.33	-2.40
122 Altamaha Drive, N. Augusta, SC	0.95	3.36	-2.41
114 Altamaha Drive, N. Augusta, SC	0.03	2.44	-2.41
106 Altamaha Drive, N. Augusta, SC	0.00	2.06	-2.41
130 Altamaha Drive, N. Augusta, SC	1.60	4.01	-2.41

Alternative 2-6d, Fixed Weir with Dry Floodplain at 5,000 cfs

Alternative 2-6d, Fixed Weir with Dry Floodplain, includes adverse impacts to 19 additional docks in comparison to the NAA. As seen in Table 21, depending on the location, there would be between 0.12 and 1.99 feet of water depth under those docks. The change in depth for those docks from the NAA would be less 1.75 to 1.94 feet.

Table 21: Alternative 2-6d Adverse Impacts on Docks for Motor Boats (5,000 cfs)

Address	Depth Below Dock	NAA Depth Below Dock	Change in Depth
1437 Waters Edge Drive, Augusta, GA	0.94	2.69	-1.75
1435 Waters Edge Drive, Augusta, GA	0.66	2.41	-1.75
1433 Waters Edge Drive, Augusta, GA	1.19	2.94	-1.75
1431 Waters Edge Drive, Augusta, GA	0.86	2.61	-1.75
1423 Waters Edge Drive, Augusta, GA	1.53	3.28	-1.75
1421 Waters Edge Drive, Augusta, GA	0.29	2.04	-1.75
1419 Waters Edge Drive, Augusta, GA	0.98	2.73	-1.75
1407 Waters Edge Drive, Augusta, GA	1.26	3.02	-1.76
1405 Waters Edge Drive, Augusta, GA	0.89	2.64	-1.75
1403 Waters Edge Drive, Augusta, GA	1.52	3.27	-1.75
1A Tenth Street, Augusta, GA (Public)	1.59	3.40	-1.81
21 Savannah River Place, N. Augusta, SC	1.73	3.63	-1.90
29 Savannah River Place, N. Augusta, SC	1.42	3.33	-1.91
466 River North Drive, N. Augusta, SC	1.99	3.93	-1.94
458 River North Drive, N. Augusta, SC	1.78	3.72	-1.94
450 River North Drive, N. Augusta, SC	1.39	3.33	-1.94
122 Altamaha Drive, N. Augusta, SC	1.42	3.36	-1.94
114 Altamaha Drive, N. Augusta, SC	0.50	2.44	-1.94
106 Altamaha Drive, N. Augusta, SC	0.10	2.06	-1.96

Alternative 2-8, Gated Bypass Channel at 5,000 cfs

Alternative 2-8, Gated Bypass Channel, includes adverse impacts to 8 additional docks in comparison to the NAA. As seen in Table 22, depending on the location, there would be between 1.18 and 1.92 feet of water depth under those docks. The change in depth for those docks from the NAA would be less 0.81 to 0.88 feet.

Table 22: Alternative 2-8 Adverse Impacts on Docks for Motor Boats (5,000 cfs)

Address	Depth Below Dock	NAA Depth Below Dock	Change in Depth
1437 Waters Edge Drive, Augusta, GA	1.88	2.69	-0.81
1435 Waters Edge Drive, Augusta, GA	1.60	2.41	-0.81
1431 Waters Edge Drive, Augusta, GA	1.80	2.61	-0.81
1421 Waters Edge Drive, Augusta, GA	1.23	2.04	-0.81
1419 Waters Edge Drive, Augusta, GA	1.92	2.73	-0.81
1405 Waters Edge Drive, Augusta, GA	1.83	2.64	-0.81

114 Altamaha Drive, N. Augusta, SC	1.56	2.44	-0.88
106 Altamaha Drive, N. Augusta, SC	1.18	2.06	-0.88

The following tables are based on flows at 8,000 cfs. Table 23 displays the total number of docks by impact zone for each alternative at 8,000 cfs.

Table 23: Total Number of Docks by Impact Zone for Each Alternative (8,000 cfs)

Impact Zone	Depth Below Dock	Existing	NAA SHEP Plan	Alt 1-1	Alt 2-3	Alt 2-6a	Alt 2-6b	Alt 2-6c	Alt 2-6d	Alt 2-8
No Impact	=>3.5	152	152	152	134	147	134	134	139	149
Minor Impact	<3.5 and =>3	6	6	4	2	4	2	8	8	4
Moderate Impact	<3 and => 2.5	2	2	3	11	4	10	9	5	6
High Impact	<2.5 and =>2	1	1	2	5	4	6	1	5	2
Adverse Impact	< 2	0	0	0	9	2	9	9	4	0

Table 24 displays the change in the number of docks by impact zone for each action alternative in comparison to the NAA at 8,000 cfs. There are five impact zones: no impact; minor impact; moderate impact; high impact; and adverse impact.

Table 24: Additional Number of Docks Impacted by Zone for Each Alternative from NAA (8,000 cfs)

Impact Zone	Depth Below Dock	NAA SHEP Plan	Alt 1-1	Alt 2-3	Alt 2-6a	Alt 2-6b	Alt 2-6c	Alt 2-6d	Alt 2-8
No Impact	=>3.5	0	0	-18	-5	-18	-18	-13	-3
Minor Impact	<3.5 and =>3	0	-2	-4	-2	-4	2	2	-2
Moderate Impact	<3 and => 2.5	0	1	9	2	8	7	3	4
High Impact	<2.5 and =>2	0	1	4	3	5	0	4	1
Adverse Impact	< 2	0	0	9	2	9	9	4	0

Existing Condition at 8,000 cfs

For the Existing Condition, no docks would have less than 2 feet of water depth below the dock.

No Action Alternative – SHEP Plan at 8,000 cfs

For the No Action Alternative, no docks would have less than 2 feet of water depth below the dock.

Alternative 1-1, Retain Dam with Georgia-side Fish Passage at 8,000 cfs

Alternative 1-1, Retain Dam with Georgia-side Fish Passage, includes no adverse impacts to additional docks in comparison to the NAA.

Alternative 2-3, Fixed Weir at 8,000 cfs

Alternative 2-3, Fixed Weir, Alternative 2-3, Fixed Weir, includes adverse impacts to 9 additional docks in comparison to the NAA. As seen in Table 25, depending on the location, there would be between 0.30 and 1.71 feet of water depth under those docks. The change in depth for those docks from the NAA would be less 1.53 to 2.27 feet.

Table 25: Alternative 2-3 Adverse Impacts on Docks for Motor Boats (8,000 cfs)

Address	Depth Below Dock	NAA Depth Below Dock	Change in Depth
1439 Waters Edge Drive, Augusta, GA	1.51	3.04	-1.53
1425 Waters Edge Drive, Augusta, GA	1.56	3.09	-1.53
1421 Waters Edge Drive, Augusta, GA	1.71	3.24	-1.53
39 Savannah River Place, N. Augusta, SC	0.71	2.45	-1.74
442 River North Drive, N. Augusta, SC	1.56	3.35	-1.79
114 Altamaha Drive, N. Augusta, SC	1.61	3.41	-1.80
106 Altamaha Drive, N. Augusta, SC	1.23	3.03	-1.80
474 River North Drive, N. Augusta, SC	1.11	2.91	-1.80
75 Alberclaus Drive, Augusta, GA	0.30	2.57	-2.27

Alternative 2-6a, Fixed Weir with Floodplain at 8,000 cfs

Alternative 2-6a, Fixed Weir with Floodplain, includes adverse impacts to 2 additional docks in comparison to the NAA. As seen in Table 26, depending on the location, there would be between 1.71 and 1.76 feet of water depth under those docks. The change in depth for those docks from the NAA would be less 0.86 to 1.48 feet.

Table 26: Alternative 2-6a Adverse Impacts on Docks for Motor Boats (8,000 cfs)

Address	Depth Below Dock	NAA Depth Below Dock	Change in Depth
39 Savannah River Place, N. Augusta, SC	1.76	3.24	-1.48
75 Alberclaus Drive, Augusta, GA	1.71	2.57	-0.86

Alternative 2-6b, Fixed Weir with Dry Floodplain at 8,000 cfs

Alternative 2-6b, Fixed Weir with Dry Floodplain, includes adverse impacts to 9 additional docks in comparison to the NAA. As seen in Table 27, depending on the location, there would be between 0.28 and 1.59 feet of water depth under those docks. The change in depth for those docks from the NAA would be less 1.54 to 2.29 feet.

Table 27: Alternative 2-6b Adverse Impacts on Docks for Motor Boats (8,000 cfs)

Address	Depth Below Dock	NAA Depth Below Dock	Change in Depth
1439 Waters Edge Drive, Augusta, GA	1.50	3.04	-1.54
1425 Waters Edge Drive, Augusta, GA	1.55	3.09	-1.54
1421 Waters Edge Drive, Augusta, GA	1.70	3.24	-1.54
39 Savannah River Place, N. Augusta, SC	0.70	2.45	-1.75
442 River North Drive, N. Augusta, SC	1.54	3.35	-1.81
114 Altamaha Drive, N. Augusta, SC	1.59	3.41	-1.82
106 Altamaha Drive, N. Augusta, SC	1.22	3.03	-1.81
474 River North Drive, N. Augusta, SC	1.09	2.91	-1.82
75 Alberclaus Drive, Augusta, GA	0.28	2.57	-2.29

Alternative 2-6c, Fixed Weir with Dry Floodplain at 8,000 cfs

Alternative 2-6c, Fixed Weir with Dry Floodplain, includes adverse impacts to 9 additional docks in comparison to the NAA. As seen in Table 28, depending on the location, there would be between 0.67 and 1.94 feet of water depth under those docks. The change in depth for those docks from the NAA would be less 1.31 to 1.90 feet.

Table 28: Alternative 2-6c Adverse Impacts on Docks for Motor Boats (8,000 cfs)

Address	Depth Below Dock	NAA Depth Below Dock	Change in Depth
1439 Waters Edge Drive, Augusta, GA	1.73	3.04	-1.31
1425 Waters Edge Drive, Augusta, GA	1.78	3.09	-1.31
1421 Waters Edge Drive, Augusta, GA	1.94	3.25	-1.31
39 Savannah River Place, N. Augusta, SC	0.98	2.45	-1.47
442 River North Drive, N. Augusta, SC	1.83	3.35	-1.52
114 Altamaha Drive, N. Augusta, SC	1.89	3.41	-1.52
106 Altamaha Drive, N. Augusta, SC	1.51	3.03	-1.52
474 River North Drive, N. Augusta, SC	1.38	2.91	-1.53
75 Alberclaus Drive, Augusta, GA	0.67	2.57	-1.90

Alternative 2-6d, Fixed Weir with Dry Floodplain at 8,000 cfs

Alternative 2-6d, Fixed Weir with Dry Floodplain, includes adverse impacts to 4 additional docks in comparison to the NAA. As seen in Table 29, depending on the

location, there would be between 1.17 and 1.88 feet of water depth under those docks. The change in depth for those docks from the NAA would be less 1.11 to 1.40 feet.

Table 29: Alternative 2-6d Adverse Impacts on Docks for Motor Boats (8,000 cfs)

Address	Depth Below Dock	NAA Depth Below Dock	Change in Depth
39 Savannah River Place, N. Augusta, SC	1.34	2.45	-1.11
106 Altamaha Drive, N. Augusta, SC	1.88	3.03	-1.15
474 River North Drive, N. Augusta, SC	1.76	2.91	-1.15
75 Alberclauss Drive, Augusta, GA	1.17	2.57	-1.40

Alternative 2-8, Gated Bypass Channel at 8,000 cfs

Alternative 2-8, Gated Bypass Channel, includes no adverse impacts to additional docks in comparison to the NAA.

Summary: Adverse Impacts of Boat Docks in the NSBLD Pool

Table 30: Additional Number of Docks Adversely Impacted for Each Action Alternative in Comparison to the No Action Alternative SHEP Plan

Impact Zone	Depth Below Dock	NAA SHEP Plan	Alt 1-1	Alt 2-3	Alt 2-6a	Alt 2-6b	Alt 2-6c	Alt 2-6d	Alt 2-8
Adverse Impact 3,600 cfs	<2	0	9	22	12	22	21	15	12
Adverse Impact 5,000 cfs	<2	0	7	23	10	23	20	19	8
Adverse Impact 8,000 cfs	< 2	0	0	9	2	9	9	4	0

Table 30 shows that the additional number of boat docks adversely impacted for Alternative 2-6d in comparison to the NAA SHEP Plan are 15, 19, and 4 at 3,600 cfs, 5,000 cfs, and 8,000 cfs, respectively. In comparison to the other alternatives, the adverse impact on boat docks at 5,000 cfs for Alternative 2-6d is very similar to the number of adverse impacts to boat docks for Alternatives 2-6c, 2-6b, and 2-3. However, evaluating the full range of flows from 3,600 to 8,000 cfs, which occurs 68 percent of the time during any given year (the highest percentage of all possible ranges under evaluation), there is a measurable and significant difference between Alternative 2-6d and Alternatives 2-6c, 2-6b, and 2-3. At 5,000 cfs, there is between a 5 to 18 percent reduction in the number of boat docks adversely impacted for Alternative 2-6d in comparison to Alternatives 2-6c, 2-6b, and 2-3. At 3,600 cfs, there is between a 29 to 32 percent reduction in the number of boat docks adversely impacted for Alternative 2-6d in comparison to Alternatives 2-6c, 2-6b, and 2-3. At 8,000 cfs, there is a 56 percent reduction in the number of boat docks adversely impacted for Alternative 2-6d

in comparison to Alternatives 2-6c, 2-6b, and 2-3. In addition, the change in depth for those docks with adverse impacts from the NAA would be less 1.75 to 1.94 feet for Alternative 2d. Whereas, changes in depth for Alternative 2-6c, 2-6b, and 2-3 would be less 2.14 to 2.41 feet, less 2.45 to 4.41 feet, and less 2.44 to 4.38 feet, respectively. These are the reasons Alternative 2-6d received a higher and better rating value in the valuation matrix in the main report than Alternatives 2-6c, 2-6b, and 2-3.

By evaluating the additional number of boat docks adversely impacted for Alternative 2-6d in comparison to the NAA SHEP Plan at 5,000 cfs only, it is hard to distinguish a measureable and significant different between Alternative 2-6d and Alternatives 2-6c, 2-6b, and 2-3. All of those alternatives could be lumped together and given the same rating value. However, Alternative 2-6d was given a better rating than Alternatives 2-6c, 2-6b, and 2-3 using the full range of flows from 3,600 to 8,000 cfs.

Table 31: Percentage of Total Boat Docks Adversely Impacted for Each Action Alternative

Impact Zone by Flow	Depth Below Dock	NAA SHEP Plan	Alt 1-1	Alt 2-3	Alt 2-6a	Alt 2-6b	Alt 2-6c	Alt 2-6d	Alt 2-8
Adverse Impact 3,600 cfs	<2	0	5.6%	13.7%	7.5%	13.7%	13%	9.3%	7.5%
Adverse Impact 5,000 cfs	<2	0	4.3%	14.3%	6.2%	14.3%	12.4%	11.8%	5%
Adverse Impact 8,000 cfs	< 2	0	0	5.6%	1.2%	5.6%	5.6%	2.5%	0

At 3,600 cfs, there could be between 9 (5.6 percent of total boat docks in the NSBLD pool) and 22 (13.7 percent of the total boat docks in the NSBLD pool) boat docks adversely impacted depending on the action alternative in question.

At 5,000 cfs, there could be between 7 (4.3 percent of total boat docks in the NSBLD pool) and 23 (14.3 percent of total boat docks in the NSBLD pool) boat docks adversely impacted depending on the action alternative in question.

At 8,000 cfs, there could be between 0 and 9 (5.6 percent of total boat docks in the NSBLD pool) boat docks adversely impacted depending on the action alternative in question.

The worst case scenario in terms of adverse impacts on boat docks for Alternative 2-6d is 5,000 cfs. In that case, 19 (11.8 percent of 161 total boat docks in the NSBLD pool) boat docks would be adversely impacted. At any other flow toward 3,600 cfs or toward 8,000 cfs, adverse impacts on boat docks would be less than those at 5,000 cfs. At 3,600 cfs, the change in number of boat docks with less than 2 feet depth [(15) or (9.3 percent)] is less than 5,000 cfs. There are 4 less boat docks adversely impacted at

3,600 cfs than 5,000 cfs. At 8,000 cfs, the change in number of boat docks with less than 2 feet depth [(4) or (2.5 percent)] is less than 5,000 cfs. There are 15 less boat docks with adverse impacts at 8,000 cfs than 5,000 cfs for Alternative 2-6d.

Special Events

Ironman 70.3

The Ironman 70.3 is a one-day triathlon event that usually occurs in September which includes swimming in the Savannah River. The swimming course is a point-to-point course that starts at 6th Street at the Riverfront Marina. Athletes enter the water and swim with the current for 1.2 miles along the shoreline until they exit the swim course at the Augusta Rowing Complex public boat ramp.

(<http://www.ironman.com/triathlon/events/americas/ironman-70.3/augusta/course.aspx#ixzz5RTkNUUvm>)

In 2017, the Ironman 70.3 totaled \$4,716,616 in estimated economic impact on the Augusta economy (<https://www.augustasportscouncil.org/economic-impact>). Total Estimated Economic Impact (EEI), the sum of all the direct, indirect and induced spending estimates, is calculated based on research commissioned by both the Georgia Department of Economic Development (GDEcD) and Destination Marketing Association International (DMAI) in conjunction with globally recognized research vendors, the U.S. Travel Association and Tourism Economics.

USACE could deviate the Savannah River Basin Water Control Manual for all alternatives to increase flows from J. Strom Thurmond to meet water surface elevations required for the special event except when in drought contingency operations (3,600 cfs) which could occur less than one percent of the time for any given year. As a result, the Ironman 70.3 would not be adversely impacted by any of the alternatives.

Head of the South Regatta

Hosted by the Augusta Rowing Club, the Head of the South (HOTS) Regatta is one of the largest head races in the Southeast Region and the 5th largest in the nation. Every year, since 1997, rowers have competed on the beautiful Savannah River in Augusta, Georgia. In 2017, in early November, around 2,500 out-of-town rowers and coaches and 1,500 visiting spectators from multiple states came to the Regatta.

As seen in Figure 1, the HOTS Regatta course starts just upstream of 13th Street Bridge near the Hammonds Ferry development in North Augusta, goes past the River Walk Amphitheater, and finishes just downstream of the Augusta Rowing Club Boathouse. All those areas allow for spectators to view the event.

Along the course, there are danger and course buoys. The dangers buoys indicate shallow areas. The course crosses over the upstream end of the training wall at the Railroad Bridge just upstream of the 5th Street Bridge and before the finish line near the Augusta Rowing Club Boathouse.

Below water surface elevations of 114 feet, based on the NSBLD gauge, weeds get exposed approaching the banks of the river along the course from Highway 1 Bridge to the Augusta Rowing Club Boathouse. Sculls can get entangled in those weeds and flip and endanger the people in them. Bringing the launch and race lanes closer together is not an option because of the increased risks of a collision.

If permanent buoys are placed around the training wall for motor boat traffic, then they could be temporarily removed for Head of the South Regatta. Sculls and sweep rowers would not draft deep enough to have contact with the training wall.

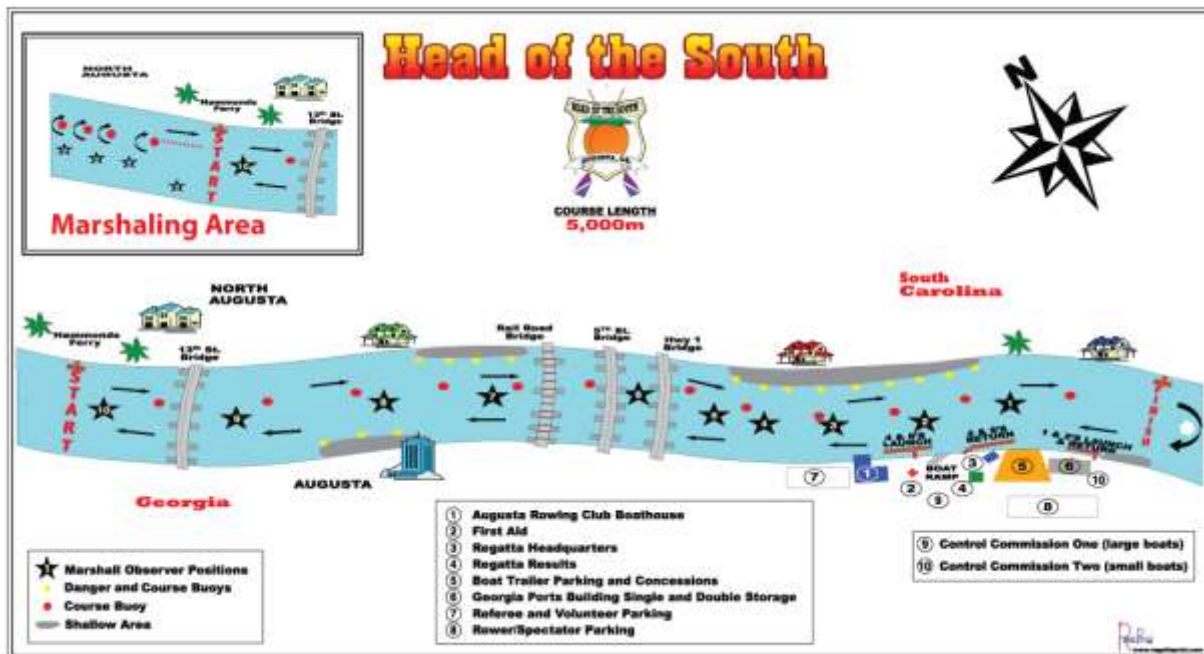


Figure 1: Head of the South Regatta Course

Table 30: Pool Elevations at 5th Street Bridge

Pool Elevations at 5th Street Bridge									
Flow (NGVD 29)	Existing	2012 SHEP Plan	Alt 1-1	Alt 2-3	Alt 2-6a	Alt 2-6b	Alt 2-6c	Alt 2-6d	Alt 2-8
3,600 cfs	114.6	114.2	113.3	111.3	112.9	111.3	111.6	112.1	113.0
5,000 cfs	115.1	115.0	114.3	112.4	113.9	112.4	112.7	113.2	114.2
8,000 cfs	116.1	116.1	116.0	114.4	115.4	114.4	114.7	115.0	115.7

USACE could deviate the Savannah River Basin Water Control Manual for all alternatives to increase flows from J. Strom Thurmond to meet water surface elevations required for the special event except when in drought contingency operations and flood conditions. As a result, for all alternatives, there would be no adverse impact to the Regatta, except during drought contingency operations and flood conditions. Flows at 3,600 cfs could occur less than one percent of the time for any given year. Flows

greater than 5,000 cfs could occur 77 percent of the time for any given year. Flows greater than 8,000 cfs could occur 31 percent of the time for any given year. Flows between 3,600 and 8,000 cfs occur 68 percent of the time during any given year.

In 2017, the HOTS totaled \$1,650,120 in estimated economic impact on the Augusta economy (<https://www.augustasportscouncil.org/economic-impact>). Total Estimated Economic Impact (EEI), the sum of all the direct, indirect and induced spending estimates, is calculated based on research commissioned by both the Georgia Department of Economic Development (GDEcD) and Destination Marketing Association International (DMAI) in conjunction with globally recognized research vendors, the U.S. Travel Association and Tourism Economics.

Augusta Southern Nationals

The Augusta Southern Nationals drag boat event last occurred on July 15, 2016. It was cancelled in 2017 by the sanctioning body, the Lucas Oil Drag Boat Racing Series, because of financial losses incurred with the series. No event occurred in 2018.

If the drag boat event returned, the Savannah River Basin Water Control Manual could be updated to increase flows from J. Strom Thurmond to meet water surface elevations required for the event except when in drought contingency operations and flood conditions. As a result, for all alternatives, there would be no adverse impacts to the Augusta Southern Nationals.

In conclusion, all alternatives currently being considered would maintain the functionality of the pool without causing adverse impacts for the above Special Events.