
Attachment A-1 – 2012 Hydrodynamic Model Calibration Plots

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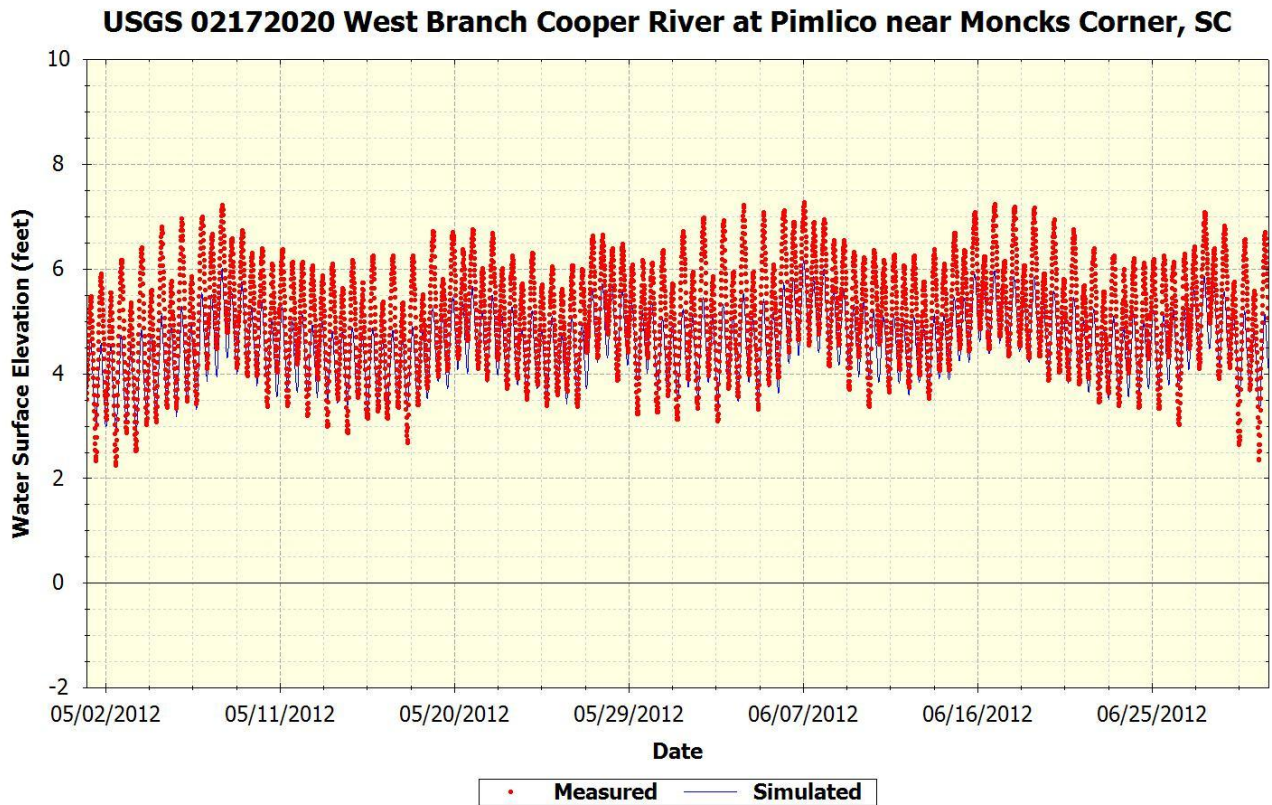


Figure A-1 Measured versus Simulated water surface elevation from May through June 2012 at USGS 02172020 West Branch Cooper River at Pimlico near Moncks Corner, SC

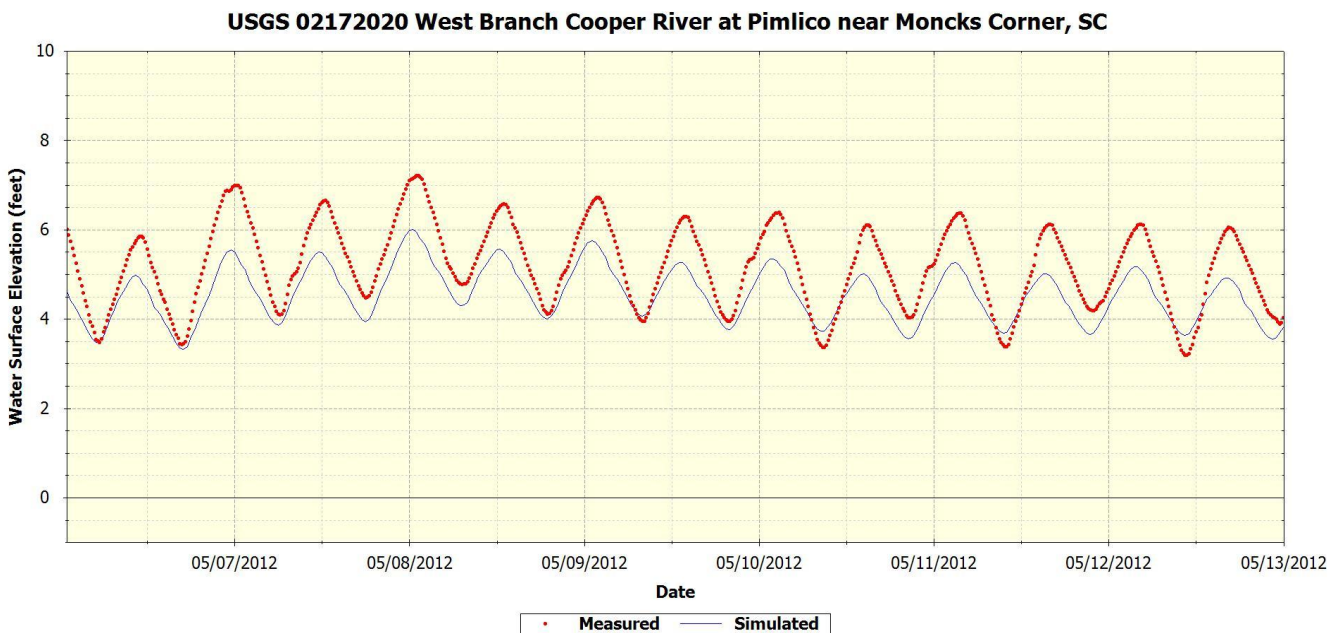


Figure A-1a Measured versus Simulated water surface elevation from May 6 – 12, 2012 at USGS 02172020 West Branch Cooper River at Pimlico near Moncks Corner, SC

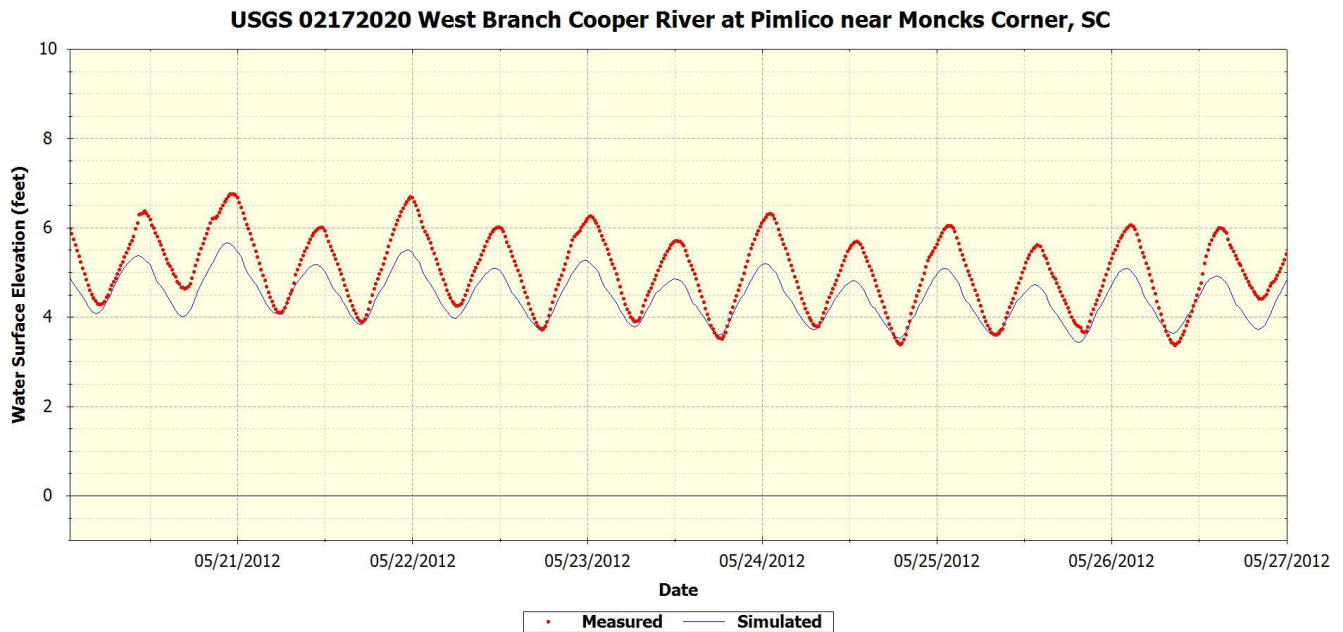


Figure A-1b Measured versus Simulated water surface elevation from May 20 – 26, 2012 at USGS 02172020 West Branch Cooper River at Pimlico near Moncks Corner, SC

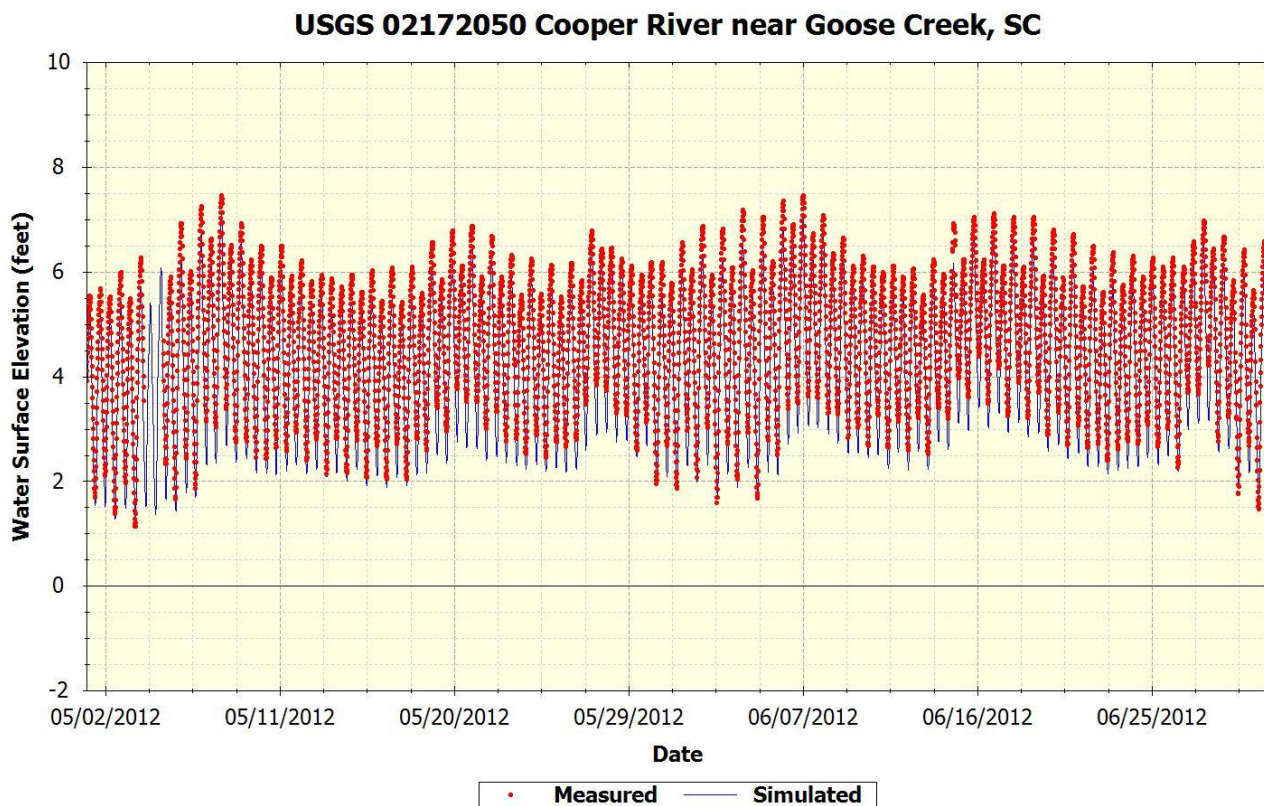


Figure A-2 Measured versus Simulated water surface elevation from May through June 2012 at USGS 02172050 Cooper River near Goose Creek, SC

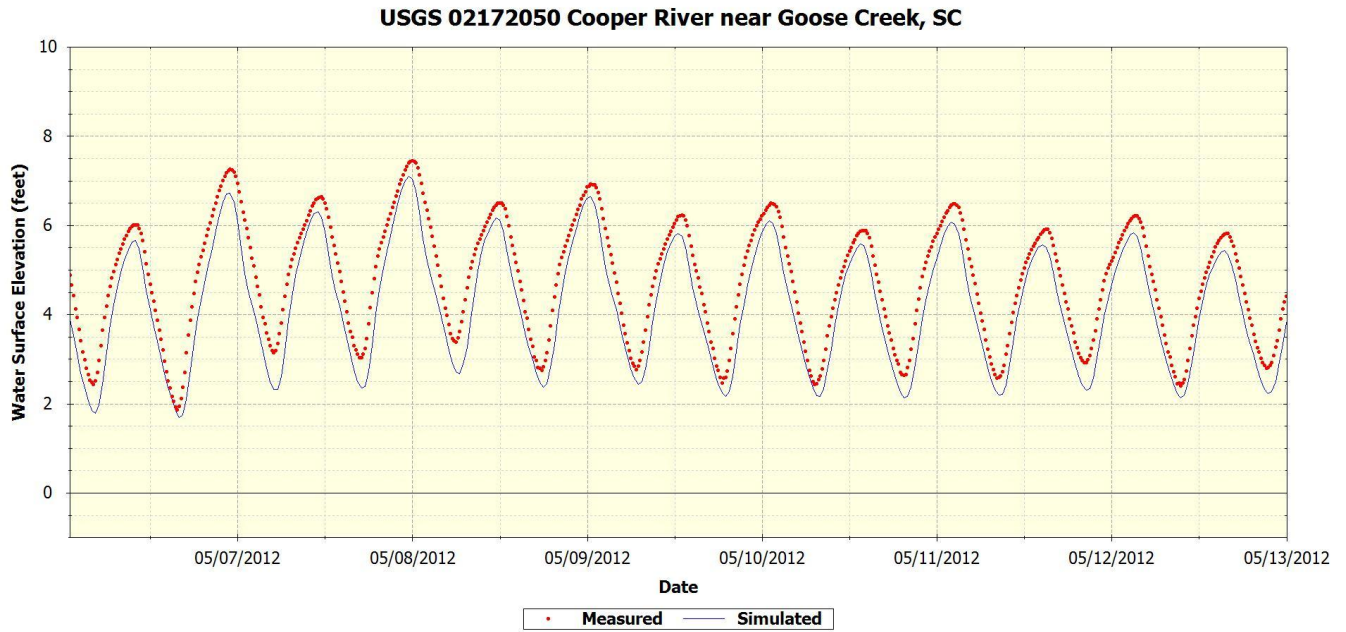


Figure A-2a Measured versus Simulated water surface elevation from May 6 – 12, 2012 at USGS 02172050 Cooper River near Goose Creek, SC

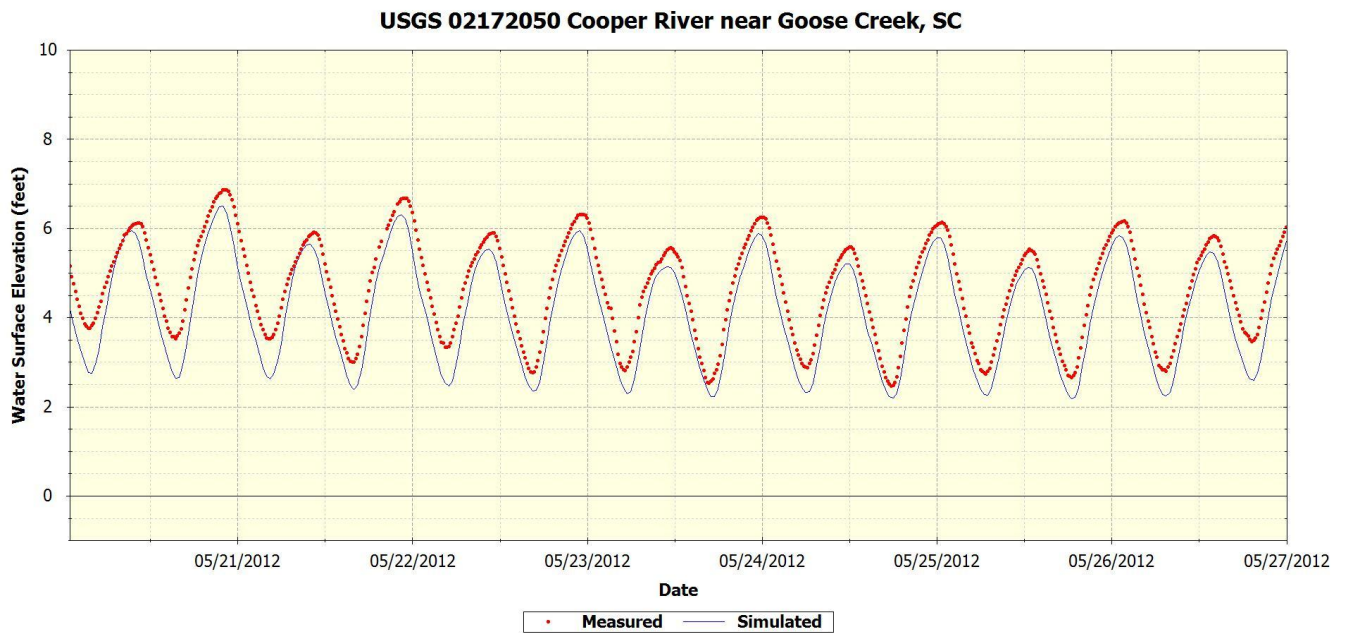


Figure A-2b Measured versus Simulated water surface elevation from May 20 – 26, 2012 at USGS 02172050 Cooper River near Goose Creek, SC

USGS 02172053 Cooper River at Mobay

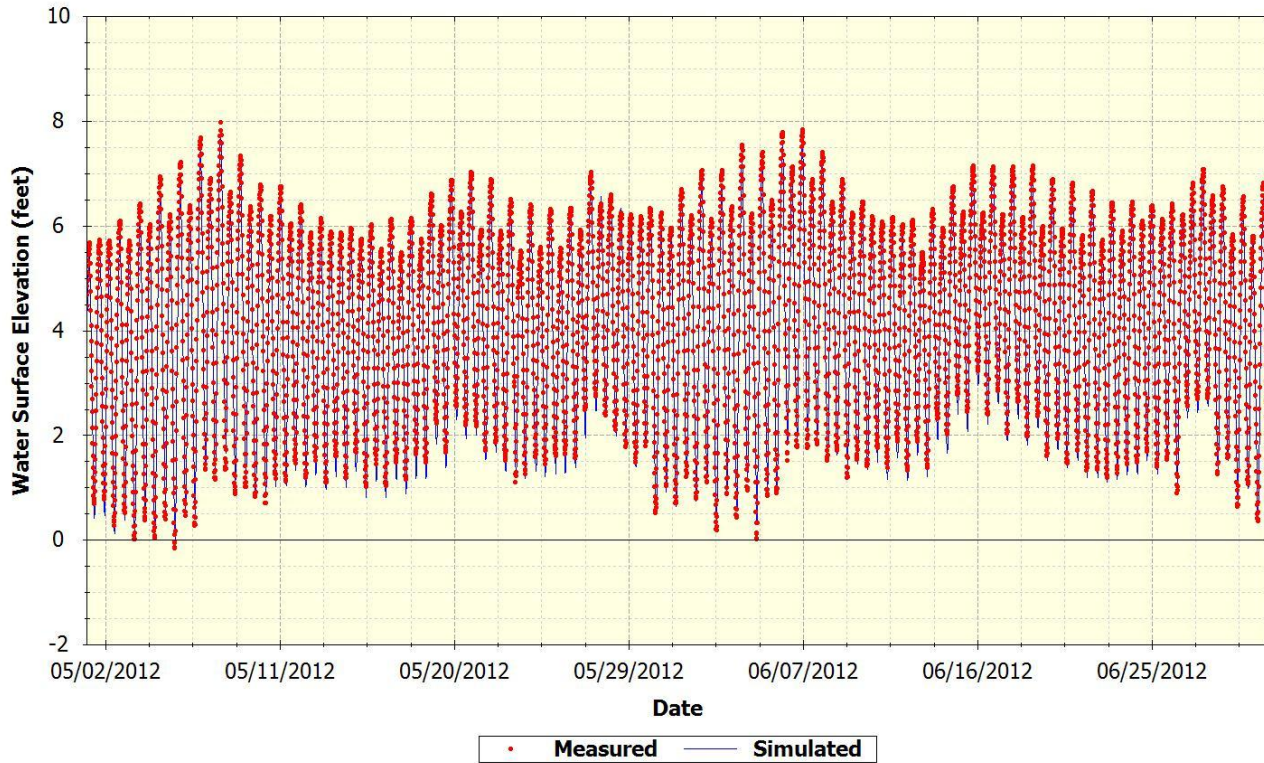


Figure A-3 Measured versus Simulated water surface elevation from May through June 2012 at USGS 02172053 Cooper River at Mobay

USGS 02172053 Cooper River at Mobay

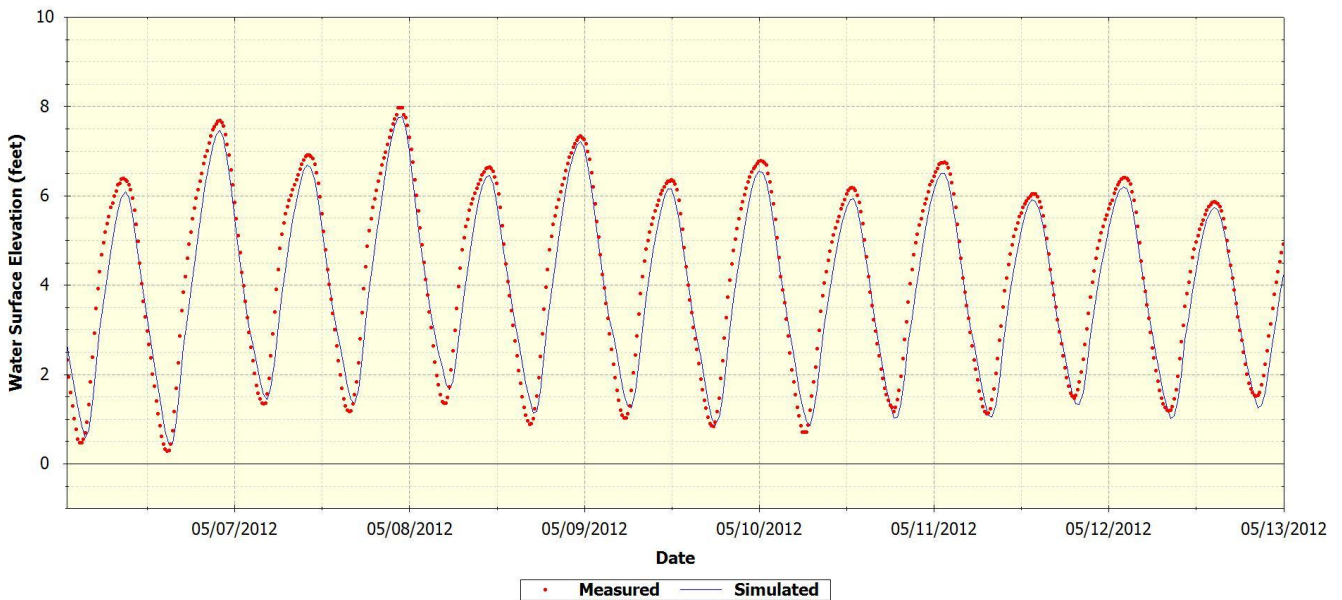


Figure A-3a Measured versus Simulated water surface elevation from May 6 – 12, 2012 at USGS 02172053 Cooper River at Mobay

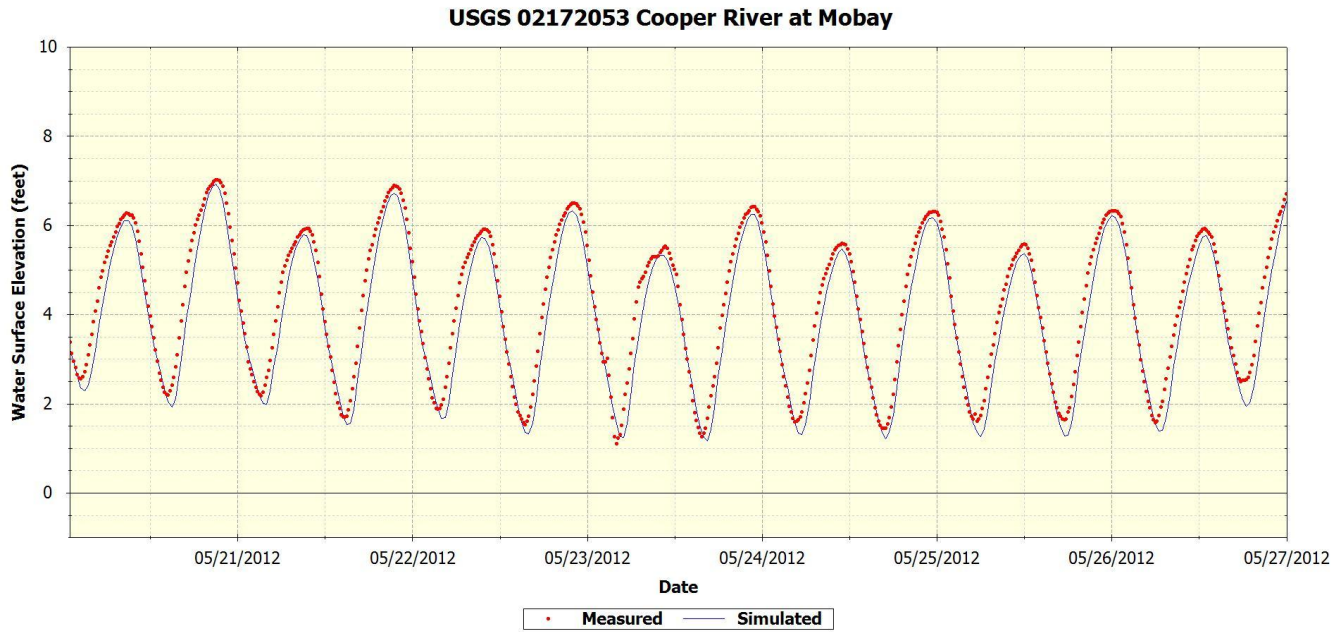


Figure A-3b Measured versus Simulated water surface elevation from May 20 – 26, 2012 at USGS 02172053 Cooper River at Mobay

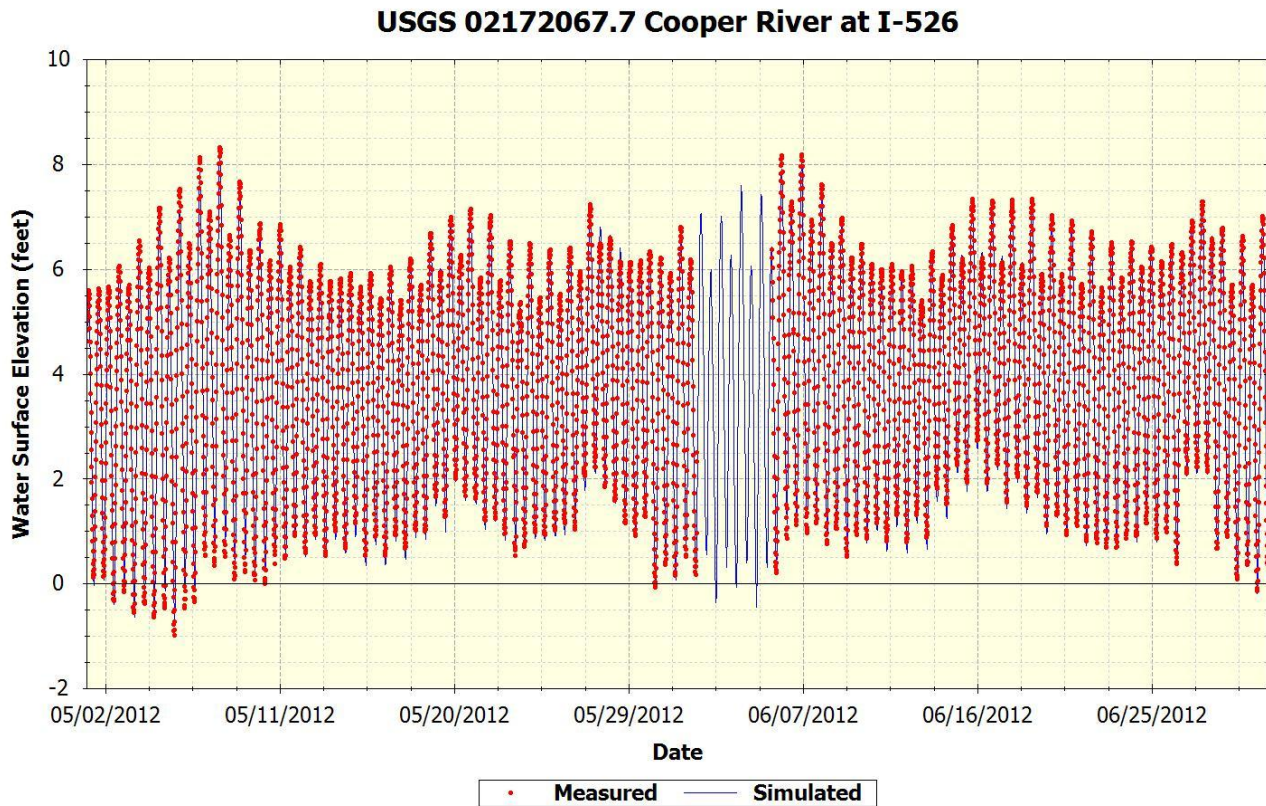


Figure A-4 Measured versus Simulated water surface elevation from May through June 2012 at USGS 02172067.7 Cooper River at I-526

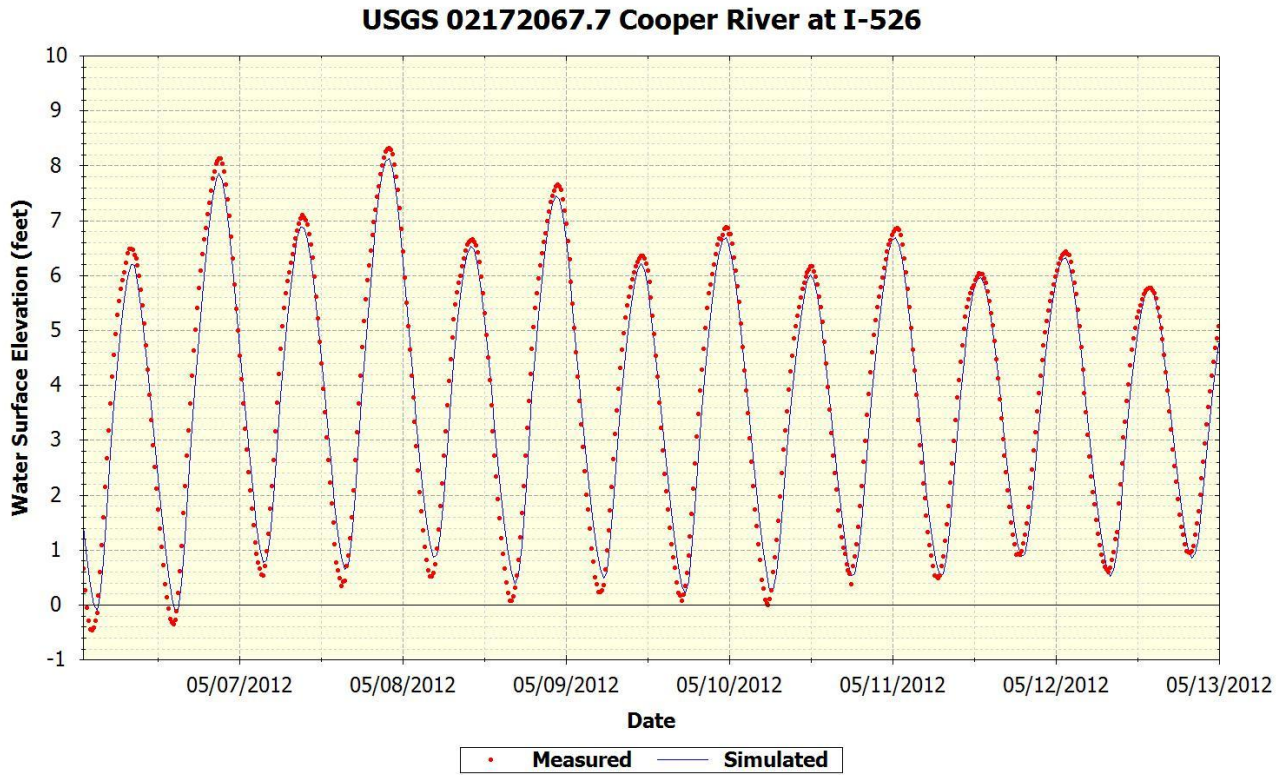


Figure A-4a Measured versus Simulated water surface elevation from May 6 – 12, 2012 at USGS 02172067.7 Cooper River at I-526

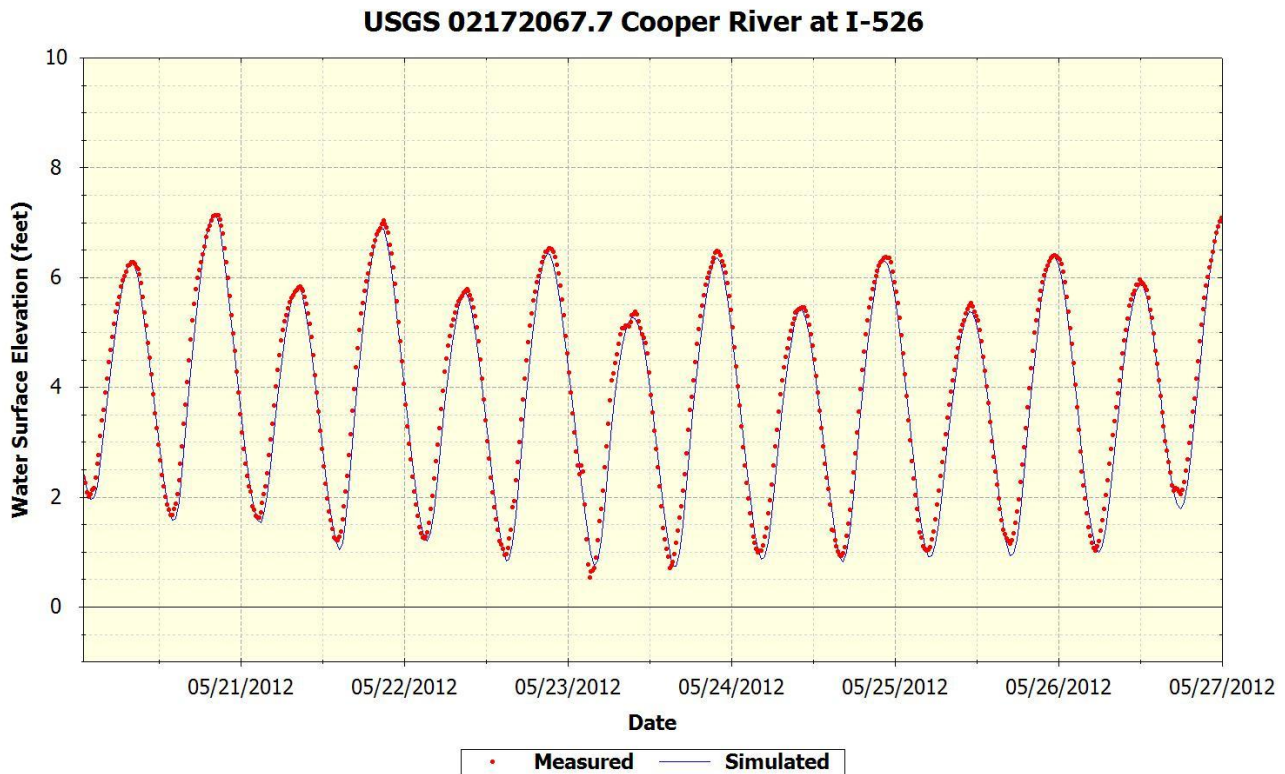


Figure A-4b Measured versus Simulated water surface elevation from May 20 – 26, 2012 at USGS 02172067.7 Cooper River at I-526

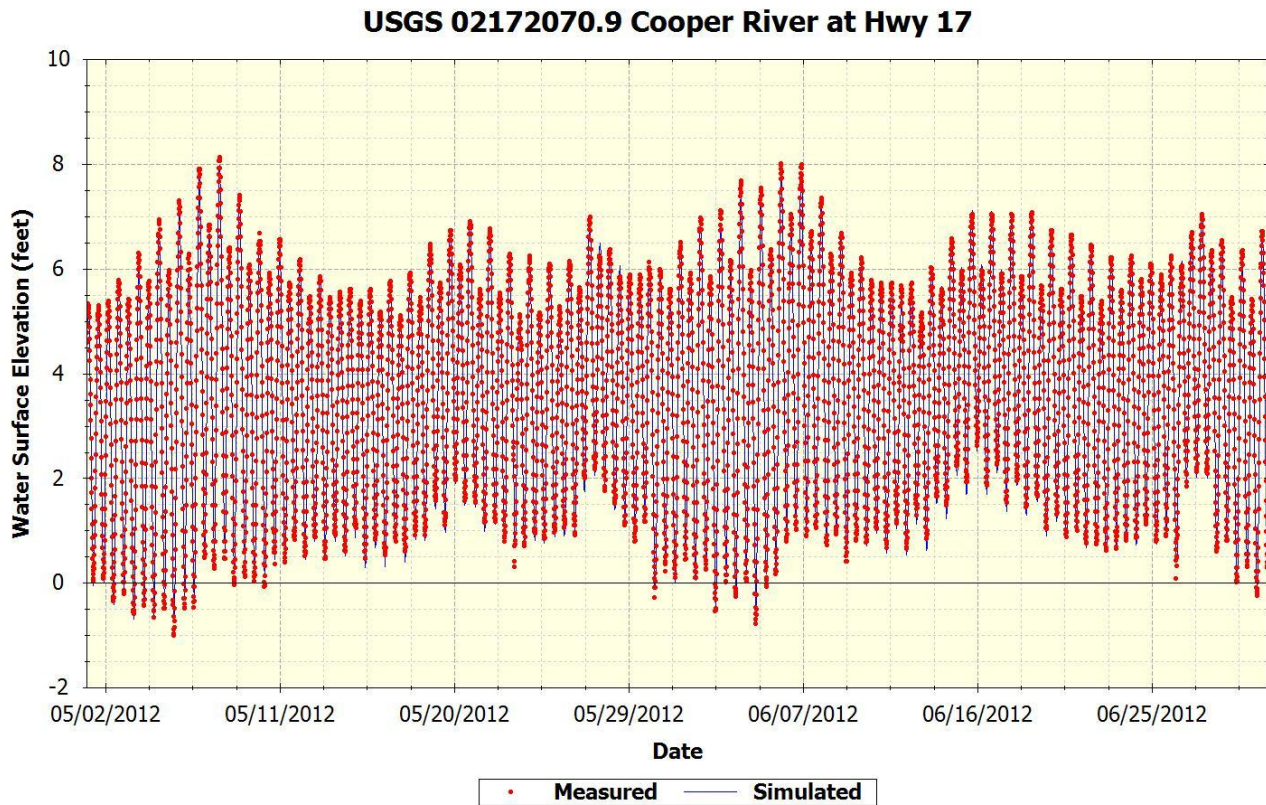


Figure A-5 Measured versus Simulated water surface elevation from May through June 2012 at USGS 02172070.9 Cooper River at Hwy 17

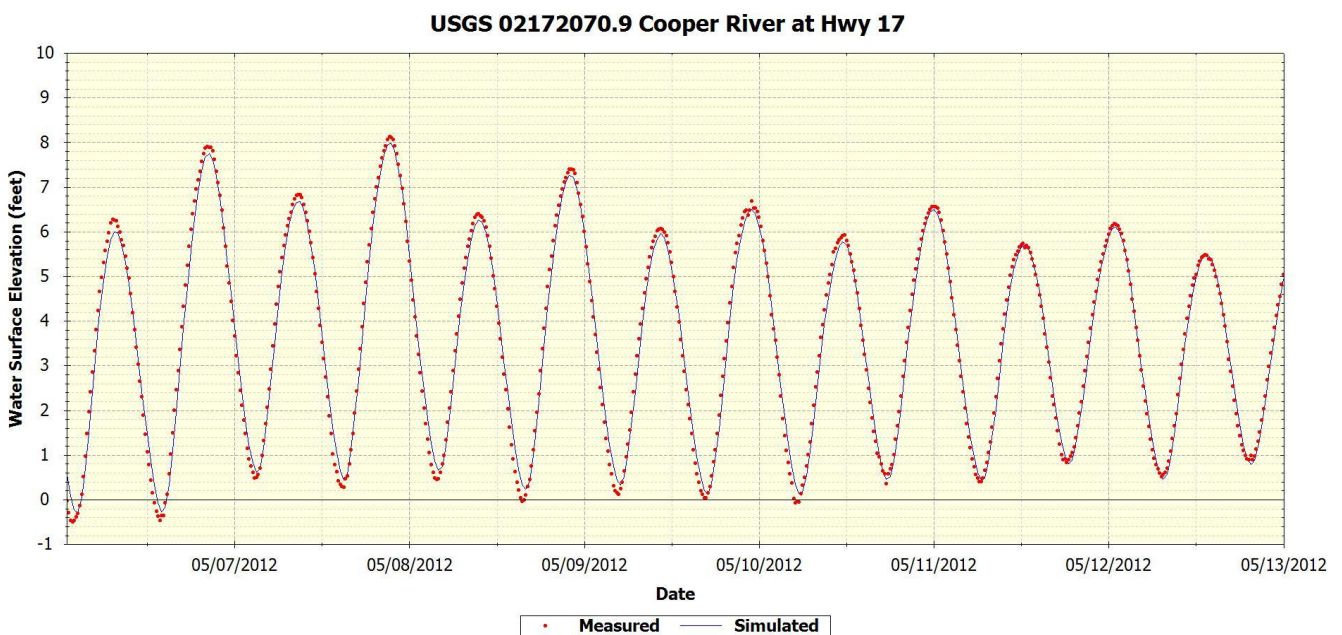


Figure A-5a Measured versus Simulated water surface elevation from May 6 – 12, 2012 at USGS 02172070.9 Cooper River at Hwy 17

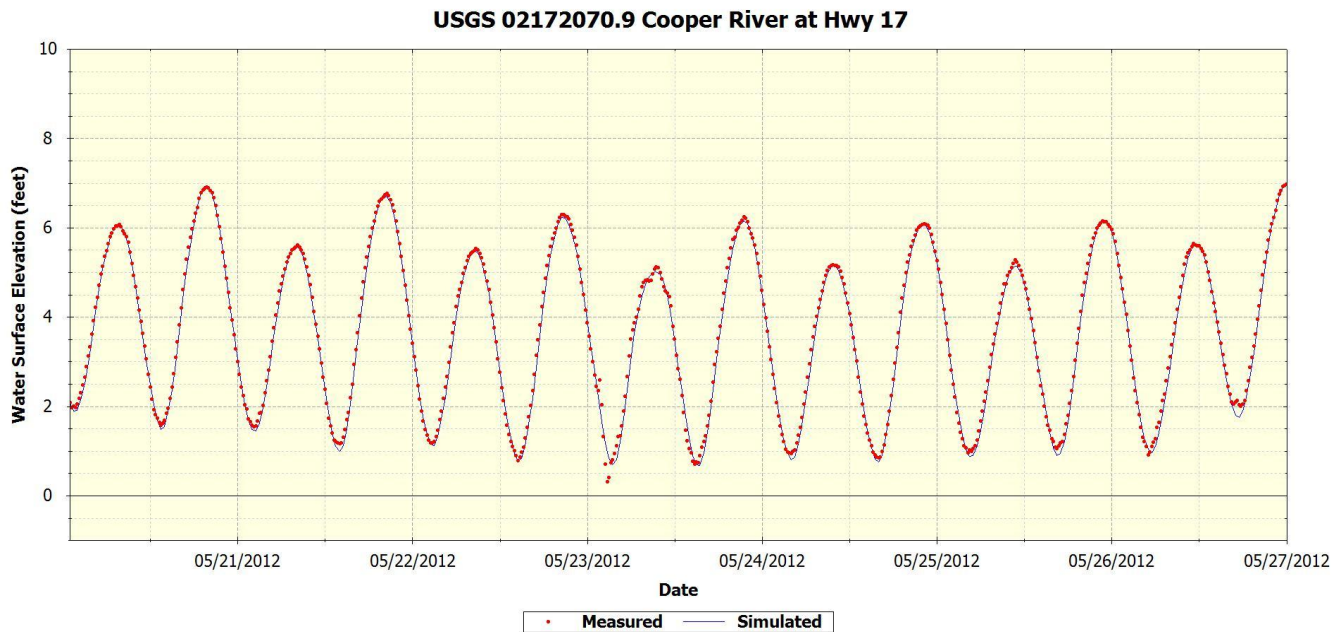


Figure A-5b Measured versus Simulated water surface elevation from May 20 – 26, 2012 at USGS 02172070.9 Cooper River at Hwy 17

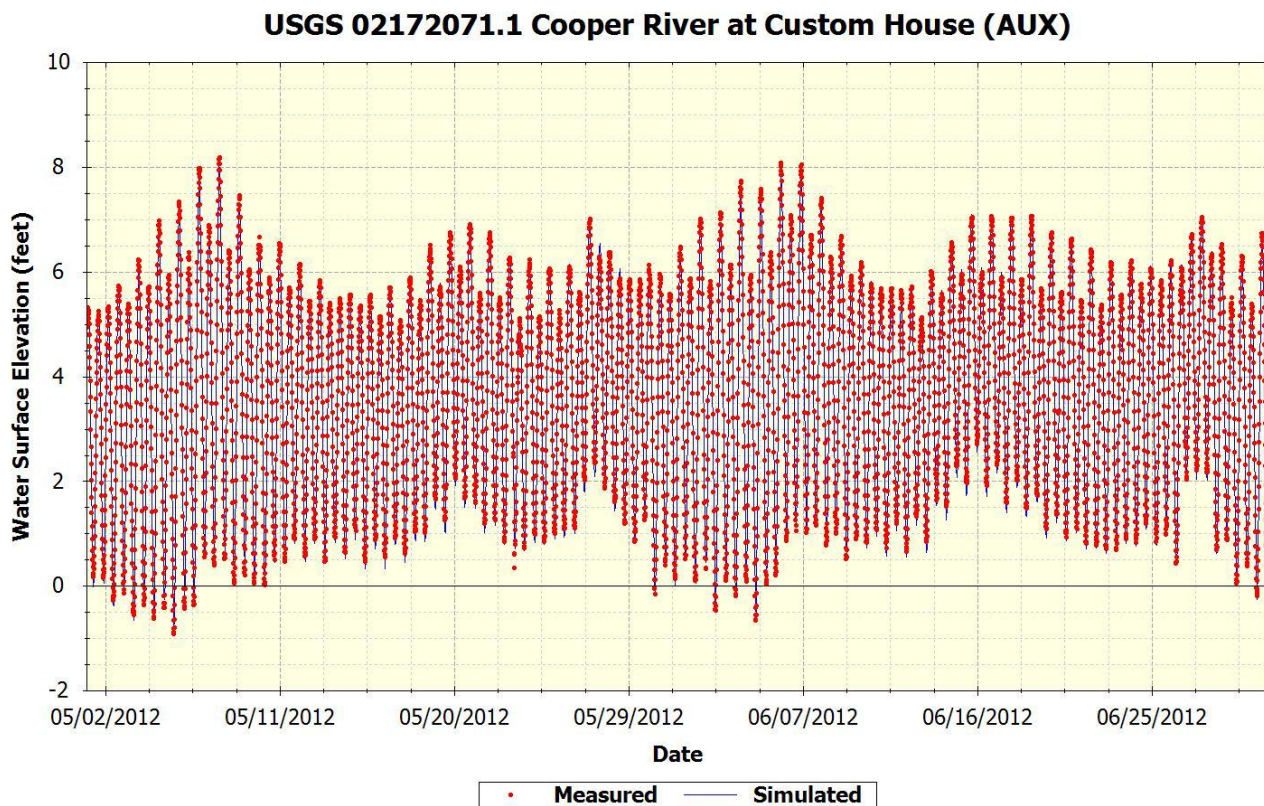


Figure A-6 Measured versus Simulated water surface elevation from May through June 2012 at USGS 02172071.1 Cooper River at Custom House (AUX)

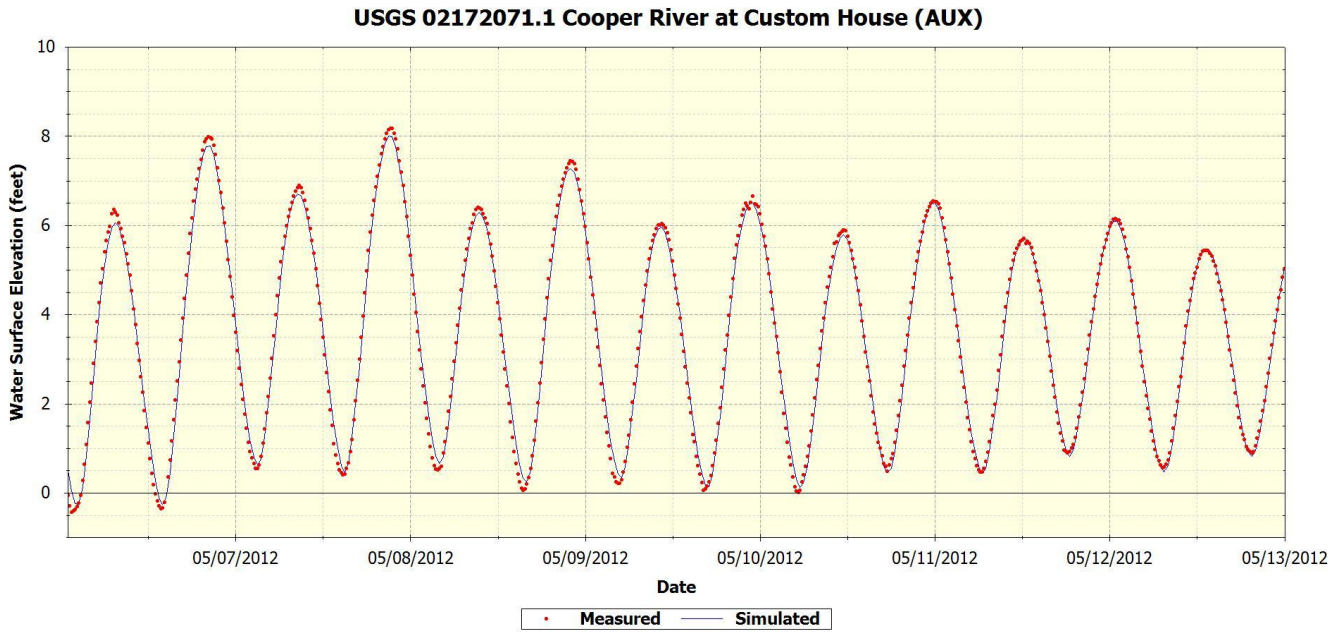


Figure A-6a Measured versus Simulated water surface elevation from May 6 – 12, 2012 at USGS 02172071.1 Cooper River at Custom House (AUX)

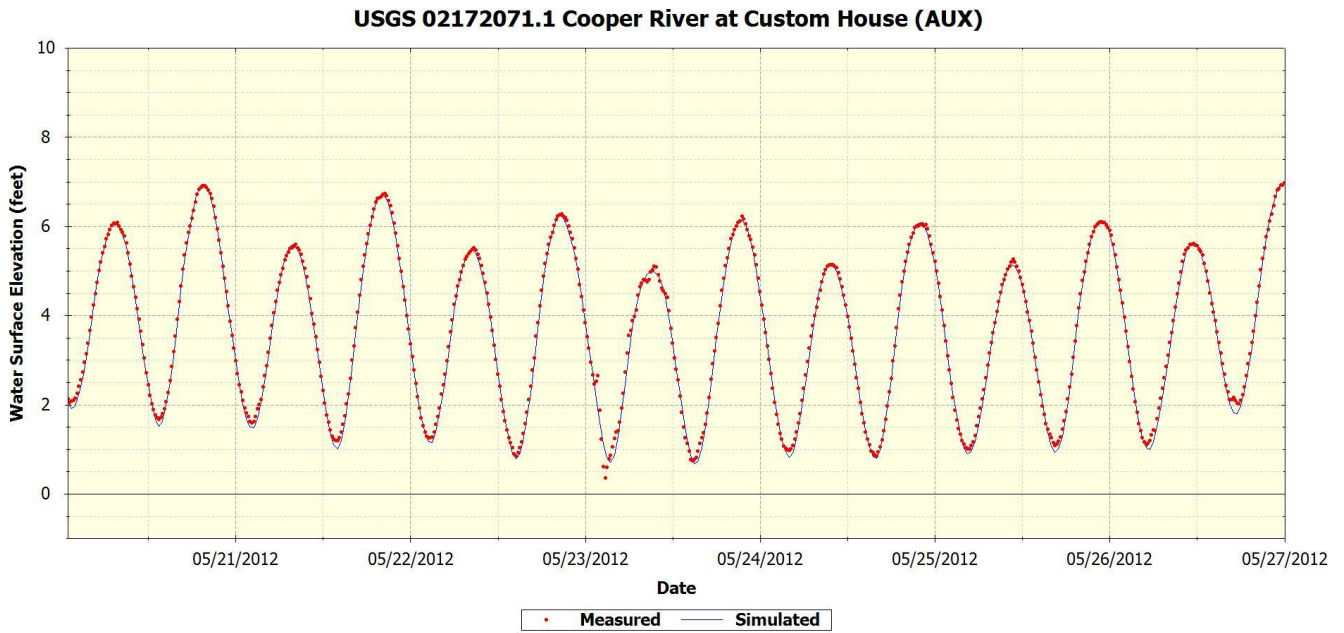


Figure A-6b Measured versus Simulated water surface elevation from May 20 – 26, 2012 at USGS 02172071.1 Cooper River at Custom House (AUX)

USGS 02172069.8 Wando River above Mt. Pleasant

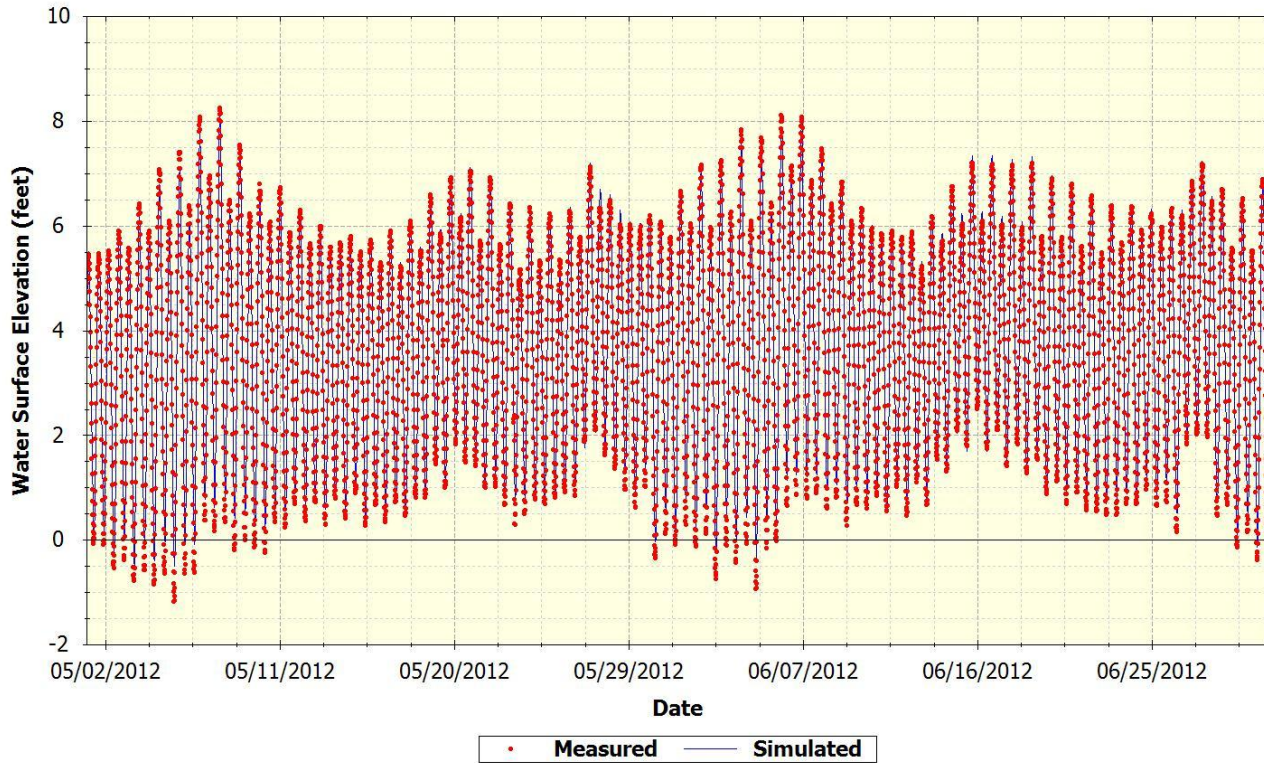


Figure A-7 Measured versus Simulated water surface elevation from May through June 2012 at USGS 02172069.8 Wando River above Mt. Pleasant

USGS 02172069.8 Wando River above Mt. Pleasant

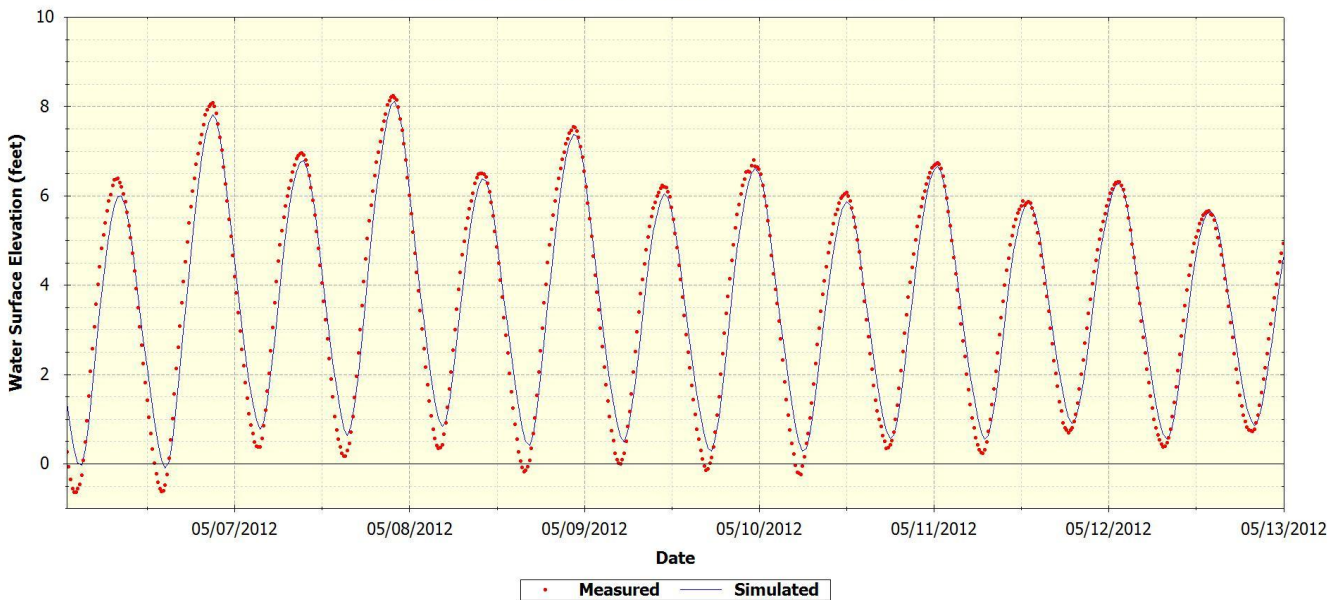


Figure A-7a Measured versus Simulated water surface elevation from May 6 – 12, 2012 at USGS 02172069.8 Wando River above Mt. Pleasant

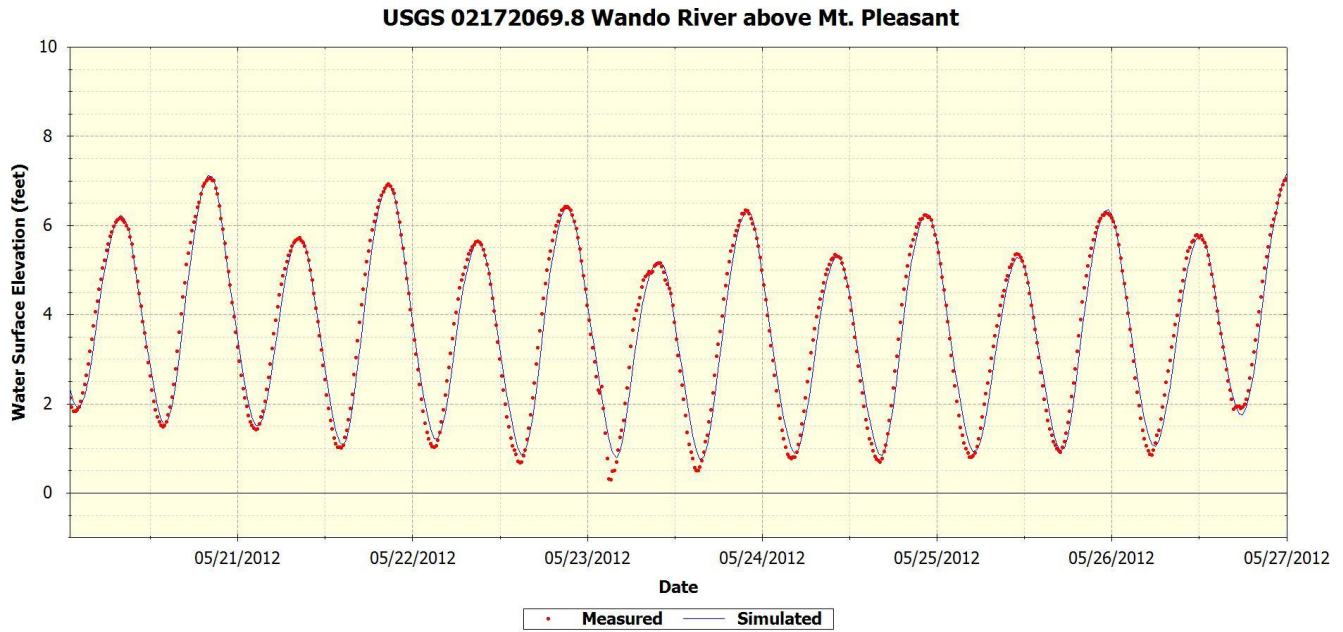


Figure A-7b Measured versus Simulated water surface elevation from May 20 – 26, 2012 at USGS 02172069.8 Wando River above Mt. Pleasant

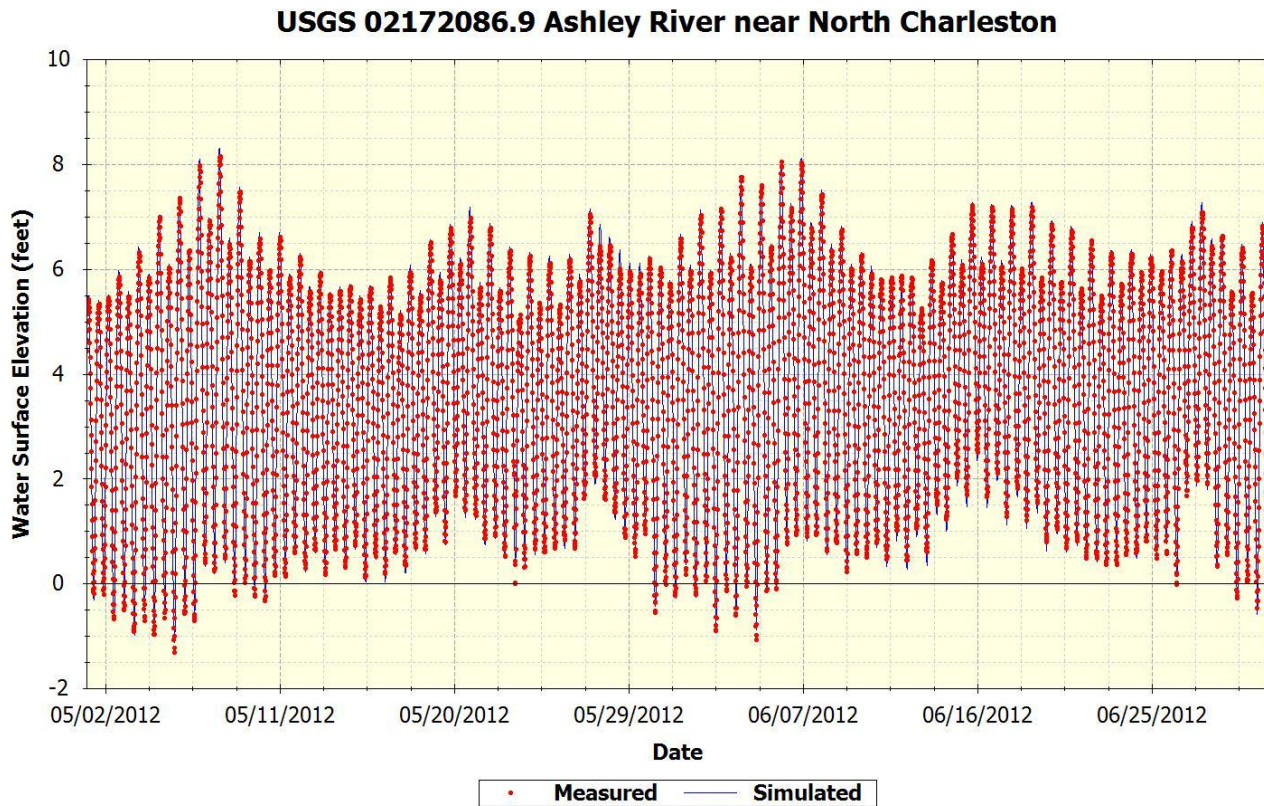


Figure A-8 Measured versus Simulated water surface elevation from May through June 2012 at USGS 02172086.9 Ashley River near North Charleston

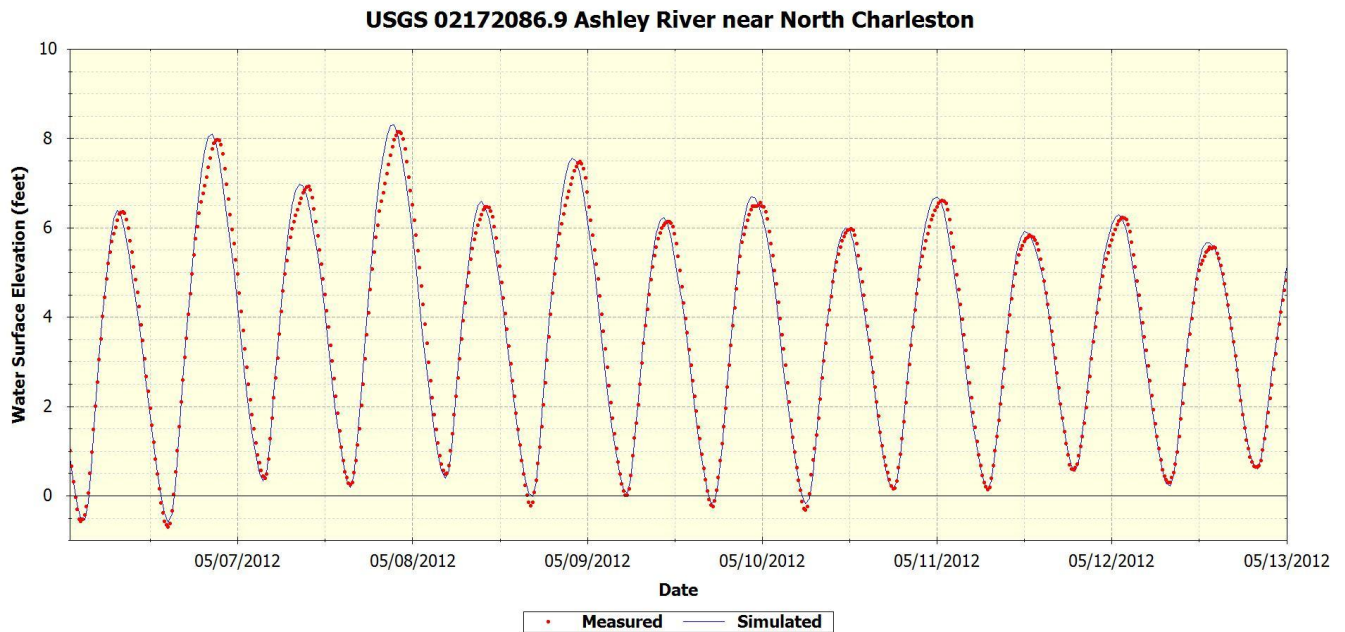


Figure A-8a Measured versus Simulated water surface elevation from May 6 – 12, 2012 at USGS 02172086.9 Ashley River near North Charleston

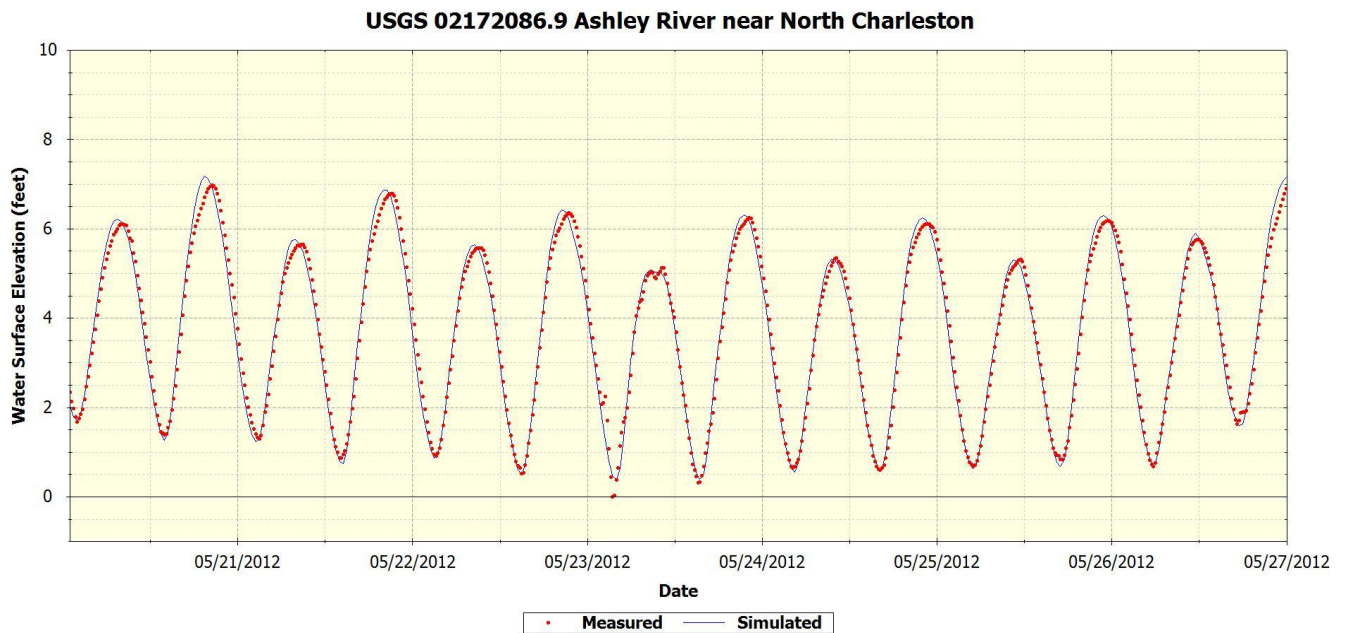


Figure A-8b Measured versus Simulated water surface elevation from May 20 – 26, 2012 at USGS 02172086.9 Ashley River near North Charleston

USGS 02172100 Charleston Harbor at Fort Sumter

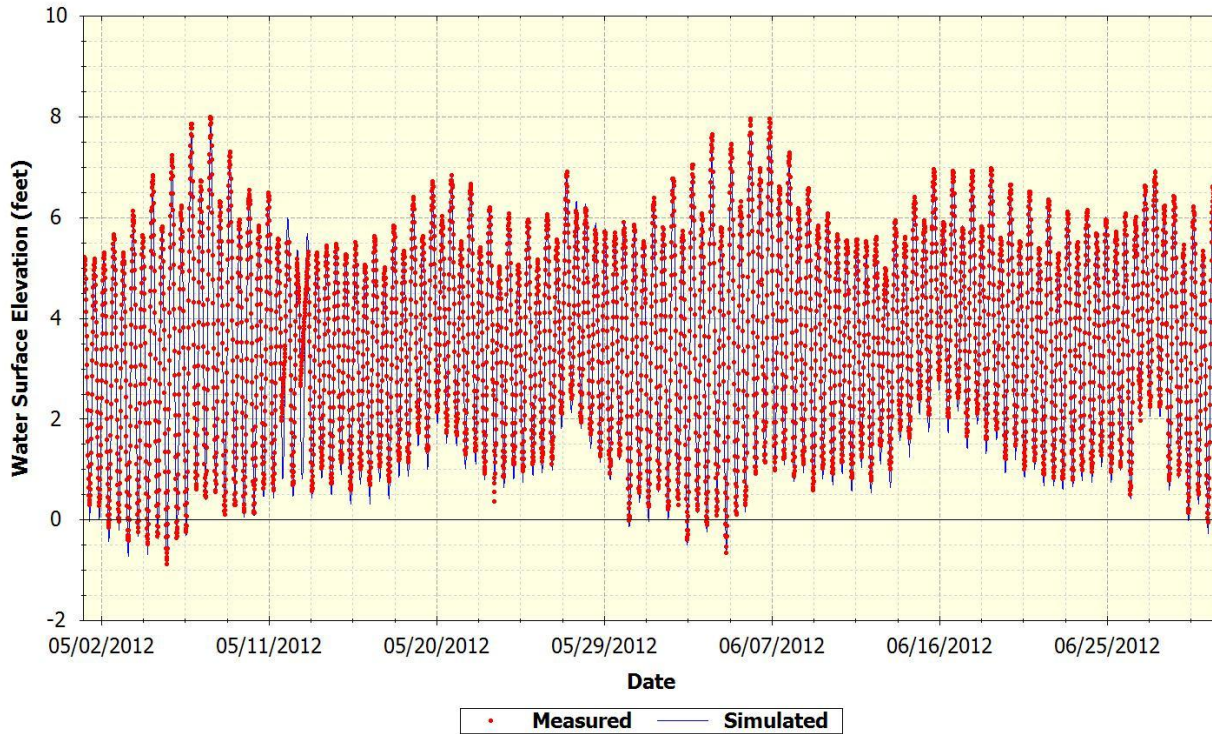


Figure A-9 Measured versus Simulated water surface elevation from May through June 2012 at USGS 02172100 Charleston Harbor at Fort Sumter

USGS 02172100 Charleston Harbor at Fort Sumter

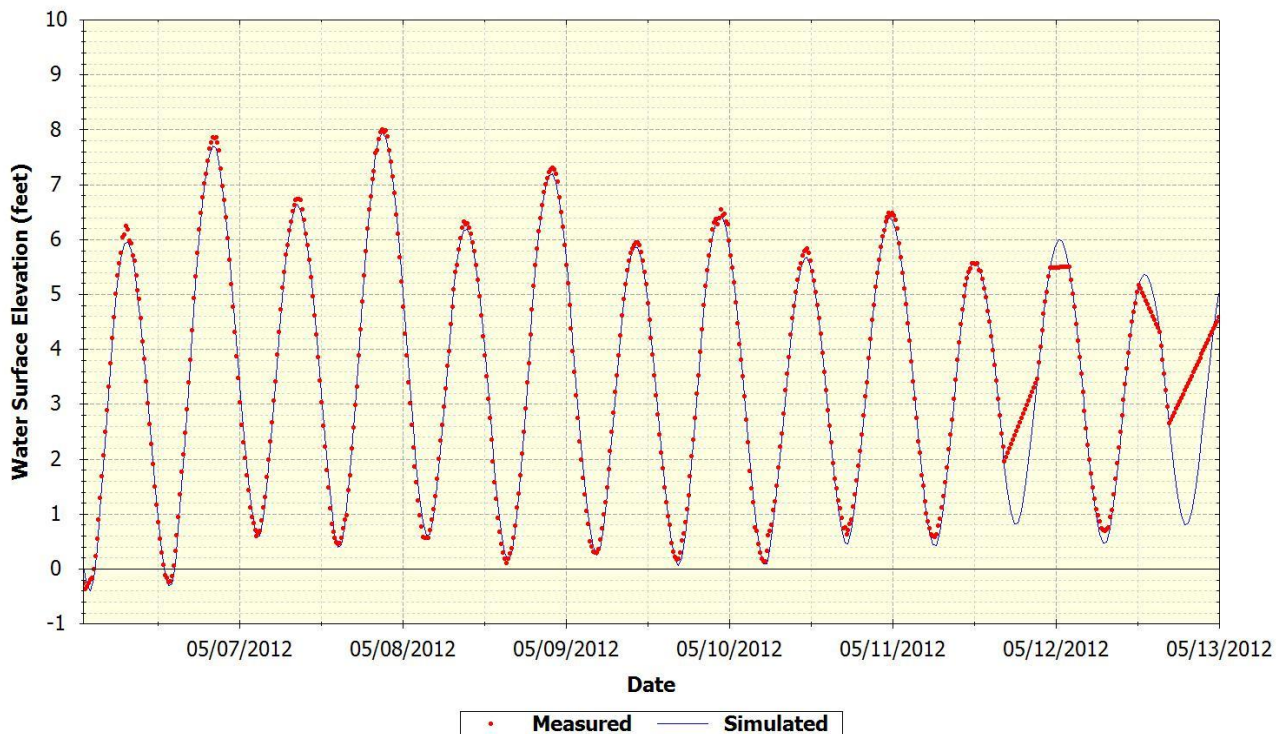


Figure A-9a Measured versus Simulated water surface elevation from May 6 – 12, 2012 at USGS 02172100 Charleston Harbor at Fort Sumter

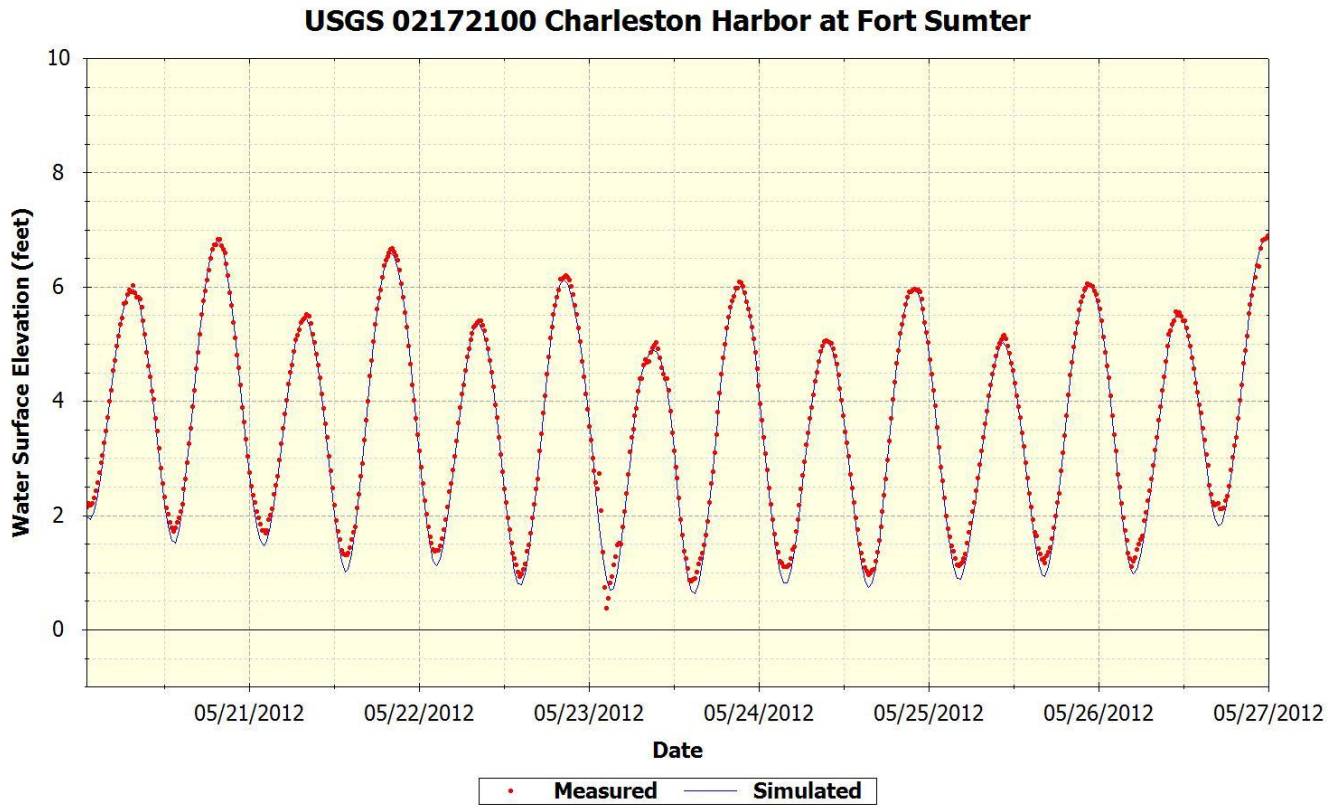


Figure A-9b Measured versus Simulated water surface elevation from May 20 – 26, 2012 at USGS 02172100 Charleston Harbor at Fort Sumter

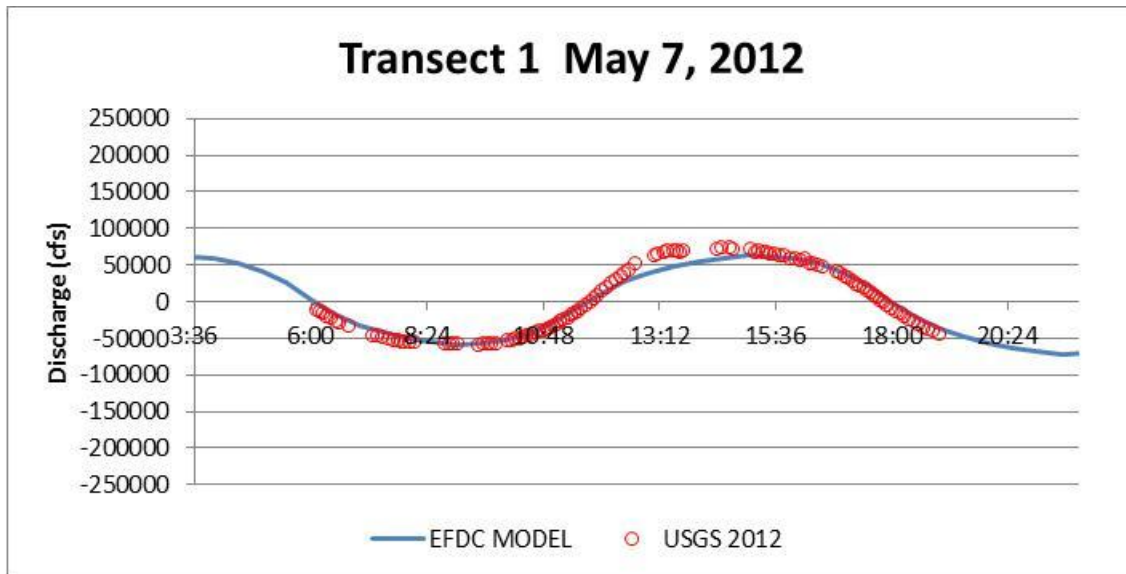


Figure A-10 Measured versus Simulated flow in May 7, 2012 at Transect 1 on the Cooper River near Mobay USGS 02172053

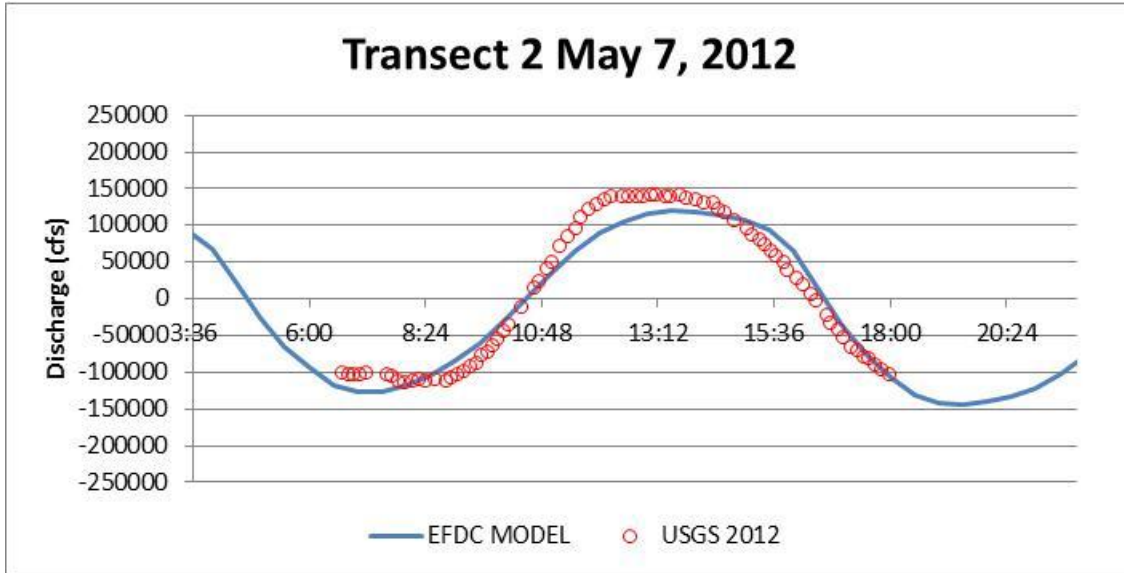


Figure A-11 Measured versus Simulated flow in May 7, 2012 at Transect 2 on the Cooper River at I-526 Bridge, upstream of USGS 02172067.7

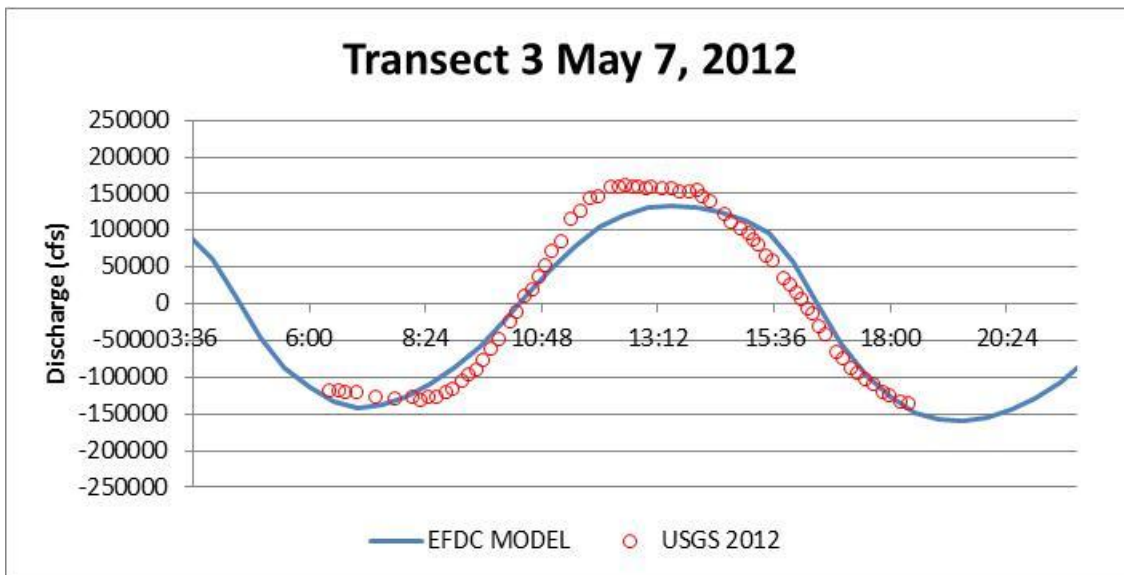


Figure A-12 Measured versus Simulated flow in May 7, 2012 at Transect 3 on the Cooper River at I-526 Bridge, downstream of USGS 02172067.7

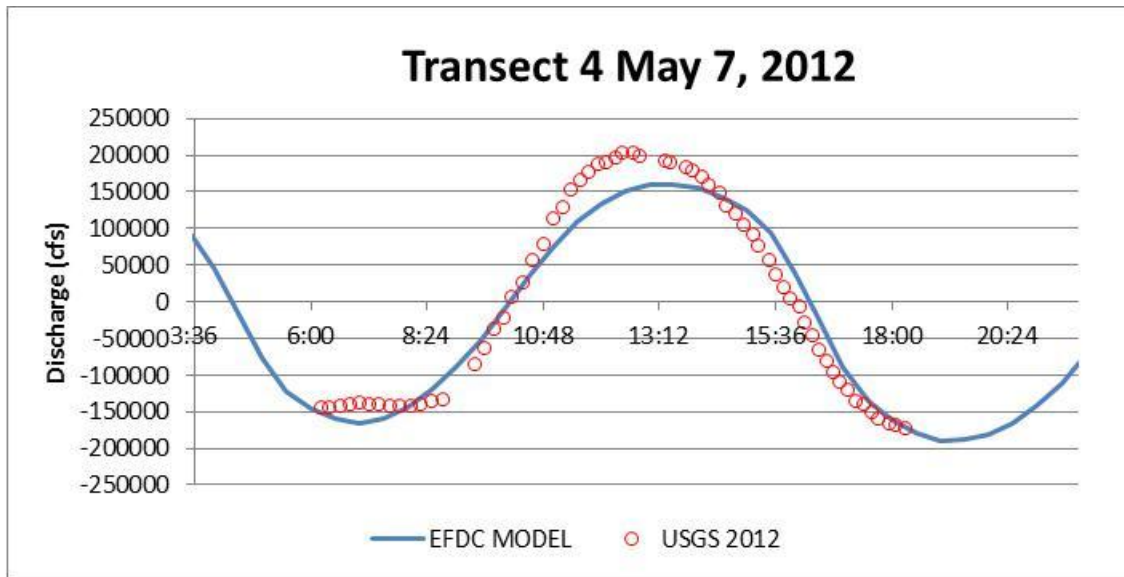


Figure A-13 Measured versus Simulated flow in May 7, 2012 at Transect 4 on the Cooper River just upstream of Cooper River Marina

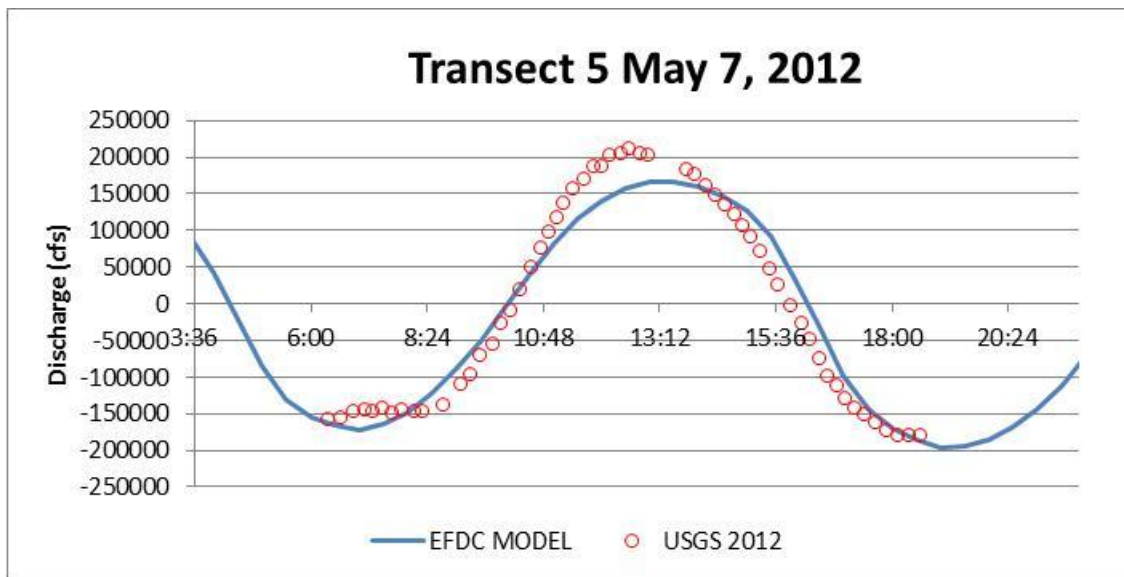


Figure A-14 Measured versus Simulated flow in May 7, 2012 at Transect 5 on the Cooper River just downstream of Cooper River Marina

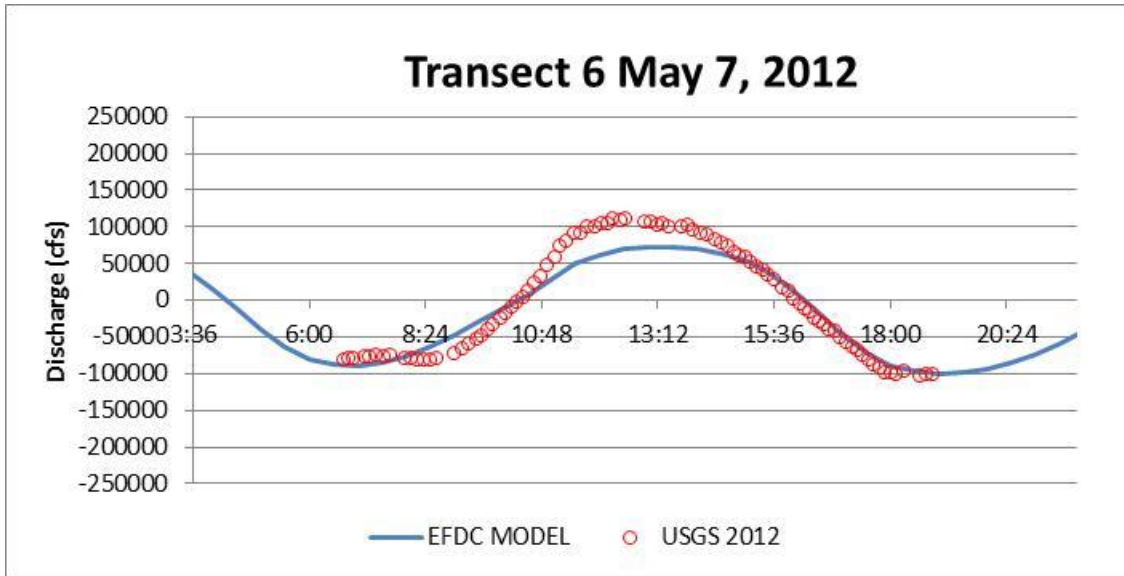


Figure A-15 Measured versus Simulated flow in May 7, 2012 at Transect 6 on Cooper River upstream of Daniel Island near confluence with Wando River

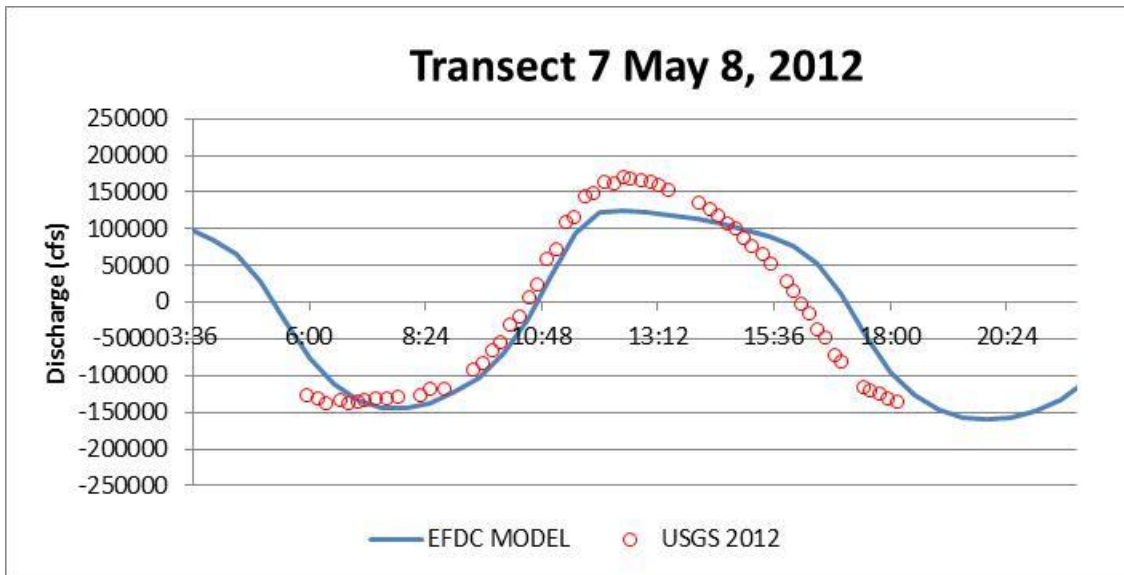


Figure A-16 Measured versus Simulated flow in May 8, 2012 at Transect 7 on Wando River in turning basin

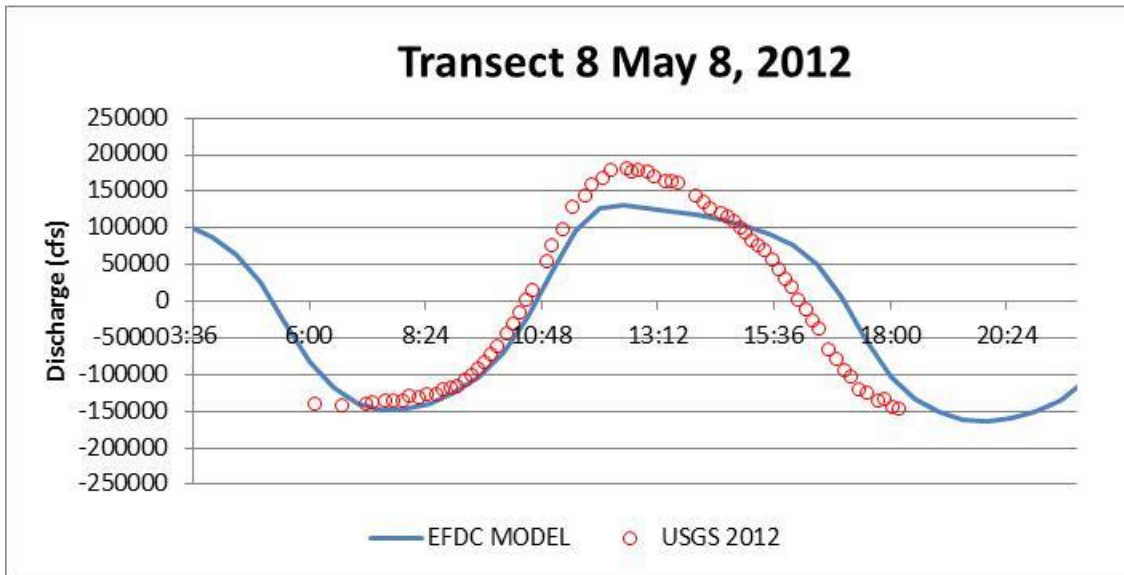


Figure A-17 Measured versus Simulated flow in May 8, 2012 at Transect 8 on Wando River downstream of terminal at Wando Welch

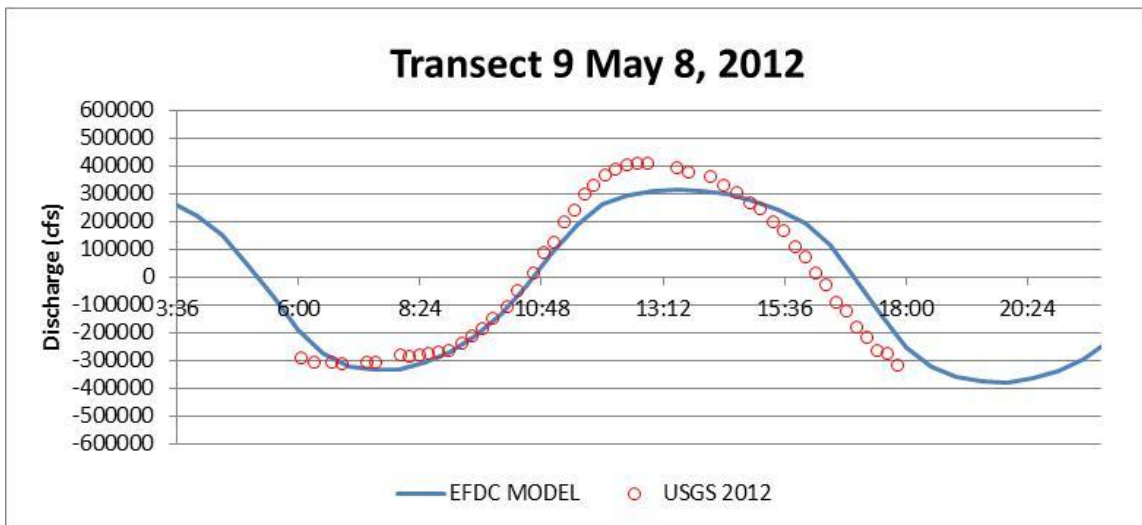


Figure A-18 Measured versus Simulated flow in May 8, 2012 at Transect 9 the mouth of the Cooper River

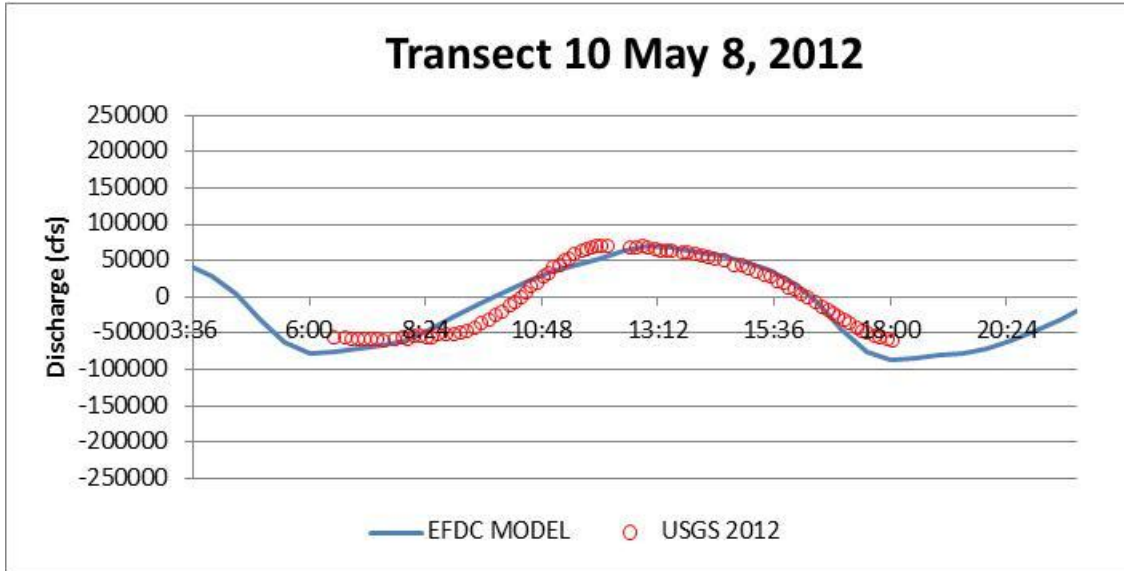


Figure A-19 Measured versus Simulated flow in May 8, 2012 at Transect 10 on Ashley River upstream of the marina

<<Transects were collected from an orientation inconsistent with the model grid causing unrealistic variability between the measured data and modeled results. Therefore, comparisons were not made at this location. >>

Figure A-20 Measured versus Simulated flow in May 8, 2012 at Transect 11

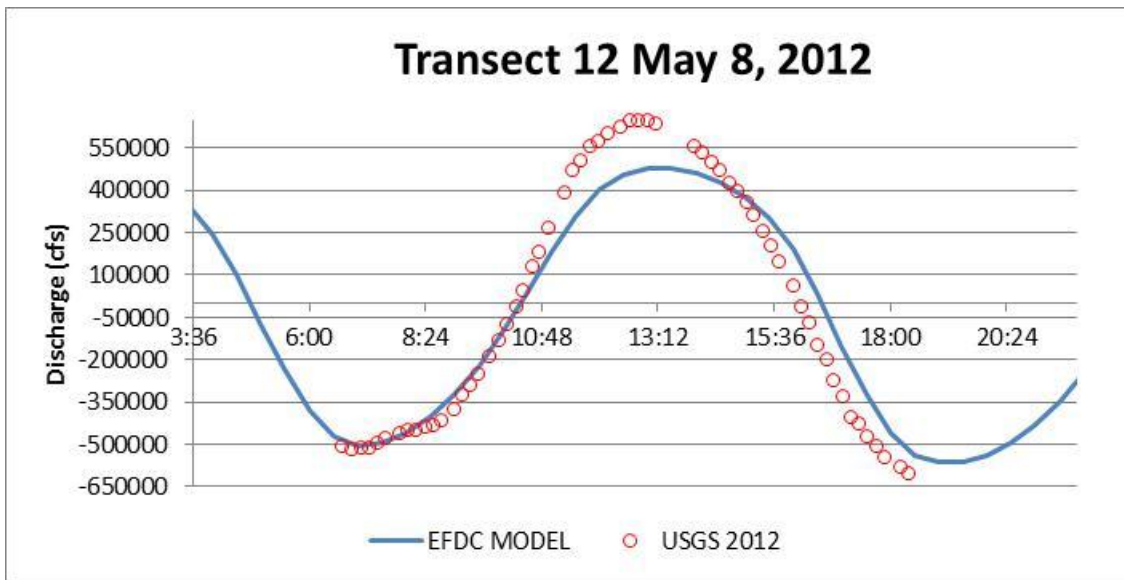


Figure A-21 Measured versus Simulated flow in May 8, 2012 at Transect 12 at the harbor mouth

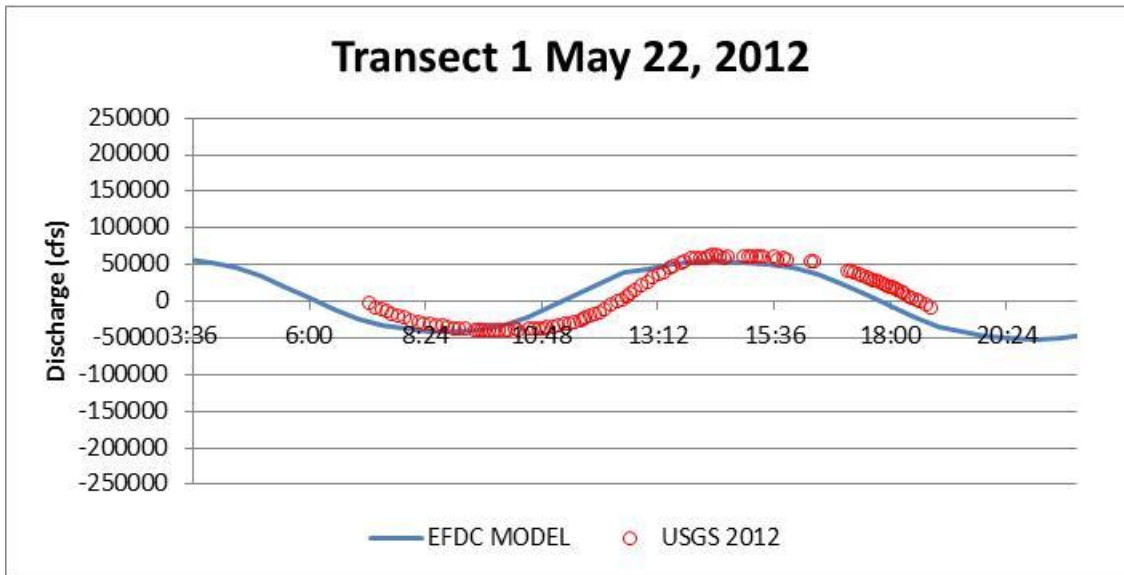


Figure A-22 Measured versus Simulated flow in May 22, 2012 at Transect 1 on the Cooper River near Mobay USGS 02172053

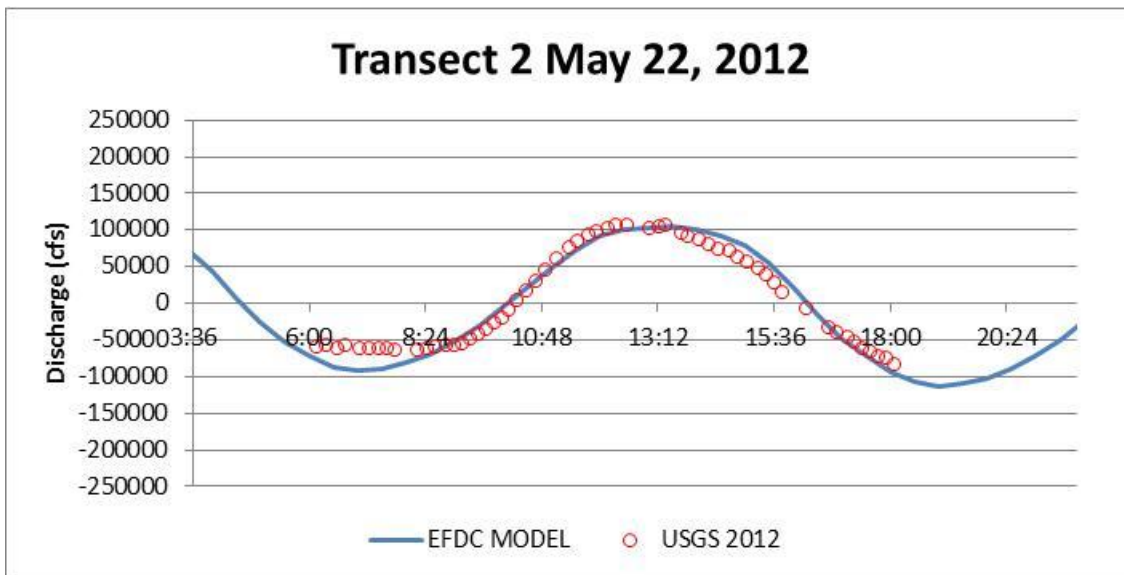


Figure A-23 Measured versus Simulated flow in May 22, 2012 at Transect 2 on the Cooper River at I-526 Bridge, upstream of USGS 02172067.7

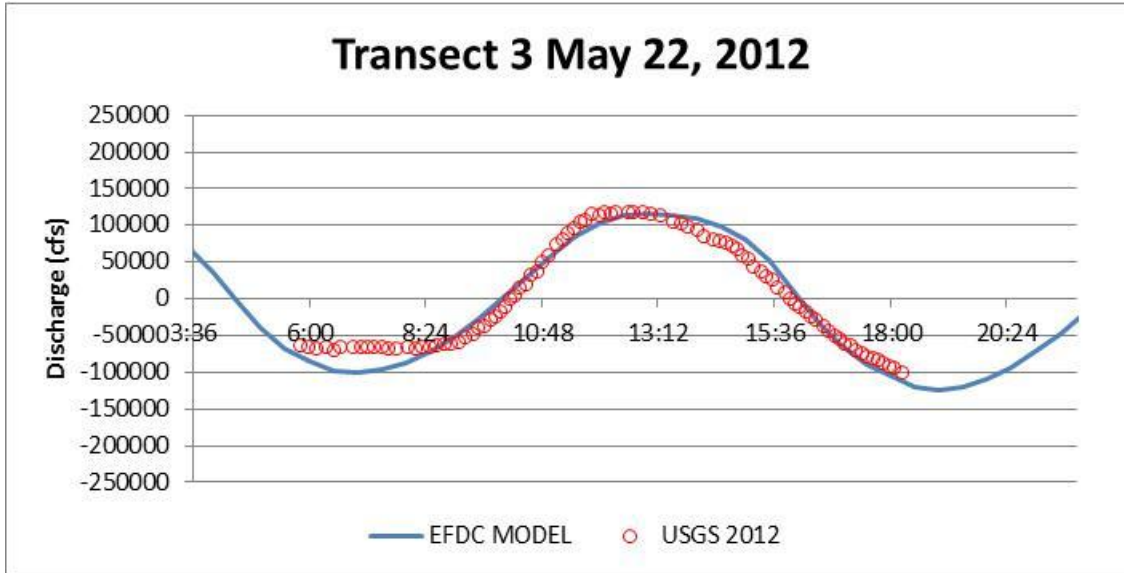


Figure A-24 Measured versus Simulated flow in May 22, 2012 at Transect 3 on the Cooper River at I-526 Bridge, downstream of USGS 02172067.7

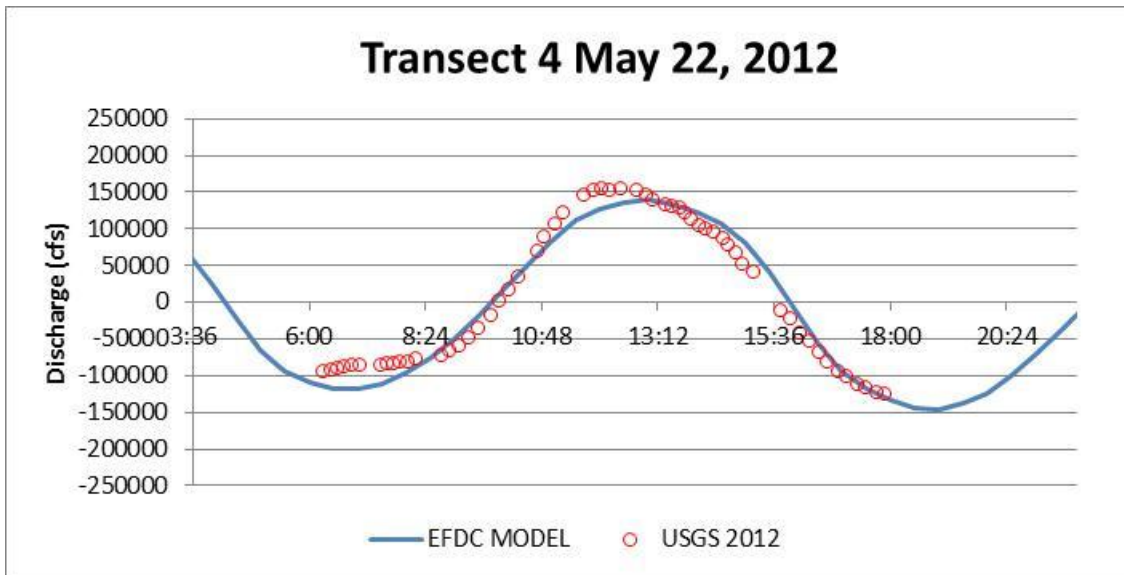


Figure A-25 Measured versus Simulated flow in May 22, 2012 at Transect 4 on the Cooper River just upstream of Cooper River Marina

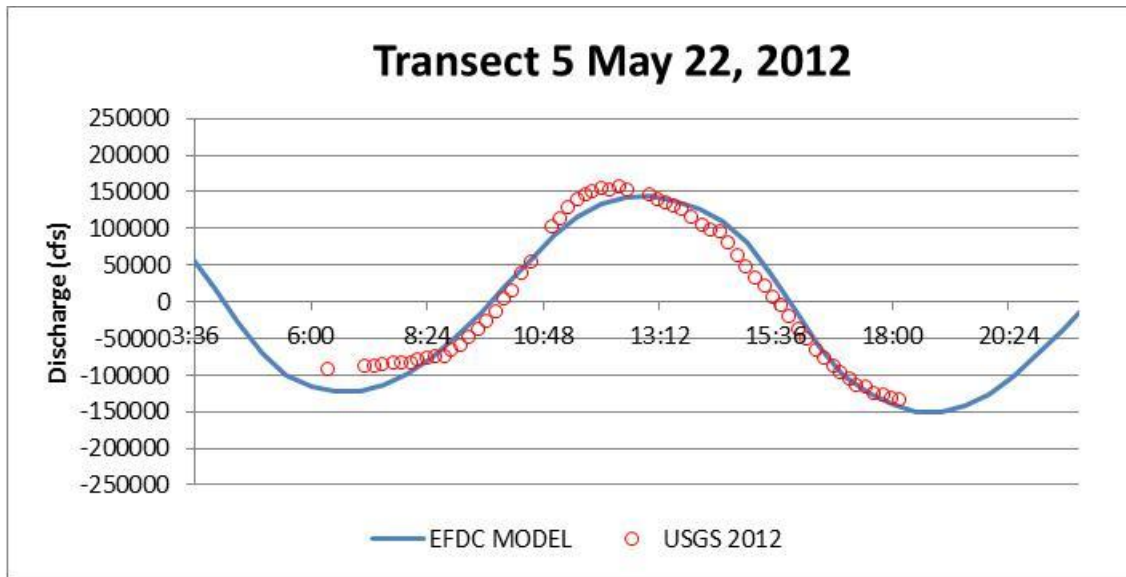


Figure A-26 Measured versus Simulated flow in May 22, 2012 at Transect 5 on the Cooper River just downstream of Cooper River Marina

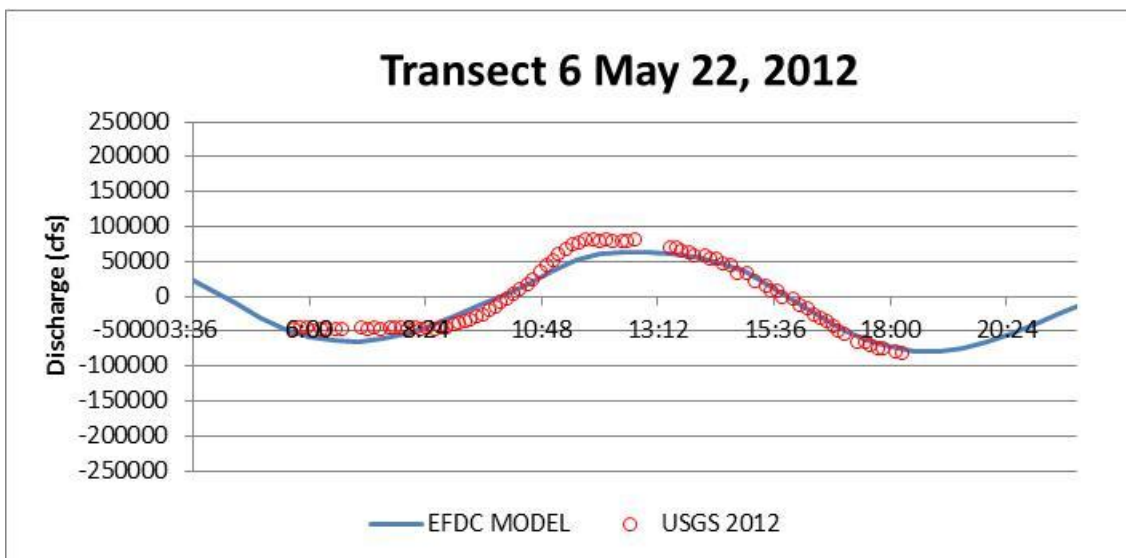


Figure A-27 Measured versus Simulated flow in May 22, 2012 at Transect 6 on Cooper River upstream of Daniel Island near confluence with Wando River

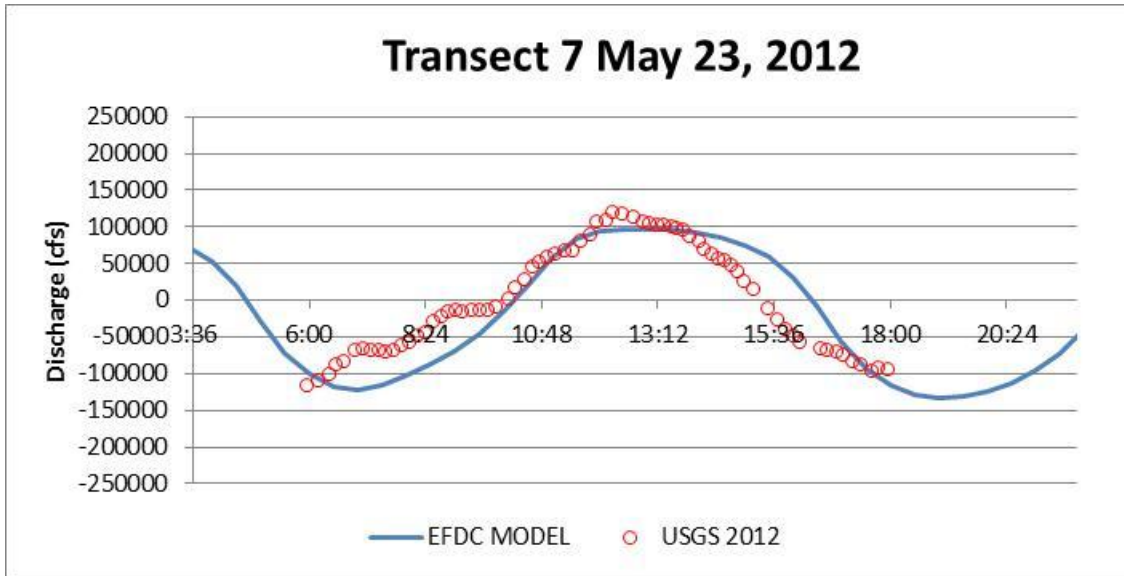


Figure A-28 Measured versus Simulated flow in May 23, 2012 at Transect 7 on Wando River in turning basin

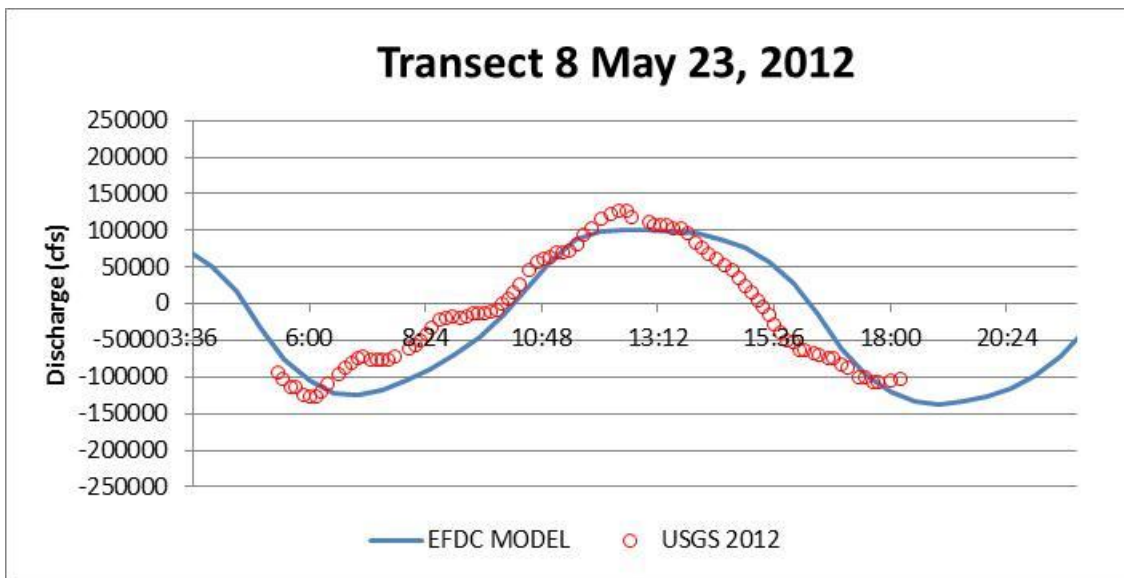


Figure A-29 Measured versus Simulated flow in May 23, 2012 at Transect 8 on Wando River downstream of terminal at Wando Welch

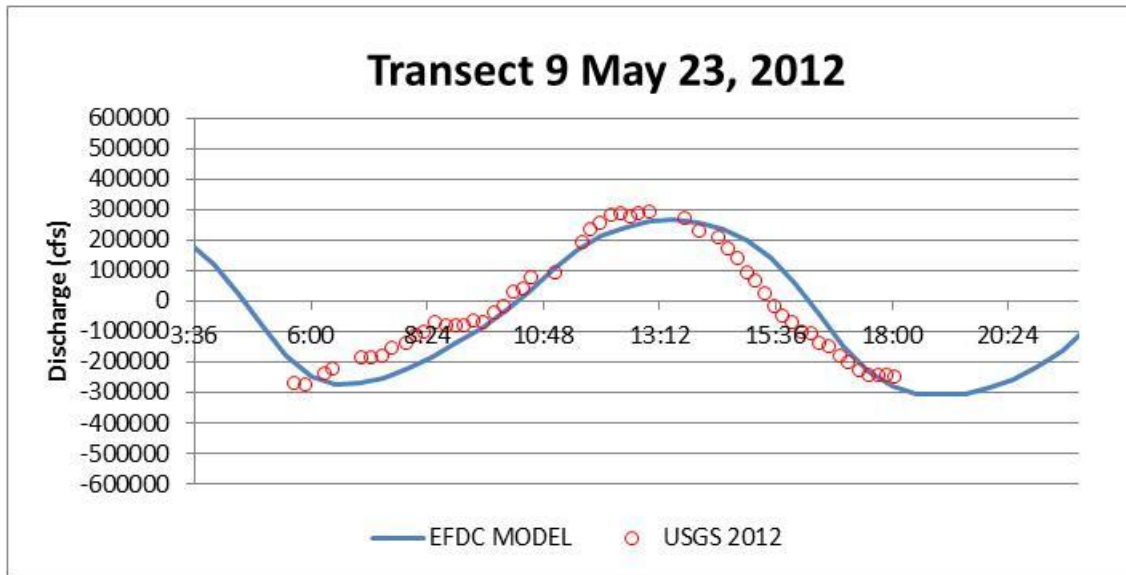


Figure A-30 Measured versus Simulated flow in May 23, 2012 at Transect 9 the mouth of the Cooper River

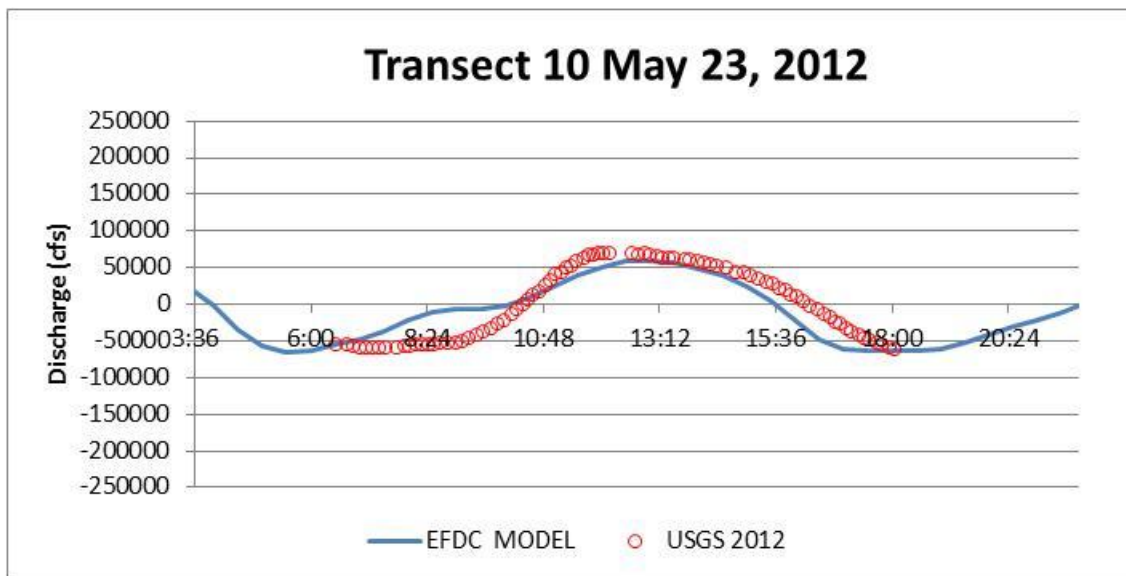


Figure A-31 Measured versus Simulated flow in May 23, 2012 at Transect 10 on Ashley River upstream of the marina

<<Transects were collected from an orientation inconsistent with the model grid causing unrealistic variability between the measured data and modeled results. Therefore, comparisons were not made at this location. >>

Figure A-32 Measured versus Simulated flow in May 23, 2012 at Transect 11

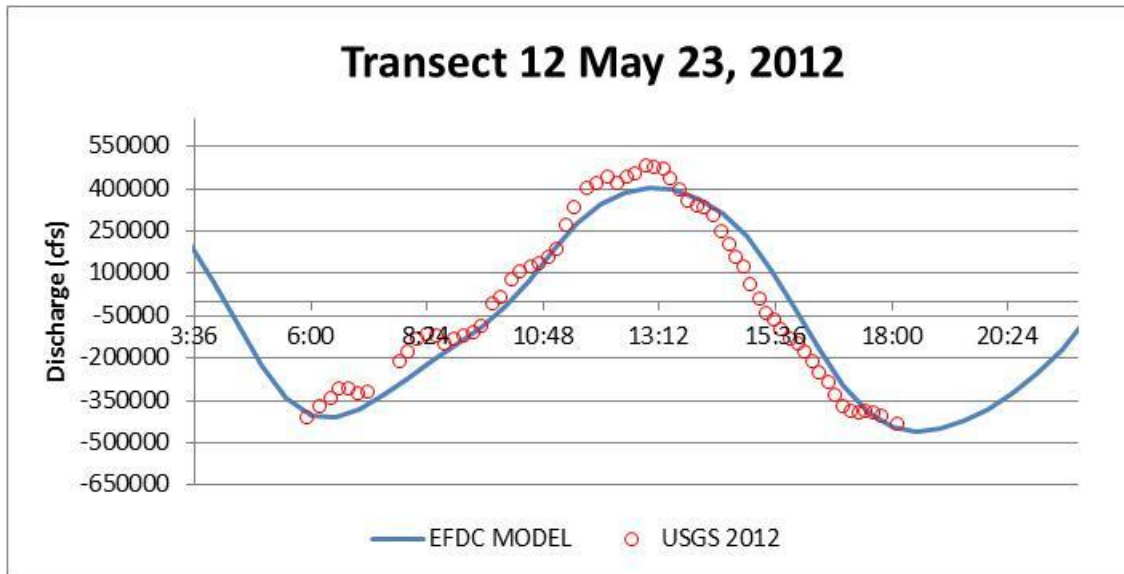
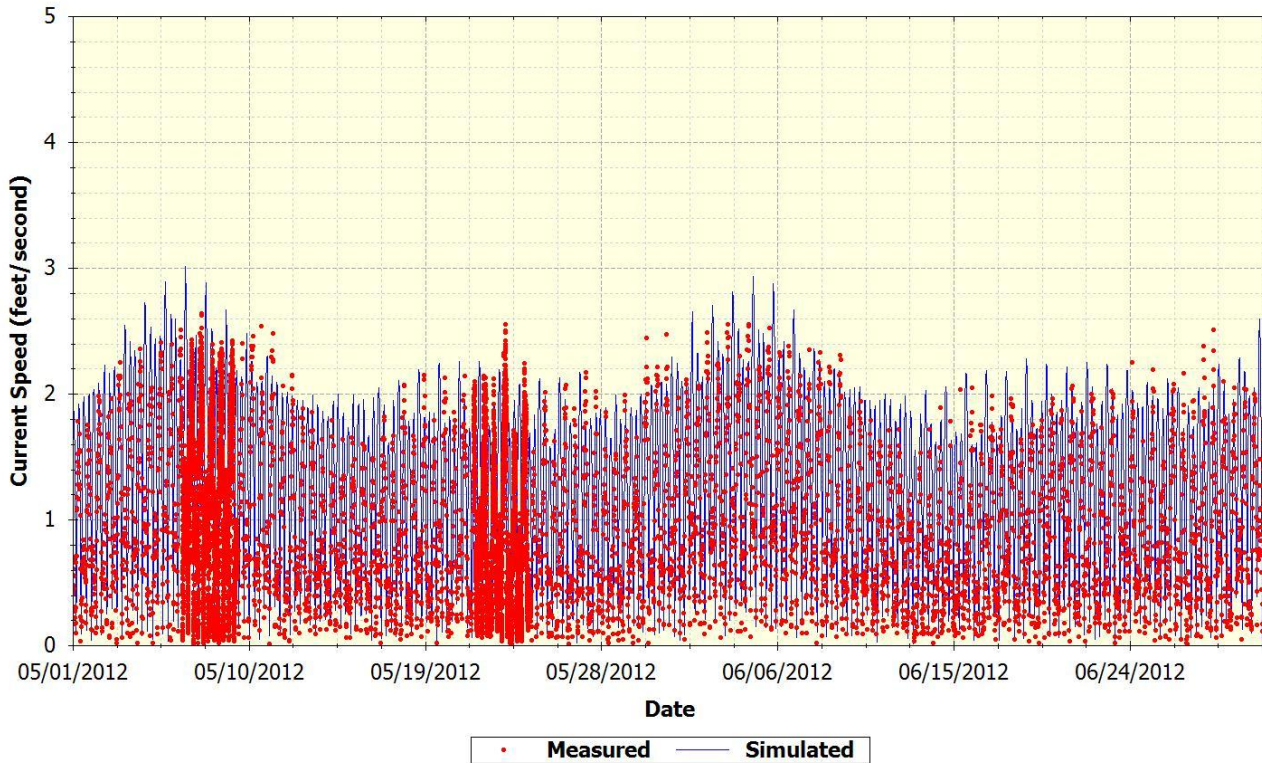
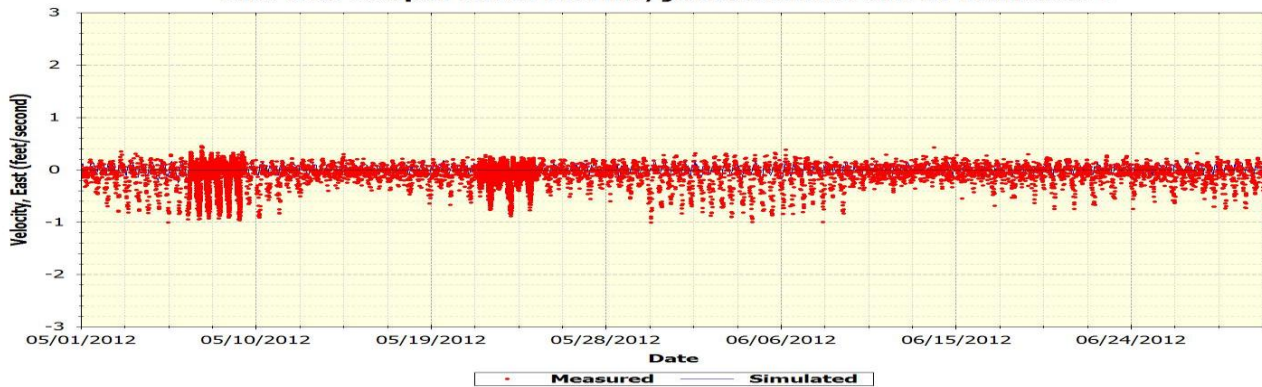


Figure A-33 Measured versus Simulated flow in May 23, 2012 at Transect 12 at the harbor mouth

Site 1 at Cooper River Marina, just downstream of Transect 4



Site 1 at Cooper River Marina, just downstream of Transect 4



Site 1 at Cooper River Marina, just downstream of Transect 4

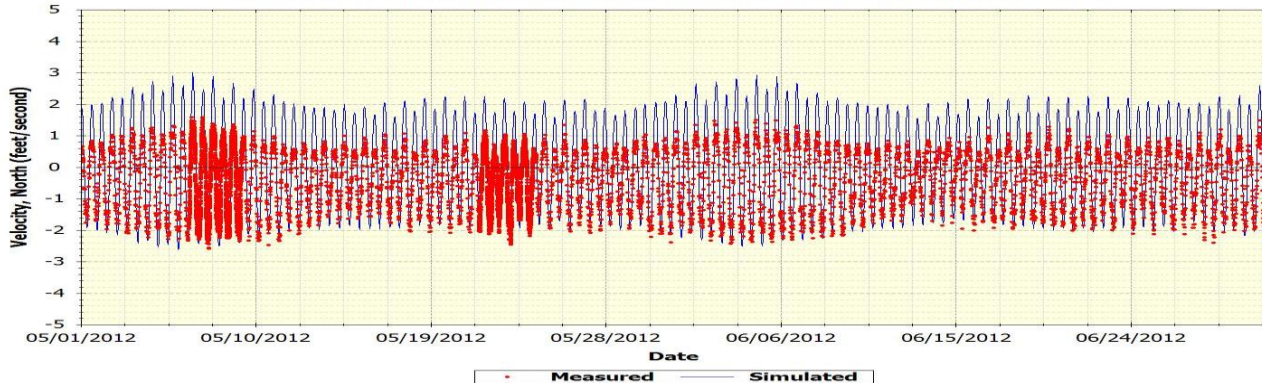
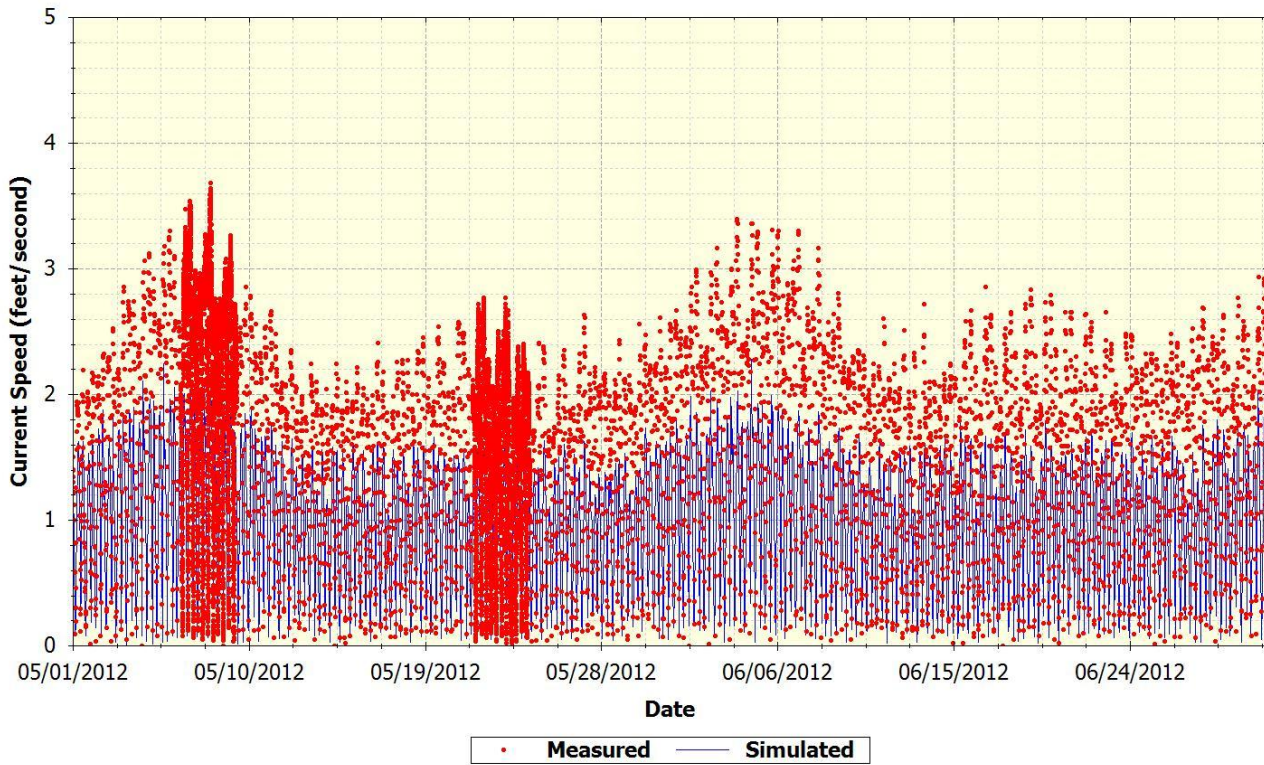
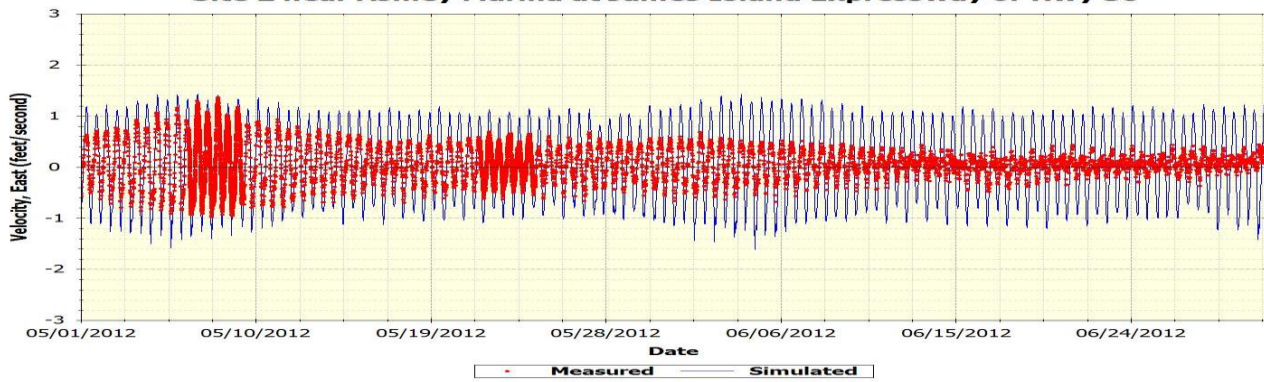


Figure A-34 Measured versus Simulated velocity at USGS 32495809560000, Site 1 at Cooper River Marina

Site 2 near Ashley Marina at James Island Expressway or Hwy 30



Site 2 near Ashley Marina at James Island Expressway or Hwy 30



Site 2 near Ashley Marina at James Island Expressway or Hwy 30

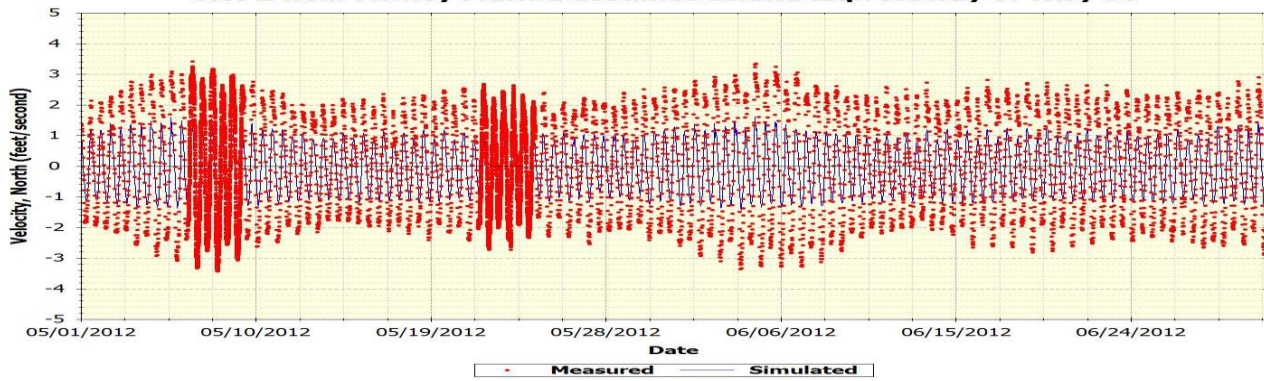
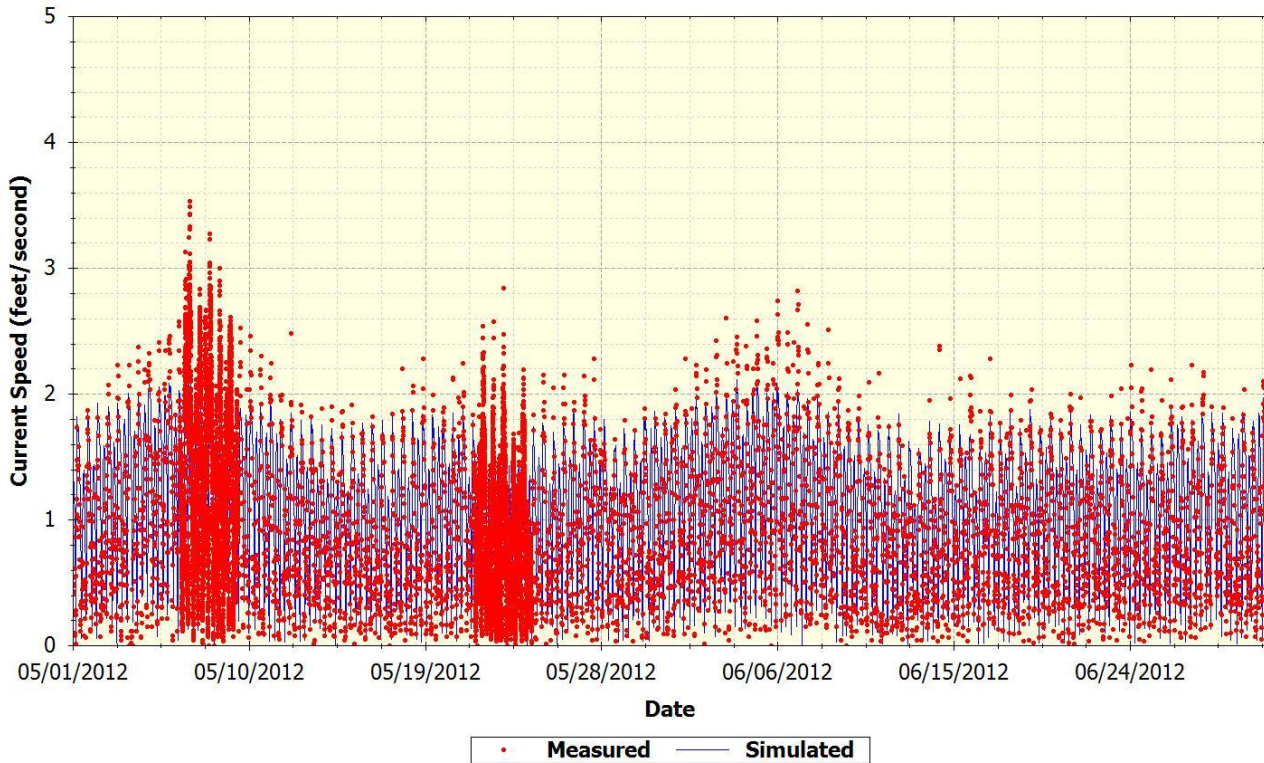
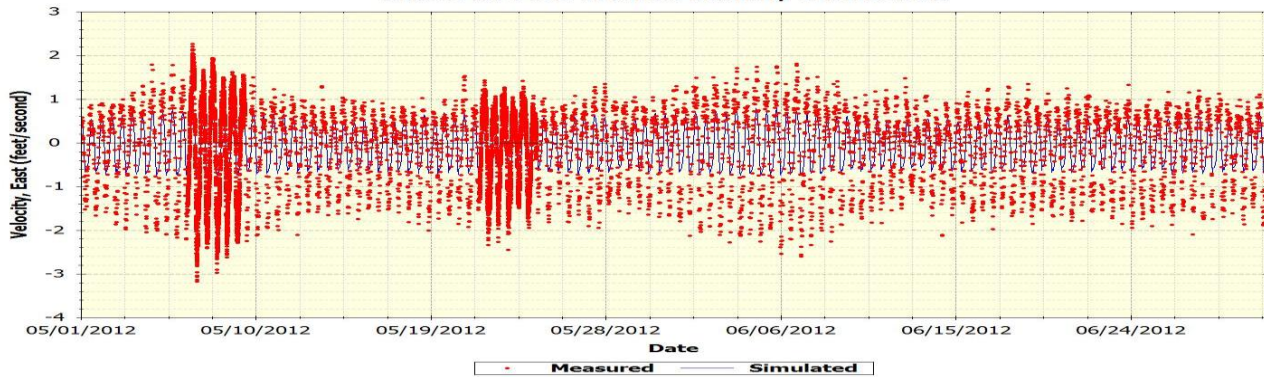


Figure A-35 Measured versus Simulated velocity at USGS 324647079572400, Site 2 near Ashley Marina at James Island Expressway

Site 3 at POC Wando Welch, Transect 8



Site 3 at POC Wando Welch, Transect 8



Site 3 at POC Wando Welch, Transect 8

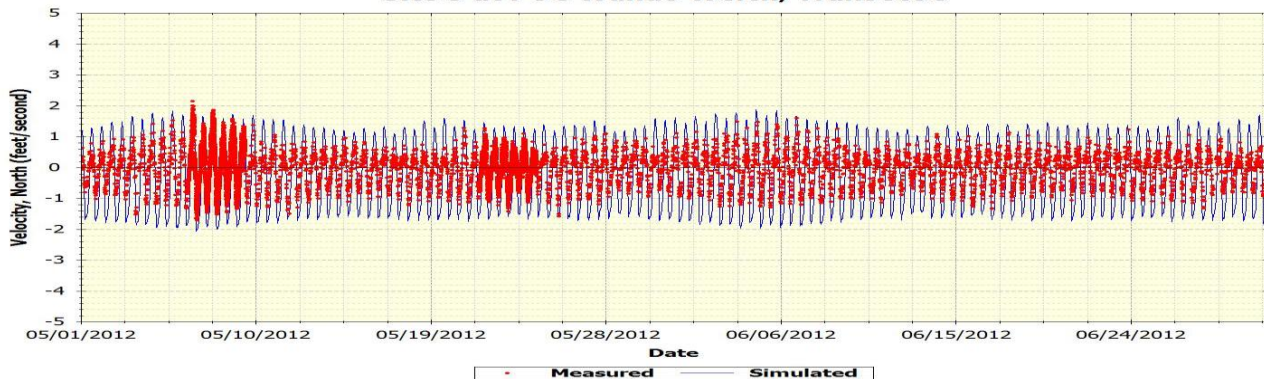
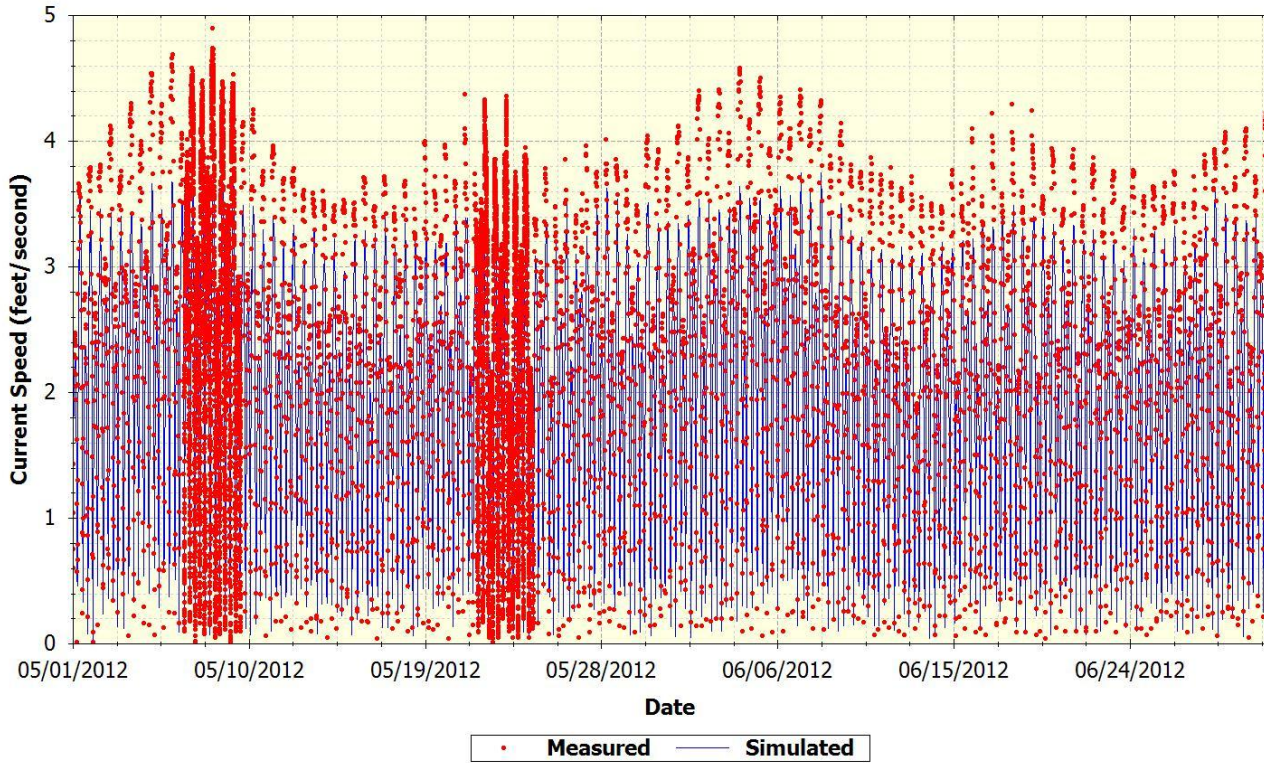
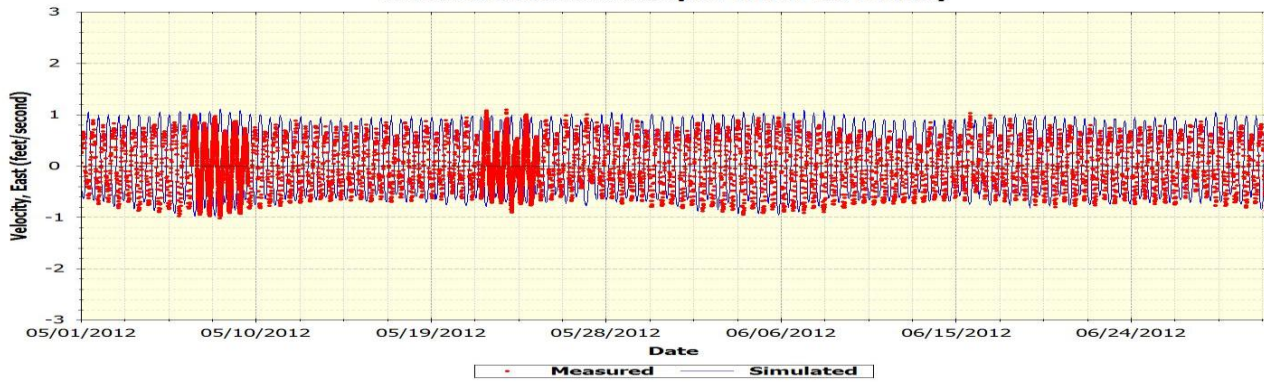


Figure A-36 Measured versus Simulated velocity at USGS 324943079533700, Site 3 at POC Wando Welch

USGS 02172053 Cooper River at Mobay



USGS 02172053 Cooper River at Mobay



USGS 02172053 Cooper River at Mobay

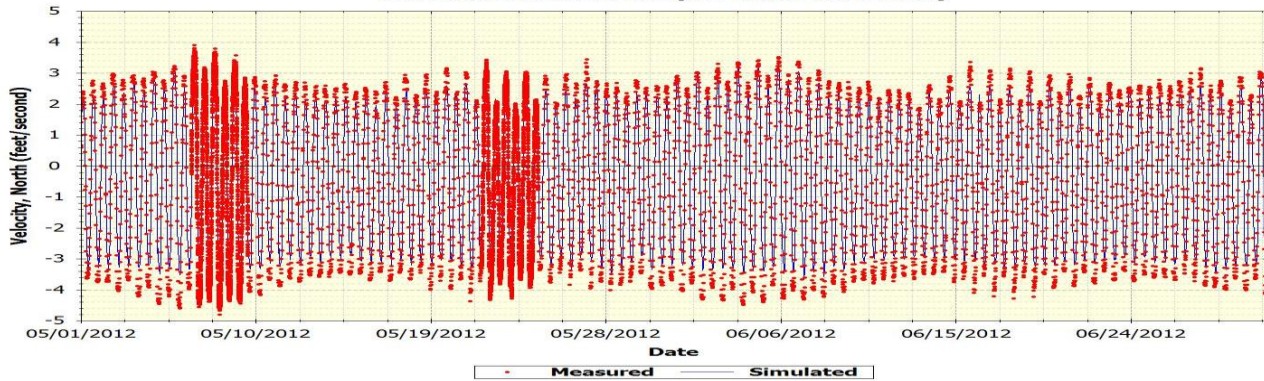


Figure A-37 Measured versus Simulated velocity at USGS 02172053 Cooper River at Mobay

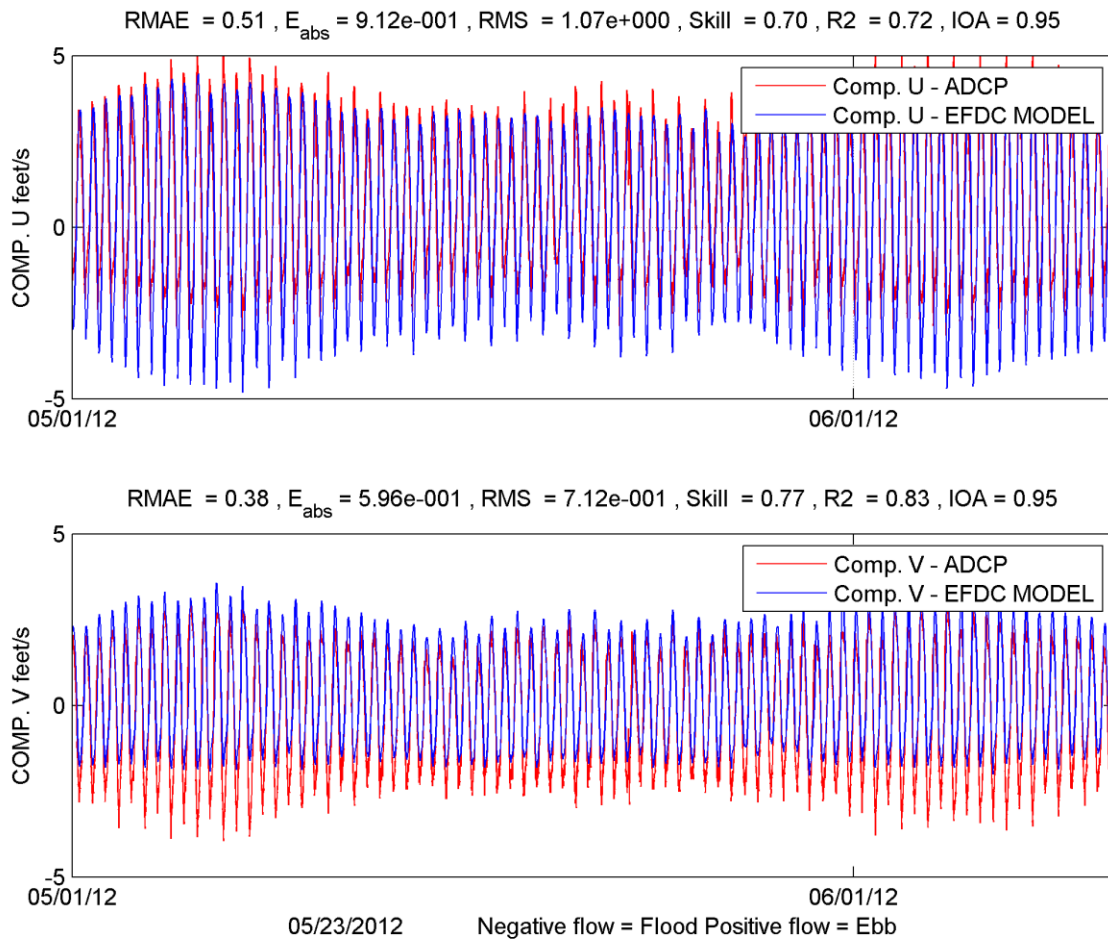


Figure A-38a Measured versus Simulated surface velocity at the G-25 buoy at the mouth of Charleston Harbor

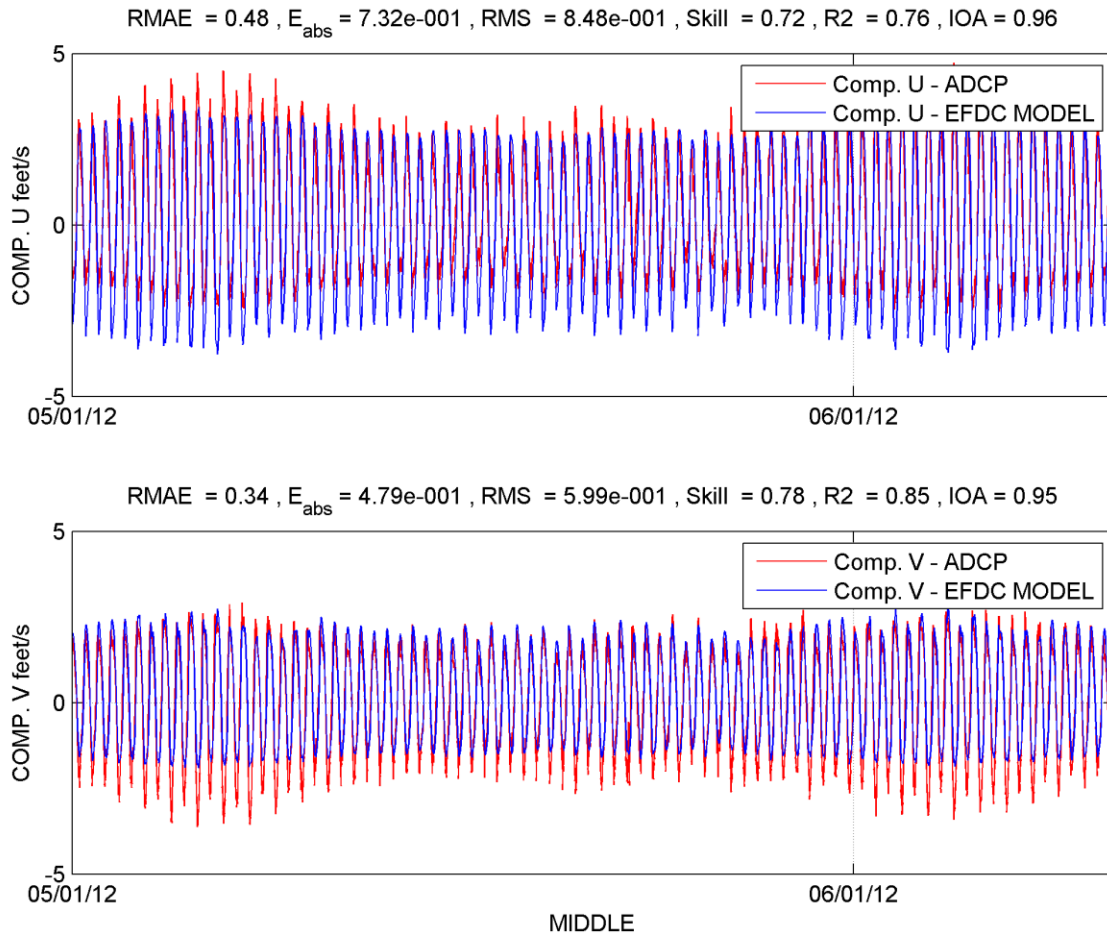


Figure A-38b Measured versus Simulated mid-depth velocity at the G-25 buoy at the mouth of Charleston Harbor

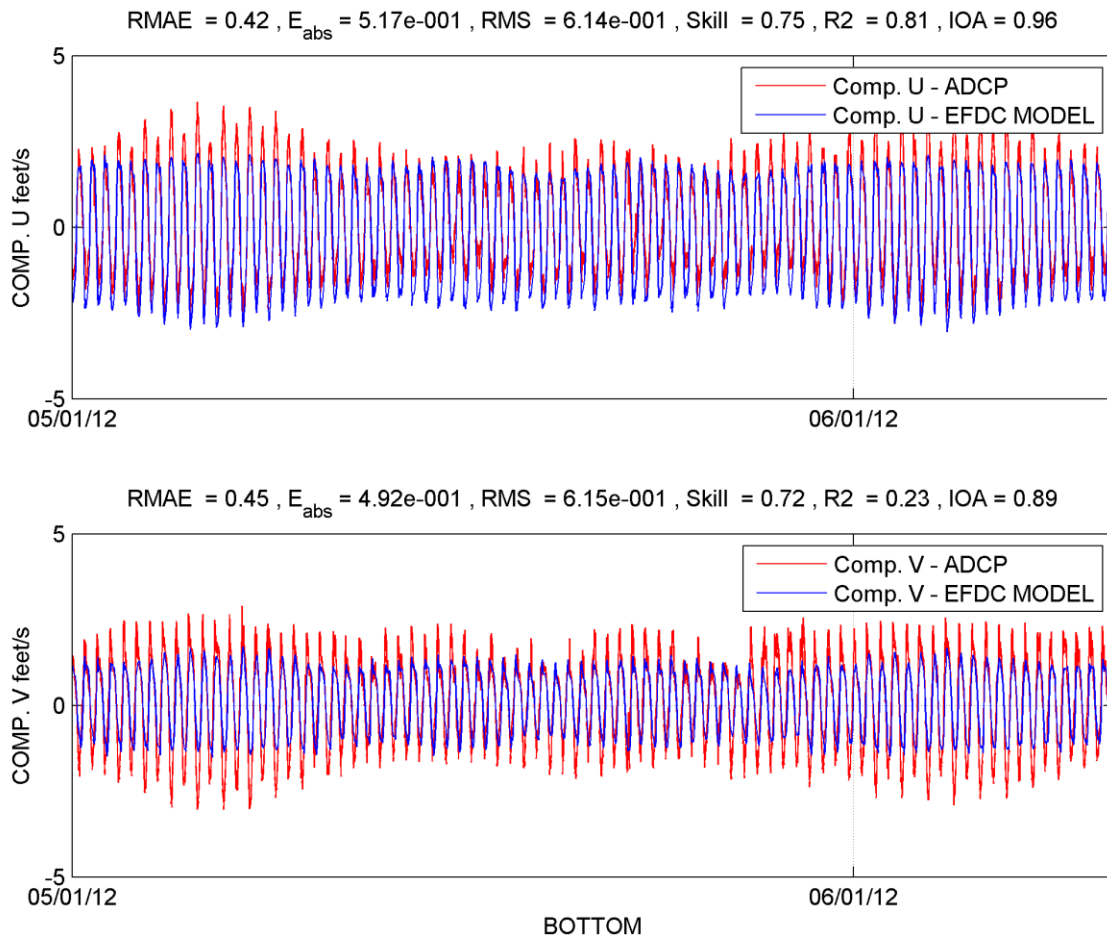


Figure A-38c Measured versus Simulated bottom velocity at the G-25 buoy at the mouth of Charleston Harbor

Site 1 at Cooper River Marina

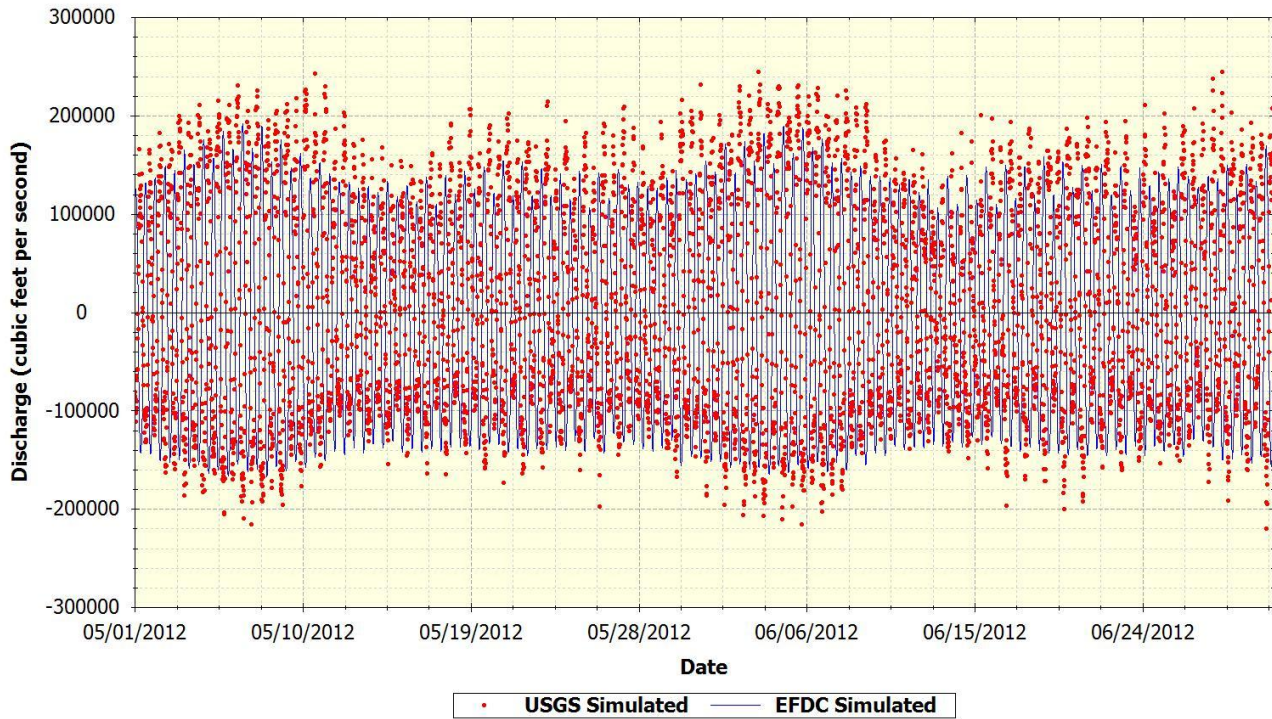


Figure A-39 Measured [is calculated from rating curves developed by USGS from velocity data] versus Simulated flow at USGS 32495809560000, Site 1 at Cooper River Marina

Site 2 near Ashley Marina

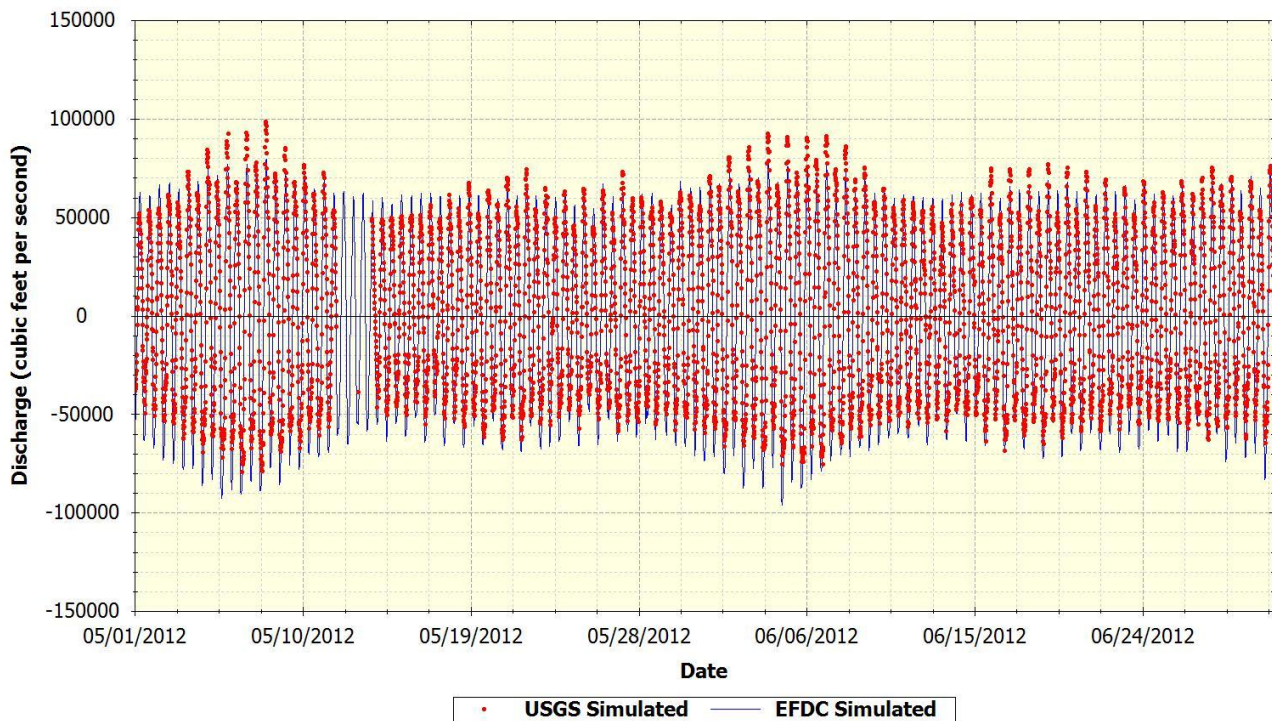


Figure A-40 Measured [is calculated from rating curves developed by USGS from velocity data] versus Simulated flow at USGS 324647079572400, Site 2 near Ashley Marina at James Island Expressway

Site 3 at POC Wando Welch

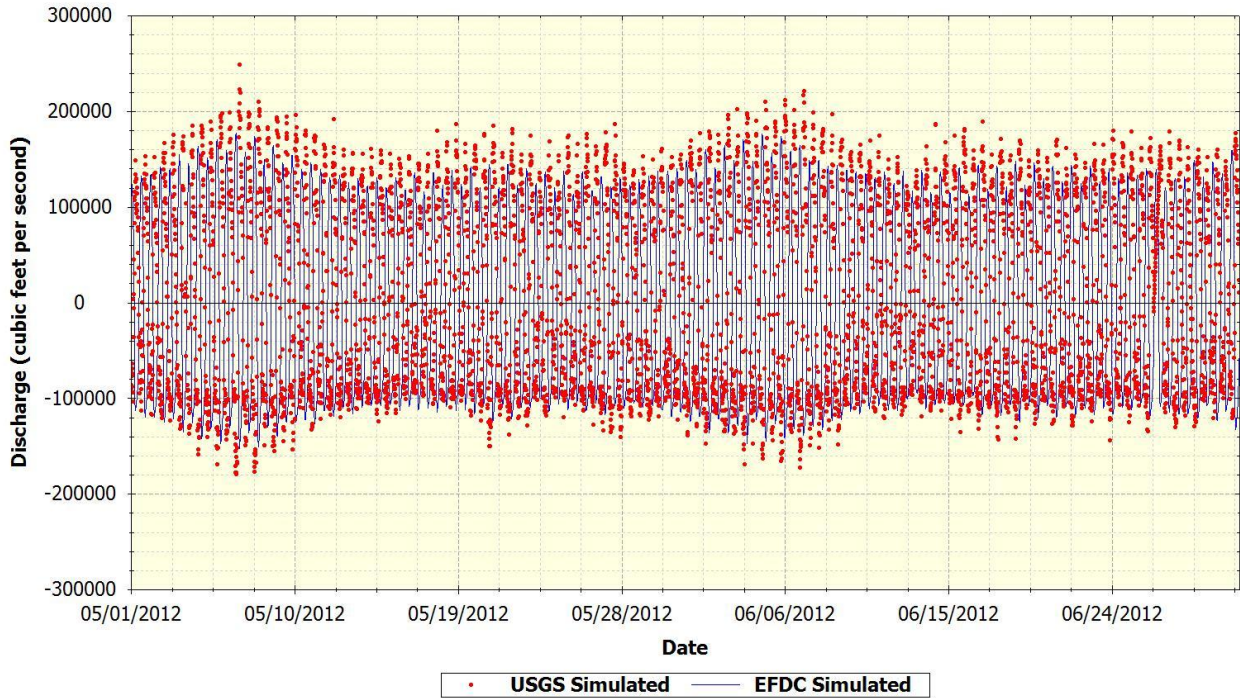


Figure A-41 Measured [is calculated from rating curves developed by USGS from velocity data] versus Simulated flow at USGS 324943079533700, Site 3 at POC Wando Welch

USGS 02172053 Cooper River at Mobay

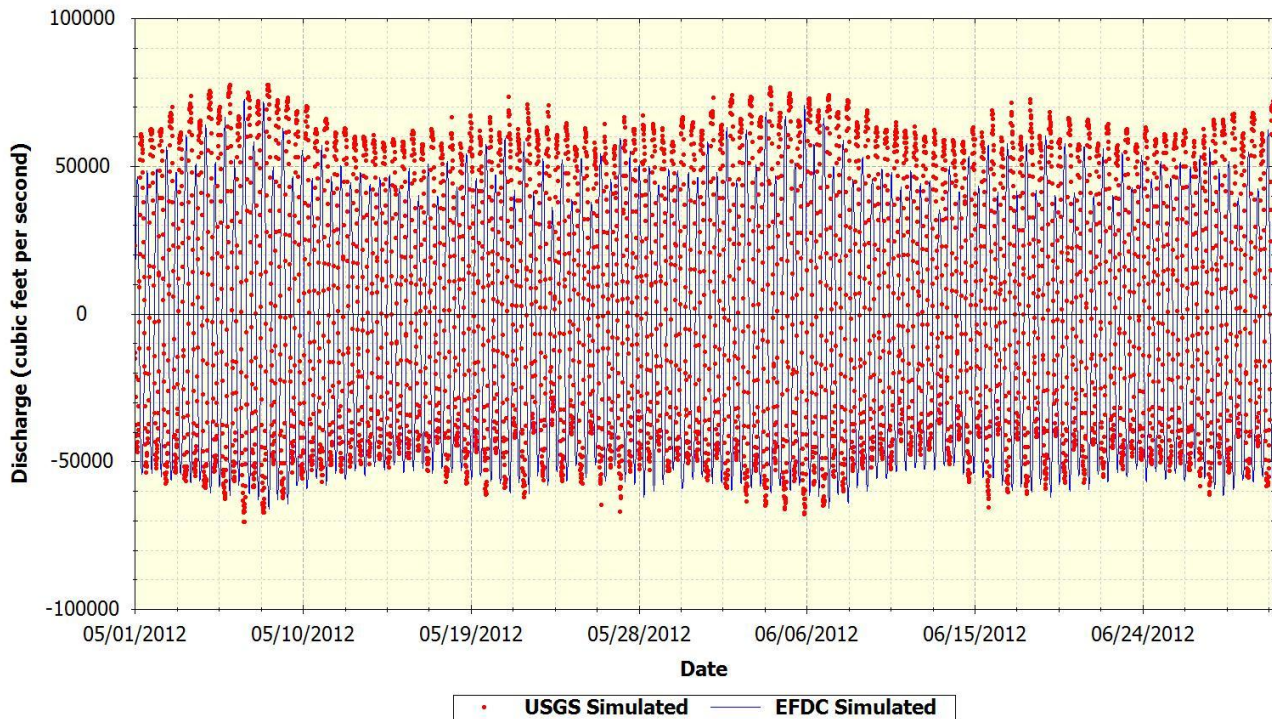


Figure A-42 Measured versus [is calculated from rating curves developed by USGS from velocity data] Simulated flow at USGS 02172053 Cooper River at Mobay

Site 4 at Charleston Harbor Mouth

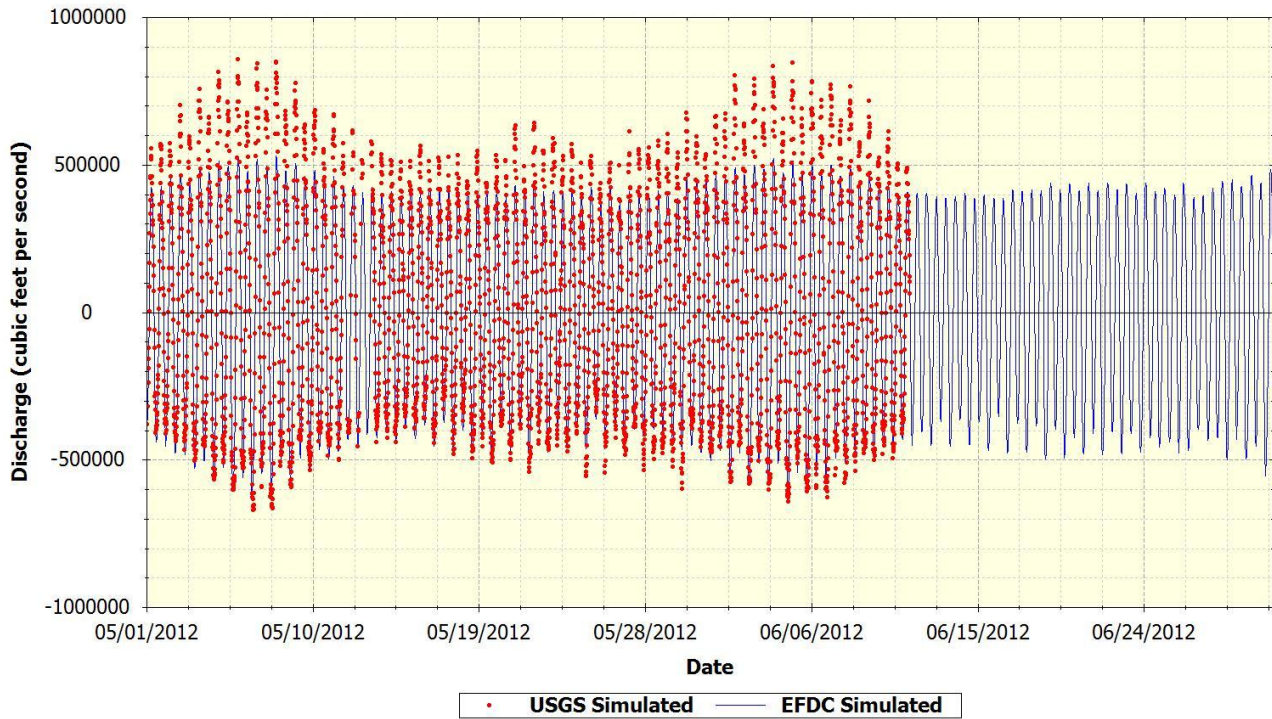


Figure A-43 Measured versus [is calculated from rating curves developed by USGS from velocity data] Simulated flow at the G-25 buoy at the mouth of Charleston Harbor

USGS 02172020 West Branch Cooper River at Pimlico near Moncks Corner, SC

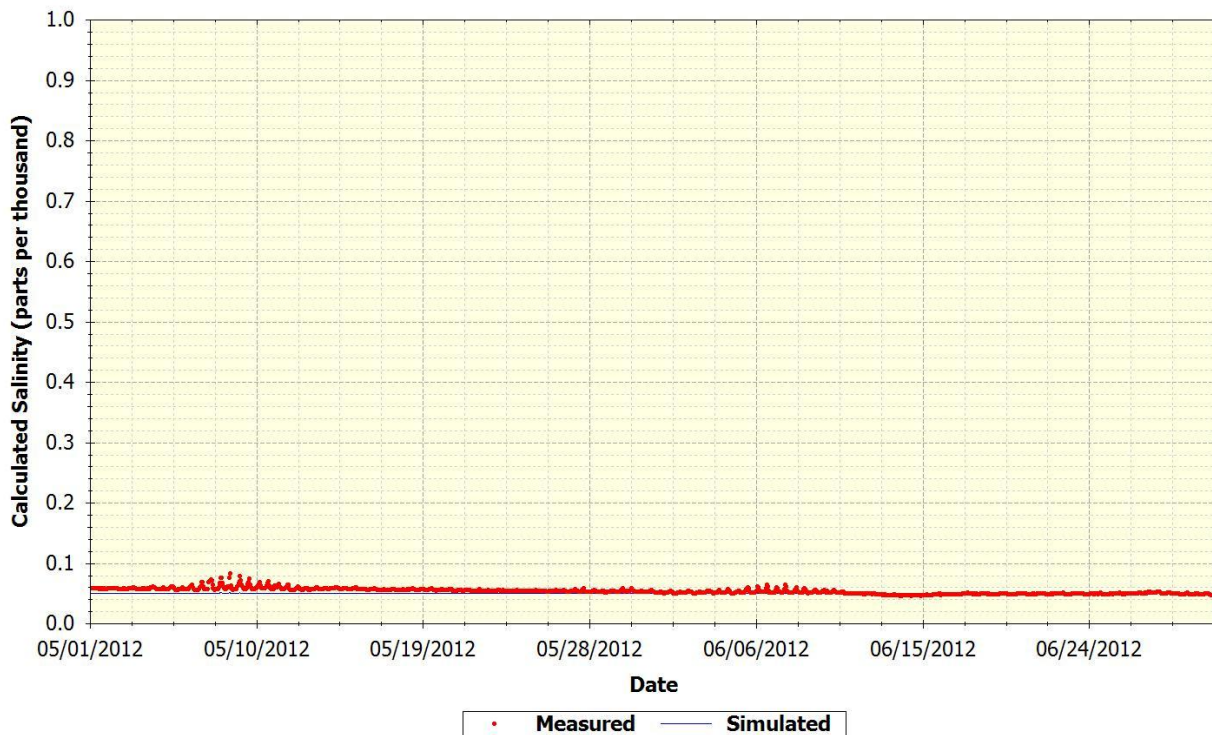


Figure A-44 Measured versus Simulated salinity at from May through June 2012 at USGS 02172020 Cooper River near Moncks Corner

USGS 02172050 Cooper River near Goose Creek, SC

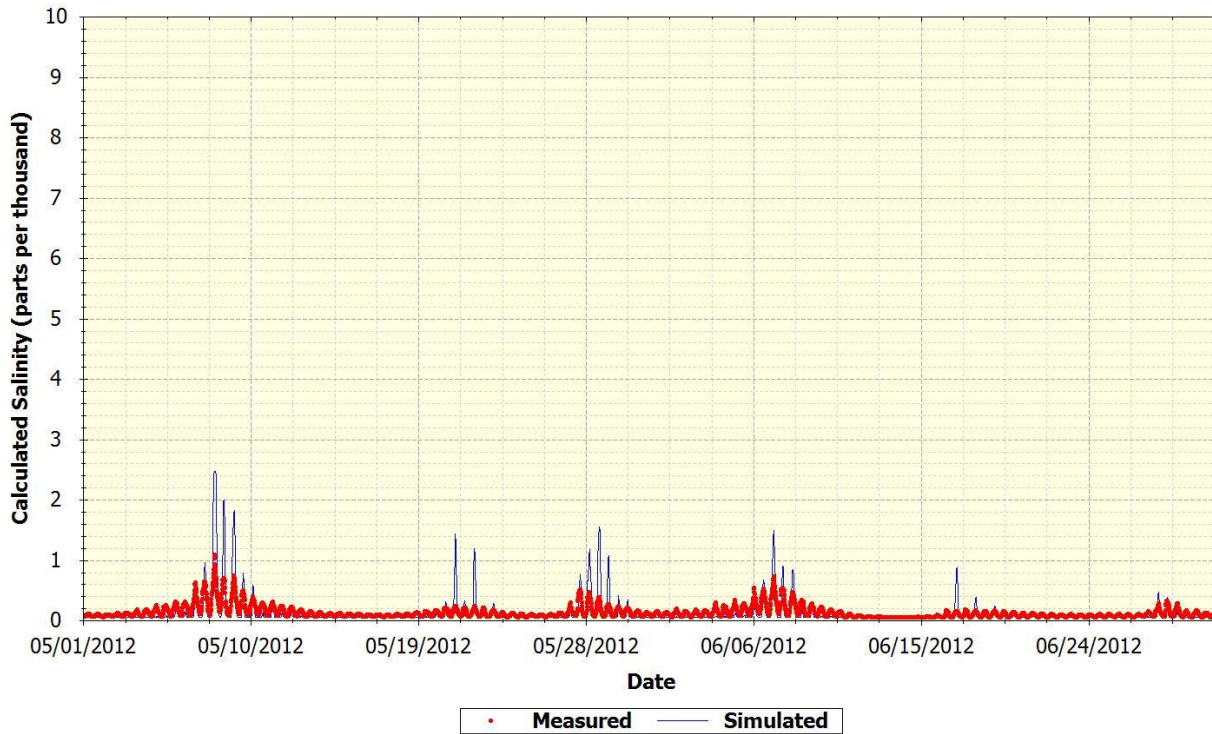


Figure A-45 Measured versus Simulated salinity at from May through June 2012 at USGS 02172050 Cooper River near Goose Creek

USGS 02172053 Cooper River at Mobay

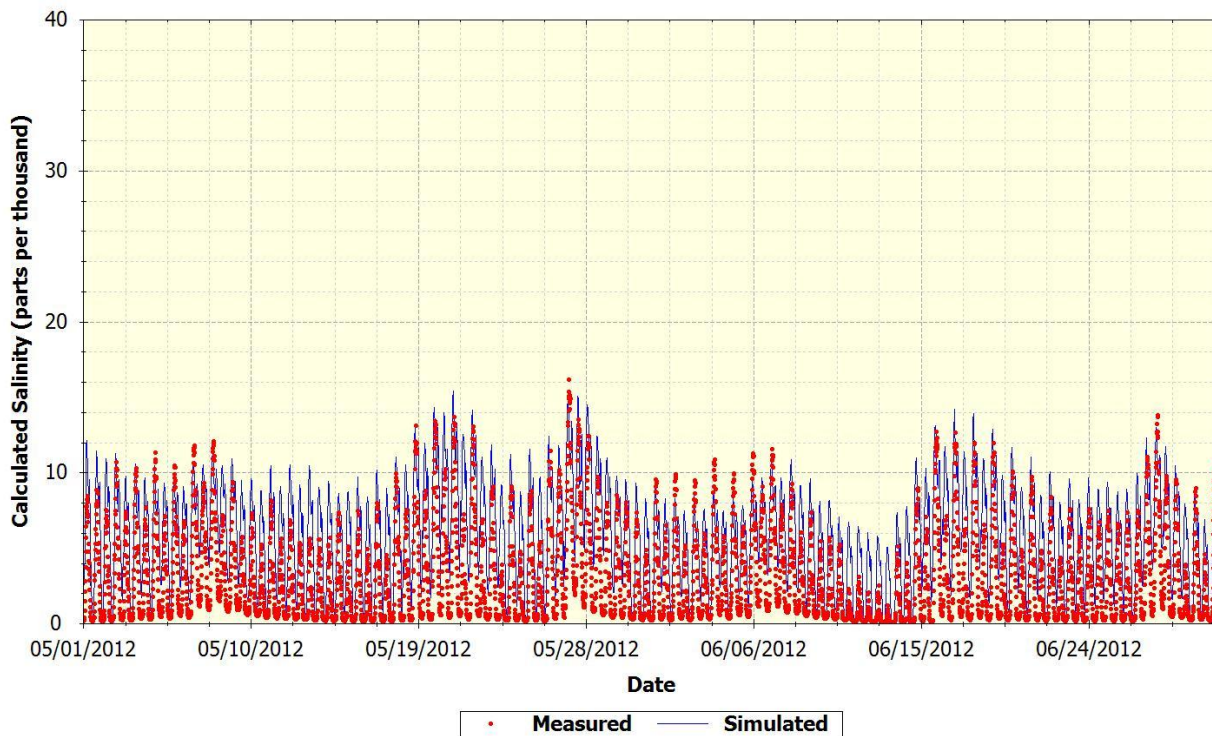


Figure A-46 Measured versus Simulated salinity at from May through June 2012 at USGS 02172053 Cooper River at Mobay

USGS 02172067.7 Cooper River at I-526

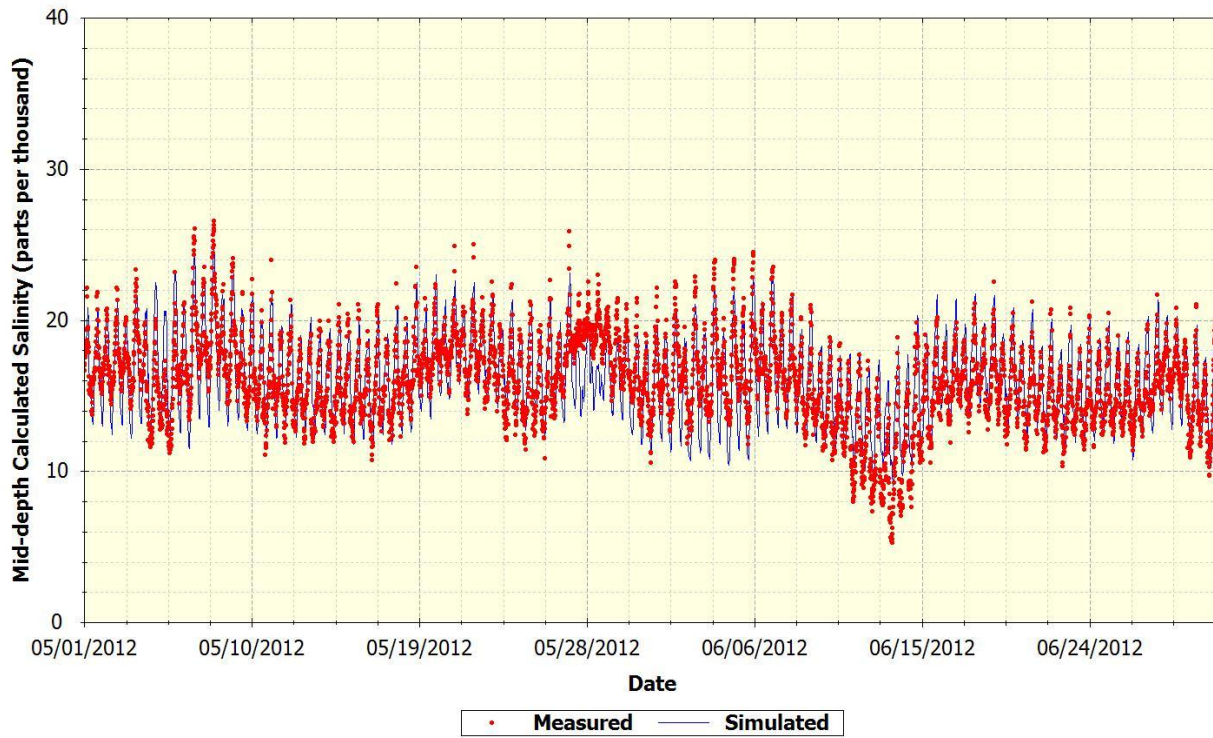


Figure A-47 Measured versus Simulated salinity at mid-depth from May through June 2012 at USGS 02172067.7 Cooper River at I-526

USGS 02172067.7 Cooper River at I-526

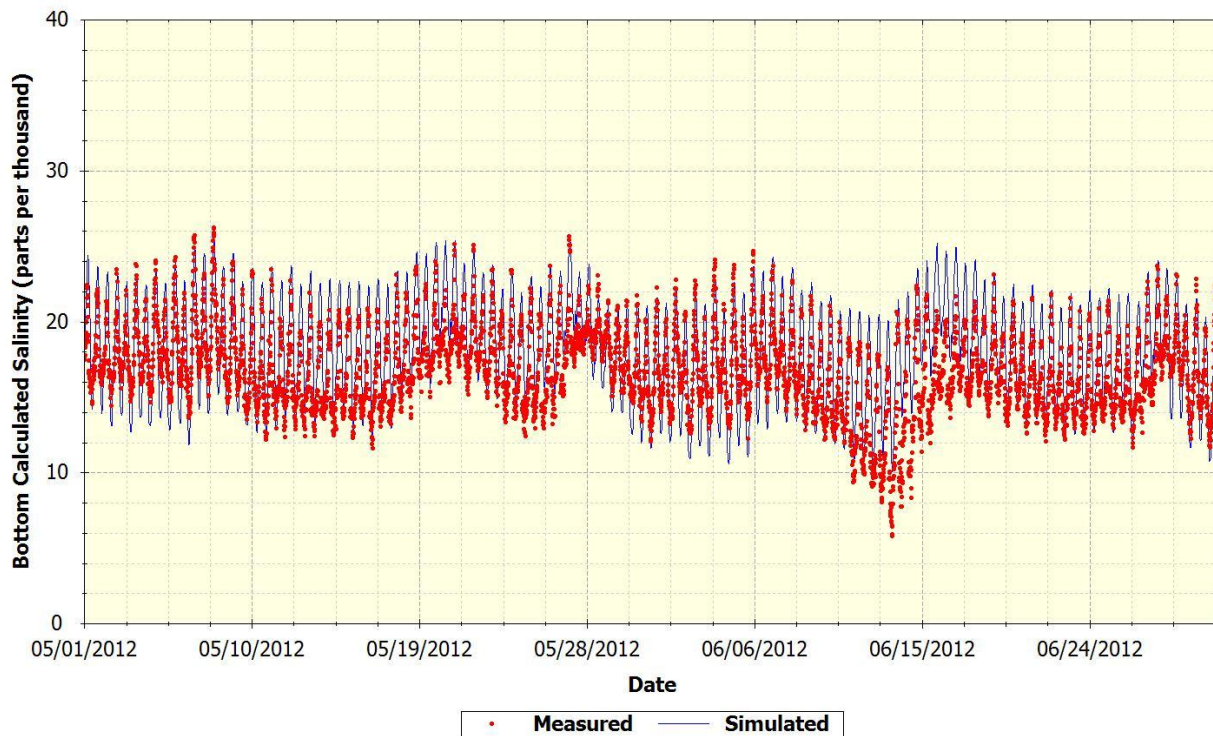


Figure A-48 Measured versus Simulated bottom salinity from May through June 2012 at USGS 02172067.7 Cooper River at I-526

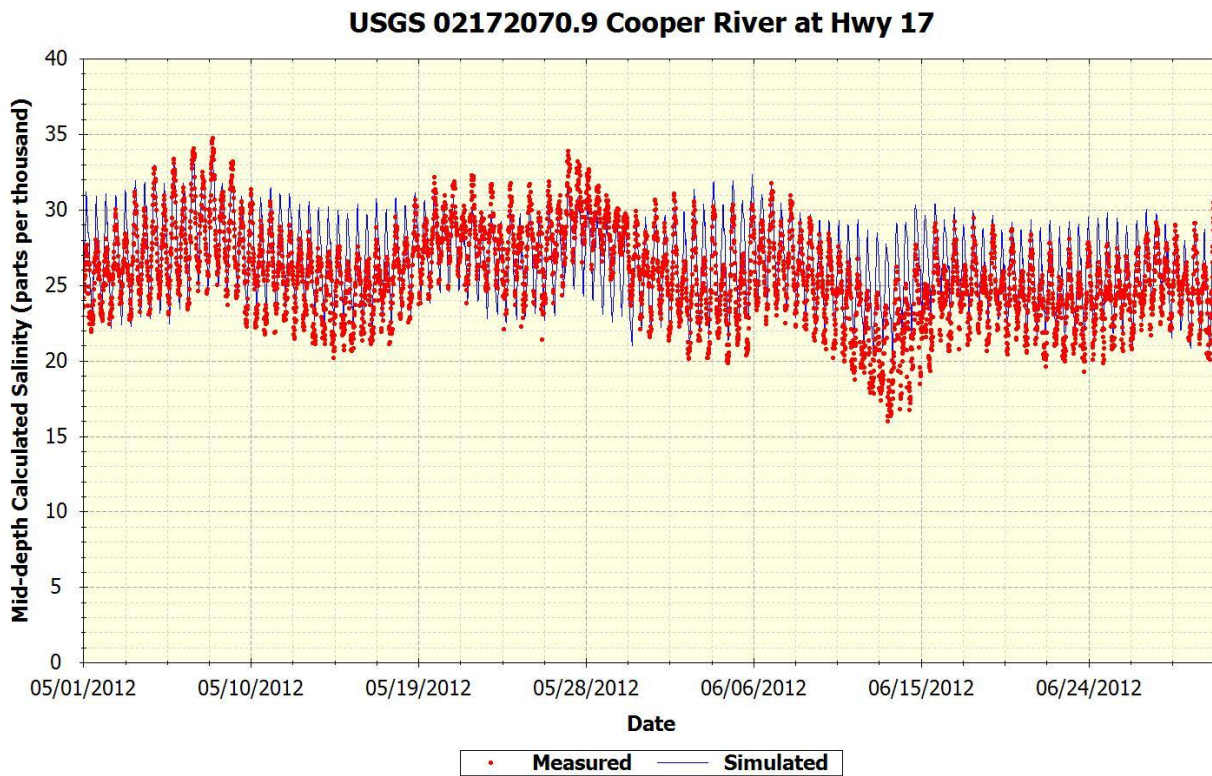


Figure A-49 Measured versus Simulated salinity at mid-depth from May through June 2012 at USGS 02172070.9 Cooper River at Hwy 17

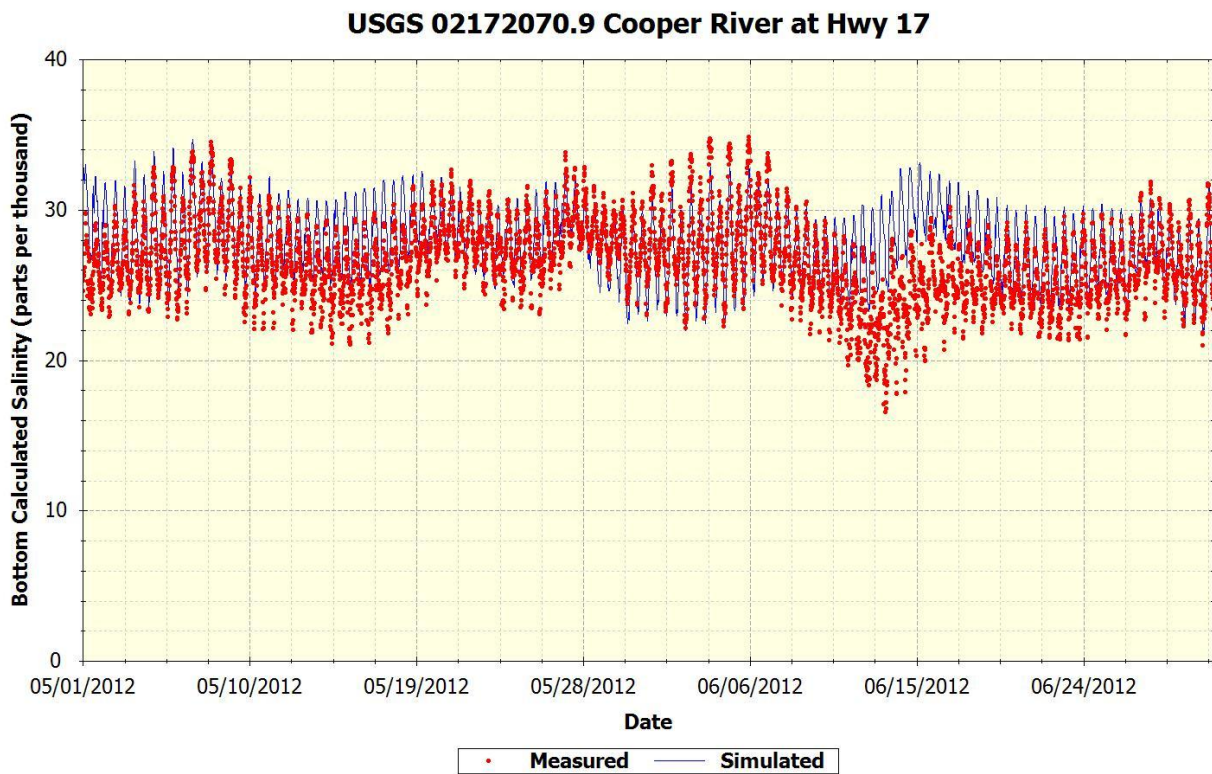


Figure A-50 Measured versus Simulated bottom salinity from May through June 2012 at USGS 02172070.9 Cooper River at Hwy 17

USGS 02172071.0 Cooper River at Custom House

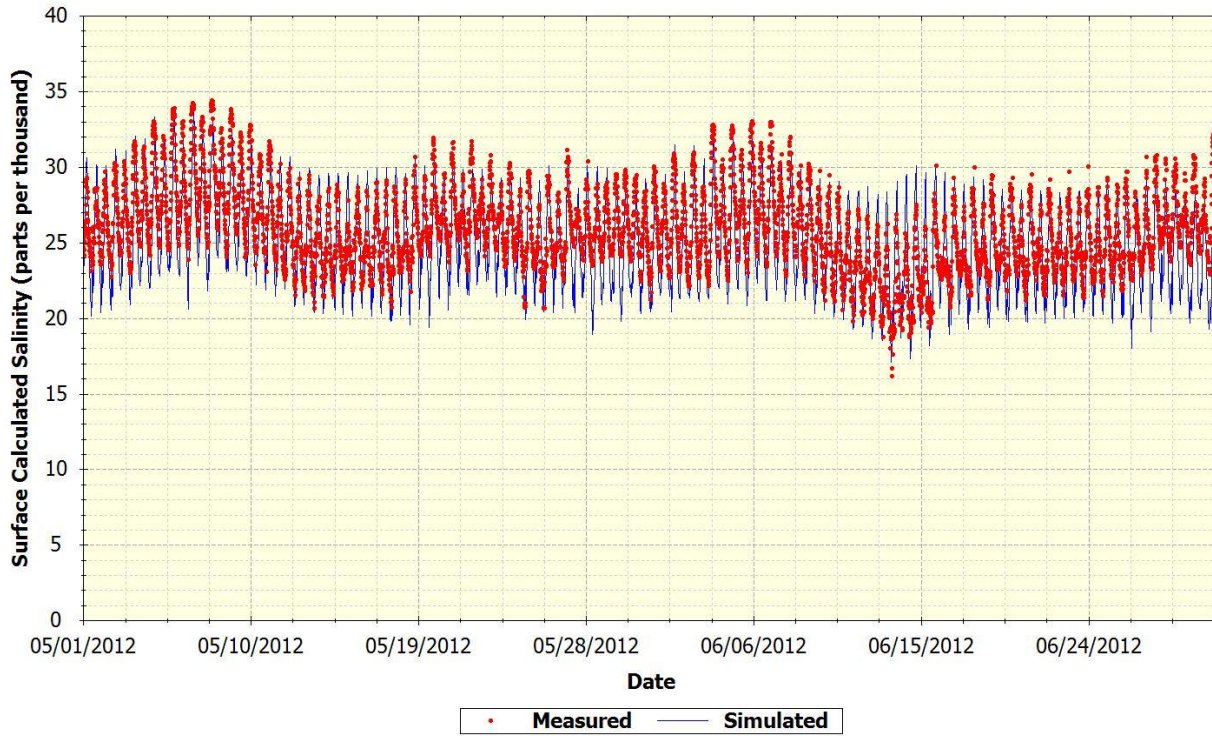


Figure A-51 Measured versus Simulated surface salinity from May through June 2012 at USGS 02172071 Cooper River at Custom House

USGS 02172069.8 Wando River above Mt. Pleasant

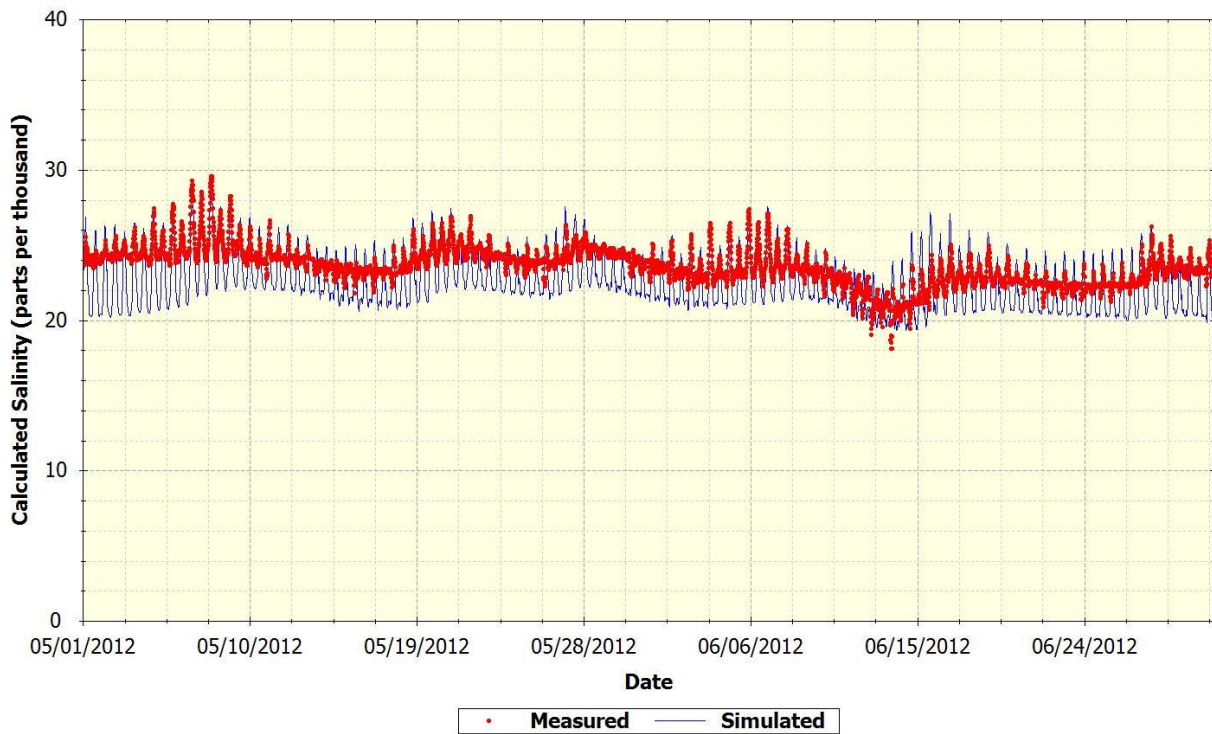


Figure A-52 Measured versus Simulated salinity from May through June 2012 at USGS 02172069.8 Wando River above Mt. Pleasant

USGS 324544079533700 Wando River at Wando Welch

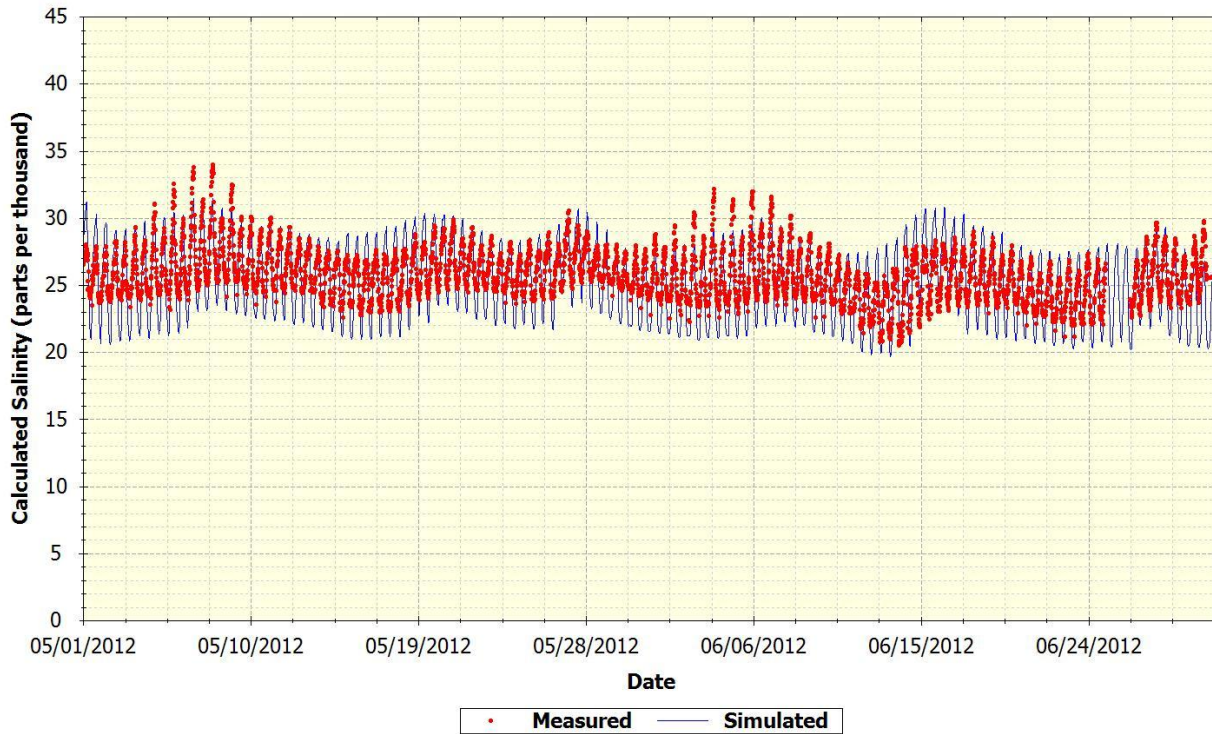


Figure A-53 Measured versus Simulated salinity from May through June 2012 at USGS 324544079533700 Wando River at Wando Welch

USGS 02172086.9 Ashley River near North Charleston

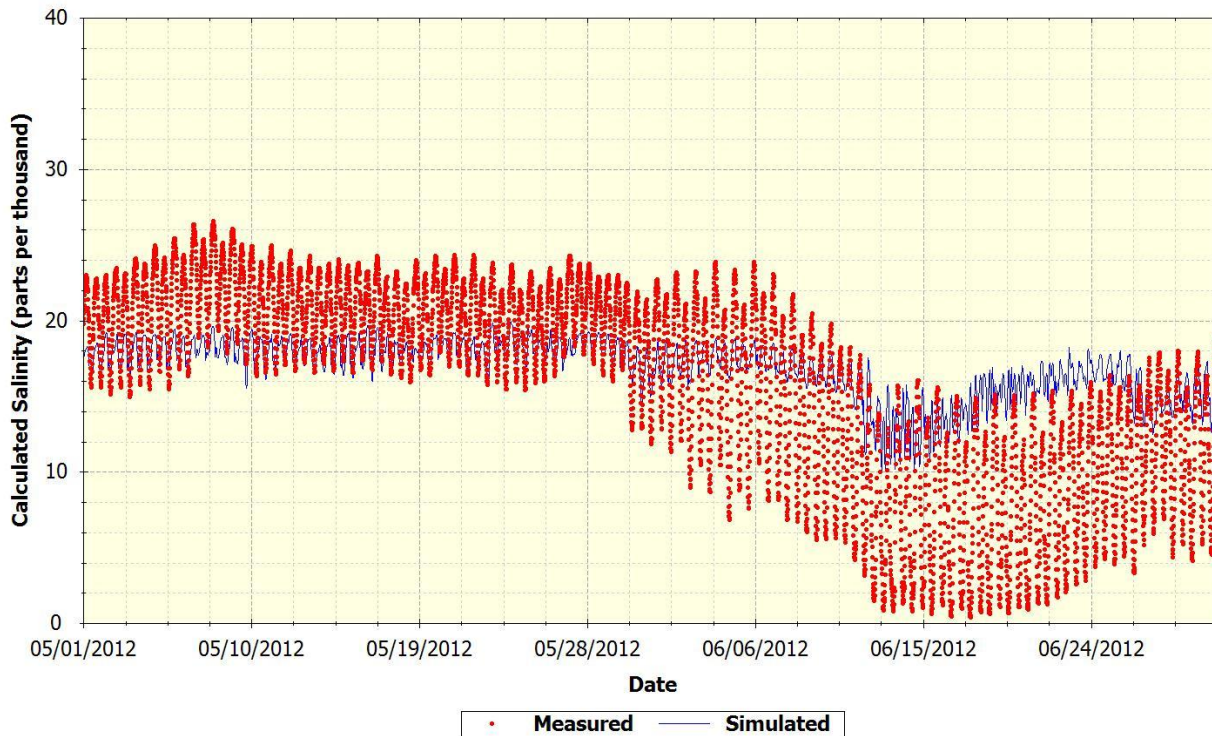


Figure A-54 Measured versus Simulated salinity from May through June 2012 at USGS 02172086.9 Ashley River near North Charleston

USGS 02172100 Charleston Harbor at Fort Sumter

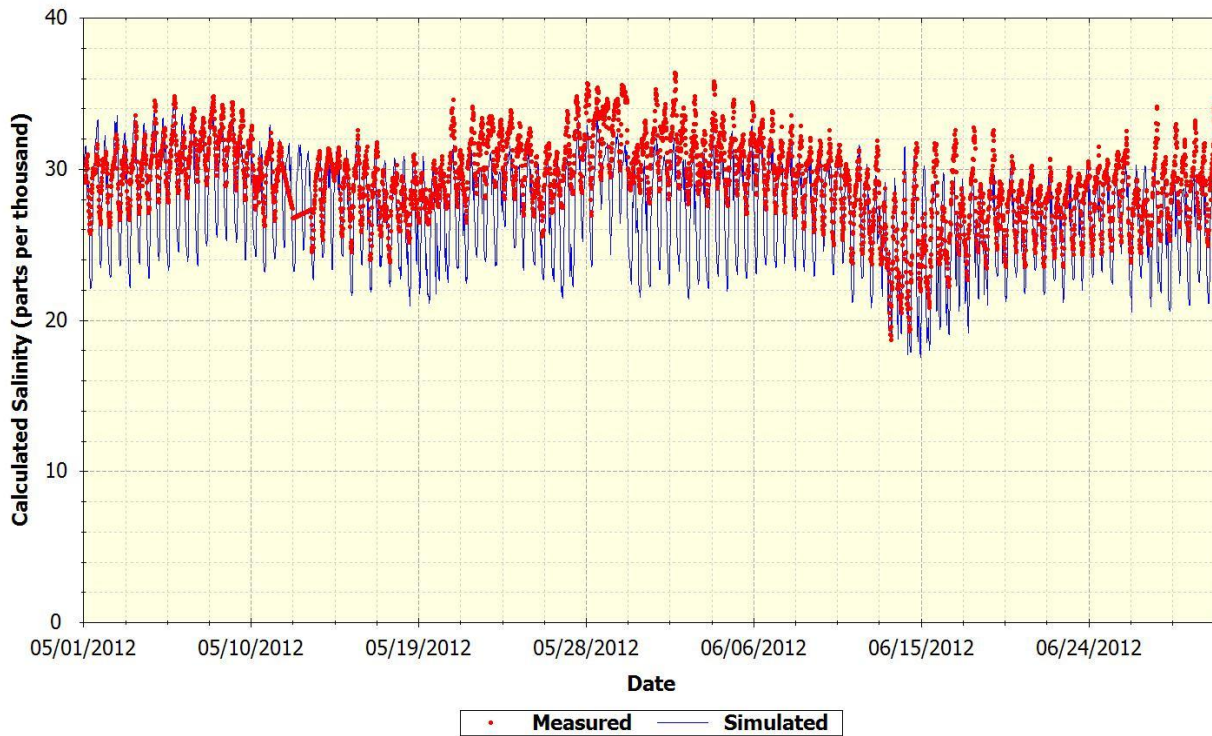


Figure A-55 Measured versus Simulated salinity from May through June 2012 at USGS 02172100 Charleston Harbor at Fort Sumter

G-25 Buoy near Fort Sumter

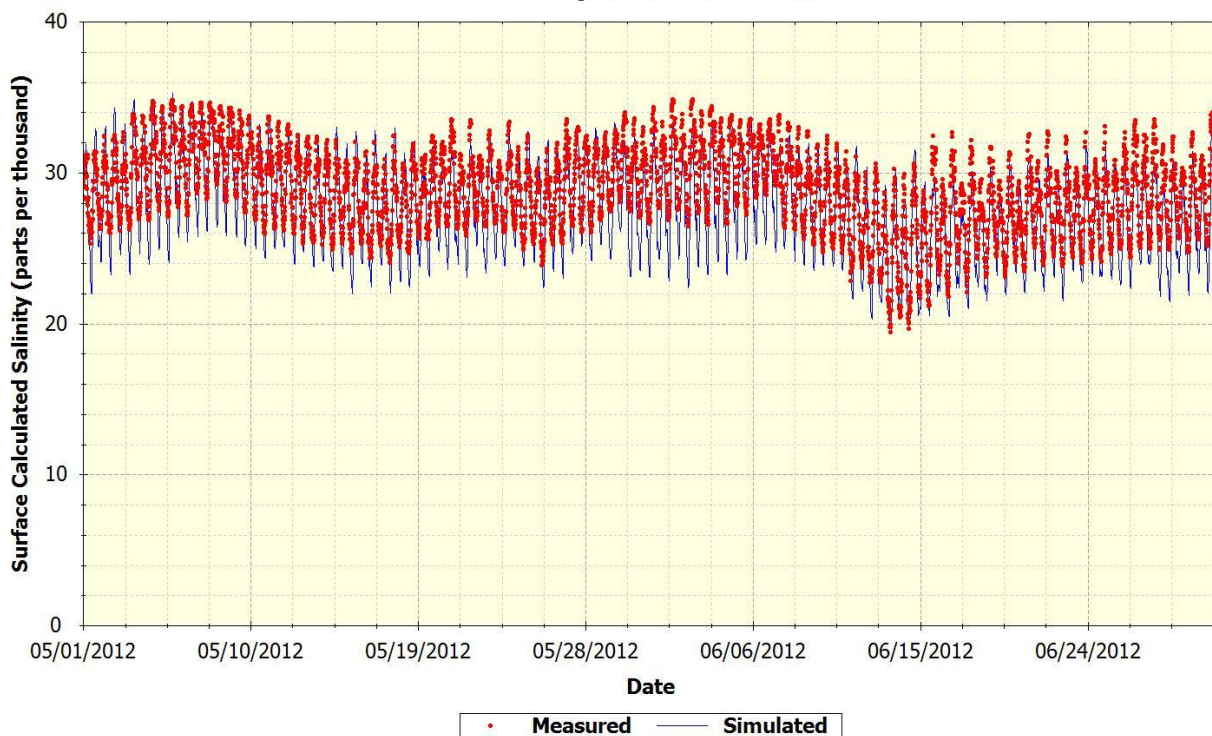


Figure A-56 Measured versus Simulated surface salinity from May through June 2012 at G-25 Buoy near Fort Sumter

USGS 02172020 West Branch Cooper River at Pimlico near Moncks Corner, SC

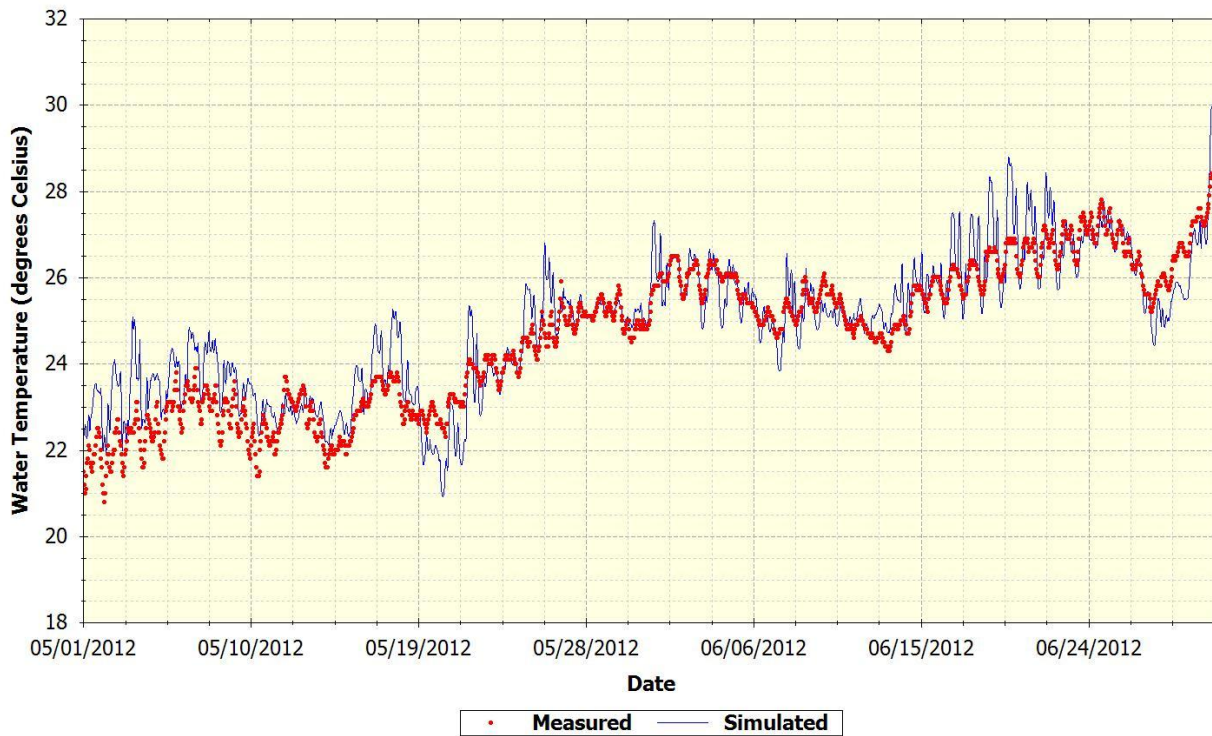


Figure A-57 Measured versus Simulated water temperature at from May through June 2012 at USGS 02172020 Cooper River near Moncks Corner

USGS 02172050 Cooper River near Goose Creek, SC

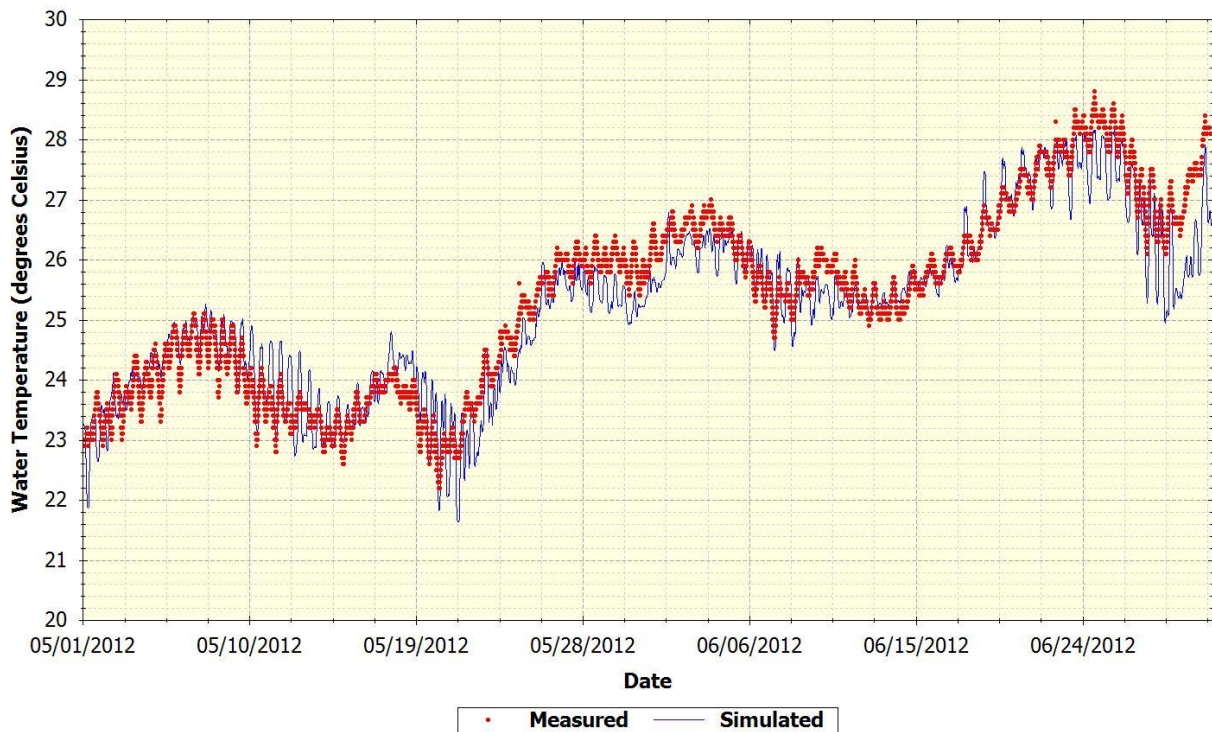


Figure A-58 Measured versus Simulated water temperature at from May through June 2012 at USGS 02172050 Cooper River near Goose Creek

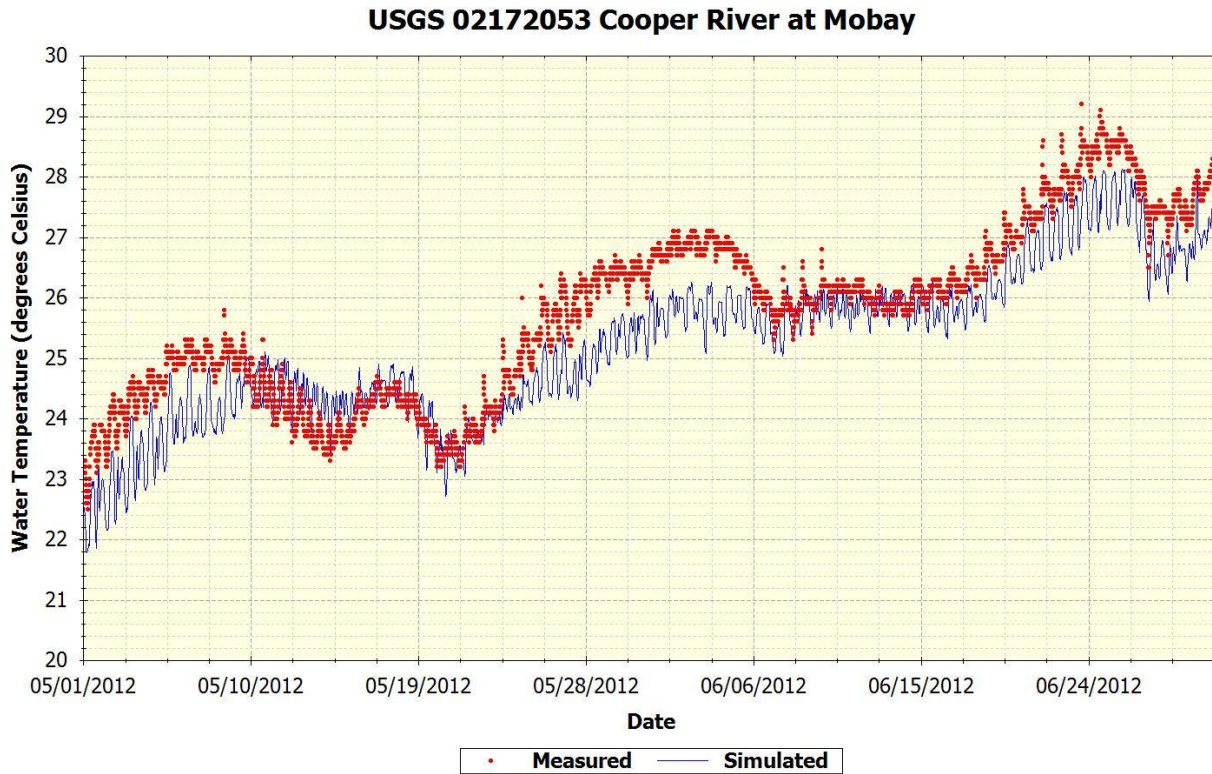


Figure A-59 Measured versus Simulated water temperature at from May through June 2012 at USGS 02172053 Cooper River at Mobay

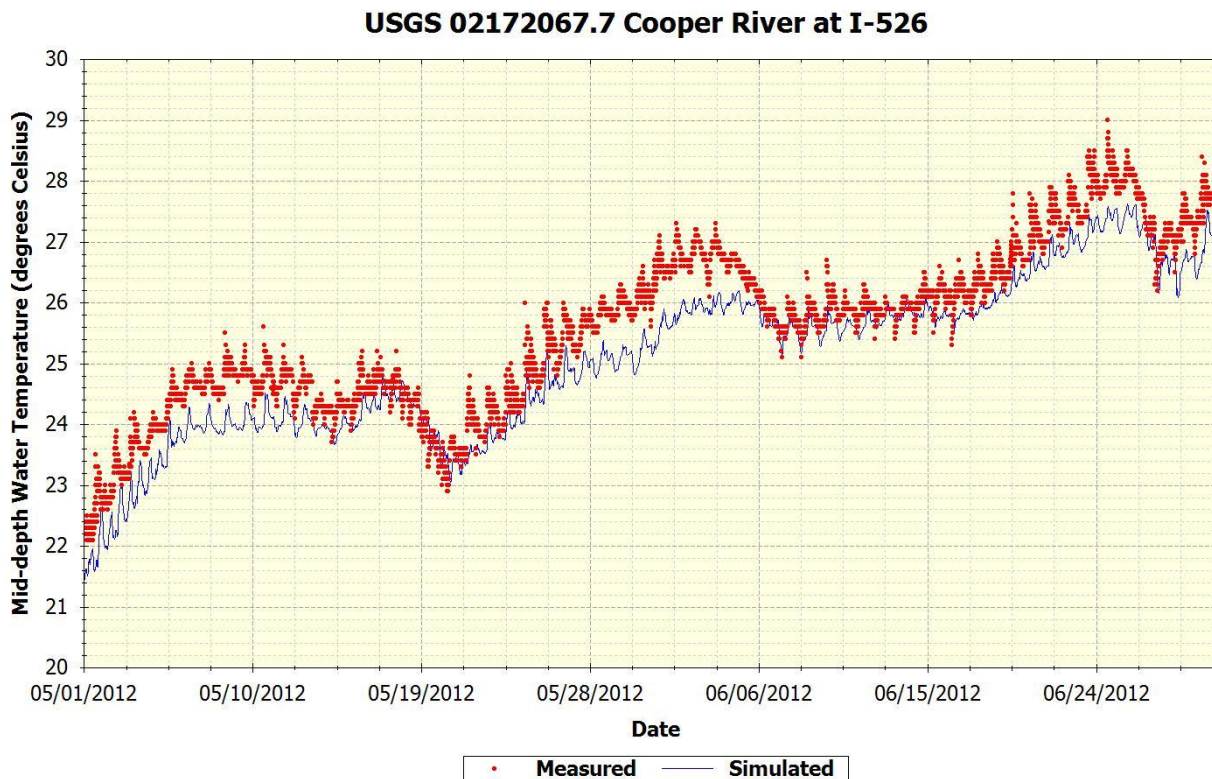


Figure A-60 Measured versus Simulated water temperature at mid-depth from May through June 2012 at USGS 02172067.7 Cooper River at I-526

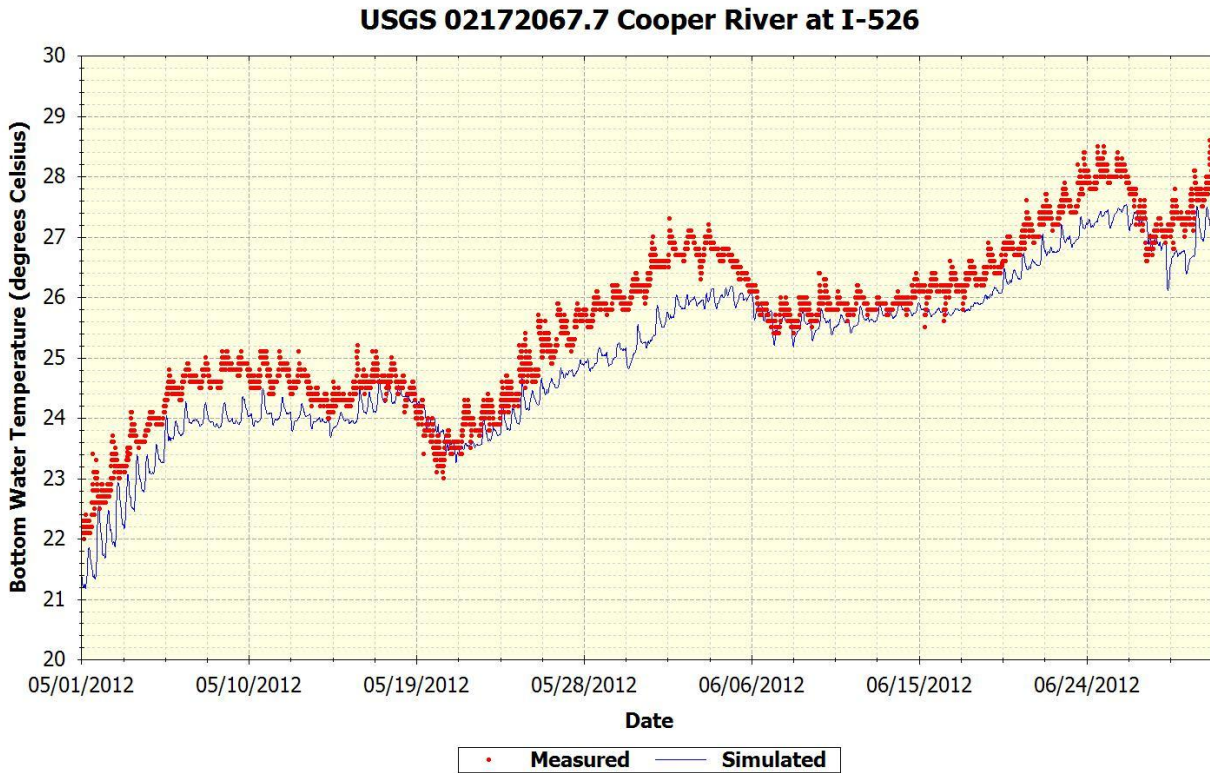


Figure A-61 Measured versus Simulated bottom water temperature from May through June 2012 at USGS 02172067.7 Cooper River at I-526

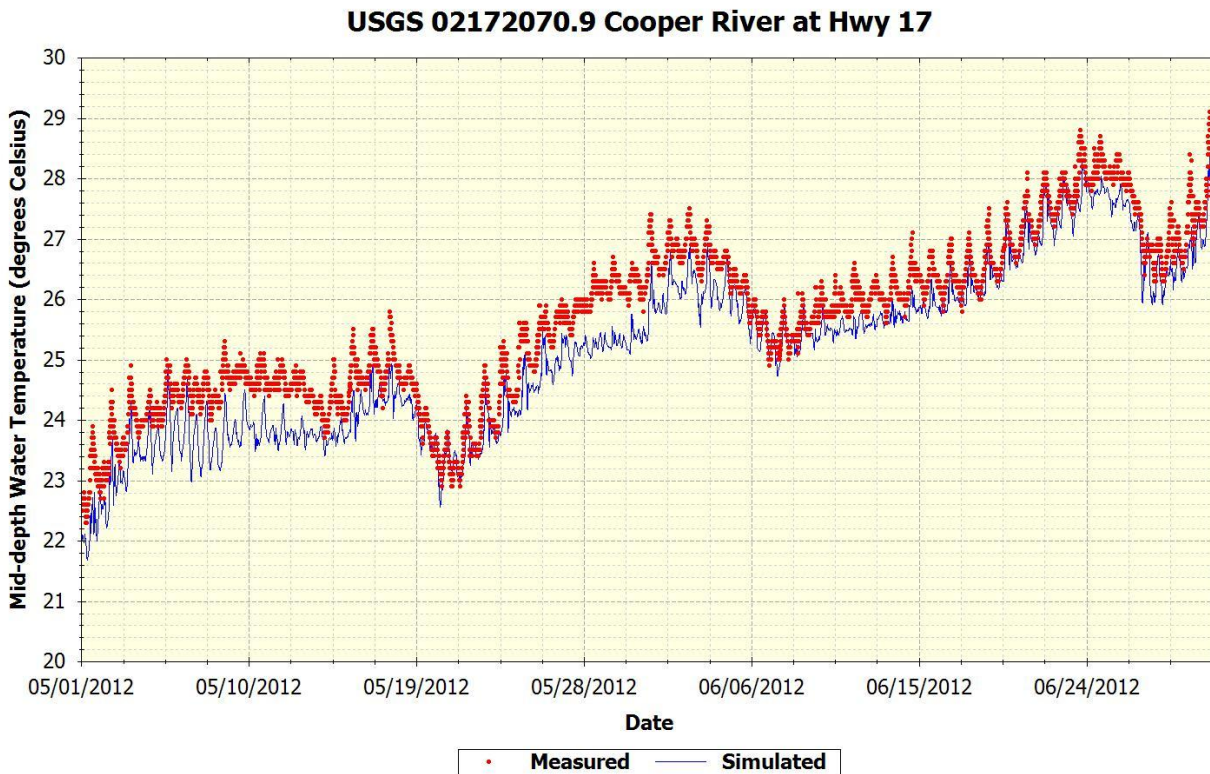


Figure A-62 Measured versus Simulated water temperature at mid-depth from May through June 2012 at USGS 02172070.9 Cooper River at Hwy 17

USGS 02172070.9 Cooper River at Hwy 17

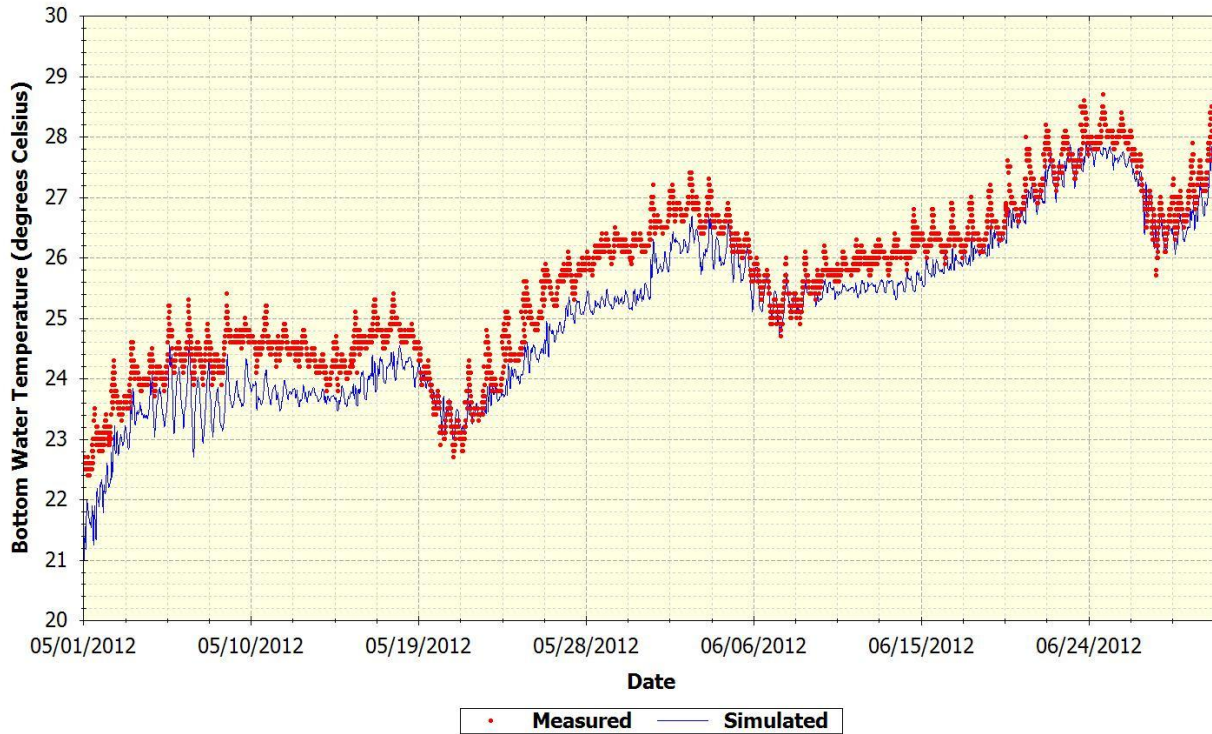


Figure A-63 Measured versus Simulated bottom water temperature from May through June 2012 at USGS 02172070.9 Cooper River at Hwy 17

USGS 02172071.1 Cooper River at Custom House (AUX)

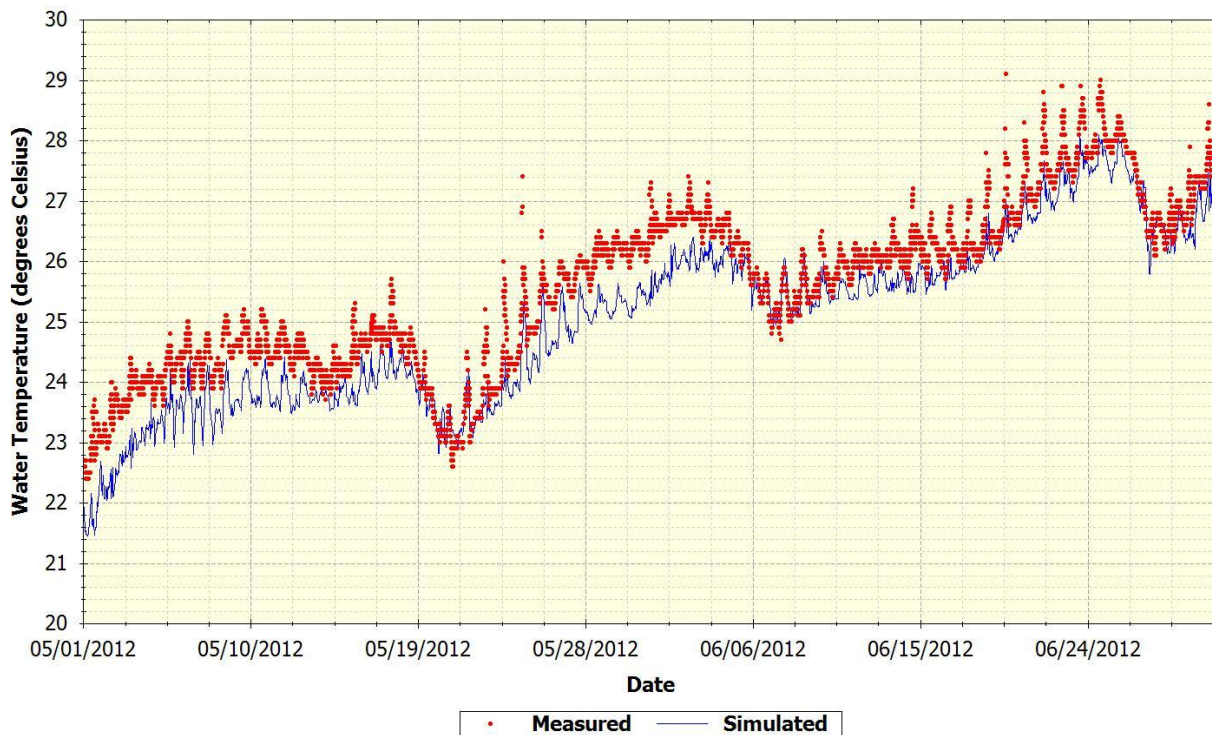


Figure A-64 Measured versus Simulated water temperature from May through June 2012 at USGS 02172071.1 Cooper River at Custom House (AUX)

USGS 02172069.8 Wando River above Mt. Pleasant

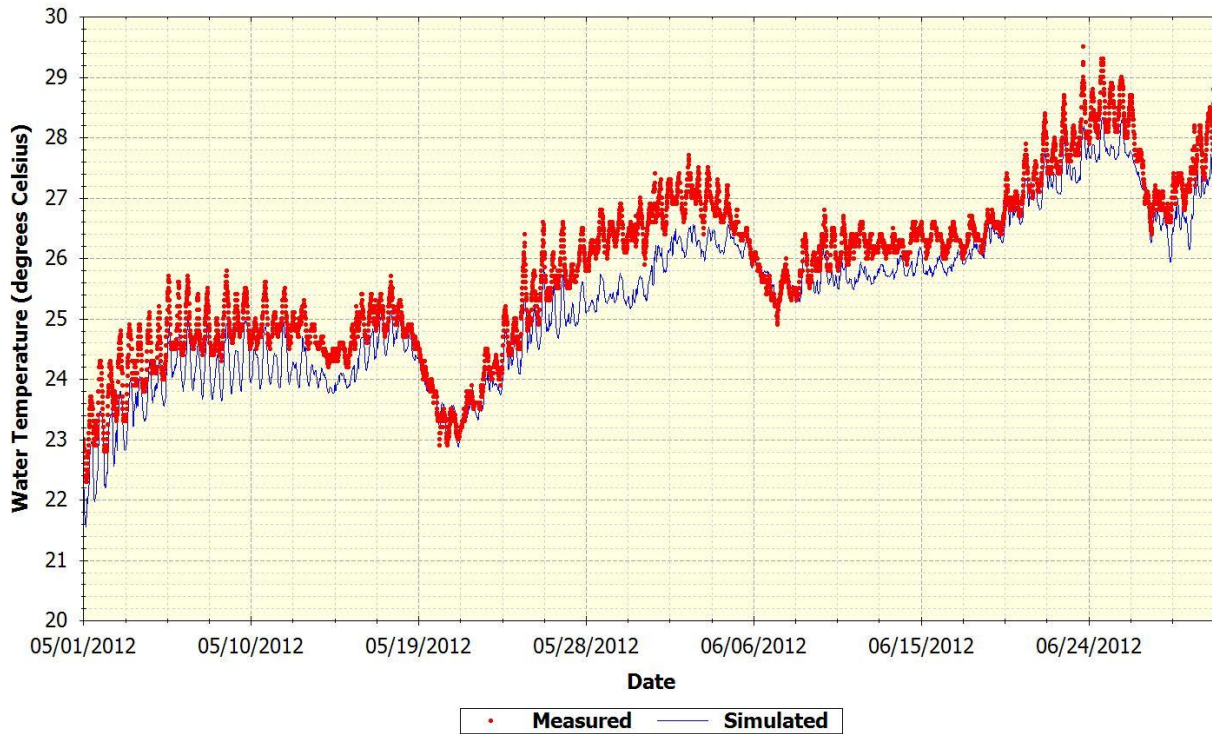


Figure A-65 Measured versus Simulated water temperature from May through June 2012 at USGS 02172069.8 Wando River above Mt. Pleasant

USGS 324544079533700 Wando River at Wando Welch

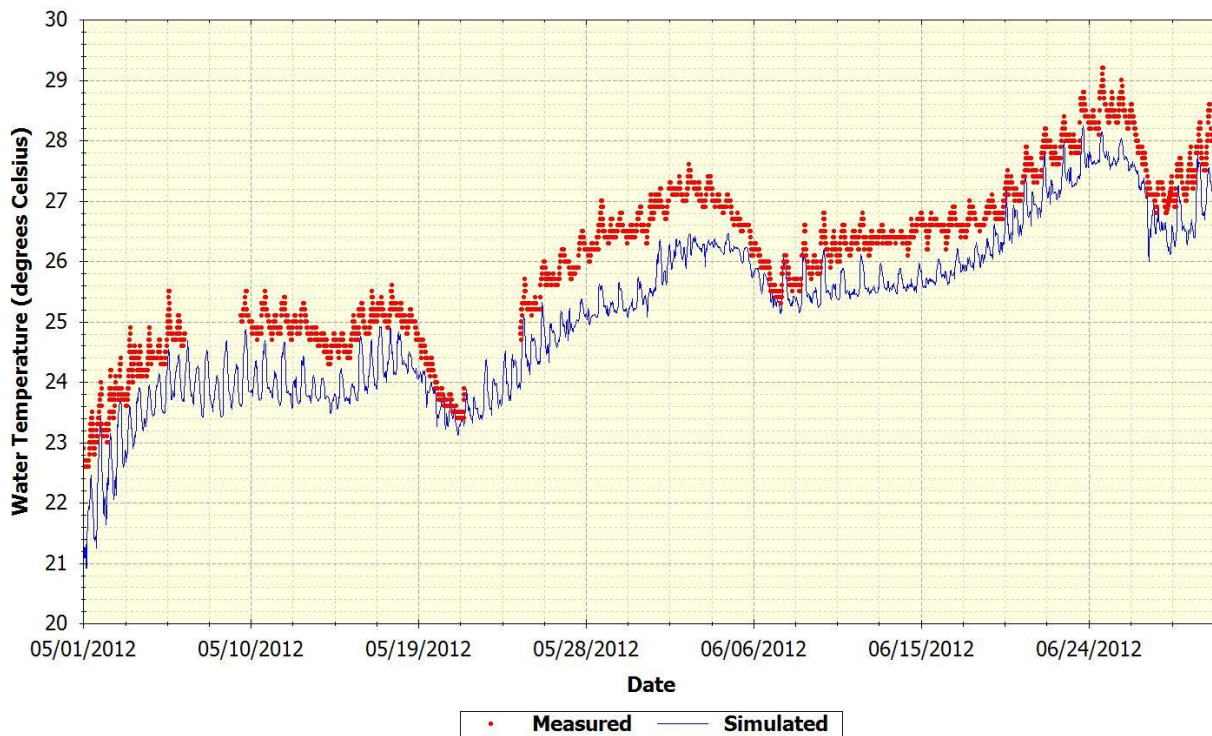


Figure A-66 Measured versus Simulated water temperature from May through June 2012 at USGS 324544079533700 Wando River at Wando Welch

USGS 02172086.9 Ashley River near North Charleston

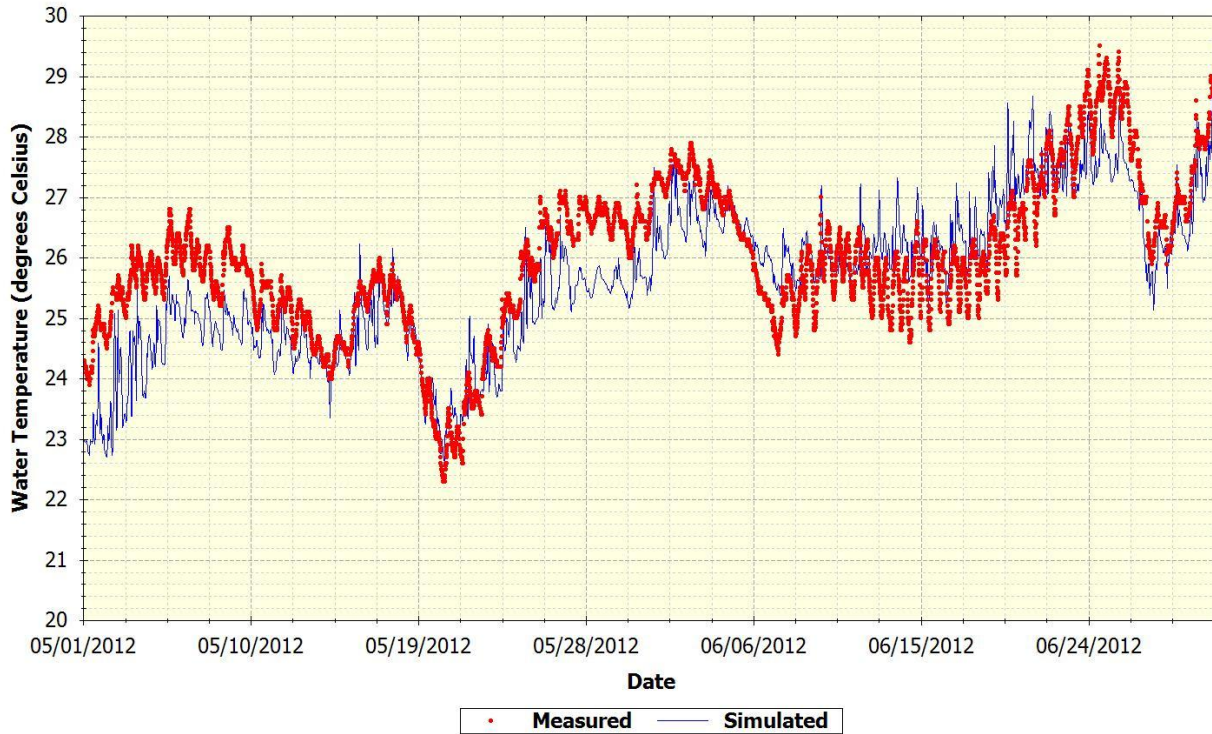


Figure A-67 Measured versus Simulated water temperature from May through June 2012 at USGS 02172086.9 Ashley River near North Charleston

USGS 02172100 Charleston Harbor at Fort Sumter

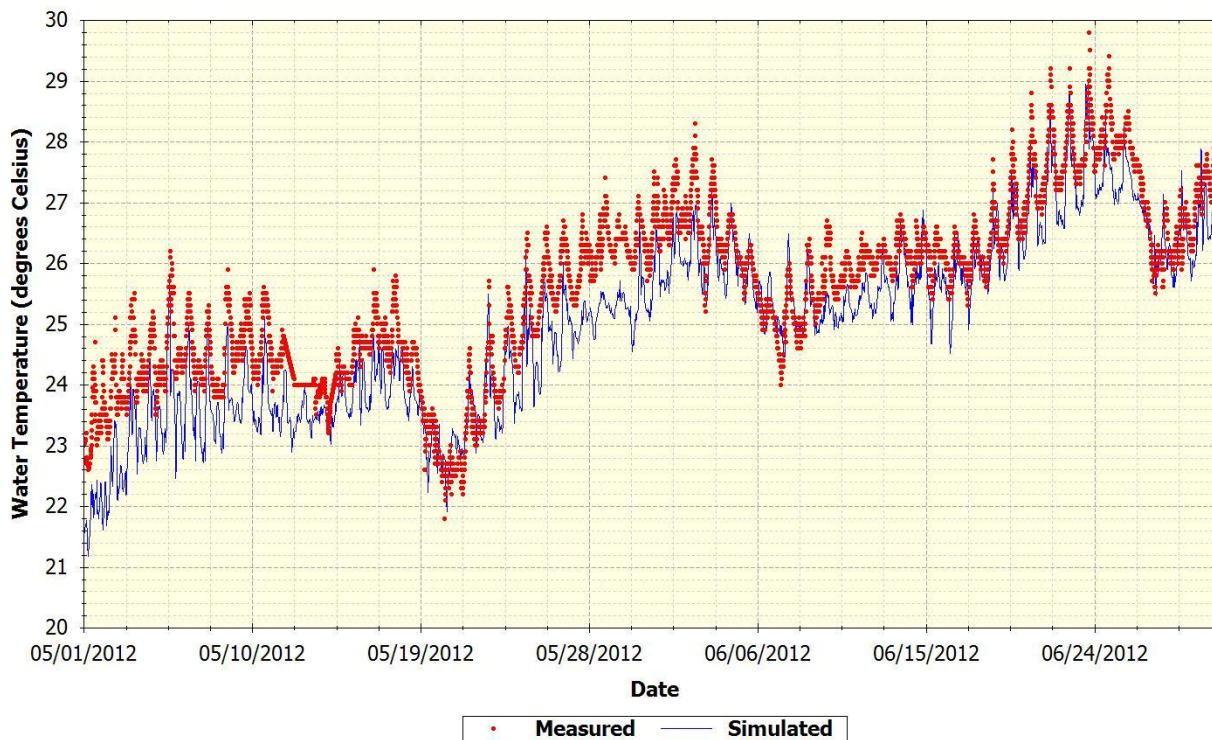


Figure A-68 Measured versus Simulated water temperature from May through June 2012 at USGS 02172100 Charleston Harbor at Fort Sumter

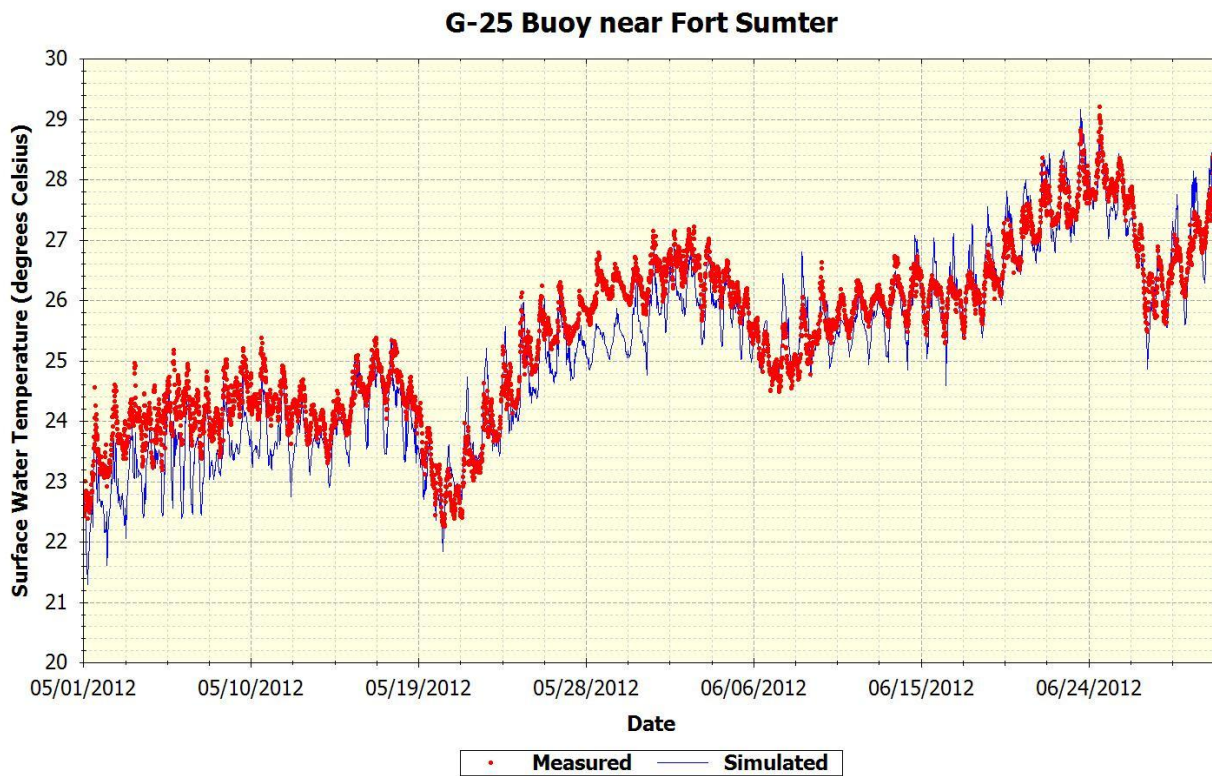


Figure A-69 Measured versus Simulated surface water temperature from May through June 2012 at G-25 Buoy near Fort Sumter

