

Table 4. Charles City County, Virginia Shoreline Attributes - Miles Surveyed and Inventory Dates - River System Summary

RIVER SYSTEM	Field Surveyed (miles)	Remote Surveyed (miles)	Total Miles Surveyed (field + remote)	FIELD SURVEY DATES
Chickahominy River	39.81	89.95	129.76	June 11 & 12, 2013 and VBMP 2009 imagery
Herring Creek	12.14	1.89	14.03	June 20, 2013 and VBMP 2009 imagery
James River	40.77	19.48	60.25	June 12, 13 & 20, 2013 and VBMP 2009 imagery
Kittewan Creek	5.70	15.64	21.34	June 13, 2013 and VBMP 2009 imagery
Morris Creek	20.81	7.60	28.41	June 12, 2013 and VBMP 2009 imagery
Queens Creek	1.29	18.49	19.78	June 13, 2013 and VBMP 2009 imagery
Tomahund Creek	6.77	9.44	16.21	June 11 & 12, 2013 and VBMP 2009 imagery
Turkey Island Creek	0.42	1.90	2.32	June 20, 2013 and VBMP 2009 imagery
Total	127.71	164.39	292.10	

Table 5. Charles City County, Virginia Shoreline Attributes - Riparian Land Use (miles) - River System Summary

RIVER SYSTEM	TOTAL* MILES SURVEYED	AGRICULTURE				BARE				COMMERCIAL				FOREST			GRASS				INDUSTRIAL				MILITARY				PAVED			
		no tree buffer	tree fringe only	fringe with canopy over- hang	total	no tree buffer	tree fringe only	fringe with canopy over- hang	total	no tree buffer	tree fringe only	fringe with canopy over- hang	total	no canopy over- hang	canopy over- hang	total	no tree buffer	tree fringe only	fringe with canopy over- hang	total	no tree buffer	tree fringe only	fringe with canopy over- hang	total	no tree buffer	tree fringe only	fringe with canopy over- hang	total				
Chickahominy River	129.76	7.35	2.58	0.68	10.62	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.11	110.72	3.21	113.92	1.30	0.32	0.14	1.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.04
Herring Creek	14.03	0.00	0.00	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.79	3.74	13.53	0.24	0.02	0.00	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.04	
James River	60.25	1.12	2.33	0.35	3.80	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.07	34.06	12.11	46.17	4.03	1.83	0.33	6.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.04	0.00	0.18	
Kittewan Creek	21.34	0.04	1.32	0.00	1.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.46	0.00	19.46	0.07	0.12	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Morris Creek	28.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.18	0.25	27.43	0.22	0.17	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.03	
Queens Creek	19.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.48	0.44	18.92	0.18	0.46	0.00	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	
Tomahund Creek	16.21	0.00	0.22	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.92	1.12	14.04	0.01	0.51	0.05	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Turkey Island Creek	2.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.13	0.19	2.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Total	292.10	8.51	6.45	1.07	16.04	0.00	0.00	0.00	0.00	0.11	0.07	0.00	0.18	234.73	21.06	255.79	6.05	3.43	0.52	9.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.06	0.00	0.26	

RIVER SYSTEM	TOTAL* MILES SURVEYED	RESIDENTIAL				SCRUB-SHRUB				TIMBERED			
		no tree buffer	tree fringe only	fringe with canopy over- hang	total	no tree buffer	tree fringe only	fringe with canopy over- hang	total	no tree buffer	tree fringe only	fringe with canopy over- hang	total
Chickahominy River	129.76	2.02	1.08	0.12	3.22	0.09	0.00	0.00	0.09	0.00	0.00	0.00	0.00
Herring Creek	14.03	0.03	0.12	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
James River	60.25	2.32	1.05	0.09	3.47	0.37	0.00	0.00	0.37	0.00	0.00	0.00	0.00
Kittewan Creek	21.34	0.28	0.05	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Morris Creek	28.41	0.14	0.43	0.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Queens Creek	19.78	0.10	0.05	0.00	0.15	0.00	0.07	0.00	0.07	0.00	0.00	0.00	0.00
Tomahund Creek	16.21	0.00	0.03	0.00	0.03	0.00	0.78	0.48	1.27	0.00	0.00	0.07	0.07
Turkey Island Creek	2.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	292.10	4.90	2.82	0.21	7.93	0.46	0.85	0.48	1.80	0.00	0.00	0.07	0.07

*Total = field + remote surveys (does not include marsh island shoreline or selected sections of extensive marsh)

Table 6. Charles City County, Virginia Shoreline Attributes - Riparian Bank Condition - River System Summary

RIVER SYSTEM	TOTAL* MILES SURVEYED	BANK COVER (miles)			BANK HEIGHT AND EROSION STATUS (miles of shore)											
		bare	partial	full	0-5 FEET			5-10 FEET			10-30 FEET			>30 FEET		
					erosional	stable	transitional	erosional	stable	transitional	erosional	stable	transitional	erosional	stable	transitional
Chickahominy River	129.76	0.68	0.48	128.61	0.11	102.18	0.00	0.13	14.13	0.01	0.68	11.27	0.06	0.01	1.16	0.00
Herring Creek	14.03	0.00	0.02	14.01	0.00	13.72	0.00	0.00	0.22	0.00	0.00	0.09	0.00	0.00	0.00	0.00
James River	60.25	1.49	2.75	56.01	0.37	48.41	0.32	0.15	4.16	0.40	0.47	3.69	0.22	0.37	1.65	0.06
Kittewan Creek	21.34	0.00	0.00	21.34	0.00	18.77	0.00	0.00	2.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Morris Creek	28.41	0.35	0.11	27.95	0.03	20.81	0.09	0.02	5.08	0.00	0.20	2.18	0.00	0.00	0.00	0.00
Queens Creek	19.78	0.00	0.00	19.78	0.00	18.27	0.00	0.00	1.21	0.00	0.00	0.08	0.00	0.00	0.22	0.00
Tomahund Creek	16.21	0.00	0.00	16.21	0.00	14.62	0.00	0.00	1.51	0.00	0.00	0.08	0.00	0.00	0.00	0.00
Turkey Island Creek	2.32	0.00	0.00	2.32	0.00	2.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	292.10	2.52	3.36	286.22	0.51	239.09	0.41	0.30	28.86	0.41	1.35	17.39	0.28	0.38	3.03	0.06

*Total = field + remote surveys (does not include marsh island shoreline or selected sections of extensive marsh)

Table 7. Charles City County, Virginia Shoreline Attributes - Natural Buffers, *Phragmites australis* and Marsh Survey Dates - River System Summary

RIVER SYSTEM	BEACH (miles)	# Wetland Polygons field checked		MARSH					Community Type ¹ (acres)												PHRAGMITES ³ (percent of field checked marshes)	MARSH SURVEY DATES	
				Marsh Type (acres)																			
		total	checked	embayed	extensive	fringe	marsh island	total	I	II	III	IV	V	VI	VII	VIII ²	IX	X	XI	XII			DNS ^{**}
Chickahominy River	5.71	73	51	134.99	1374.43	43.57	0.22	1553.20	0.00	0.00	0.00	0.00	0.00	0.00	1369.50	0.12	18.81	0.00	102.79	0.00	61.98	2	June 12, 2013
Herring Creek	0.13	38	33	7.60	356.13	3.14	6.22	373.09	0.00	0.00	0.00	0.00	0.00	0.01	285.23	0.00	0.00	0.00	80.81	0.00	7.04	0	June 20, 2013
James River	12.00	113	69	136.47	125.26	77.68	0.84	340.25	0.00	0.00	0.00	0.00	0.00	0.00	19.95	0.12	0.00	0.00	27.97	0.00	292.21	3	June 12-13, 20, 2013
Kittewan Creek	0.00	60	14	173.80	0.00	35.47	4.16	213.43	0.00	0.00	0.00	0.00	0.00	0.00	48.95	0.00	0.00	0.00	69.32	0.00	95.16	0	June 13, 2013
Morris Creek	0.06	62	38	122.34	234.01	23.85	5.67	385.85	0.00	0.00	0.00	0.00	0.00	0.00	259.51	0.00	0.00	0.00	31.20	0.00	95.14	3	June 12, 2013
Queens Creek	0.17	71	11	34.69	64.67	22.66	0.19	122.21	0.00	0.00	0.00	0.00	0.00	0.00	6.88	0.00	0.00	0.00	32.96	0.00	82.37	0	June 13, 2013
Tomahund Creek	0.02	40	16	238.70	0.00	0.87	0.25	239.83	0.00	0.00	0.00	0.00	0.00	0.00	52.96	0.00	0.00	0.00	117.73	0.00	69.13	6	June 12, 2013
Turkey Island Creek	0.00	6	4	0.00	8.06	4.80	0.00	12.86	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.00	0.00	0.00	8.06	0.00	4.06	0	June 20, 2013
Total	18.08	463	236	848.59	2162.55	212.05	17.54	3240.73	0.00	0.00	0.00	0.00	0.00	0.01	2043.72	0.24	18.81	0.00	470.84	0.00	707.09		

**DNS = Did Not Survey

- ¹Community Type:
- I = Saltmarsh Cordgrass / low marsh
II = Saltmeadow / high marsh
III = Black Needlerush
IV = Saltbush
V = Big Cordgrass
VI = Cattail

VII = Arrow Arum – Pickerel Weed
VIII = Reed Grass (*Phragmites australis*)
IX = Yellow Pond Lily
X = Saltwort
XI = Freshwater mix
XII = Brackish mix

²Type VIII - Field checked marshes where *Phragmites australis* was estimated to cover >50% marsh area.

³Phragmites - percent of field checked marshes where *Phragmites australis* is present in any amount.

Table 8. Charles City County, Virginia Shoreline Attributes - Shoreline Features - River System Summary

RIVER SYSTEM	TOTAL* MILES SURVEYED	No.										Miles of debris	Miles of unconventional	Miles of bulkhead	Miles of dilapidated bulkhead	Miles of marsh toe revetment	Miles of riprap	Miles of wharf
		No. docks	dilapidated docks	No. boathouses	No. ramps		No. groinfields	No. marinas		No. jetties	No. breakwater ¹							
Chickahominy River	129.76	53	4	38	11	1	1	0	1	0	5	0.00	0.06	0.74	0.00	0.06	0.92	0.00
Herring Creek	14.03	4	0	0	2	0	0	0	0	0	0	0.00	0.02	0.06	0.00	0.00	0.05	0.00
James River	60.25	53	2	34	8	1	0	0	0	0	1	0.00	0.15	1.71	0.00	0.01	1.01	0.10
Kittewan Creek	21.34	2	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Morris Creek	28.41	2	0	6	1	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Queens Creek	19.78	2	0	3	3	0	0	0	0	0	0	0.00	0.00	0.07	0.00	0.00	0.00	0.00
Tomahund Creek	16.21	2	0	0	0	1	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Turkey Island Creek	2.32	1	0	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	292.10	119	6	81	25	3	1	0	1	0	6	0.00	0.23	2.57	0.00	0.07	1.98	0.10

*Total = field + remote surveys (does not include marsh island shoreline or selected sections of extensive marsh)

¹ number of breakwater groups (one or more breakwaters within a group)