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## Charles City County Tidal Marsh Inventory

Kenneth A. Moore  
*Virginia Institute of Marine Science*

Sharon Dewing  
*Virginia Institute of Marine Science*

Gene M. Silberhorn  
*Virginia Institute of Marine Science*

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# **CHARLES CITY COUNTY TIDAL MARSH INVENTORY**

**Special Report No. 308 in Applied Marine Science and Ocean Engineering**

**Kenneth A. Moore and Sharon Dewing**



**WETLANDS PROGRAM**

**VIRGINIA INSTITUTE OF MARINE SCIENCE  
SCHOOL OF MARINE SCIENCE  
THE COLLEGE OF WILLIAM AND MARY  
Gloucester Point, Virginia 23062**

**DECEMBER 1990**

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**VIRGINIA INSTITUTE OF MARINE SCIENCE**

**School of Marine Science  
The College of William and Mary  
Gloucester Point, Virginia 23062**

**Dr. Carl Hershner, Program Director  
Dr. Frank O. Perkins, Dean/Director**

**DECEMBER 1990**



## Preface

This publication is one of a series of county and city tidal marsh inventories prepared by the Wetlands Advisory Group of the Virginia Institute of Marine Science. The previously published reports include:

Lancaster County	City of Newport News	Middlesex County
Northumberland County	and Fort Eustis	City of Norfolk
Mathews County	Accomack County	King William County and
York County and the	Northampton County	Town of West Point
Town of Poquoson	Westmoreland County	King and Queen County
Stafford County	James City County	Prince George County
Prince William County	and the City of Williamsburg	and City of Hopewell
King George County	Surry County	City of Portsmouth
City of Hampton	Spotsylvania and Caroline Counties	City of Virginia Beach Vol. 3
Fairfax County	and the City of Fredericksburg	Richmond County
Gloucester County	New Kent County	
City of Virginia Beach	Essex County	
Vol. 1 and 2	Isle of Wight County	

Under Section 62-1.13.4 of the Virginia Wetlands Act, the Virginia Institute of Marine Science is obligated to inventory the tidal wetlands of the Commonwealth. This inventory program is designed to aid the local wetlands boards, the state and federal regulatory agencies, and regional planning districts in making informed rational decisions on the uses of these valuable resources. They are also intended for use by the general public as a natural history guide and the scientific community as a research data source.

The reader is referred to the Shoreline Situation Report, Charles City County, SRAMSOE No. 115, Virginia Institute of Marine Science, Gloucester Point, Virginia 23062. This report focuses on various shoreline characteristics including areas of erosion and accretion, beaches, marshes, artificially stabilized areas, and fastland types and uses.

Also of interest may be a booklet, Wetlands Guidelines, available from the Marine Resources Commission, Newport News, Virginia, which describes the wetlands types and the types of shoreline activities which affect wetlands and what these effects are.



## Acknowledgements

We would like to thank Mr. Arthur Harris and Mr. Mark Ziegler for their field assistance in gathering the data for this report.

We would especially like to thank Berch Smithson for his programming expertise, Anna K. Kenne, Paula Hill and Martha Craig for digital cartography, William Jenkins for the cover photograph line conversion and Janet Walker for tables and typography.

The field work for this inventory was funded in part by the Department of Commerce, National Oceanic and Atmospheric Administration, Office of Coastal Zone Management, grant number 04-6-168-44037, and in part by the Virginia Council on the Environment's Coastal Resources Management Program through grant number NA90AA-H-CZ796 of the National Oceanic and Atmospheric Administration under the Coastal Zone Management Act of 1972 as amended.





## Table of Contents

Preface . . . . .	.ii
Acknowledgements . . . . .	iii
Introduction . . . . .	1
Methods . . . . .	3
Marsh Types and Evaluation . . . . .	5
Marsh Types and Their Environmental Contributions . . . . .	7
Evaluation of Wetland Types . . . . .	11
Marsh Plants . . . . .	13
Glossary of Descriptive Terms . . . . .	15
Reference Map to Marsh Sections . . . . .	19
Section I    Walkers Dam to Morris Creek . . . . .	21
Section II   Morris Creek to Tomahund Creek . . . . .	31
Section III  Dancing Point to Kittewan Creek . . . . .	43
Section IV  Weyanoke Point to Ducking Stool Point . . . . .	51
Section V   Harrisons Landing to Turkey Island Creek . . . . .	59
Grand Total of Marsh Acreage . . . . .	64
Charles City County: Others List . . . . .	65
Index to Marsh Locations . . . . .	67



## **Introduction**

The tidal marsh areas within Charles City County are among the most diverse, productive and valuable within the Commonwealth of Virginia. Because of the low salinity waters with which they are inundated, the plant communities consist principally of freshwater species including both arrow arum/pickerelweed (Type VII) and freshwater mixed (Type XI) communities. They are located along the western side of the Chickahominy River as well as in numerous creek and pocket marsh areas along the north shore of the James River. This report is organized into five sections, each of which attempts to describe the marshes along a significant length of Charles City County shoreline. Of the over 4,000 acres of tidal marsh vegetation inventoried in Charles City County, nearly 2,900 acres (or 72 percent) are found along the Chickahominy River and its tributary creeks. The James River marsh areas are found in various creek and pocket marsh areas located along this extensive shoreline with long stretches of nonvegetated wetland shoreline between.

Currently, the wetland vegetation in the county is relatively undisturbed by man's activities. Unfortunately, rapid and unplanned growth as well as actions of shortsighted waterfront property owners and developers are a constant threat to the continued vitality of this resource. Only through careful planning and strict controls can needless destruction of these marshlands be avoided. It is our desire that this inventory will be useful to those concerned with conserving this valuable resource.



## Methods

Wetland locations and wetland boundaries were obtained by consulting USGS topographic maps and aerial photographs. The configuration and areal extent of each marsh was confirmed by observations by boat, on foot or by low level overflights. Individual plant species percentages are quantitative estimates of coverage based on visual inspections of every marsh.

Percent cover estimates are subject to a seasonal bias depending on the time of the year the estimates are made. In the freshwater marshes, such as found in this county, the spring and early summer dominants are usually the perennials, e.g. arrow arum, pickerelweed and cattails (this inventory was conducted during the mid summer of 1977 and therefore the plant community compositions reported here are biased toward these perennial species). During late summer and early fall other species such as beggars ticks and smartweeds may increase in relative dominance. During the winter many of the marsh areas in Charles City County would appear as unvegetated mud flat.

The outline of each marsh as depicted on the topographic map was planimetered to determine its acreage. Marshes 0.25 acres or larger are designated by number. The acreage, plant species percentage and acreage, marsh type and other observations are recorded in tabular form for each of these marshes. Marshes less than 0.25 acres (usually narrow fringing marshes and very small pocket marshes) are indicated by the same shaded symbol as the numbered marshes but are not included in the tabulations. The size of the small marshes (less than one acre) is exaggerated on the maps for clarity and is not always to scale.

Plant species percentages are recorded to the nearest percent and acreages to the nearest 0.1 acre in the larger marshes. In those instances where an individual plant species was estimated to amount to less than 0.5 percent or 0.05 acre, the symbol (-) is used to indicate a trace amount.



## Marsh Types and Evaluation

For a better understanding of what is meant by marsh types, some background information is required. The personnel of the Wetland Advisory Group have classified twelve different, common marsh types in Virginia, based on vegetational composition. These marsh types have been evaluated according to certain values and are recorded in the Guidelines report. The following is a brief outline of the wetland types and their evaluation as found in that publication:

It is recognized that most wetlands areas, with the exception of the relatively monospecific cordgrass marshes of the Eastern Shore, are not homogeneously vegetated. Most marshes are, however, dominated by a major plant. By providing the manager with the primary values of each community type and the means of identification, he then has a useful and convenient tool for weighing the relative importance of each marsh parcel. In Virginia, many wetlands management problems involve only a few acres or a fraction of an acre. The identification of plant communities permits the manager to evaluate both complete marshes and subareas within a marsh.

Each marsh type may be evaluated in accordance with five general values. These are:

1. Production and detritus availability. Previous VIMS reports have discussed the details of marsh production and the role of detritus which results when the plant material is washed into the water column. The term "detritus" refers to plant material which decays in the aquatic system and forms the basis of a major marine food web. The term "production" refers to the amount of plant material which is produced by the various types of marsh plants. Vegetative production of the major species has been measured, and marshes have been rated in accordance with their average levels of productivity. If the production is readily available to the marine food web as detritus, a wetlands system is even more important than one of equal productivity where little detritus results. Availability of detritus is generally a function of marsh elevation and total flushing, with detritus more available to the aquatic environment in the lower, well-flushed marshes.

2. Waterfowl and wildlife utilization. Long before marshes were discovered to be detritus producers, they were known as habitats for various mammals and marsh birds and as food sources for migratory waterfowl. Some marsh types, especially mixed freshwater marshes, are more valuable because of diversity of the vegetation found there.

3. Erosion buffer. Erosion is a common coastal problem. Marshes can be eroded, but some, particularly the more saline types, are eroded much more slowly than adjacent shores which are unprotected by marsh. This buffering quality is derived from the ability of the vegetation to absorb or dissipate wave energy by establishing a dense root system which stabilizes the substrate. Generally, freshwater species are less effective than saltwater plants in this regard.

4. Water quality control. The dense growth of some marshes acts as a filter, trapping upland sediment before it reaches waterways, thus protecting shellfish beds and navigation channels from siltation. Marshes can also filter out sediments that are already in the water column. The ability of marshes to filter sediments and maintain water clarity is of particular importance to the maintenance of clam and oyster production. Excessive sedimentation can reduce the basic food supply of shellfish through reduction of the photic zone where algae grow. It can also kill shellfish by clogging their gills. Additionally, marshes can assimilate and degrade pollutants through complex chemical processes, a discussion which is beyond the scope of this paper.

5. Flood buffer. The peat substratum of some marshes acts as a giant sponge in receiving and releasing water. This characteristic is an effective buffer against coastal flooding, the effectiveness of which is a function of marsh type and size.

Research and marsh inventory work accomplished by VIMS personnel indicate that 10 species of marsh vegetation tend to dominate many marshes, the dominant plant depending on water salinity, marsh elevation, soil type, and other factors. The term "dominant" is construed to mean that at least 50% of the vegetated surface of a marsh is covered by a single species. Brackish and freshwater marshes often have no clearly dominant species of vegetation. These marshes are considered to be highly valuable in environmental terms.



## **Marsh Types and Their Environmental Contributions**

*(Edited from Guidelines for Activities Affecting Virginia Wetlands)*

### **Type I Saltmarsh Cordgrass Community**

- a. Average yield 4 tons per acre per annum. (Optimum growth up to 10 tons per acre.)
- b. Optimum availability of detritus to the marine environment.
- c. Roots and rhizomes eaten by waterfowl and stems used in muskrat lodge construction. Also serves as nesting material for various birds.
- d. Deterrent to shoreline erosion.
- e. Serves as sediment trap and assimilates flood waters.

### **Type II Saltmeadow Community**

- a. 1-3 tons per acre per annum.
- b. Food (seeds) and nesting areas for birds.
- c. Effective erosion deterrent.
- d. Assimilates flood waters.
- e. Filters sediments and waste material.

### **Type III Black Needlerush Community**

- a. 3-5 tons per acre per annum.
- b. Highly resistant to erosion.
- c. Traps suspended sediments but not as effective as Type II.
- d. Somewhat effective in absorbing flood waters.

### **Type IV Saltbush Community**

- a. 2 tons per acre per annum or less.
- b. Nesting area for small birds and habitat for a variety of wildlife.
- c. Effective trap for flotsam.

Type V Big Cordgrass Community

- a. 3-6 tons per acre per annum.
- b. Detritus less available than from Type I.
- c. Habitat for small animals and used for muskrat lodges.
- d. Effective erosion buffer.
- e. Flood water assimilation.

Type VI Cattail Community

- a. 2-4 tons per acre per annum.
- b. Habitat for birds and utilized by muskrats.
- c. Traps upland sediments.

Type VII Arrow Arum-Pickerel Weed Community

- a. 2-4 tons per acre per annum.
- b. Detritus readily available to marine environment.
- c. Seeds eaten by wood ducks.
- d. Susceptible to erosion from wave action and boat wakes, particularly in winter months.

Type VIII Reed Grass Community

- a. 4-6 tons per acre per annum.
- b. Little value to wildlife except for cover.
- c. Invades marshes and competes with more desirable species.
- d. Deters erosion on disturbed sites.

Type IX Yellow Pond Lily Community

- a. Less than 1 ton per acre per annum.
- b. Cover and attachment site for aquatic animals and algae.
- c. Feeding territory for fish.

Type X Saltwort Community

- a. Less than 0.5 tons per acre per annum.
- b. Little value to aquatic or marsh animals.

Type XI Freshwater Mixed Community

- a. 3-5 tons per acre per annum.
- b. High diversity of wildlife.
- c. High diversity of wildlife foods.
- d. Often associated with fish spawning and nursery grounds.
- e. Ranks high as a sediment trap and nursery grounds.

Type XII Brackish Water Mixed Community

- a. 3-4 tons per acre per annum.
- b. Wide variety of wildlife foods and habitat.
- c. Deterrent to shoreline erosion.
- d. Serves as sediment trap and assimilates flood waters.
- e. Known spawning and nursery grounds for fish.



## **Evaluation of Wetland Types**

*(From Guidelines for Activities Affecting Virginia Wetlands)*

For management purposes, the twelve types of wetlands identified above are grouped into five classifications based on the estimated total environmental value of an acre of each type.

**Group One:** Saltmarsh Cordgrass (Type I)  
Arrow Arum-Pickrel Weed (Type VII)  
Freshwater Mixed (Type XI)  
Brackish Water Mixed (Type XII)

Group One marshes have the highest values in productivity and wildfowl and wildlife utility and are closely associated with fish spawning and nursery areas. They also have high value as erosion inhibitors, are important to the shellfish industry, and are valued as natural shoreline stabilizers. Group One marshes should be preserved.

**Group Two:** Big Cordgrass (Type V)  
Saltmeadow (Type II)  
Cattail (Type VI)

Group Two marshes are of only slightly lesser value than Group One marshes. The major difference is that detritus produced in these marshes is less readily available to the marine environment due to higher elevations and consequently less tidal action to flush the detritus into adjacent waterways. Group Two marshes have very high values in protecting water quality and acting as buffers against coastal flooding. These marshes should also be preserved; but if development in wetlands is considered to be justified, it would be better to alter Group Two marshes than Group One marshes.

Group Three: Yellow Pond Lily (Type IX)  
Black Needlerush (Type III)

The two marshes in the Group Three category are quite dissimilar in properties. The yellow pond lily marsh is not a significant contributor to the food web, but it does have high values to wildlife and waterfowl. Black needlerush has little wildlife value, but it ranks high as an erosion flood buffer. Group Three marshes are important, though their total values are less than Group One and Two marshes. If development in wetlands is considered necessary, it would be better to alter Group Three marshes than Groups One or Two.

Group Four: Saltbush (Type IV)

The saltbush community is valued primarily for the diversity and bird nesting area it adds to the marsh ecosystem. To a lesser extent it acts as an erosion buffer. Group Four marshes should not be unnecessarily disturbed, but it would be better to concentrate necessary development in these marshes rather than disturb any of the marshes in the preceding groups.

Group Five: Saltwort (Type X)  
Reedgrass (Type VIII)

Based on present information, Group Five marshes have few values of any significance. While Group Five marshes should not be unreasonably disturbed, it is preferable to develop in these marshes than in any other types.

## Marsh Plants

Common names and scientific names as found in the data tables of this report.

Arrow Arum*	<i>Peltandra virginica</i> (L.) Kunth	Nut Grass	<i>Cyperus esculentus</i> L.
Arrowhead*	<i>Sagittaria latifolia</i> Willd.	Pickerelweed	<i>Pontedaria cordata</i> L.
Beggars Ticks*	<i>Bidens coronata</i> (L.) Britton	Reedgrass	<i>Calamagrostis cinnoides</i> (Muhl.) Barton
Big Cordgrass*	<i>Spartina cynosuroides</i> (L.) Roth	Saltmarsh Aster	<i>Aster vimineus</i> Lam.
Black Gum*	<i>Nyssa sylvatica</i> Marshall	Saltmarsh Cordgrass*	<i>Spartina alterniflora</i> Loisel
Button Bush	<i>Cephalanthus occidentalis</i> L.	Sedge	<i>Carex stricta</i> Lam.
Cardinal Flower	<i>Lobelia cardinalis</i> L.	Smartweed*	<i>Polygonum punctatum</i> Ell.
Cattails*	<i>Typha augustifolia</i> L.	Soft Rush	<i>Juncus effusus</i> L.
	<i>Typha latifolia</i> L.	Soft Stem Bulrush*	<i>Scirpus validus</i> Vahl.
Climbing Hempweed	<i>Mikania scandens</i> (L.) Willd.	Spikerush*	<i>Eleocharis fallax</i> Weatherby
Common Threesquare*	<i>Scirpus americanus</i> Pers.		<i>Eleocharis parvula</i> (R.+S.) Link
Cypress	<i>Taxodium distichum</i> (L.) Richard	Swamp Dogwood	<i>Cornus stricta</i> Lam.
Dodder	<i>Cuscuta</i> spp.	Swamp Rose	<i>Rosa palustris</i> Marshall
Fern	<i>Osmunda regalis</i> L.	Tearthumb	<i>Polygonum arifolium</i> L.
	<i>Woodwardia virginica</i> (L.) Smith	Walters Millet	<i>Echinochloa walteri</i> (Pursh) Nash
	<i>Thelypteris palustris</i> Schott	Water Dock*	<i>Rumex verticillatus</i> L.
Giant Bulrush*	<i>Scirpus validus</i> Vahl.	Water Hemp*	<i>Amaranthus cannabinus</i> (L.) J.D. Sauer
Ironweed	<i>Vernonia nova boracensis</i> (L.)	Water Parsnip	<i>Suim suave</i> Walter
Jewelweed	<i>Impatiens capensis</i> Meerb	Water Willow	<i>Decodon verticillatus</i> (L.) Ell.
Marsh Fleabane	<i>Pluchea purpurascens</i> (Swartz) DC	Wax Myrtle*	<i>Myrica cerifera</i> L.
Marsh Hibiscus*	<i>Hibiscus moscheutos</i> L.	Wild Rice*	<i>Zizania aquatica</i> L.
Marsh Mallow	<i>Kosteletskyia virginica</i> Presl.	Yellow Pond Lily*	<i>Nuphar luteum</i> (L.) Sibth. & Smith
Milkweed	<i>Asclepias incarnata</i> L.		

\*Species included in the Wetlands Act of 1972.





## Glossary of Descriptive Terms

### Cove Marsh

A marsh contained within a concavity or recessed area on a shoreline. The marsh vegetation is usually found surrounding a central, open-water pond, and tidal flushing is permitted through an inlet.



### Creek or Embayed Marsh

A marsh occupying a drowned creek valley. In many large creek marshes the salinity decreases headward; this type of marsh may be divided for inventory purposes into sections if significant changes in the plant community occur along its length.



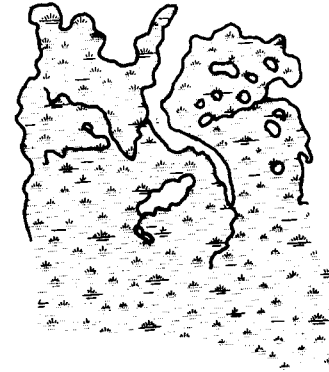
### Delta Marsh

A marsh growing on sediment deposited at the mouth of a tidal creek. Tidal exchange through the creek mouth is usually restricted to narrow channels by the marsh.



### Extensive Marsh

A large marsh where the length and depth or width are roughly comparable. Most extensive marshes are drained by many tidal channels and creeks which have little freshwater input.



### Fringe Marsh

A marsh which borders a section of shoreline and generally has a much greater length than width or depth.



### High Marsh

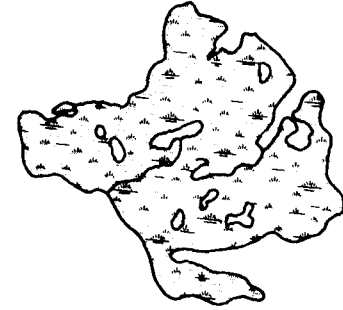
The marsh surface is at an elevation of mean high water or above; it is usually inundated less than twice daily by tidal action.

### Low Marsh

The marsh surface is at an elevation below mean high water; it is usually inundated twice daily by tidal action.

Marsh Island

An isolated marsh surrounded on all sides by open water. Interior portions of the marsh may contain trees scattered at highest elevations.



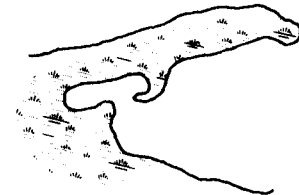
Pocket Marsh

A marsh contained within a small, essentially semi-circular area on a shoreline.

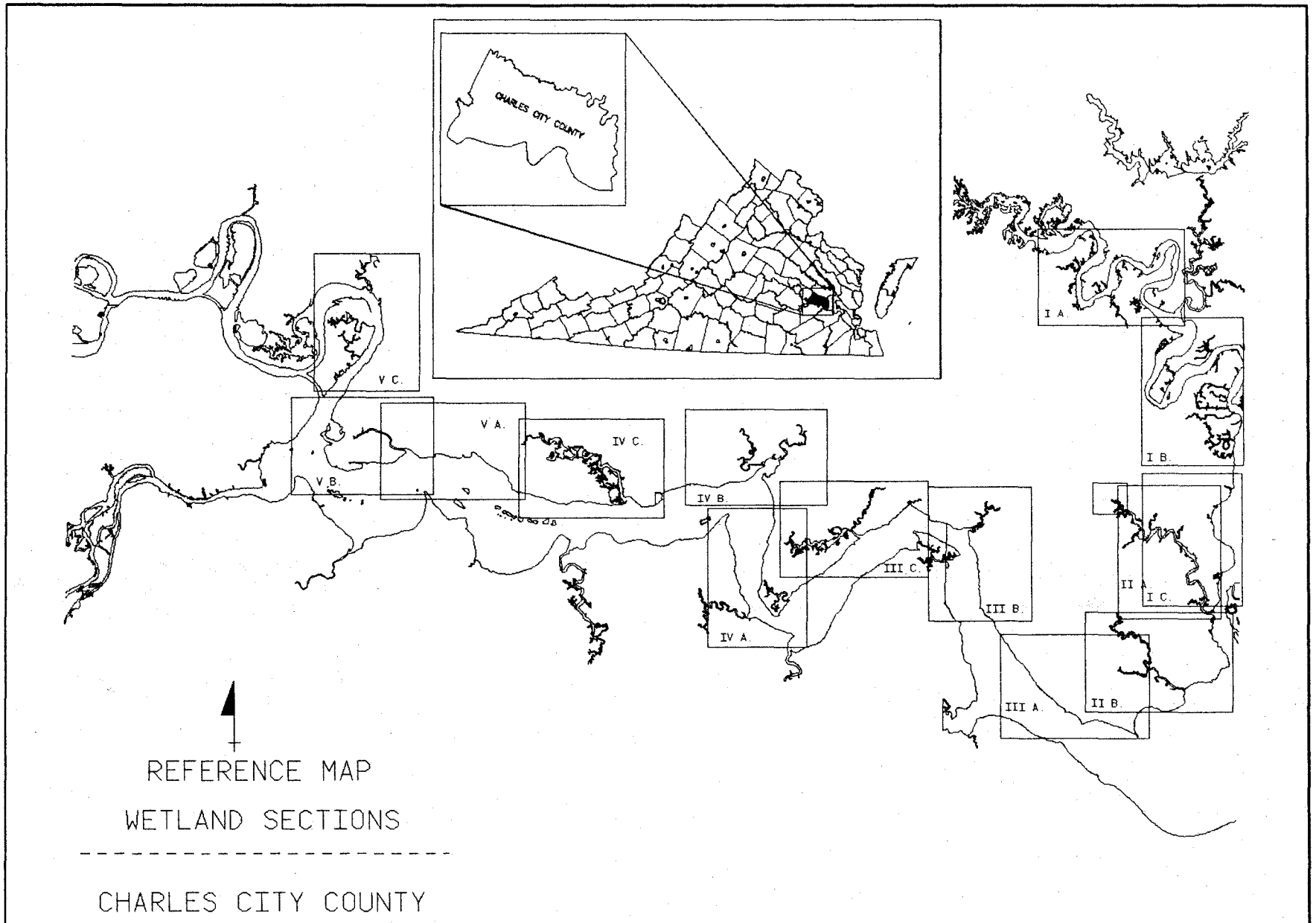


Point or Spit Marsh

A marsh which extends from the uplands in the form of a point or spit. Its development is usually influenced by tidal currents that form a sand berm behind which the marsh forms.









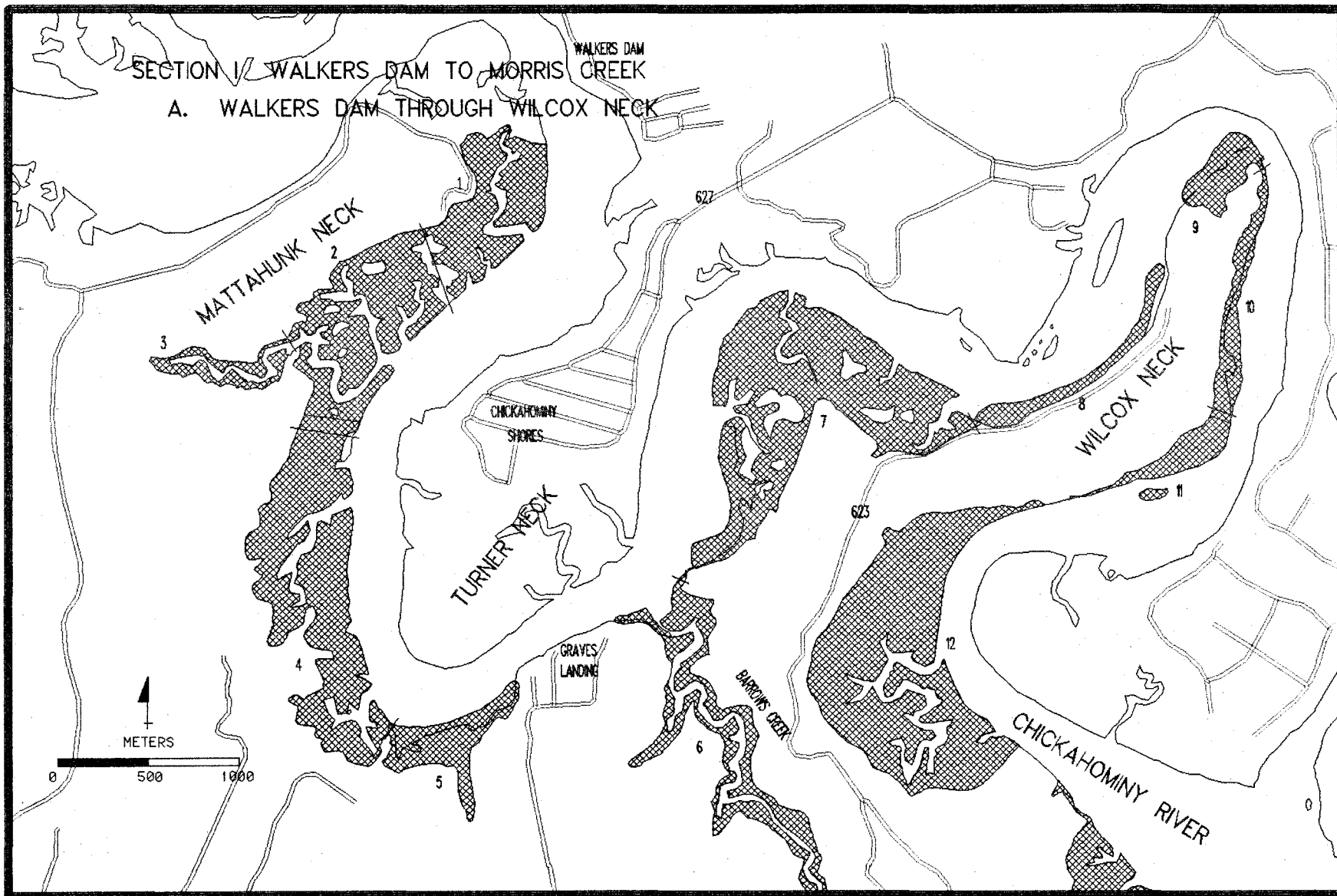
## **Section I**

### **Walkers Dam to Morris Creek**

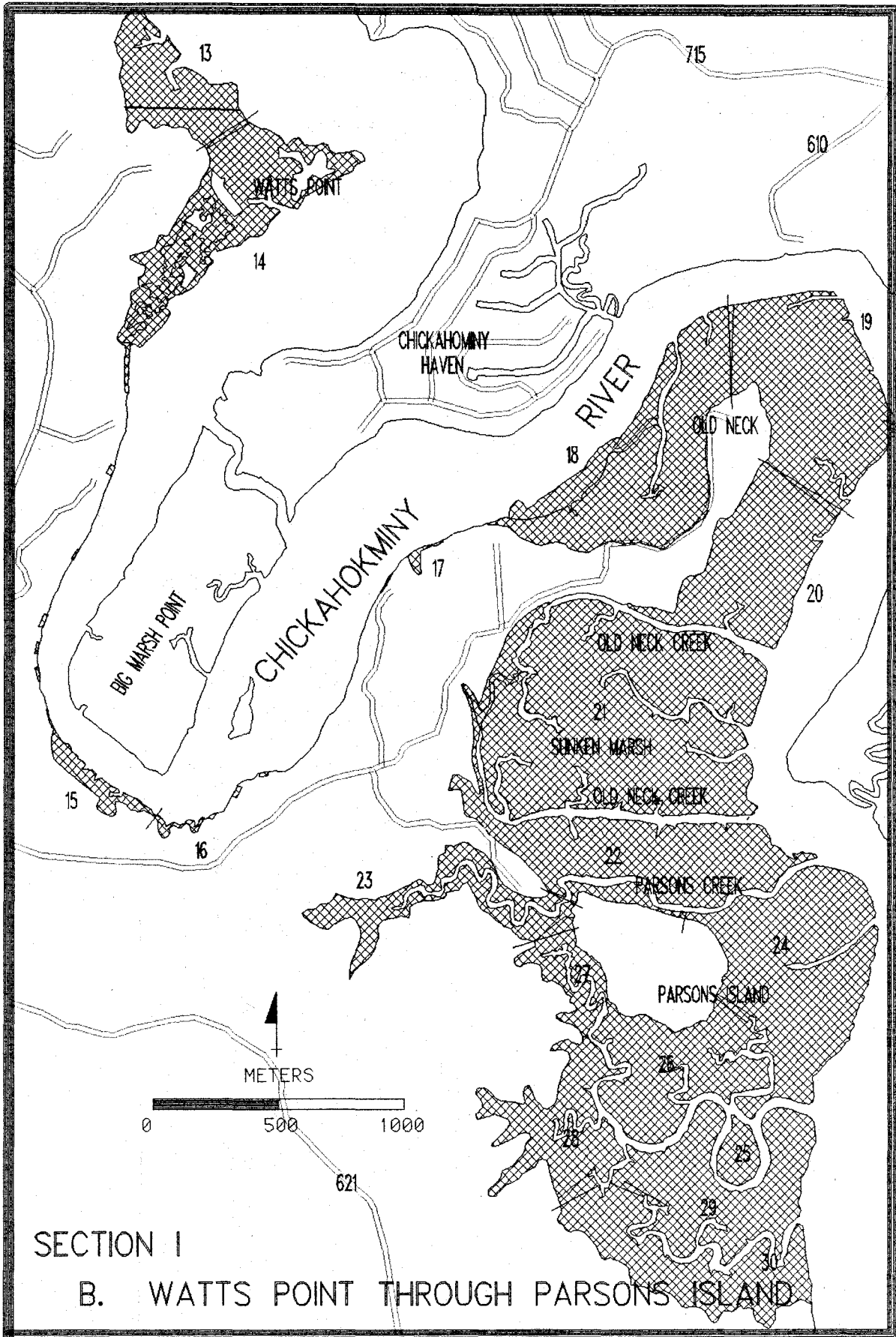
This section of shoreline includes much of the region of Charles City County which borders the Chickahominy River. It is illustrated in three map plates and includes over 1,900 acres of tidal marsh. The area extends from Walkers Dam, which limits the upstream extent of tidal action, to the mouth of Morris Creek in the south. The dam is a relatively low structure that, although occasionally overtopped by exceptionally high tides, maintains a relatively constant non-tidal water level above that point.

The marshes in this section, which may be subject to very slight saltwater during drought periods, are dominated by species characteristic of freshwater areas. Because of the high diversity many are characterized as Type IX, freshwater mixed community. Occasional stands of arrow arum/pickerelweed (Type VII) and yellow pond lily (Type IX) are, however, also found. Most of the marshes either grade into or contain areas of tidal and non-tidal woody swamp which are dominated by cypress, gum and other water-tolerant trees. Because the difference between tidal and non-tidal swamp is dependent upon elevational differences of a foot or less in many cases, the measurement of which is beyond the scope of the project, only areas of open marsh are included in this inventory.

The Chickahominy region is one of the most productive and diverse natural wetland areas in the Commonwealth. Much of the area still remains pristine and unimpacted by man's activities. Only the man-made impoundments which are used as a water source for cities to the south have significantly impacted this, one of the largest tributaries of the James River.







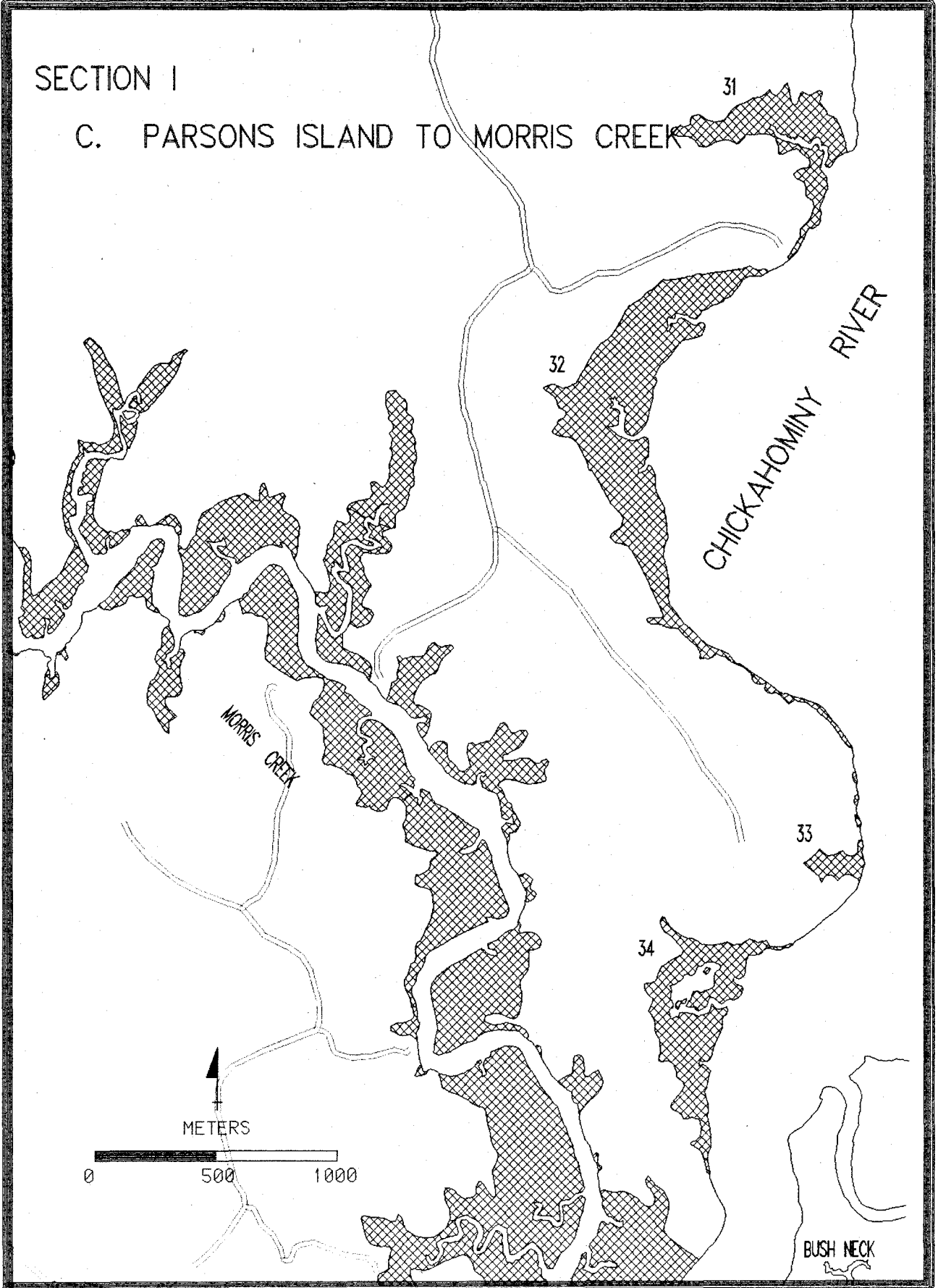
SECTION I

B. WATTS POINT THROUGH PARSONS ISLAND

SECTION I

C. PARSONS ISLAND TO MORRIS CREEK

24



BUSH NECK

# I. Walkers Dam to Morris Creek.

#	Marsh Location	Total Acres		Pickelweed Arrow Arum	Saltmarsh Cutgrass	Marsh Hibiscus	Giant Buirush	Spikerush	Wild Rice	Smartweed	Jewelweed	Beggar's Ticks	Water Hemp	Soft Rush	Common Threesquare	Arrowhead	Cypress	Cattails	Swamp Rose	Tearthumb	Others	Observations	Marsh Type
1	Chicka-hominy River	44.8	%	50	--	--	--	--	4	--	3	--	--	--	--	--	25	3	--	--	A15,B-,C-,D-,E-,F-,G-,H-	YPL along river and channels, interior dominated by AA w/ stands of cypress	VII
			A	22.4					1.8		1.3								11.2	1.3			
2	Chicka-hominy River	68.4	%	58	2	1	--	--	2	--	3	1	1	--	--	--	20	2	--	--	A10,C-,D-,E-,F-,G-	YPL along channels, interior dominated by AA w/ large stands of cypress	VII
			A	39.7	1.4	.7			1.4		2.1	.7	.7						13.7	1.4			
3	Chicka-hominy River	9.6	%	45	2	1	--	--	5	--	5	1	1	--	--	--	10	--	--	--	A15,C15,D-,E-,F-,G-,H-,I-	Creek marsh; YPL along channel, swamp species of gum, cypress along upland	XI
			A	4.3	.2	.1			.5		.5	.1	.1						1.0				
4	Chicka-hominy River	126.8	%	40	3	1	--	--	2	--	3	2	--	--	--	--	30	4	--	--	A10,C5,D-,E-,F-,G-	YPL along channels, AA mixed w/ water hemp, hibiscus, cattail and wild rice	XI
			A	50.7	3.8	1.3			2.5		3.8	2.5							38.0	5.1			
5	Chicka-hominy River	24.2	%	5	1	1	--	--	1	--	2	--	--	--	--	--	40	--	--	--	A45,C5,D-,E-,F-,G-,J-	YPL in wide band along river, interior is AA and other species	XI
			A	1.2	.2	.2			.2		.5								9.7				
6	Barrows Creek	42.7	%	25	3	5	--	--	5	--	2	--	--	--	--	--	35	--	--	--	A15,C10,D-,E-,F-,G-,H-,K-	YPL along channels, interior AA mixed w/ stands of cypress	XI
			A	10.7	1.3	2.1			2.1		.9								14.9				
7	Chicka-hominy River	135.0	%	60	5	2	--	--	3	--	3	--	--	--	--	--	15	2	--	--	A10,C-,D-,E-,F-,J-	YPL along river, interior dominated by AA with hibiscus, cattail	VII
			A	81.0	6.8	2.7			4.1		4.1								20.3	2.7			
8	Chicka-hominy River	14.9	%														--				A100,E-,F-	Large area YPL, scattered cypress, shrubs	IX
			A																				

#	Marsh Location	Total Acres		Pickelweed Arrow Arum	Saltmarsh Cutgrass	Marsh Hibiscus	Giant Bulrush	Spikerush	Wild Rice	Smartweed	Jewelweed	Beggar's Ticks	Water Hemp	Soft Rush	Common Threesquare	Arrowhead	Cypress	Cattails	Swamp Rose	Tearthumb	Others	Observations	Marsh Type
9	Wilcox Neck	15.1	%	35	--	10	--	--	--	--	5	--	--	--	--	--	5	5	--		A40,C-,E-	YPL and AA with other species grading to a swamp	XI
			A	5.3		1.5							.8						.8	.8			
10	Wilcox Neck	10.6	%	20	--	2	--		3	--	--	--	--	--	--	--	--	--	--		A75,C-,D-,E-	Fringing marsh dominated by YPL adjacent to wood swamp	IX
			A	2.1		.2			.3														
11	Wilcox Neck	14.9	%	45	10	--	--	--	10	--	5	5	--	--	--	--	5	5	--		A15,C-,D-,E-,J-	YPL along river, interior mostly AA grades to tidal swamp	XI
			A	6.7	1.5				1.5			.7	.7						.7	.7			
12	Chickahominy River	127.5	%	45	10	--	--	--	10	--	5	4	1	--	--	--	5	10	--		A10,B-,D-,E-	YPL in fringe along channel, interior dominated by AA and PW	XI
			A	57.4	12.8				12.8			6.4	5.1	1.3					6.4	12.8			
13	Watts Point	39.3	%	40	5	2	--	--	15	--	5	1	2	--	--	--	10	5	--		A15,C-,E-,L-	YPL along river, interior AA with wild rice, jewelweed, cattails	XI
			A	15.7	2.0	.8			5.9			2.0	.4	.8					3.9	2.0			
14	Watts Point	73.0	%	35	5	3	--	--	10	--	2	5	--	--	--	--	25	--	--		A15,C-,D-,E-,L-	YPL along river, interior PW mixed with stands of cypress	XI
			A	25.6	3.7	2.2			7.3			1.5	3.7						18.3				
15	Chickahominy River	9.3	%	45	10	10	--	--	10	--	10	--	--	--	2		10	1	--		A2,C-,E-,L-	Fringe AA, cypress along upland	XI
			A	4.2	.9	.9			.9			.9				.2		.9	.1				
16	Chickahominy River	2.1	%	30	--	5	--	--	5	--	5	--	--	--	5	--	5	5	--		A40,L-	Intermittent fringe dominated by AA, PW, YPL	XI
			A	.6		.1			.1			.1				.1		.1	.1				

#	Marsh Location	Total Acres		Pickelweed Arrow Arum	Saltmarsh Cutgrass	Marsh Hibiscus	Giant Butrush	Spikerush	Wild Rice	Smartweed	Jewelweed	Beggar's Ticks	Water Hemp	Soft Rush	Common Threesquare	Arrowhead	Cypress	Cattails	Swamp Rose	Tearthumb	Others	Observations	Marsh Type
17	Chickahominy River	1.2	%	35		5	--	--	30	--	10	--	--	--	--	--	15				A5,L-	Pocket marsh, interior of AA, wild rice grades to cypress	XI
			A	.4		.1				.4		.1							.2				
18	Old Neck	101.7	%	60	5	--	--	--	10	--	10	15	--	--	--	--	--	--	--	--	A-,B-,D-,E-,G-,Y-	AA dominating with wild rice, jewelweed, cutgrass	VII
			A	61.0	5.1					10.2		10.2	15.3										
19	Old Neck	112.7	%	55	15	--	--	--	3	--	10	5	1	--	--	--	--	5	--	--	A1,B5,D-,E-,Y-,J-,K-,N-,O-,P-	AA dominating YPL along river edge	VII
			A	62.0	16.9					3.4		11.3	5.6	1.1					5.6				
20	Old Neck	71.4	%	60	5	1	--	--	2	--	20	5	--	--	--	--	--	1	--	--	A-,B5,D-,E-,J-,O-,Y1	AA with abundant jewelweed, cutgrass, YPL along river	VII
			A	42.8	3.6	.7				1.4		14.3	3.6						.7				
21	Sunken Marsh	215.5	%	55	15	1	--	--	5	--	15	5	1	--	--	--	--	1	--	--	A1,B-,E-,F1,J-,Y-	AA with abundant jewelweed, cutgrass, bidens, wild rice	VII
			A	118.5	32.3	2.2				10.8		32.3	10.8	2.2					2.2				
22	Parsons Creek	95.3	%	52	10	--	--	--	10	--	20	5	1	--	--	--	--	--	--	--	A1,B-,D-,J-,O-,Y1	AA with abundant jewelweed, cutgrass, interior wild rice	VII
			A	49.6	9.5					9.5		19.1	4.8	1.0									
23	Parsons Creek	42.4	%	65	10	5	--	--	5	--	10	--	--	--	--	--	--	1	--	1	A2,B1,D-,K-,Y-	Creek marsh dominated by AA with scattered cypress	VII
			A	27.6	4.2	2.1				2.1		4.2							.4		.4		
24	Parsons Island	120.4	%	65	5	5	--	--	5	--	15	--	1	--	--	--	--	1	--		A3,B-,D-,E-,J-,Y-	Extensive marsh dominated by AA, YPL along river	VII
			A	78.3	6.0	6.0				6.0		18.1		1.2					1.2				

#	Marsh Location	Total Acres		Pickereelweed Arrow Arum	Saltmarsh Cutgrass	Marsh Hibiscus	Giant Bulrush	Spikerush	Wild Rice	Smartweed	Jewelweed	Beggar's Ticks	Water Hemp	Soft Rush	Common Threasure	Arrowhead	Cypress	Cattails	Swamp Rose	Tearthumb	Others	Observations	Marsh Type	
25	Parsons Island	8.6	%	65	5	5	--	--	3		20	--	--	--	--	--	--	2	--	--	B-,C-,D-,O-,Y-	Marsh island formed between two channels	VII	
			A	5.6	.4	.4			.3		1.7								.2					
26	Parsons Island	67.5	%	55	5	--	--	--	20		20	--	--	--	--	--	--	--	--	--		A-,B-,D-,E-,F-,Y-	Extensive marsh dominated by AA	VII
			A	37.1	3.4				13.5		13.5													
27	Parsons Island	20.6	%	55	5	5			25		--	5	--	--	--	--	--	--	--	--		A5,B-,C-,D-,E-,F-,O-,Y-	Head of creek dominated by AA	VII
			A	11.3	1.0	1.0			5.2		1.0													
28	Parsons Island	50.6	%	55	3	4	--	--	30	--	5	--	1	--	--	--	--	--	--	--		A2,D-,O-,Y-	Dominated by AA with abundant wild rice, cutgrass	VII
			A	27.8	1.5	2.0			15.2		2.5		.5											
29	Parsons Island	79.9	%	60	5	3	--	--	5	--	20	5	--	--	--	--	--	2	--	--		A-,B-,C-,D-,E-,O-,Y-	Dominated by AA with abundant jewelweed, hibiscus	VII
			A	47.9	4.0	2.4			4.0		16.0	4.0							1.6					
30	Parsons Island	71.3	%	65	10	4	--	--	5	--	10	5	1	--	--	--	--	--	--	--		A-,B-,C-,D-,E-,O-,Y-	Dominated by AA with abundant cutgrass, jewelweed	VII
			A	46.3	7.1	2.9			3.6		7.1	3.6	.7											
31	Chickahominy River	29.5	%	65	10	5	--	--	5	--	15	--	--	--	--	--	--	--	--	--		B-,C-,D-,E-,N-,O-,Y-	Pocket marsh dominated by AA with abundant jewelweed	VII
			A	19.2	3.0	1.5			1.5		4.4													
32	Eagle Bottom	85.6	%	80	1	5	--	--	10	--	--	3	--	--	--	--	1	--	--	--		C-,D-,E-,N-,Y-	Large embayed marsh dominated by AA	VII
			A	68.5	.9	4.3			8.6				2.6					.9						

#	Marsh Location	Total Acres		Pickereelweed Arrow Arum	Saltmarsh Cutgrass	Marsh Hibiscus	Giant Bulrush	Spikerush	Wild Rice	Smartweed	Jewelweed	Beggar's Ticks	Water Hemp	Soft Rush	Common Threesquare	Arrowhead	Cypress	Cattails	Swamp Rose	Teartthumb	Others	Observations	Marsh Type	
33	Chickahominy River	4.2	%	60	5	15	--		5	--	10	--	--	--	--	--	5	--	--	--	B-,C-,D-,E-, F-,O-,Y-	Pocket marsh, cypress across mouth of creek	VII	
			A	2.5	.2	.6			.2		.4								.2					
34	Chickahominy River	36.0	%	88	--	1	--	--	10	--	--	--	--	--	--	--	--	--	--	--	A1,Y-	Embayed marsh dominated by AA	VII	
			A	31.7		.4			3.6															
T	Total Section I	1972.6	%	54	7	2			7		9	3	--		--		7	2		--	8			
			A	1065.7	133.7	39.4			140.9		180.8	64.5	9.6		.3		141.2	38.9		.4	158.1			
			%																					
			A																					
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			A																					
			%																					
			A																					





## **Section II**

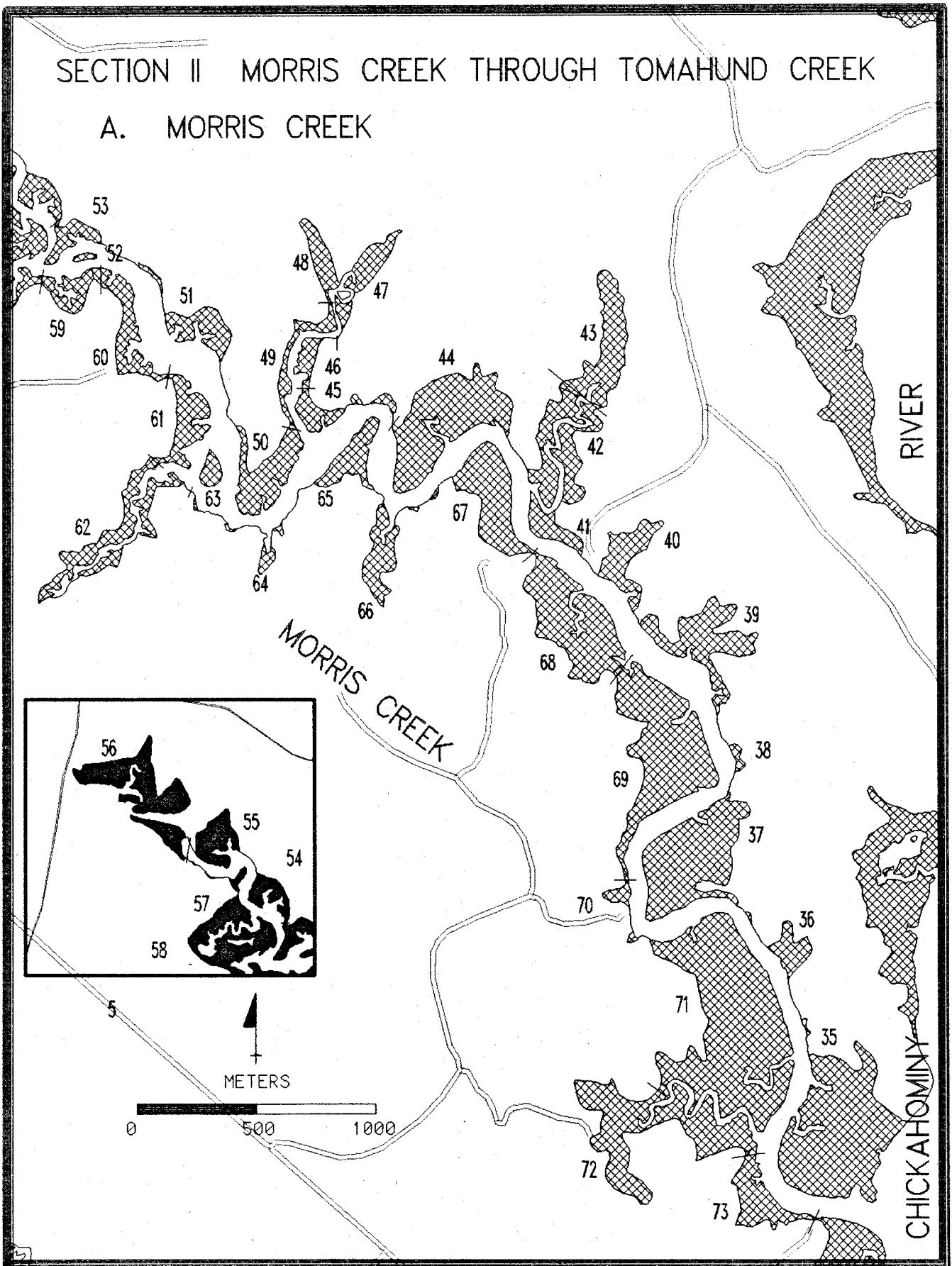
### **Morris Creek to Tomahund Creek**

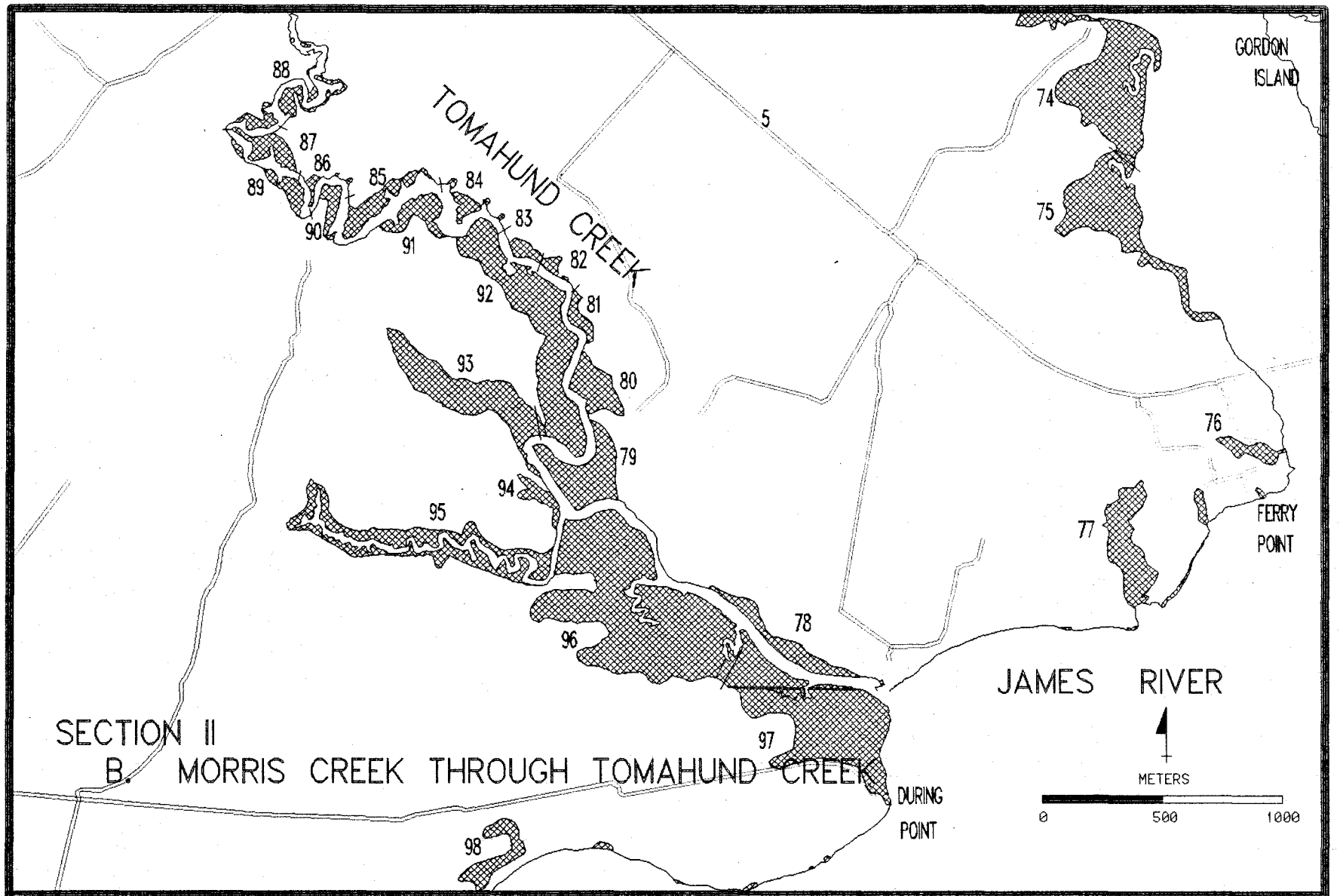
This section of shoreline consists of two large creek systems and several creek and pocket marsh areas found along the Chickahominy River and contains nearly 900 acres of tidal marsh, which is approximately 22 percent of the county's total. Morris Creek, the larger of the two, is characterized by many creek and pocket marsh areas as it meanders northwest from the Chickahominy. Many of the marsh areas in the creek system are of relatively low elevation and are dominated by arrow arum and pickerelweed (Type VII). Wild rice, one of Virginia's most important waterfowl foods, is also very abundant. Tomahund Creek is likewise very similar to Morris Creek with many creek and pocket marsh areas extending landward to areas of tidal and non-tidal swamp.

Both of these areas, like most of the marsh areas in this region of Charles City County, appear much more homogenous in the spring as compared to the fall. This is due to the early emergence of arrow arum and pickerelweed as compared to the later emergence of many of the other species of wetland plants found here. By September, however, as these arrow-leaf shaped plants begin to die back, the great diversity of other species will be evident, from the tall swaying heads of wild rice to the bright yellow flowers of beggars ticks.

# SECTION II MORRIS CREEK THROUGH TOMAHUND CREEK

## A. MORRIS CREEK





## II. Morris Creek to Tomahund Creek.

#	Marsh Location	Total Acres		Pickelweed Arrow Arum	Saltmarsh Cutgrass	Marsh Hibiscus	Giant Bluirush	Spikerush	Wild Rice	Smartweed	Jewelweed	Beggar's Ticks	Water Hemp	Soft Rush	Common Threesquare	Arrowhead	Cypress	Cattails	Swamp Rose	Tearthumb	Others	Observations	Marsh Type
35	Mouth of Morris Creek	48.5	%	50	--	2	--	--	40	--	5	1	1	--	--	--	--	1	--	--	D-,F-,Y-	Creek marsh dominated by PW, AA and wild rice	VII
			A	24.3		1.0			19.4		2.4	.5	.5						.5				
36	Morris Creek	4.1	%	55	--	1	--	--	25	--	15	1	1	--	--	--	--	2	--	--	Y-	Pocket marsh dominated by AA, wild rice and jewelweed	VII
			A	2.3		--			1.0		.6	--	--						.1				
37	Morris Creek	30.5	%	55	--	10	--	--	10		25	--	--	--	--	--	--	--	--	--	D-,E-,J-,O-,Y-	Creek marsh dominated by AA and jewelweed	VII
			A	16.8		3.1		3.1		7.6													
38	Morris Creek	.9	%	90	--	2	--	--	--		--	--	--				5	3	--	--	C-,D-,Y-	Small pocket marsh with cattails in interior	VII
			A	.8		--												--	--				
39	Morris Creek	14.3	%	55	--	--	--	--	35	--	10	--	--	--	--	--	--	--	--	--	C-,D-,E-,O-,Y-	Fringe and pocket marsh, mostly AA and wild rice	VII
			A	7.9					5.0		1.4												
40	Morris Creek	7.5	%	55	--	5	--	--	35	--	5	--	--	--	--	--	--	--	--	--	A-,C-,D-,E-,O-, Y-	Pocket marsh, mostly AA and wild rice	VII
			A	4.1		.4			2.6		.4												
41	Morris Creek	5.2	%	55	1	5	--	--	35	--	2	--	1	--	1	--	--	--	--	--	C-,D-,E-,O-,Y-	Creek marsh dominated by AA and wild rice	VII
			A	2.9	.1	.3			1.8		.1		.1		.1								
42	Morris Creek	18.5	%	73	12	2	--	--	5	--	5	--	--	--	1	--	--	2	--	--	C-,D-,E-,O-,Y-	Creek marsh dominated by AA	VII
			A	13.5	2.2	.4			.9		.9					.2			.4				

#	Marsh Location	Total Acres		Pickelweed Arrow Arum	Saltmarsh Cutgrass	Marsh Hibiscus	Giant Bulrush	Spikerush	Wild Rice	Smartweed	Jewelweed	Beggar's Ticks	Water Hemp	Soft Rush	Common Threesquare	Arrowhead	Cypress	Cattails	Swamp Rose	Tearthumb	Others	Observations	Marsh Type
43	Morris Creek	10.0	%	60	5	5	--	--	20	--	5	5	--	--	--	--	--	--	--	--	A-,C-,D-,E-,O-, Y-	Head of creek marsh, increase of wild rice and hibiscus	VII
			A	6.0	.5	.5			2.0		.5	.5											
44	Morris Creek	28.6	%	45	5	--	--	--	30	--	10	--	--	--	--	--	--	10	--	--	A-,C-,D-,E-,O-, Y-	Embayed marsh dominated by AA	XI
			A	12.9	1.4				8.6		2.9								2.9				
45	Morris Creek	4.2	%	60	4	5	1	--	5	--	5	5	--	--	--	--	--	15	--	--	D-,E-,Y-	Creek marsh dominated by PW with cattail stands	VII
			A	2.5	.2	.2	--		.2		.2	.2							.6				
46	Morris Creek	2.2	%	65	5	10	--	--	5	--	--	5	--	--	--	--	--	10	--	--	C-,D-,E-,M-,Y-	Creek marsh dominated by PW	VII
			A	1.4	.1	.2			.1		.1	.1							.2				
47	Morris Creek	7.9	%	60	5	5	--	--	10	--	5	5	--	--	--	--	5	5	--	--	C-,D-,E-,Y-	Creek marsh dominated by AA, cypress stands in back	VII
			A	4.7	.4	.4			.8		.4	.4						.4	.4				
48	Morris Creek	5.7	%	60	5	5	--	--	10	--	5	5	--	--	--	--	5	5	--	--	C-,D-,M-,Y-	Pocket marsh	VII
			A	3.4	.3	.3			.6		.3	.3						.3	.3				
49	Morris Creek	4.8	%	60	5	5	--	--	10	--	5	5	--	--	--	--	5	5	--	--	C-,D-,M-,Y-	Fringe marsh	VII
			A	2.9	.2	.2			.5		.2	.2						.2	.2				
50	Morris Creek	12.3	%	65	--	2	--	--	10	--	3	5	--	--	--	--	--	15	--	--	A-,D-,M-,Y-	Creek marsh mostly AA, cattails throughout	VII
			A	8.0		.2			1.2		.4	.6							1.8				

#	Marsh Location	Total Acres		Pickelweed Arrow Arum	Saltmarsh Cutgrass	Marsh Hibiscus	Giant Bulrush	Spikerush	Wild Rice	Smartweed	Jewelweed	Beggar's Ticks	Water Hemp	Soft Rush	Common Threesquare	Arrowhead	Cypress	Cattails	Swamp Rose	Tearthumb	Others	Observations	Marsh Type	
51	Morris Creek	5.8	%	55	--	2	--	--	10	--	3	--	--	--	--	--	--	15	--	--	A15,D-,M-,Y-	YPL along creek, interior AA and PW	VII	
			A	3.2		.1			.6		.2													
52	Morris Creek	1.0	%	70	10	5	--	--	10	--	--	--	--	--	--	--	--	--	--	--	--	A5,M-,Q-,Y-	Island marsh dominated by AA and PW	VII
			A	.7	.1	.1			.1															
53	Morris Creek	4.9	%	55	5	15	--	--	10	--	5	--	--	--	--	--	--	10	--	--	--	A-,C-,D-,M-,Y-	YPL along channel, dominated by AA	VII
			A	2.7	.2	.7			.5		.2								.5					
54	Morris Creek	3.8	%	60	10	5	--	--	10	--	5	5	--	--	--	--	--	5	--	--	--	A-,C-,D-,M-, Q-,Y-	Creek marsh dominated by AA and PW	VII
			A	2.3	.4	.2			.4		.2	.2							.2					
55	Morris Creek	4.0	%	75	3	5	1	--	10	--	5	--	--	--	--	--	--	1	--	--	--	A-,C-,M-,Q-,Y-	Creek marsh dominated by AA and PW	VII
			A	3.0	.1	.2	--		.4		.2								--					
56	Morris Creek	7.6	%	60	--	5	--	--	10	--	15	--	5	--	--	--	5	--	--	--	--	A-,C-,M-,Q-,Y-	Head of creek dominated by PW, grades to swamp	VII
			A	4.6		.4			.8		1.1		.4					.4						
57	Morris Creek	.9	%	65	5	3	1	--	15	--	10	--	1	--	--	--	--	--	--	--	--	A-,C-,M-,Q-,Y-	Small creek marsh mostly AA and PW	VII
			A	.6	--	--	--		.1		.1			--										
58	Morris Creek	18.2	%	65	2	3	--	--	10	--	10	--	--	--	--	--	5	5	--	--	--	A-,C-,M-,Q-,Y-	AA dominating with stand of cypress	VII
			A	11.8	.4	.5			1.8		1.8							.9	.9					

#	Marsh Location	Total Acres		Pickereelweed Arrow Arum	Saltmarsh Cutgrass	Marsh Hibiscus	Giant Bulrush	Spikerush	Wild Rice	Smartweed	Jewelweed	Beggar's Ticks	Water Hemp	Soft Rush	Common Threesquare	Arrowhead	Cypress	Cattails	Swamp Rose	Tearthumb	Others	Observations	Marsh Type
59	Morris Creek	4.3	%	65	--	2	--	--	20	--	2	--	1	--	--	--	--	10	--	--	A-,C-,M-,Q-,Y-	Dominated by AA, abundant cattails	VII
			A	2.8		.1			.9		.1		--							.4			
60	Morris Creek	8.4	%	30	--	1	--	--	20		1	--	--		--	--	--	3	--	--	A45,B-,D-,F-, O-,Y-	YPL along creek, interior PW, AA and wild rice	XI
			A	2.5		.1			1.7		.1									.3			
61	Morris Creek	9.4	%	55	2	3	--	--	15	--	5	--	--		--	--	--	10	--	--	A10,B-,D-,F-, O-,Y-	YPL along creek, interior PW, AA and wild rice	VII
			A	5.2	.2	.3			1.4		.5									.9			
62	Morris Creek	14.4	%	70	2	2		--	25	--	--	--	--		--	--	--	1	--	--	A-,C-,M-,Q-,Y-	Creek marsh dominated by PW, AA and wild rice	VII
			A	10.1	.3	.3			3.6											.1			
63	Morris Creek	2.0	%	45	--		--	--	25	--	5	--	--		--	--	--	--	--	--	A25,D-,Y-	Marsh island formed on tidal flat	XI
			A	.9					.5		.1												
64	Morris Creek	.8	%	55	--	--	--	--	40	--	--	5	--	--	--	--	--	--	--	--	C-,D-,F-,Y-	Small pocket marsh mostly AA mixed with wild rice	VII
			A	.4					.3				--										
65	Morris Creek	6.7	%	60	5	4	1	--	15	--	--	5	--		--	--	--	10	--	--	D-,Y-	Creek marsh dominated by PW and AA	VII
			A	4.0	.3	.3	.1		.9				.3							.7			
66	Morris Creek	7.4	%	55	--	15	--	--	20		--	5		--	--	--	--	5	--	--	C-,F-,M-,Y-	Pocket marsh dominated by AA, cypress at mouth	VII
			A	4.1		1.1			1.5				.4							.4			

#	Marsh Location	Total Acres		Pickereelweed Arrow Arum	Saltmarsh Culgrass	Marsh Hibiscus	Giant Bulrush	Spikerush	Wild Rice	Smartweed	Jewelweed	Beggar's Ticks	Water Hemp	Soft Rush	Common Threesquare	Arrowhead	Cypress	Cattails	Swamp Rose	Tearthumb	Others	Observations	Marsh Type
67	Morris Creek	16.9	%	55	5	5	--	--	20	--	5	--	--	--	--	--	--	10	--	--	A-,D-,F-,M-, O-,R-,Y-	Creek marsh, AA with abundant wild rice	VII
			A	9.3	.8	.8			3.4		.8									1.7			
68	Morris Creek	29.6	%	65	5	--	--	--	15	--	10	--	--	--	--	--	--	5	--	--	D-,O-,Y-	Dominated by AA with wild rice, scattered cattails	VII
			A	19.2	1.5				4.4		3.0												
69	Morris Creek	40.4	%	60	--	5	--	--	20	--	10	--	--	--	--	--	--	5	--	--	C-,F-,M-,Y-	Creek marsh dominated by AA, stands of cattails	VII
			A	24.2		2.0			8.0		4.0												
70	Morris Creek	1.6	%	60	--	5	--	--	25	--	--	--	--	--	--	--	5	5	--	--	C-,Y-	Pocket marsh, AA mixed with cattails	VII
			A	1.0		.1			.4									.1	.1				
71	Morris Creek	70.2	%	45	5	20		--	15		10	--	--	--	--	--	--	5			A-,B-,K-,N-,R-	Extensive marsh, mostly AA	XI
			A	31.6	3.5	14.0			10.5		7.0												
72	Morris Creek	30.7	%	50	5	10	--	--	25	--	5	--	--	--	--	--	--	5	--	--	A-,O-,R-,Y-	Creek marsh and upstream pocket, mostly AA	VII
			A	15.4	1.5	3.1			7.7		1.5												
73	Morris Creek	9.2	%	45	--	--	--	--	30	--	--	--	--	--	--	--	--	25	--	--	A-,C-,F-,M-,Y-	AA mixed with wild rice, cattail and cypress	XI
			A	4.1					2.8														
74	Chicka- homyiny River	32.2	%	45	--	--	--	--	20	--	15	--	5	--	--	--	--	15			B-,M-,R-,Y-	PW and AA mixed with stands of cattails	XI
			A	14.5					6.4		4.8		1.6						4.8				



#	Marsh Location	Total Acres		Pickelweed Arrow Arum	Saltmarsh Cutgrass	Marsh Hibiscus	Giant Bulrush	Spikerush	Wild Rice	Smartweed	Jewelweed	Beggar's Ticks	Water Hemp	Soft Rush	Common Threesquare	Arrowhead	Cypress	Cattails	Swamp Rose	Tearthumb	Others	Observations	Marsh Type
75	Chickahominy River	23.8	%	45	--	10	--	--	10		20	5	5	--	--	--	5	--		--	B-,R-,Y-	Embayed marsh, mostly AA	XI
			A	10.7		2.4			2.4		4.8	1.2	1.2						1.2				
76	Ferry Point	3.0	%	35	5	15	--	--	10	--	20	5	10		--	--	--	--	--	--	C-,Y-	Pocket marsh, old dike partially across mouth	XI
			A	1.1	.2	.5			.3		.6	.2	.3										
77	Chickahominy River	15.4	%	35	5	15	--	--	5	--	20	--	20		--	--	--	--	--	--	C-,J-,N-,S-	Pocket marsh, mostly AA, berm across mouth	XI
			A	5.4	.8	2.3			.8		3.1		3.1										
78	Toma-hund Creek	7.3	%	50	--	2	--	--	40	--	2	--	5	--	--	--	--	1	--	--	B-,K-,Q-,Y-	Fringe marsh dominated by AA and wild rice	VII
			A	3.7		.1			2.9		.1		.4						.1				
79	Toma-hund Creek	15.8	%	50	--	3	--	--	40	--	5	--	1	--	--	--	--	1	--	--	N-,Q-,Y-	Creek marsh, AA mixed with wild rice	VII
			A	7.9		.5			6.3		.8		.2						.2				
80	Toma-hund Creek	7.2	%	60	--	--	--	--	20		10	--	--	--	--	--	--	10	--	--	N-,Q-,Y-	Dominated by AA, scattered cattails, hibiscus and wild rice	VII
			A	4.3					1.4		.7								.7				
81	Toma-hund Creek	1.7	%	50	1	--	1	--	40	--	5	--	--	--	--	--	--	3		--	M-,N-,Q-,Y-	Fringe marsh, mostly AA and wild rice	VII
			A	.9	--				.7		.1								.1				
82	Toma-hund Creek	.5	%	60	--	15	--	--	5	--	--	--	--	--	--	--	--	20	--	--	Y-	Small pocket marsh, mostly AA	VII
			A	.3		.1			--										.1				

#	Marsh Location	Total Acres		Pickereelweed Arrow Arum	Saltmarsh Cutgrass	Marsh Hibiscus	Giant Bulrush	Spikerush	Wild Rice	Smartweed	Jewelweed	Beggar's Ticks	Water Hemp	Soft Rush	Common Threesquare	Arrowhead	Cypress	Cattails	Swamp Rose	Tearthumb	Others	Observations	Marsh Type
83	Toma- hund Creek	1.7	%	55	--	5	--	--	30	--	--	--	--	--	--	--	--	10	--	--	J-,Y-	Creek marsh, mostly AA and wild rice	VII
			A	.9		.1			.5											.2			
84	Toma- hund Creek	1.5	%	45	--	2	--	--	35	--	3	--	--	--	--	--	--	15	--	--	M-,Y-	Creek marsh, mostly AA and wild rice	XI
			A	.7		--			.5		--									.2			
85	Toma- hund Creek	6.2	%	55	4	10			20		5	1						5			B-,M-	Creek marsh, mostly AA and wild rice	VII
			A	3.4	.2	.6			1.2		.3	.1								.3			
86	Toma- hund Creek	.6	%	60	5	5	--	--	20	--	10	--	--	--	--	--	--	--	--	--	B-,M-,Y-	Spit marsh dominated by AA and wild rice	VII
			A	.4	--	--			.1		.1												
87	Toma- hund Creek	3.8	%	55	10	10	--	--	10	--	15	--	--	--	--	--	--	--	--	--	B-,E-,M-,Q-,Y-	Creek marsh, grades to upland shrubs	VII
			A	2.1	.4	.4			.4		.6												
88	Toma- hund Creek	5.2	%	45	15	20	--	--	10	--	10	--	--	--	--	--	--	--	--	--	B-,C-,E-,M-,R-, Y-	Head of creek, mostly AA	XI
			A	2.3	.8	1.0			.5		.5												
89	Toma- hund Creek	4.4	%	55	5	5	1	--	30	--	--	1	--	--	--	--	--	3	--		M-,R-,Y-	Creek marsh, AA with abundant wild rice	VII
			A	2.4	.2	.2	--		1.3		--									.1			
90	Toma- hund Creek	2.6	%	60	5	15	2	--	15	--	1	--	--	--	--	--	--	--	--		B2,D-,L-,M-, R-,Y-	AA mixed with wild rice, hibiscus, cattail and giant bulrush	VII
			A	1.6	.1	.4	.1		.4		--												

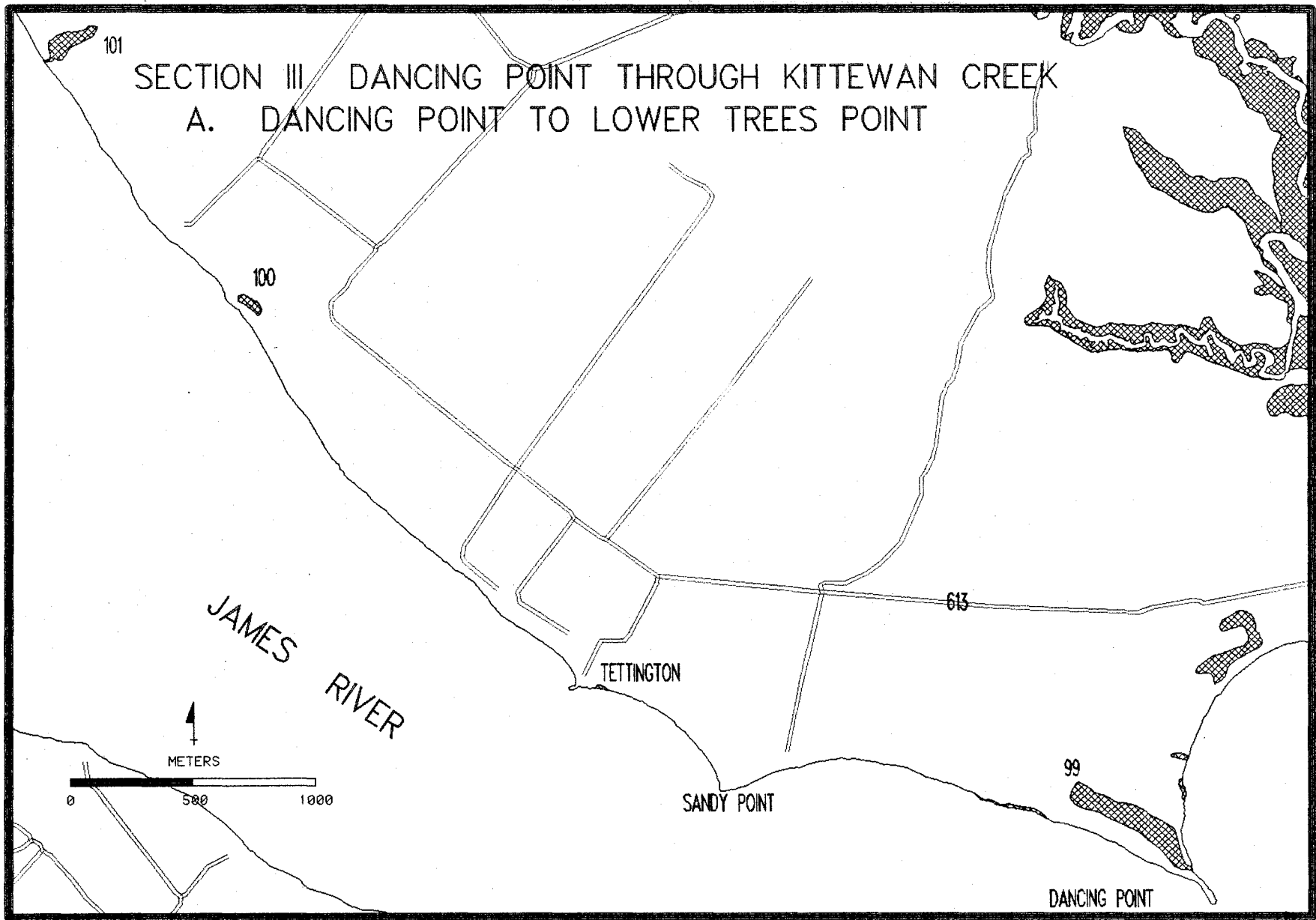
#	Marsh Location	Total Acres		Pickelweed Arrow Arum	Saltmarsh Culgrass	Marsh Hibiscus	Giant Buirush	Spikerush	Wild Rice	Smartweed	Jewelweed	Beggar's Ticks	Water Hemp	Soft Rush	Common Threesquare	Arrowhead	Cypress	Cattails	Swamp Rose	Tearthumb	Others	Observations	Marsh Type
91	Toma- hund Creek	6.3	%	45	--	5	--	--	35	--	5	--	--	--	--	--	--	10	--		D-,K-,M-,R-,Y-	AA with abundant wild rice, scattered hibiscus and cattails	XI
			A	2.8		.3				2.2		.3											
92	Toma- hund Creek	43.0	%	40	--	1	--	--	35	--	3	--	1		--	--	--	20			B-,D-,K-,M-, N-,R-,Y-	AA with wild rice, stands of cattails	XI
			A	17.2		.4				15.1		1.3		.4									
93	Toma- hund Creek	23.2	%	45	2	10	--	--	10	--	2	--	1		--	--	--	25	--		B-,C-,D-,M-, N5,O-,Y-	Dominated by AA, big cordgrass downstream	XI
			A	10.4	.5	2.3				2.3		.5		.2								N1.2	
94	Toma- hund Creek	4.6	%	45	1	3	--	--	--	1	2	--	--		--	--	--	45	--		B-,C-,D-,M-, N3,Y-	Pocket marsh, AA with abundant cattails	XI
			A	2.1	--	.1				--	--	.1										N.1	
95	Toma- hund Creek	35.6	%	45	--	10	--	--	--	--	5	--	--		--	--	--	10	--		C-,D-,M-,N30, R-,Y-	AA mixed with big cordgrass	XI
			A	16.0		3.6						1.8										N10.7	
96	Toma- hund Creek	79.1	%	30	--	15	--	--	--	--	5	--	--		--	--	--	10	--		B-,D-,E-,M-, N40,R-,Y-	AA mixed with big cordgrass	XI
			A	23.7		11.9						4.0										N31.6	
97	Toma- hund Creek	53.2	%	40	--	30	--	--	10	--	--	--	3		--	--	--	5	--		B2,C-,D-,E-,Y- F-,M-,N10,R-	AA mixed with hibiscus and wild rice	XI
			A	21.3		16.0				5.3				1.6								B1.1,N5.3	
98	Chicka- hominy River	6.4	%	30	--	5	--	--	--	--	15	--	--		--	--	30	20	--		B-,C-,D-,E-,M-, Y-	Pocket marsh with berm in front, swamp invaded	XI
			A	1.9		.3						1.0							1.9	1.3			

#	Marsh Location	Total Acres		Pickereelweed Arrow Arum	Saltmarsh Cutgrass	Marsh Hibiscus	Giant Bulrush	Spikerush	Wild Rice	Smartweed	Jewelweed	Beggar's Ticks	Water Hemp	Soft Rush	Common Threesquare	Arrowhead	Cypress	Cattails	Swamp Rose	Tearthumb	Others	Observations	Marsh Type	
T	Total Section II	887.7	%	49	2	9	--		17		7	1	1		--		1	7			6			
			A	436.1	17.9	75.1	.2		151.5		64.7	5.2	10.0		.3		5.4	64.7				56.3		
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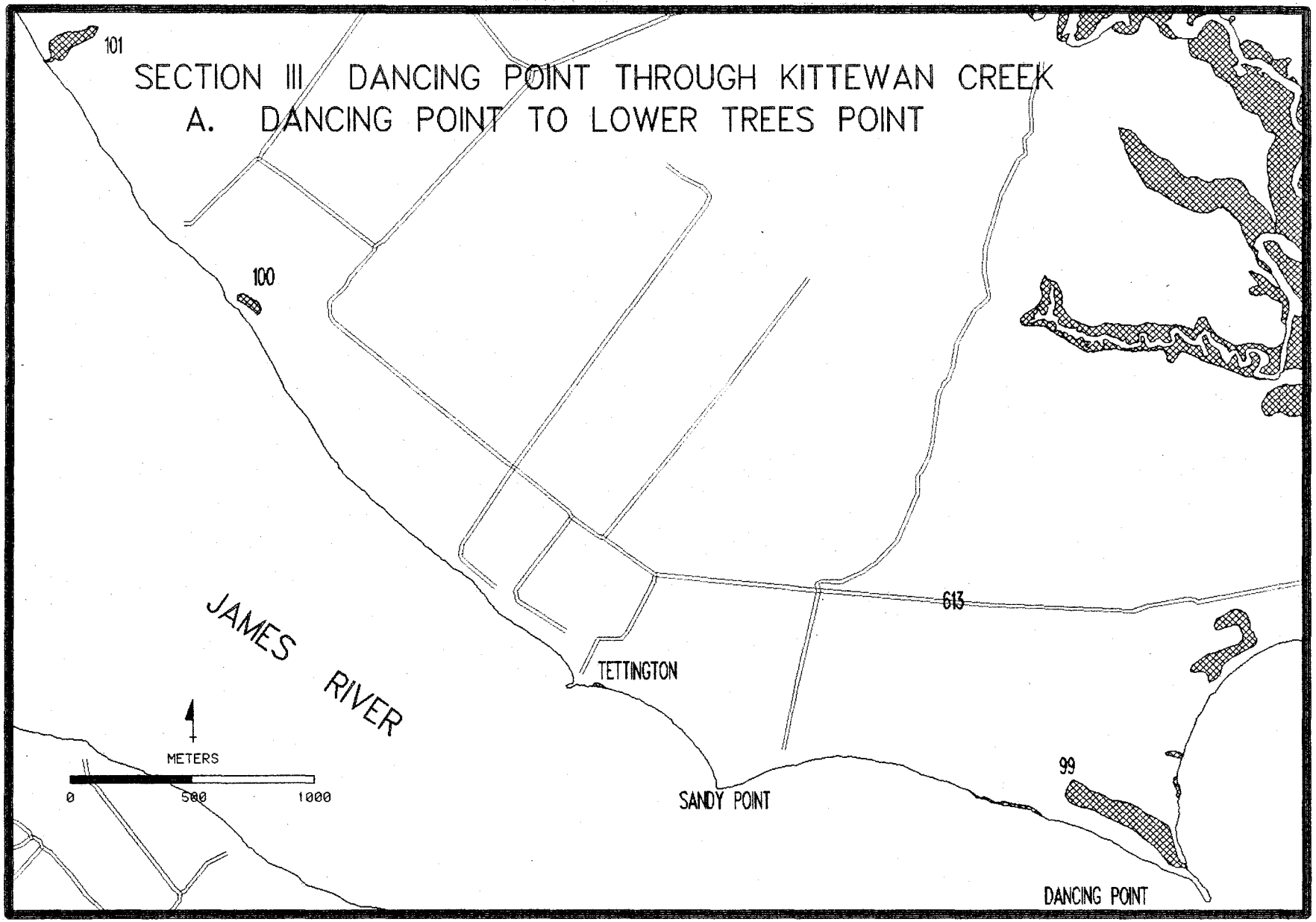
### **Section III**

#### **Dancing Point to Kittewan Creek**

This section includes a large section of Charles City shoreline which borders the James River upstream from the Chickahominy River. Because of the strong wave and tidal current action of the James River, few freshwater marshes are able to exist along the shoreline itself. Instead they are found in various creek and pocket marsh areas with long stretches of nonvegetated wetlands between. They total approximately 440 acres or 10 percent of the tidal marsh in the county. Longshore transport of sediments eroded from upland banks along the river create beach areas which restrict flushing to many of the small pocket marshes. Most of these marshes are, however, flooded irregularly at highest tidal levels and therefore would be considered tidal wetlands by Virginia's definition. Those with a more substantial beach berm that appeared to limit tidal flushing completely were excluded from this inventory.



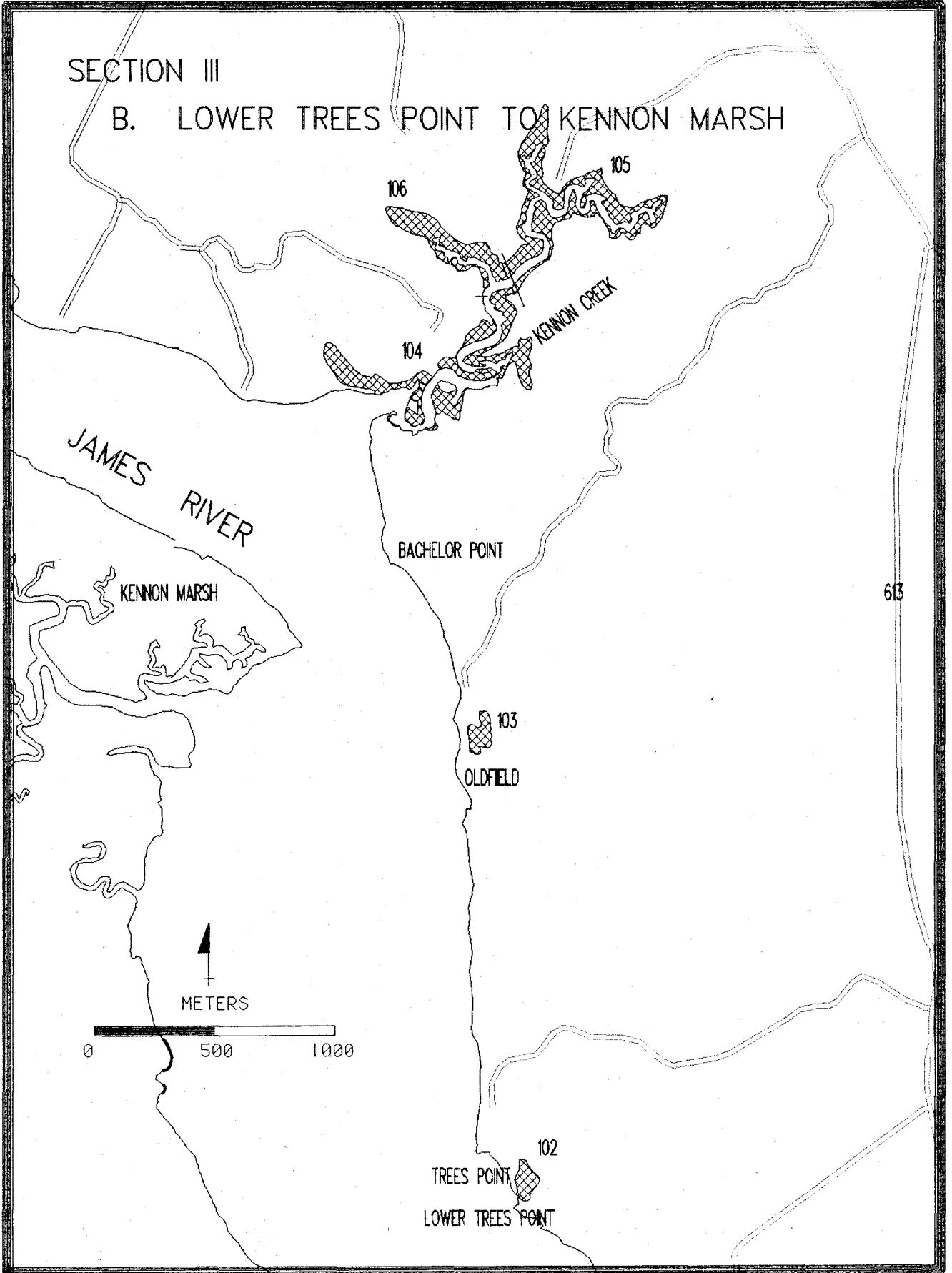






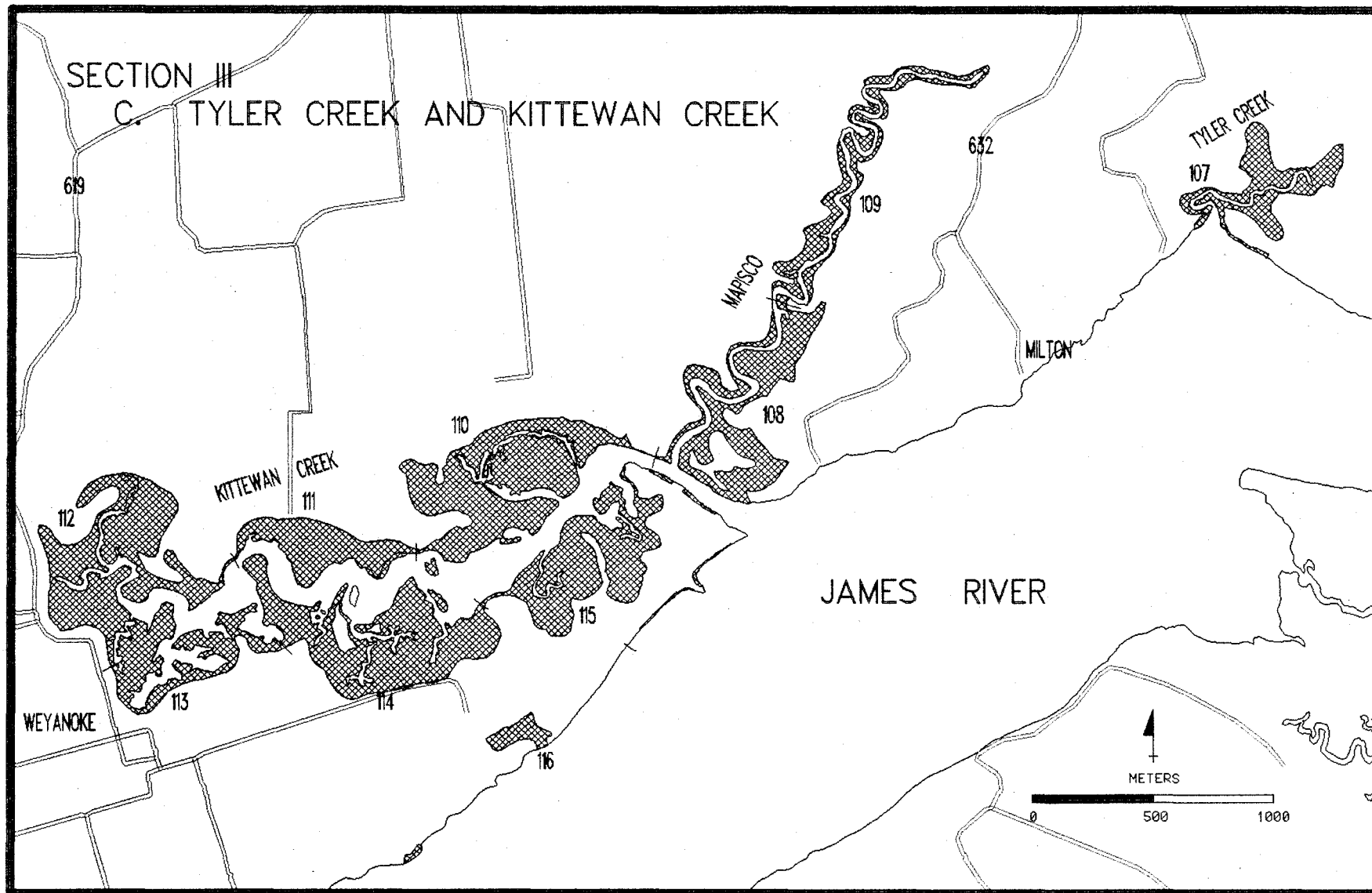
SECTION III

B. LOWER TREES POINT TO KENNON MARSH



45

63



### III. Dancing Point to Kittewan Creek.

#	Marsh Location	Total Acres		Pickelweed Arrow Arum	Saltmarsh Cutgrass	Marsh Hibiscus	Giant Bulrush	Spikerush	Wild Rice	Smartweed	Jewelweed	Beggar's Ticks	Water Hemp	Soft Rush	Common Threesquare	Arrowhead	Cypress	Cattails	Swamp Rose	Teartthumb	Others	Observations	Marsh Type
99	Dancing Point	8.7	%	45	--	25	--	--	--	--	5	5	15	--	--	--	--	5	--	--	E-,M-,R-,Y-	Large pocket marsh, road across front	XI
			A	3.9		2.2						.4	.4	1.3									
100	James River	1.1	%	70	2	3	--	--		--	20	--	--		--	--	5	--	--		F-,M-	Pocket marsh open to river via narrow channel	VII
			A	.8	--	--						.2						.1					
101	James River	3.4	%	50	5	--	--	--	25		10	--	--	--	--	--	10	--	--	--	C-,F-,M-,T-,Y-	Pocket marsh surrounded by swamp	VII
			A	1.7	.2					.9		.3						.3					
102	Lower Trees Point	2.7	%	60	--	15	--	--	5	--	10	--	--		--	--	10	--	--	--	B-,C-,Y-	Marsh surrounded by cypress swamp	VII
			A	1.6		.4				.1		.3						.3					
103	Oldfield	2.9	%	55		--	--		--	--	--	--	--	--	--	--	15	15	--	10	C5,F-,Y-	Pocket marsh open to river via narrow channel	VII
			A	1.6														.4	.4		.3		
104	Kennon Creek	21.5	%	60	--	5	--	--	--	--	10	--	--	--	--	--	20	5	--	--	C-,D-,E-,F-,M-,Y-	Mostly AA grading to areas of cypress	VII
			A	12.9		1.1						2.2						4.3	1.1				
105	Kennon Creek	24.2	%	55	5	15	--	--	5	--	5	--	--	--	--	--	10	5	--	--	C-,D-,Y-	Head of creek dominated by AA mixed with wild rice	VII
			A	13.3	1.2	3.6			1.2		1.2							2.4	1.2				
106	Kennon Creek	10.2	%	60	--	3	--	--	--	--	20	--	--	--	--	--	15	2	--	--	C-,D-,E-,N-,Y-	Mostly AA with scattered cypress	VII
			A	6.1		.3						2.0						1.5	.2				

#	Marsh Location	Total Acres		Pickeralweed Arrow Arum	Saltmarsh Cutgrass	Marsh Hibiscus	Giant Bulrush	Spikerush	Wild Rice	Smartweed	Jewelweed	Beggar's Ticks	Water Hemp	Soft Rush	Common Threesquare	Arrowhead	Cypress	Cattails	Swamp Rose	Tearthumb	Others	Observations	Marsh Type
107	Tyler Creek	25.4	%	50	2	15	-	-	3	-	15	-	-	-	-	-	15	-	-	-	C-,D-,E-,F-, M-,R-,Y-	Creek marsh, cypress at marsh, interior AA	VII
			A	12.7	.5	3.8			.8		3.8								3.8				
108	Mapisco Creek	43.1	%	60	--	5	--	--	5	--	10	--	--	--	--	--	20	--	--	--	C-,E-,F-,M-,R-, Y-	Creek marsh dominated by AA, grades to swamp	VII
			A	25.9		2.2			2.2		4.3								8.6				
109	Mapisco Creek	23.6	%	55	--	15	--	--	5	--	10	--	--	--	--	--	15	--	--	--	C-,F-,M-,R-,Y-	Head of creek, grades to swamp	VII
			A	13.0		3.5			1.2		2.4								3.5				
110	Kittewan Creek	64.8	%	60	5	--	--	--	5	--	15	--	--	--	--	--	10	5	--	--	D-,E-,F-,M-, N-,R-,Y-	Large embayed marsh dominated by AA	VII
			A	38.9	3.2				3.2		9.7								6.5	3.2			
111	Kittewan Creek	22.3	%	50	10	2	1	--	5	--	2	5	--	--	1	--	15	5	--	--	B-,C2,D-,E-, F-,M-,R2,Y-	Dominated by AA, scattered cypress stands	VII
			A	11.2	2.2	.4	.2		1.1		.4	1.1				.2			3.3	1.1			
112	Kittewan Creek	52.7	%	50	10	3	2	--	3	--	5	--	--	--	--	--	10	2	--	--	B-,C15,D-,E-, F-,M-,R-,Y-	Marsh grades to swamp of cypress and gum	VII
			A	26.4	5.3	1.6	1.1		1.6		2.6								5.3	1.1			
113	Kittewan Creek	25.6	%	50	5	3	--	--	20	--	5	--	--	--	--	--	10	2	--	--	B-,C5,D-,E-,F-, M-,R-,U-,V-,Y-	Dominated by AA with scattered cypress stands	VII
			A	12.8	1.3	.8			5.1		1.3								2.6	.5			
114	Kittewan Creek	55.9	%	55	--	--	--	--	5	--	5	--	--	--	--	--	15	20	--	--	B-,C-,D-,E-,F-, M-,R-,Y-	Dominated by AA with abundant cattails	VII
			A	30.7					2.8		2.8								8.4	11.2			

#	Marsh Location	Total Acres		Pickereelweed Arrow Arum	Saltmarsh Cutgrass	Marsh Hibiscus	Giant Bulrush	Spikerush	Wild Rice	Smartweed	Jewelweed	Beggar's Ticks	Water Hemp	Soft Rush	Common Threesquare	Arrowhead	Cypress	Cattails	Swamp Rose	Tearthumb	Others	Observations	Marsh Type	
115	Kittewan Creek	46.7	%	55	5	5	--	--	5	2	--	3	--	--	--	--	15	5	--		A-, B5, C-, F-, M-, R-, V-	Dominated by AA with cypress, button bush	VII	
			A	25.7	2.3	2.3			2.3	.9		1.4							7.0	2.3				
116	James River	4.5	%	55	--	2	--	--	5	5	--	5	--	--	--	--		20	5	--	--	B3, E-, F-, M-, R-, Y-	Pocket marsh surrounded by swamp	VII
			A	2.5		.1			.2	.2		.2							.9	.2				
T	Total Section III	439.3	%	55	4	5	--		5	--	8	1	--		--			13	5		--	3		
			A	241.7	16.2	22.3	1.3		22.7	1.1	33.9	3.1	1.3		.2			59.2	22.9		.3	12.5		
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## **Section IV**

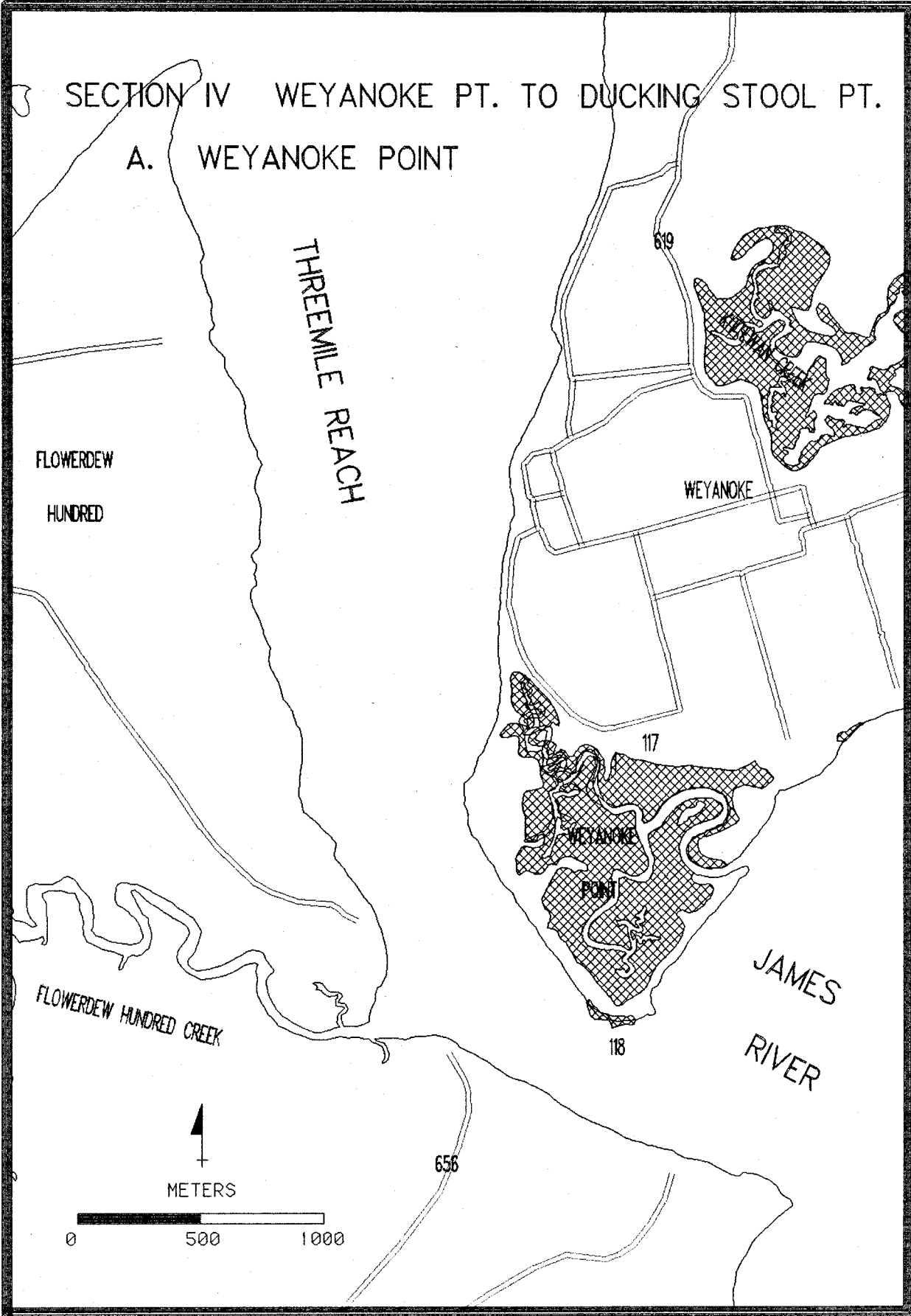
### **Weyanoke Point to Ducking Stool Point**

Tidal marsh areas along this reach of James River shoreline are restricted to three large creek marsh systems. They comprise 665 acres or 16 percent of the county's total. All of the marsh areas are dominated by freshwater marsh vegetation consisting of arrow arum/pickerelweed communities (Type VII). These open marsh zones are, however, interspersed with both tidal and non-tidal swamp forest areas. In the most landward sections of the marshes sediments trapped by the vegetation are gradually raising the elevation allowing swamp species to predominate. In most cases the balance between sea-level rise and sediment accumulation will determine the surface elevation and therefore the type of vegetation present.

Presently these marshes are not being directly impacted by man; however, there is some evidence of previous manipulation by man for agriculture and other activities. Herring Creek was once the site of attempts at rice culture, and the remnants of dikes used to limit tidal inundation are still present. Many areas of swamp have also been extensively logged, resulting in few old stands of bald cypress or other swamp trees. Other areas have been dammed to provide wintering waterfowl habitat.

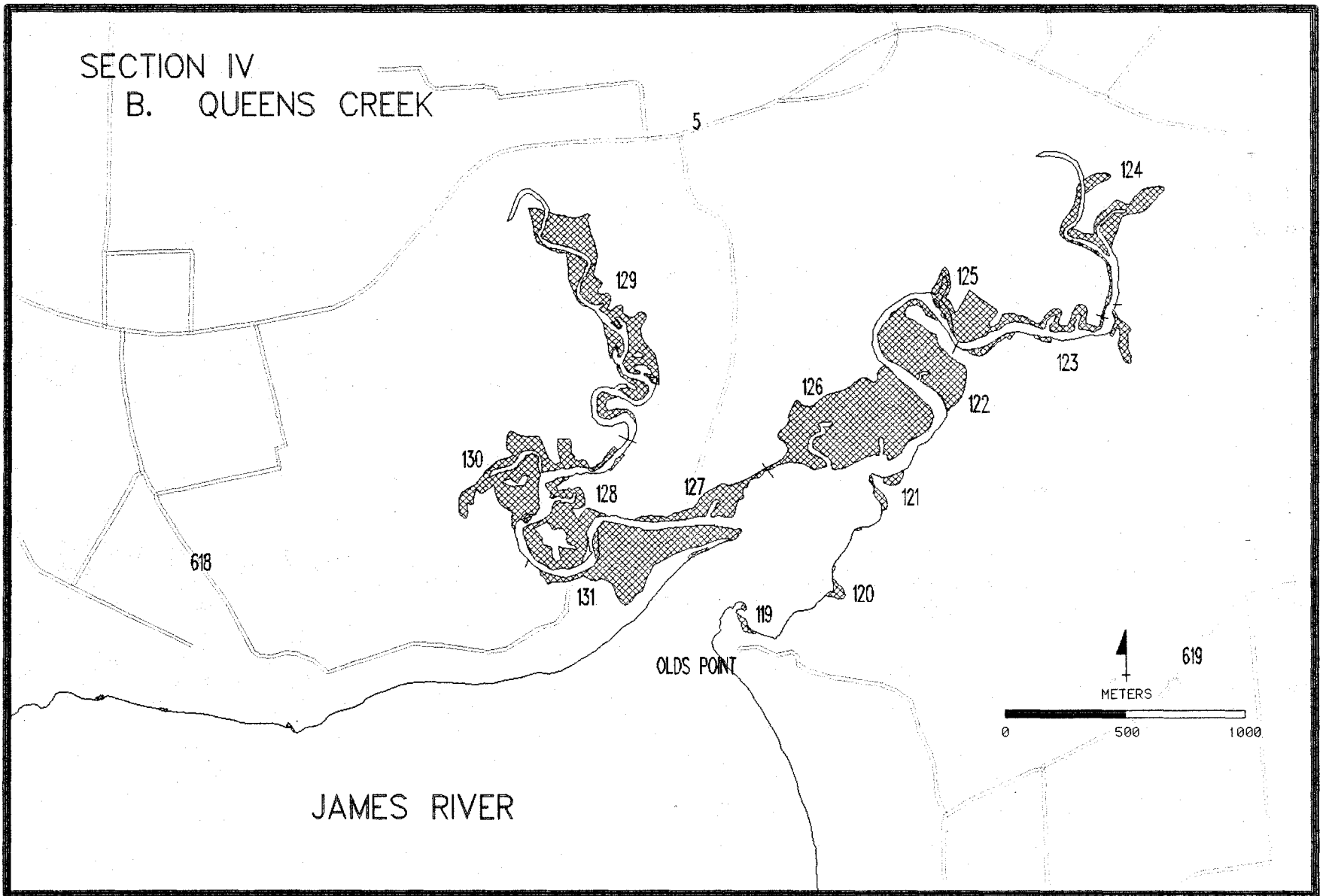
SECTION IV WEYANOKE PT. TO DUCKING STOOL PT.

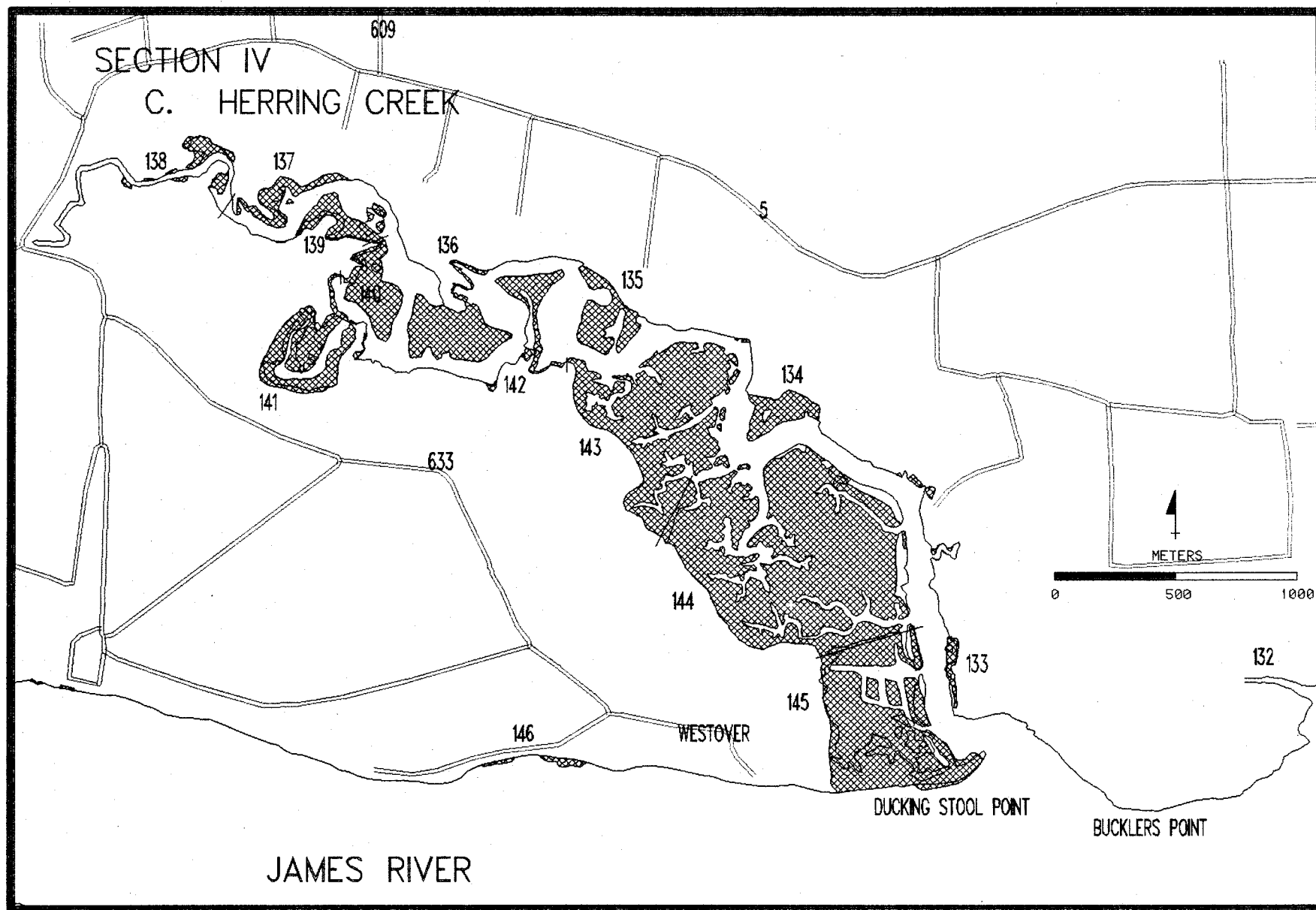
A. WEYANOKE POINT





SECTION IV  
B. QUEENS CREEK





#### IV. Weyanoke Point to Ducking Stool Point.

#	Marsh Location	Total Acres		Pickereelweed Arrow Arum	Saltmarsh Cutgrass	Marsh Hibiscus	Giant Bulrush	Spikerush	Wild Rice	Smartweed	Jewelweed	Beggar's Ticks	Water Hemp	Soft Rush	Common Threesquare	Arrowhead	Cypress	Cattails	Swamp Rose	Tearthumb	Others	Observations	Marsh Type
117	Weyanoke Point	147.0	%	60	5	--	--	--	20	5	5	5	--	--	--	--	--	--	--	--	A-,C-,D-,E-,F-, G-,H-,J-,K-,M-	T-,W-,Y- Large creek marsh, mostly AA	VII
			A	88.2	7.4				29.4	7.4	7.4	7.4											
118	Weyanoke Point	1.0	%	80	5	--	--	--	10	--	5	--	--	--	--	--	--	--	--	--	A-,G-,J-,K-,M-	Fringe marsh dominated by AA grades to cypress	VII
			A	.8	.1				.1		.1												
119	Olds Point	.5	%	80	5	--	--	--	--	--	15	--	--	--	--	--	--	--	--	--	D-,F-,M-,Y-	Fringe grades to cypress, swamp behind swamp	VII
			A	.4	--						.1												
120	Queens Creek	.8	%	55	--	--	--	--	40	--	5	--	--	--	--	--	--	--	--	--	Y-	Pocket marsh dominated by AA and wild rice	VII
			A	.4					.3		--												
121	Queens Creek	.5	%	65	5	--	--	--	10	--	10	5	--	--	--	--	5	--	--	--	C-,D-,F-	Fringe marsh dominated by AA	VII
			A	.3	--				.1		.1	--											
122	Queens Creek	17.7	%	55	5	5	--	--	15	--	15	--	3	--	--	--	--	--	--	--	C-,D-,E2,F-, M-,R-,Y-	Creek marsh dominated by AA	VII
			A	9.7	.9	.9			2.7		2.7			.5									
123	Queens Creek	2.0	%	70	--	--	--	--	10	--	15	--	--	--	--	--	--	--	--	--	A-,B-,C5,D-, E-,F-,M-,R-,Y-	Fringe marsh dominated by AA	VII
			A	1.4					.2		.3												
124	Queens Creek	9.0	%	60	5	--	--	--	10	--	10	5	5	--	--	--	--	2	--	--	A3,C-,D-,E-, F-,M-,R-,Y-	Dominated by AA, grades to swamp	VII
			A	5.4	.5				.9		.9	.5	.5										

#	Marsh Location	Total Acres		Pickereelweed Arrow Arum	Saltmarsh Cutgrass	Marsh Hibiscus	Giant Bulrush	Spikerush	Wild Rice	Smartweed	Jewelweed	Beggar's Ticks	Water Hemp	Soft Rush	Common Threesquare	Arrowhead	Cypress	Cattails	Swamp Rose	Tearthumb	Others	Observations	Marsh Type
125	Queens Creek	10.6	%	60	--	--	--	--	15	--	10	--	--	--	--	--	--	--	--	--	A10,C5,D-,E-, F-,M-,R-,Y-	YPL along channels, marsh dominated by AA	VII
			A	6.4						1.6		1.1											
126	Queens Creek	42.3	%	65	--	--	--	--	20	--	5	5	--	--	--	--	5	--	--	--	A-,B-,C-,D-, E-,F-,M-,R-,Y-	Dominated by AA with abundant wild rice	VII
			A	27.5						8.5		2.1	2.1					2.1					
127	Queens Creek	5.1	%	65	--	--	--	--	25	--	5	--	5	--	--	--	--	--	--	--	B-,C-,D-,E-, F-,M-,R-,Y-	Dominated by AA with abundant wild rice	VII
			A	3.3						1.3		.3		.3									
128	Gunns Run	12.4	%	45	3	5	--	--	20	--	10	--	1	--	--	--	10	1	--	--	C-,D-,E5,F-, J-,M-,R-,Y-	Dominated by AA mixed with cypress stands	XI
			A	5.6	.4	.6				2.5		1.2		.1				1.2	.1				
129	Gunns Run	20.4	%	55	3	4	--	--	20	--	5	3	2	--	--	--	--	1	--	1	C5,D-,E-,F1, M-,R-,Y-	Dominated by AA grades to swamp	VII
			A	11.2	.6	.8				4.1		1.0	.6	.4					.2				
130	Gunns Run	17.9	%	60	--	1	--	--	15	--	10	5	2	--	--	--	5	--	--	--	B-,C-,D-,E2,Y-, F-,J-,M-,N-,R-	Creek marsh mixed with cypress and gum	VII
			A	10.7		.2				2.7		1.8	.9	.4				.9					
131	Gunns Run	22.8	%	95	--	5	--	--	5	--	15	--	--	--	--	--	10	--	--	--	B-,C-,D-,E5,F-, J-,M-,N15,R-	Dominated by AA, scattered swamp species	VII
			A	10.3		1.1				1.1		3.4						2.3					
132	Gunns Run	1.0	%	60	--	--	--	--	5	--	15	--	--	--	--	--	--	20	--	--	E-,F-,J-,M-,R-, Y-	Pocket marsh dominated by AA	VII
			A	.6						.1		.2							.2				

#	Marsh Location	Total Acres		Pickelweed Arrow Arum	Saltmarsh Cutgrass	Marsh Hibiscus	Giant Buirush	Spikerush	Wild Rice	Smartweed	Jewelweed	Beggar's Ticks	Water Hemp	Soft Rush	Common Threesquare	Arrowhead	Cypress	Cattails	Swamp Rose	Tearthumb	Others	Observations	Marsh Type	
133	Herring Creek	1.9	%	100	--		--		--	--	--	--	--			--						Y-	AA fringe borders swamp of gum and cypress	VII
			A	1.9																				
134	Herring Creek	6.2	%	65	1	3	--	--	3	--	20	--	--	--	--	--	2	5	--	--		C-,D-,E1,F-, M-,Y-	Dominated by AA, cattails in interior	VII
			A	4.0	.1	.2					.2		1.2					.1	.3					
135	Herring Creek	11.7	%	50	--	--	--	--	--	--	25	25	--	--	--	--	--	--	--	--		C-,E-,M-,Y-	Dominated by AA with overstory of bidens	VII
			A	5.9								2.9	2.9											
136	Herring Creek	18.8	%	65	10	--	--	--	--	4	10	5	2	--	--	--		--	--	--		C1,D-,E3,V-,Y-	Dominated by AA grades to interior of swamp	VII
			A	12.2	1.9						.8	1.9	.9	.4										
137	Herring Creek	6.0	%	55	10	--	--	--	5	10	--	--	--	--	--	--		--	--	--		C-,D-,E-,M-, V20,Y-	Dominated by AA with abundant millet	VII
			A	3.3	.6					.3	.6													
138	Herring Creek	5.2	%	50	10	--	--	--	--	10	10	5	5	--	--	--		--	--	--		C-,D-,E-,F-,K-, M-,R-,V10,W-	Y- Dominated by AA grades to swamp	VII
			A	2.6	.5						.5	.5	.3	.3										
139	Herring Creek	8.0	%	60	15	--	--	--	--	10	--	--	--	--	--	--		--	--	--		C-,D-,E-,F-, M-,V15,Y-	Creek marsh dominated by AA	VII
			A	4.8	1.2						.8													
140	Herring Creek	12.5	%	45	10	--	--	--	--	10	--	25	--	--	--	--		--	--	--		C-,E-,M-,R-, V10,Y-	Dominated by AA with overstory of bidens	XI
			A	5.6	1.3						1.3		3.1											

#	Marsh Location	Total Acres		Pickrelweed Arrow Arum	Saltmarsh Cutgrass	Marsh Hibiscus	Giant Bulrush	Spikerush	Wild Rice	Smartweed	Jewelweed	Beggar's Ticks	Water Hemp	Soft Rush	Common Threesquare	Arrowhead	Cypress	Cattails	Swamp Rose	Teartthumb	Others	Observations	Marsh Type
141	Herring Creek	16.9	%	50	15	--	--	--	--	--	3	30	1	--	--	--		--	--	--	C-,D-,E-,F-, M-,R-,V1,Y-	Cove marsh dominated by AA	VII
			A	8.5	2.5							.5	5.1	.2									
142	Herring Creek	8.3	%	55	10	--	--	--	--	--	10	15	--		--	--		--	--	--	C10,D-,E-,F-, M-,V-,W-,Y-	Creek marsh dominated by AA	VII
			A	4.6	.8							.8	1.2										
143	Herring Creek	62.8	%	50	5	--	--	--	15	--	15	5	5		--	--	--	--	--	5	B-,C-,D-,E-, F-,J-,M-,R-,Y-	Dominated by AA, overstory of bidens	VII
			A	31.4	3.1					9.4		9.4	3.1	3.1									
144	Herring Creek	125.8	%	50	5	1	--	--	10	--	20	--	2	--		--	--	2	--	5	B-,C2,D-,E1, M2,R-,T-,X-	Dominated by AA, berm with trees	VII
			A	62.9	6.3	1.3			12.6		25.2		2.5						2.5		6.3		
145	Ducking Stool Point	57.7	%	75		--	--		20	--	--	--	--		--	--	--	--	--	--	C5,E-,R-,Y-	Dominated by AA with areas of wild rice	VII
			A	43.3					11.5														
146	James River	2.3	%	50	--	--	--		35	--	10		--	--	--	--	--	5	--	--	D-,E-,F-,Y-	Marsh fringe, PW and WR areas	VII
			A	1.2					.8		.2								.1				
	Total Section IV	655.1	%	57	4	1			14	2	10	4	1				1	1		1	4		
			A	374.4	28.2	5.1			90.4	11.4	65.3	28.1	8.7					6.6	3.6		9.6	24.4	
			%																				
			A																				

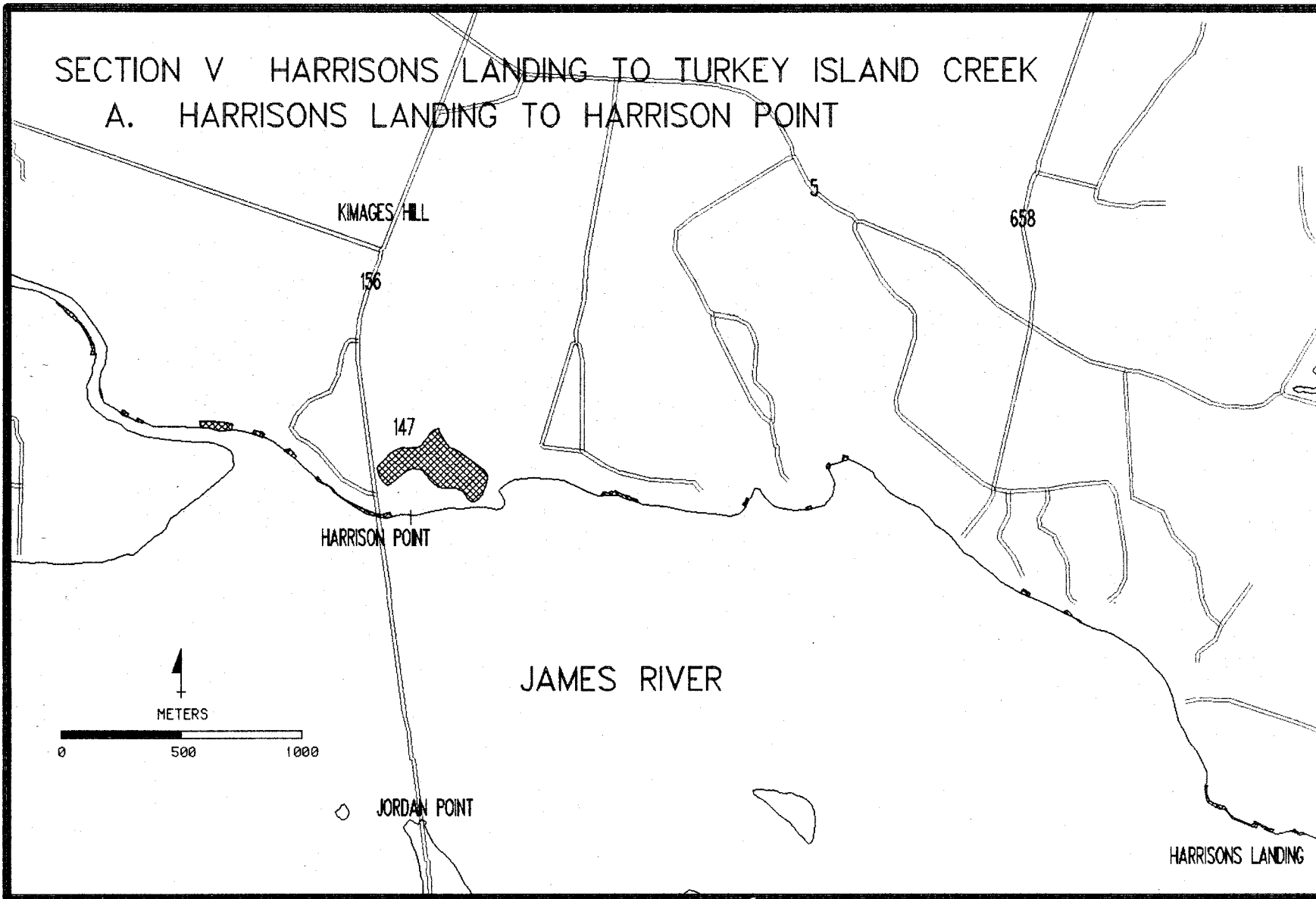
## **Section V**

### **Harrisons Landing to Turkey Island Creek**

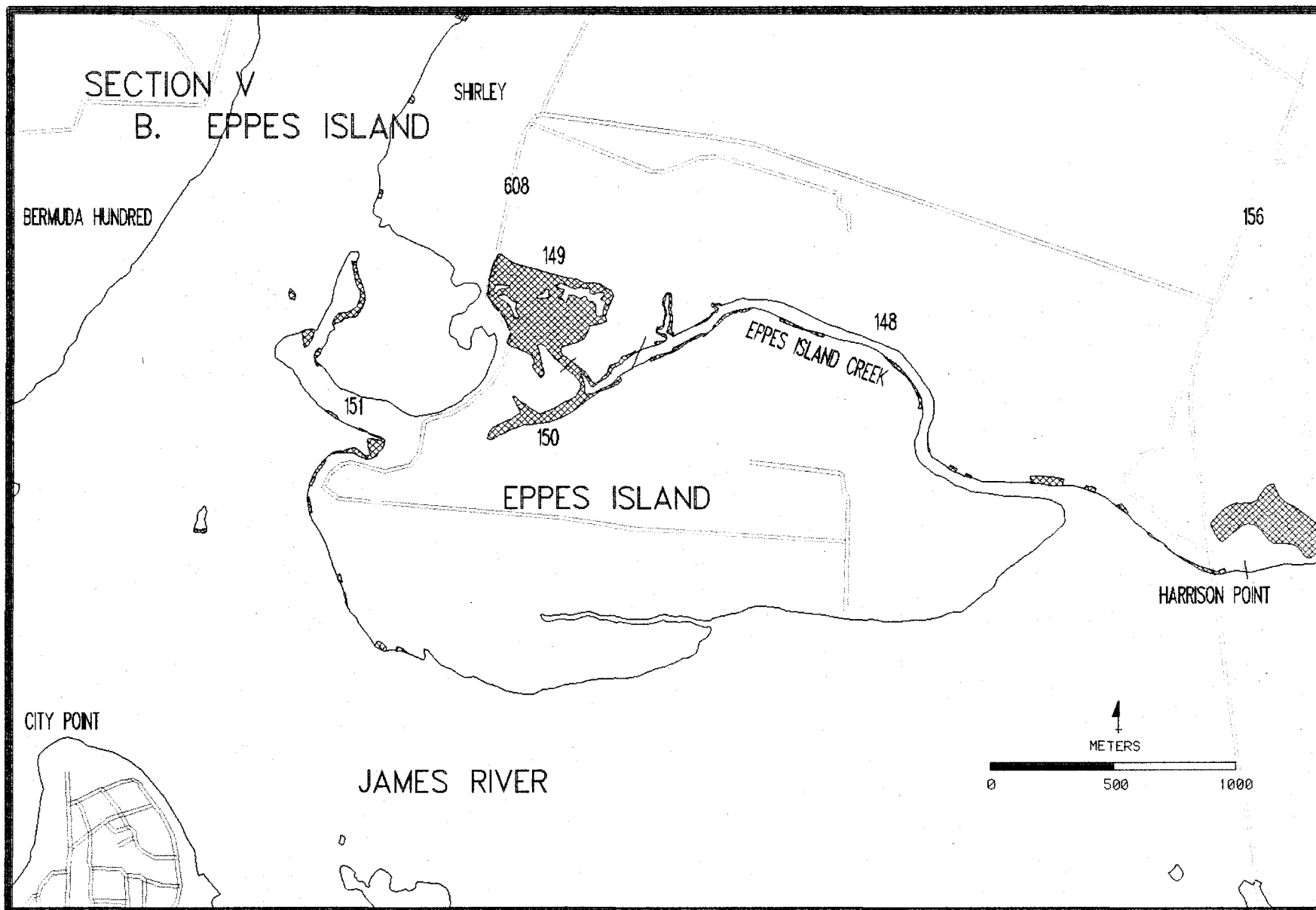
This reach of shoreline is largely unvegetated except for several pocket and creek marsh areas and contains only 87 acres or 2 percent of the total county acreage. As with most of the tidal marsh in Charles City County, arrow arum/pickerelweed community (Type VII) predominates. In some areas, however, the abundance of this community falls below 50 percent, and the marsh community is then classified as freshwater mixed (Type XI). Small fringe areas of freshwater marsh vegetation are scattered along the remaining James River shoreline, although individually they are less than one-quarter acre in size and therefore are not included in the marsh total. For illustration, they are drawn in exaggerated scale on the map plates.

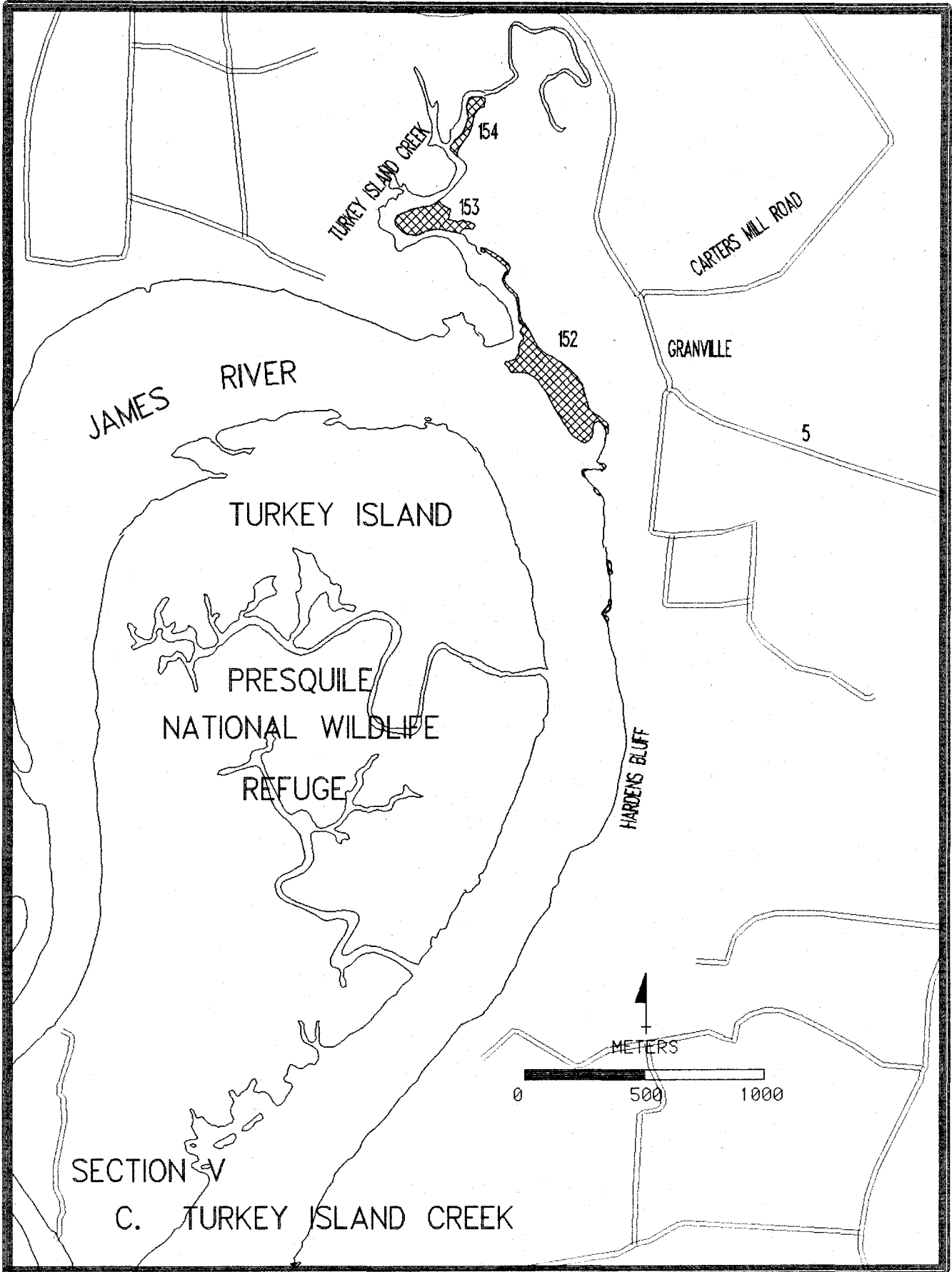
The Eppes Creek area marks the most significant gravel mining area along the Charles City shoreline. Gravel deposits laid down by the ancestral James River are today buried under more recent deposits of silts and clays that have formed as the ancestral James River was drowned by sea-level rise. Swamp forest and tidal marsh vegetation is today found growing over these deposits, and mining or dredging of the gravel requires the destruction of the overlying vegetation. Many wetland areas in the upper James such as the Eppes Creek area have been historically impacted by these mining activities. Today, however, wetlands legislation provides a review process where the economic gains of the sand and gravel mining may be balanced against the loss of the valuable wetland habitat.

SECTION V HARRISONS LANDING TO TURKEY ISLAND CREEK  
A. HARRISONS LANDING TO HARRISON POINT









SECTION V

C. TURKEY ISLAND CREEK

## V. Harrisons Landing to Turkey Island Creek.

#	Marsh Location	Total Acres		Pickelweed Arrow Arum	Saltmarsh Cutgrass	Marsh Hibiscus	Giant Bulrush	Spikerush	Wild Rice	Smartweed	Jewelweed	Beggar's Ticks	Water Hemp	Soft Rush	Common Threesquare	Arrowhead	Cypress	Cattails	Swamp Rose	Tearthumb	Others	Observations	Marsh Type
147	Harrison Point	15.2	%	30	15	25	--	--	--	--	--	10	--	--	--	--	--	5	--	--	C-,D-,E-,T5, R-,Y10	Pocket marsh dominated by AA	XI
			A	4.6	2.3	3.8							1.5										
148	Eppes Creek	1.0	%	30	--	--	--	--	5	20	30	5	--	--	--	--	--	--	--	5	A-,B-,C-,F5, V-,Y-	Narrow fringe grades to woods	XI
			A	.3						.1	.2	.3	.1										
149	Eppes Creek	32.5	%	40	15	--	--	--	5	5	10	5	--	--	--	2	--	3	--	10	B-,C-,D-,E-,F-, K-,M-,R-,T5,Y-	Dominated by AA, surrounded by swamp	XI
			A	13.0	4.9					1.6	1.6	3.3	1.6				.7		1.0		3.3		
150	Eppes Creek	7.0	%	60	--	--	--	--	35	5	--	--	--	--	--	--	--	--	--	--	B-,C-,D-,F-, M-,R-,T-,Y-	Pocket marsh at head of creek	VII
			A	4.2					2.5	.4													
151	Eppes Island	.5	%	45	--	--	--	--	35	--	5	--	--	--	--	--	--	--	--	--	D-,E-,F15,R-, Y-	Small fringe and pocket marsh	XI
			A	.2					.2			--											
152	James River	15.9	%	50	10	--	--	--	5	5	5	15	--	--	--	--	--	--	--	--	C-,D-,E-,M-,F-, R-,T5,V5,Y-	Dominated by AA, overstory of bidens	VII
			A	7.9	1.6					.8	.8	.8	2.4										
153	Turkey Island Creek	6.6	%	50	5	--	--	--	5	15	15	5	--	--	--	--	--	5	--	--	C-,D-,E-,M-,F-, R-,T-,V-,Y-	Dominated by AA and PW, overstory of bidens	VII
			A	3.3	.3					.3	1.0	1.0	.3						.3				
154	Turkey Island Creek	3.7	%	50	5	--	--	--	--	5	25	10	--	--	--	--	--	--	--	--	B-,C-,D-,E-, M-,R-,T-,V-,Y-	Dominated by AA, overstory of bidens	VII
			A	1.9	.2						.2	.9	.4										

#	Marsh Location	Total Acres		Pickereelweed Arrow Arum	Saltmarsh Cutgrass	Marsh Hibiscus	Giant Bulrush	Spikerush	Wild Rice	Smartweed	Jewelweed	Beggar's Ticks	Water Hemp	Soft Rush	Common Threesquare	Arrowhead	Cypress	Cattails	Swamp Rose	Tearthumb	Others	Observations	Marsh Type
T	Total Section V	82.4	%	43	11	5			7	5	8	8				1		3		4	7		
			A	35.4	9.3	3.8				5.5	4.2	6.3	6.3				.7		2.1		3.4	5.7	
GT	GRAND TOTAL	4037.1	%	53	5	4	--		10	--	9	3	1		--	--	5	3		--	6		
			A	2153.3	205.3	145.7	1.5			411.0	16.7	351.0	107.2	29.6		.8	.7	212.4	132.2		13.7	255.3	
			%																				
			A																				
			%																				
			A																				
			%																				
			A																				
			%																				
			A																				

### Charles City County: Others List

- |    |                       |    |                     |
|----|-----------------------|----|---------------------|
| A. | Yellow Pond Lily      | N. | Big Cordgrass       |
| B. | Reedgrass             | O. | Marsh Fleabane      |
| C. | Black Gum             | P. | Saltmarsh Aster     |
| D. | Ironweed              | Q. | Climbing Hempweed   |
| E. | Button Bush           | R. | Milkweed            |
| F. | Water Willow          | S. | Saltmarsh Cordgrass |
| G. | Marsh Mallow          | T. | Sedge               |
| H. | Wax Myrtle            | U. | Swamp Dogwood       |
| I. | Fern                  | V. | Walters Millet      |
| J. | Soft Stem Rush        | W. | Cardinal Flower     |
| K. | Dodder                | X. | Nut Grass           |
| L. | Saltmarsh Loosestrife | Y. | Waterdock           |
| M. | Water Parsnip         |    |                     |



## Index to Marsh Locations

Bachelors Point . . . . .	45	Matahunk Neck . . . . .	22
Barrows Creek . . . . .	22	Milton . . . . .	46
Big Marsh Point . . . . .	23	Morris Creek . . . . .	24,32
Buckland Creek . . . . .	53	Oldfield . . . . .	45
Bucklers Point . . . . .	54	Old Neck . . . . .	23
Chickahominy Haven . . . . .	23	Old Neck Creek . . . . .	23
Chickahominy Shores . . . . .	22	Olds Point . . . . .	53
Dancing Point . . . . .	44	Parsons Creek . . . . .	23
Ducking Stool Point . . . . .	54	Parsons Island . . . . .	23
During Point . . . . .	33	Presquile Isle National Wildlife Refuge . . . . .	62
Eagle Bottom . . . . .	24,32	Queens Creek . . . . .	53
Eppes Creek . . . . .	61	Sandy Point . . . . .	44
Eppes Island . . . . .	61	Shirley . . . . .	61
Ferry Point . . . . .	33	Sunken Marsh . . . . .	23
Flowerdew Hundred . . . . .	52	Tettington . . . . .	44
Graves Landing . . . . .	22	Tomahund Creek . . . . .	33
Hardens Bluff . . . . .	62	Trees Point . . . . .	45
Harrison Point . . . . .	60,61	Turkey Island . . . . .	62
Harrisons Landing . . . . .	60	Turkey Island Creek . . . . .	62
Herring Creek . . . . .	54	Turner Neck . . . . .	22
Johnson Creek . . . . .	22	Tyler Creek . . . . .	46
Kennon Creek . . . . .	45	Walkers Dam . . . . .	22
Kennon Marsh . . . . .	45	Watts Point . . . . .	23
Kimages Hill . . . . .	60	Westover . . . . .	54
Kittewan Creek . . . . .	46,52	Weyanoke . . . . .	46,52
Lamptie Hill . . . . .	62	Weyanoke Point . . . . .	52
Lower Trees Point . . . . .	45	Wilcox Neck . . . . .	22
Mapisco . . . . .	46		

