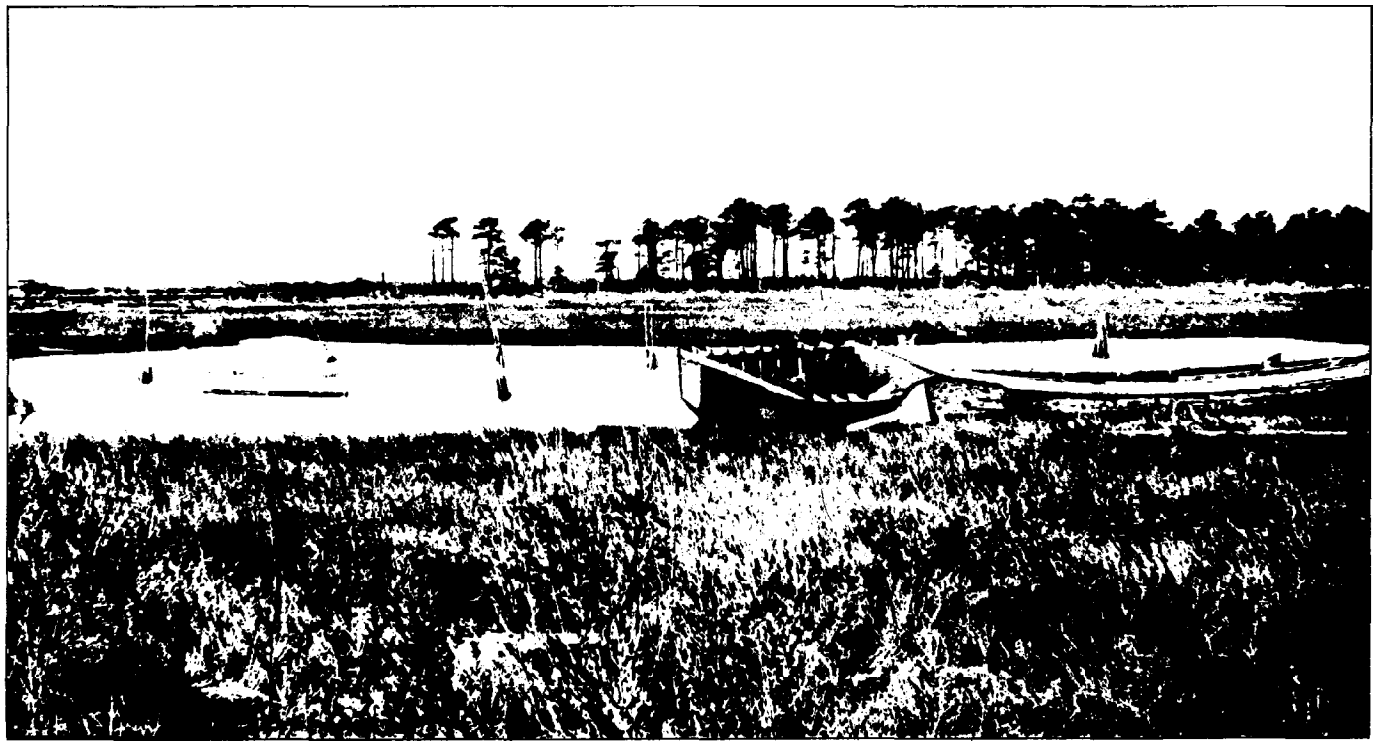
Coastal Zone
Information
Center

COASTAL ZONE
INFORMATION CENTER

YORK COUNTY AND TOWN OF POQUOSON TIDAL MARSH INVENTORY

Special Report No. 53 in Applied Marine Science and Ocean Engineering

Gene M. Silberhorn



W.P. OCZM

QH
301
.V852
no.53

VIRGINIA INSTITUTE OF MARINE SCIENCE
Gloucester Point, Virginia 23062

AUGUST 1974

03512

YORK COUNTY AND TOWN OF POQUOSON
TIDAL MARSH INVENTORY

Special Report No. 53 in
Applied Marine Science and
Ocean Engineering

U.S. DEPARTMENT OF COMMERCE NOAA
COASTAL SERVICES CENTER
2234 SOUTH HOBSON AVENUE
CHARLESTON, SC 29405-2413

G. M. Silberhorn

Virginia Institute of Marine Science
Gloucester Point, Virginia 23062

Dr. William J. Hargis, Jr., Director

August 1974

Property of CSC Library

QH301 .V852 no.53
7720456

Acknowledgements

This study was partially funded by the Research Applied to National Needs (RANN) Program of the National Science Foundation.

The publication and distribution of this report have been provided by the Department of Commerce, National Oceanographic and Atmospheric Agency, Office of Coastal Zone Management. Grant no. 04-5-158-5001.

The author wishes to thank Dr. William J. Hargis, Jr., Dr. Michael E. Bender, Col. George M. Dawes and Thomas Barnard for their constructive criticism and suggestions which have assisted in the development of this publication.

This study was facilitated by the cooperation of the National Park Service; Department of the Interior; U.S. Naval Weapons Station; Naval Supply Center, Cheatham Annex; NASA/Langley Air Force Base; Town of Poquoson Wetlands Board and the York County Wetlands Board.

Thanks also goes to Col. Dawes and Miles Booth for their assistance in the field.

Sincerest appreciation is offered to Mr. Joseph Gilley, Mr. Russell Bradley for art and map production assistance. Sincere thanks to Mr. Fred Biggs in publication procedures.

Finally I thank Mrs. Beverly Bennett, Mrs. Rhonda Payne and Mrs. Judy Hudgins for typing the manuscript.

York County and Poquoson
Tidal Marsh Inventory

Table of Contents

			Page
Acknowledgements			ii
Introduction			1
Marsh Plants			9
Reference Map of Wetland Systems			11
A.	Section I:	Skimino Creek - Carter Creek	13
B.	Section II:	York River Shoreline (Carter Creek to Queens Creek)	15
C.	Section III:	Queens Creek	19
D.	Section IV:	King Creek - Felgate Creek Area	
	Part 1:	Cheatham Annex - King Creek Area	21
	Part 2:	Felgate Creek	24
E.	Section V:	Indian Field Creek to Yorktown Creek	27
F.	Section VI:	Wormley Creek Area	29
G.	Section VII:	Goodwin Island - Back Creek Area	33
H.	Section VIII:	Poquoson River Area	
	Part 1:	Chisman Creek	37
	Part 2:	Poquoson River Proper	37
	Part 3:	Bennett Creek Area	38
I.	Section IX:	Plum Tree Island Wildlife Refuge	
	Part 1:	Poquoson River Area (Poquoson East Quadrangle)	58
	Part 2:	Back River Area (Hampton Quadrangle)	61
J.	Section X.	Back River (Northwestern Branch) and Brick Kiln Creek.	63

Introduction

This publication is the third in a series of marsh inventory reports compiled by the Wetlands Research Section, Virginia Institute of Marine Science. The first and second reports, Lancaster and Mathews Counties were published in December 1973 and January 1974, respectively. This report follows much the same format as the preceding reports.

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. The inventory program is designed to assist and inform managers and concerned citizens in their quest to conserve the wetlands in their immediate area.

A recently published study, the Guidelines for Activities Affecting Virginia Marshes (Silberhorn, Dawes and Barnard, 1974) will be helpful in the utilization of this report. Excerpts from the above document are included in the text below, explaining marsh vegetation types and their evaluation.

It is our desire that this inventory report and the marsh guidelines study will be useful to those concerned with this valuable resource.

Methods

Aerial photographs and topographic maps (U.S.G.S.) were consulted in order to obtain wetland locations and patterns of marsh vegetation. Marsh community zones and patterns were substantiated by ground truth methods i.e., via boat and low level flights. Acreages and wetland boundaries were obtained from these sources as well as from field estimates.

Marshes .25 of an acre or larger are designated by number. Many marshes smaller than .25 acre (usually narrow fringing marshes) are designated by the same symbol (solid black) as the larger marshes on the section maps. Small marshes (less than one acre) are exaggerated and are not indicated to scale. Information such as individual marsh acreage, plant community percentage and acreage, marsh type and other observations are recorded in tabular form.

Marsh Types and Evaluation

For a better understanding of what is meant by marsh types, some background information is required. The personnel of the Wetlands Research Section have classified twelve different common marsh types, based on vegetational comparison. These marsh types have been evaluated according to certain vlaues and are recorded in the Guidelines report. The following is a brief outline of the wetland types and their evaluation as found in the above publication:

"It is recognized that most wetlands areas, with the exception of the relatively monospecific cordgrass marshes of the Eastern Shore, are not homogenously 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 evlauate both complete marshes and subareas within a marsh" (P. 3).

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 erode, but some, particularly the more saline types, erode much more slowly than do adjacent shores which are unprotected by marsh. The buffering quality is derived from the ability of the vegetation to absorb or dissipate wave energy or to establish a dense root system which stabilizes the soil. Generally, freshwater species are less effective than saltmwater in this regard.

4. Water quality control. The dense growth of some marshes acts as a filter, trapping upland sediment before it reaches waterways and this 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 grows. It can also kill shellfish by clogging their gills. Additionally marshes can assimilate and degrade pollutants through complex chemical processes, a discussion of which is beyond the scope of this paper. Research has shown that marshes may act as a natural treatment system that is comparable to artificial tertiary treatment of sewage.

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." (P.4)

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

Type III — Black Needlerush Community

a. Provides 3-5 tons per acre per year.
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. About or less than 2 tons per acre per annum.
b. Nesting area for small birds and habitat for a variety of wildlife.
c. Effective trap for flotsam.

Type V — Big Cordgrass Community

a. Yields 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. Fragility necessitates preservation.

Type VIII — Reed Grass Community

a. 4-6 tons per acre per year.
b. Little value to wildlife except for cover.
c. Invades marshes and competes with more desirable species.
d. Deters ersoion 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 .5 tons per acre.
b. Little value to aquatic or marsh animals.

Type XI — Freshwater Mixed Community

a. Yields 3-5 tons per acre annually.
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 flood deterrent.

Type XII — Brackish Water Mixed Community

a. Provides 3-4 tons per acre annually.
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 - pickerel 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 values as erosion inhibitors, important to the shellfish industry and 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 a high productivity factor but a low detritus availability value. Black needlerush has little wildlife value but it ranks high as an erosion and 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 also acts 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.

For a better understanding of Virginia's Wetlands in general, the Wetlands Act of 1972 plus marsh types and their evaluation, the following publications are highly recommended.

Coastal Wetlands of Virginia
Interim Report No. 3
Guidelines for Activities
Affecting Virginia's Marshes
Gene M. Silberhorn, George M. Dawes
Thomas A. Barnard, Jr., June 1974
Virginia Institute of Marine Science
Gloucester Point, Virginia 23062

Local Management of Wetlands
Environmental Considerations
Special Report No. 35
Kenneth Marcellus, George Dawes and
Gene Silberhorn, June 1973
Virginia Institute of Marine Science
Gloucester Point, Virginia 23062

Coastal Wetlands of Virginia Interim Report
Marvin Wass and Thomas Wright, December 1969
Virginia Institute of Marine Science
Gloucester Point, Virginia 23062

Coastal Wetlands of Virginia Interim Report No. 2
Kenneth Marcellus, July 1972
Virginia Institute of Marine Science
Gloucester Point, Virginia 23062

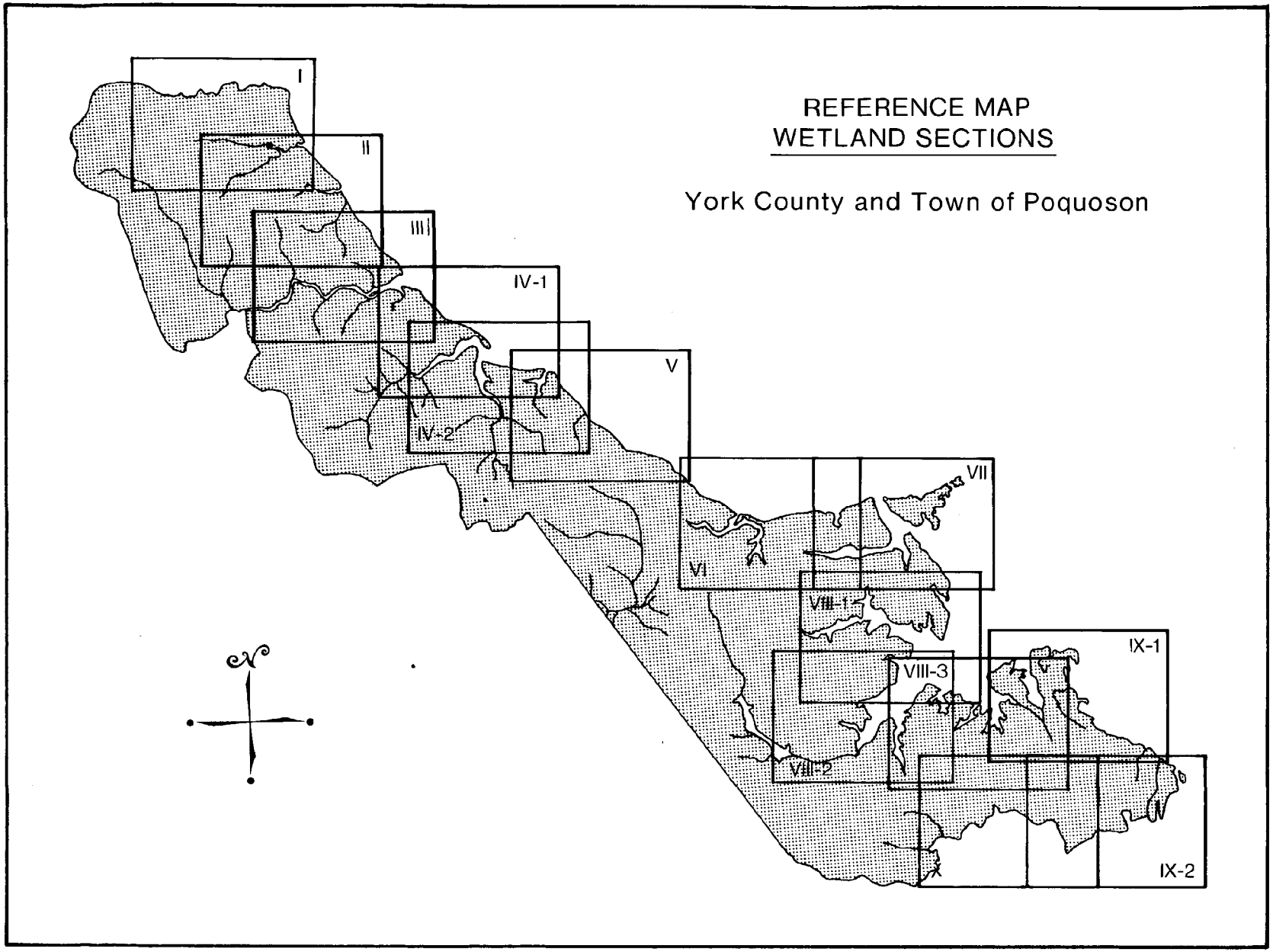
MARSH PLANTS

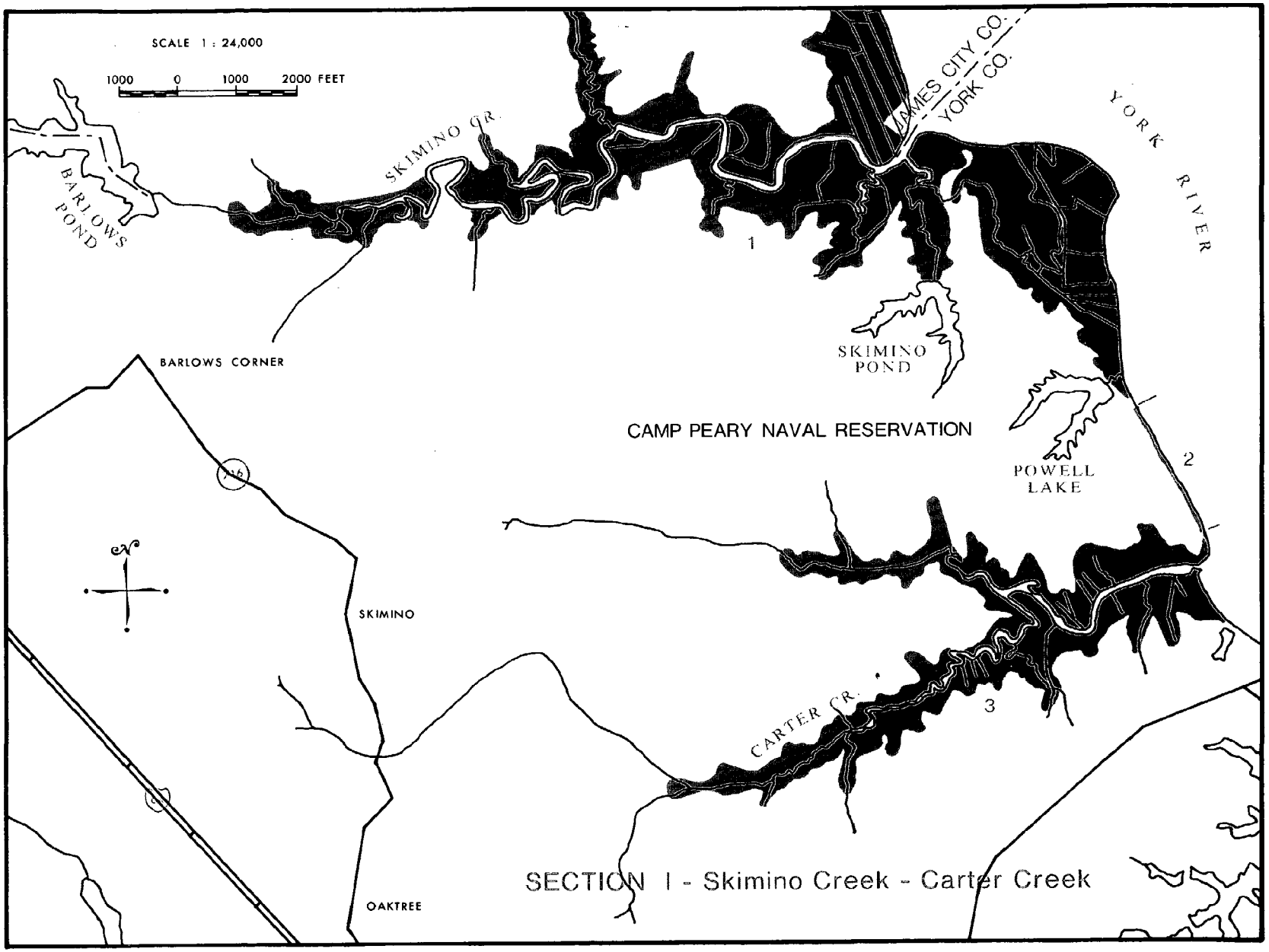
Abbreviations, Common Names and Scientific Names as Found in the Data Tables

Sa	Saltmarsh Cordgrass	*Spartina alterniflora* Loisel.
Jr	Black Needlerush	*Juncus roemerianus* Scheele.
Md	Saltgrass Meadow	Saltgrass *Distichlis spicata* (L.) Greene Saltmeadow Hay *Spartina patens* (Aiton) Muhl.
Sb	Saltbushes	Marsh Elder *Iva frutescens* L. Groundsel Tree *Baccharis halimifolia* L.
Sc	Big Cordgrass	*Spartina cynosuroides* (L.) Roth.
a	Saltmarsh Bulrush	*Scirpus robustus* Pursh.
b	Saltmarsh Fleabane	*Pluchea purpurascens* (Swartz) DC.
c	Saltmarsh Aster	*Aster tenuifolius* L.
d	Cattail	*Typha angustifolia* L. *Typha latifolia* L.
e	Marsh Hibiscus	*Hibiscus moscheutos* L.
f	Water Hemp	*Amaranthus cannabina* (L.) J.D. Sauer
g	Switch Grass	*Panicum virgatum* L.
h	Foxtail Grass	*Setaria geniculata* (Lam.) Beauvois.
i	Arrow Arum	*Peltandra virginica* (L.) Kunth.
j	Pickerel Weed	*Pontederia cordata* L.
k	Reed Grass	*Phragmitis australis*
l	Olney Threesquare	*Scirpus olneyi* Gray
m	Marsh Mallow	*Kosteletskya virginica* (L.) Presl.

MARSH PLANTS (Continued)

n	Saltmarsh Loosestrife	*Lythrum lineare* L.
o	Smartweed	*Polygonum* spp.
p	Wild Rice	*Zizania aquatica* L.
q	Sea Lavender	*Limonium carolinianum* (Walter) Britton.
r	Marsh Pink	*Sabatia stellaris* Pursh.


REFERENCE MAP
WETLAND SECTIONS
York County and Town of Poquoson
I
II
III
IV-1
IV-2
V
VI
VII
VIII-1
VIII-2
VIII-3
IX-1
IX-2


SCALE 1 : 24,000
1000 0 1000 2000 FEET
BARLOWS POND
SKIMINO CR.
JAMES CITY CO.
YORK CO.
YORK RIVER
1
SKIMINO POND
BARLOWS CORNER
CAMP PEARY NAVAL RESERVATION
POWELL LAKE
2
SKIMINO
CARTER CR.
3
OAKTREE
SECTION I - Skimino Creek - Carter Creek

Section I

Skimino Creek - Carter Creek

Skimino Creek is typical of the large creek marshes along the southwestern shoreline of the York River. The creeks of this area are generally of low elevation and support large stands of saltmarsh cordgrass (*Spartina alterniflora*) particularly along the lower 1/3 of their length.

The higher areas in this wetlands system are largely dominated by saltmeadow grass communities. The upper part of the creek, where salinity levels are lower, the dominant plant community is typically mixed freshwater with such species as big cordgrass (*S. cynosuroides*), cattails (*Typha* spp.) and arrow arum (*Peltandra virginica*).

There is a large network of mosquito ditches throughout the lower end of the marsh system. Most of these are fringed with saltmarsh cordgrass.

Skimino Creek is a valuable nursery ground for white perch and striped bass according to surveys made by the Department of Icthyology at VIMS.

Skimino Creek has been stressed very little by human activity, primarily because it is partially located in a military reservation, which limits access and development.

Carter Creek has been altered by a dam at the mouth but otherwise it remains a natural system. However, this structure does limit this system as a fish nursery area when the dam gates are closed.

Portions of the fringing marsh along the York River between Skimino Creek and Carter Creek have been eroded by wave action. Large peat blocks are commonly found strewn in the water near the fringing marsh.

NOTE: The acreage indicated on the data sheet includes only that portion of the creek located within York County.

Section I. Skimino Creek - Carter Creek.

#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
1	Skimino Cr.	220	50	110	7	15.4	15	33	2	4.4	10	22	a, d, i 16	35.2	many mosquito ditches	I
2	York River	.75	80	.6							15		d, i 5		fringing marsh, erosion	I
3	Carter Cr.	183	50	91.5			30	55	5	9			a, d, i 15	27.4	dam and gate at mouth	I
	TOTAL Section I	403.75		202.1		15.4		88		13.4		22		62.6		

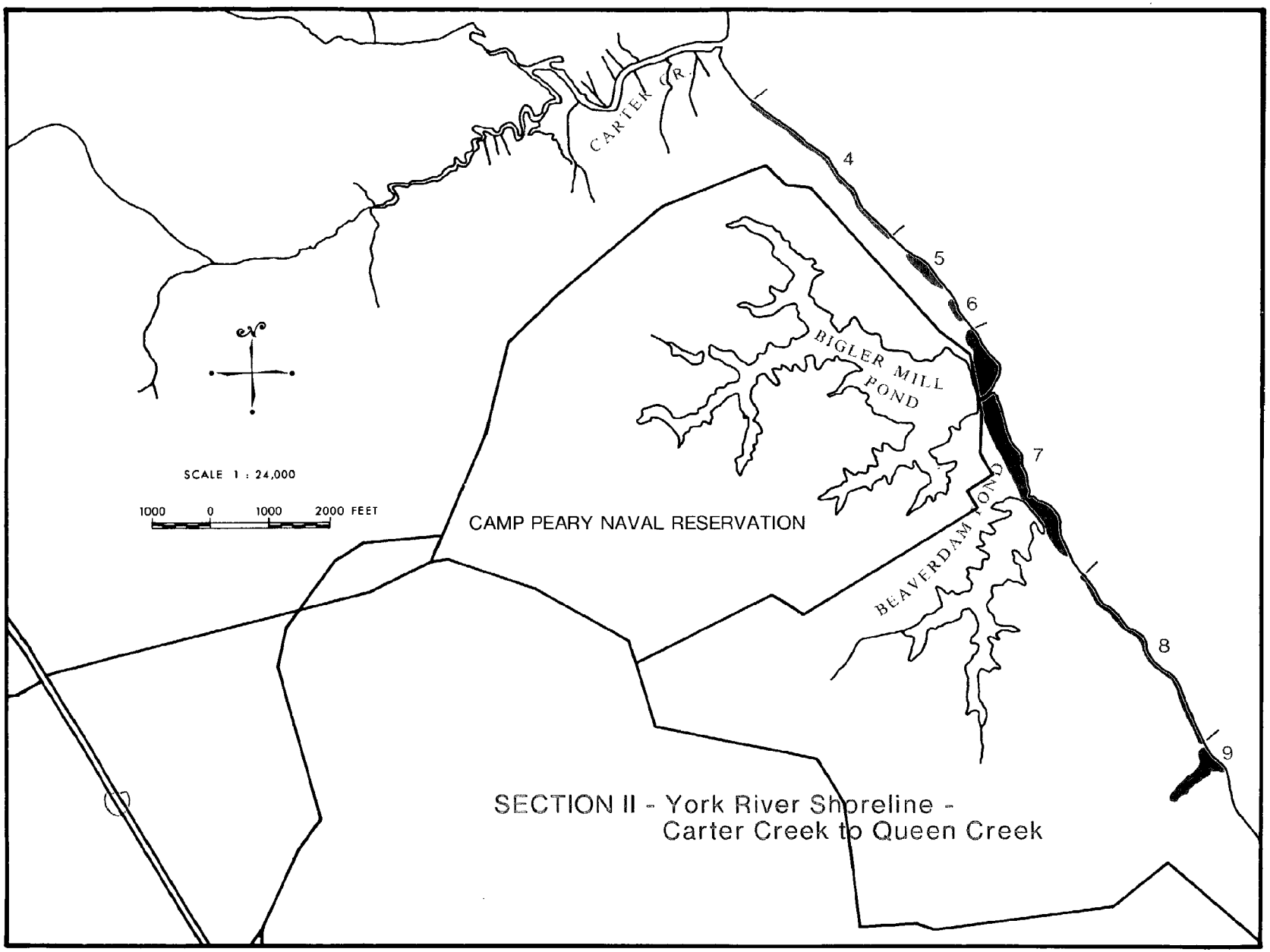
Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleabane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mallow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort
t = Sea Oxeye
u = Fimbristylis

Section II

York River Shoreline
Carter Creek to Queen's Creek

This section contains nearly 3 miles of discontinuous fringing marshes along the York River. The largest of these (# 7) marshes is the extensive fringe between the York River and Bigler Mill Pond. This marsh is typical of the large fringing marshes along this section of the York River. These marshes have developed a distinct zonation pattern of Spartina communities. The intertidal area is usually vegetated by a narrow band of saltmarsh cordgrass. The higher elevations are typically dominated by dense stands of big cordgrass. In many cases, the saltmarsh cordgrass fringe has been eroded away, leaving large blocks of peat in the intertidal zone and overhanging margins of peat near the mean high tide line. In these areas, the remaining big cordgrass communities function as the sole natural shoreline defense against erosion.

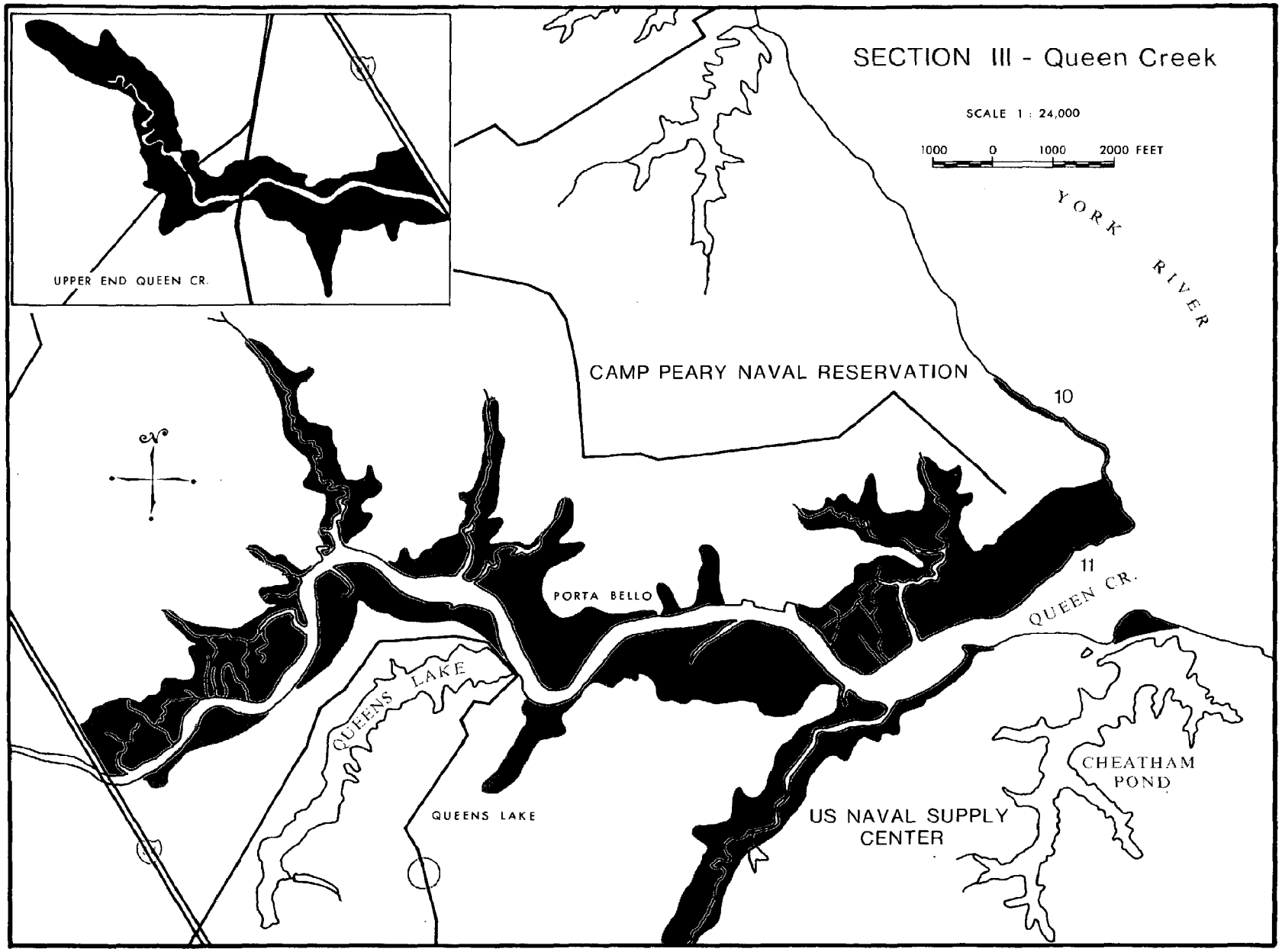
NOTE: Because of limited accessability to marsh No. 9, the vegetation could not be adequately determined.


CARTER CR.
4
5
6
7
8
9
BIGLER MILL POND
BEAVERDAM POND
CAMP PEARY NAVAL RESERVATION
SCALE 1 : 24,000
1000 0 1000 2000 FEET
SECTION II - York River Shoreline -
Carter Creek to Queen Creek

Section II. York River Shoreline (Carter Creek to Queen Creek).

#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
4	York River	4	80	3.2							20	.8			fringing marsh, 50' to 75' wide	I
5	York River	1.5	20	.3							80	1.2			fringing marsh	V
6	York River	.75	80	.6							20	.1			fringing marsh, 30' to 50' wide	I
7	Bigler Mill Pond	20	20	4							80	16			d, fringing marsh, 100' to 500' wide	V
8	Air Strip	1.7	90	1.5							10	.17			fringing marsh, some erosion	I
9	Air Strip	3				(see text)									pocket marsh	XII
	TOTAL Section II	31		9.6								18.3				

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleabane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mallow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort


SECTION III - Queen Creek
SCALE 1 : 24,000
1000 0 1000 2000 FEET
YORK RIVER
UPPER END QUEEN CR.
CAMP PEARY NAVAL RESERVATION
10
11
QUEEN CR.
PORTA BELLO
QUEENS LAKE
QUEENS LAKE
CHEATHAM POND
US NAVAL SUPPLY CENTER

Section III

Queen Creek

Queen Creek Marsh is the largest wetland system of this type (marsh creek) in York County. Some parts of the marsh have been disturbed by the digging of mosquito ditches, heavy military vehicles and erosion caused by boat traffic between the Queen's Lake Marina and the mouth of the creek.

The system is mainly a grass dominated brackish water marsh with abundant stands of salt-marsh cordgrass throughout the lower half of the marsh system.

In the lower saline areas, and at higher elevations farther upstream, big cordgrass and saltbushes (Iva frutescens and Baccharis halimifolia) predominate. At the upper reaches of the creek, near Route 132 bridge, the dominant vegetation is largely arrow arum, indicating freshwater conditions.

Further development may be expected along the upper end of the creek on privately owned land. Careful land use planning however, can minimize disturbance of this productive marsh system. Queen Creek is also regarded as a major fish nursery area and will remain so as long as further disturbance is kept to a minimum.

Section III. Queen Creek.

#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
10	Near Queen Cr.	2	40	.8					20	.4	40	.8			fringing marsh	XII
11	Queen Cr.	528	50	264			15	80	5	26.4	20	105.	a,d,i 10	52.8	c, q	I
	TOTAL Section III	530		264.8				80		26.8		105.8		52.8		

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleabane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mallow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort

Section IV

King Creek - Felgate Creek Area

Part 1: Cheatham Annex - King Creek Area
Part 2: Felgate Creek

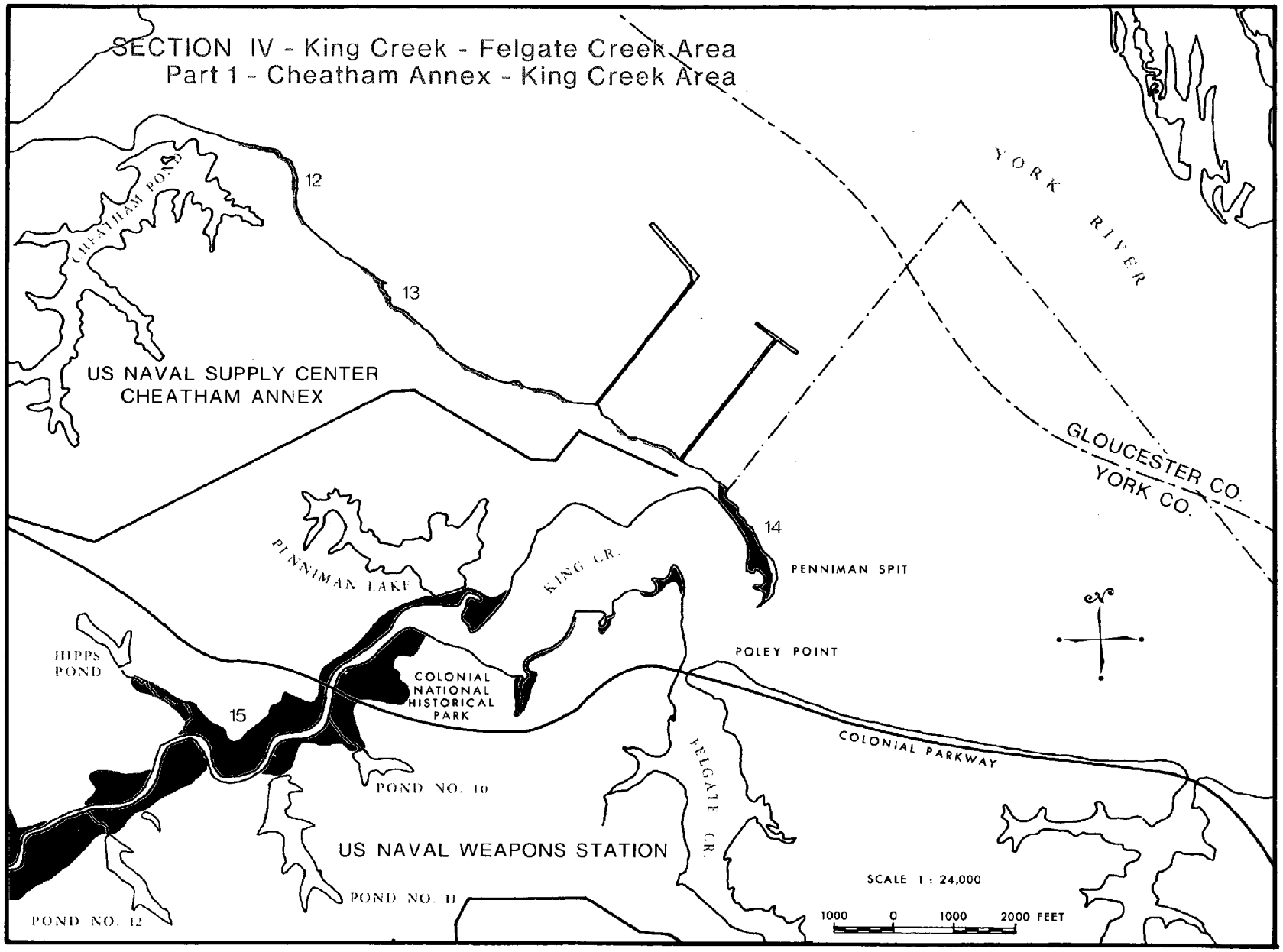
The King Creek Marsh is classified as a brackish water marsh, with no one plant community dominating. However, rather large stands of saltmarsh cordgrass predominate towards the mouth of the creek where more saline conditions exist.

A marsh community that is noticeably absent or infrequent in King Creek Marsh and all of the major creeks described thus far is black needlerush (Juncus roemerianus). Typically, this saline rush is one of the typical components of a mixed brackish water marsh (Type XII).

King Creek remains largely undisturbed thanks to the environmental personnel of the Naval Supply Center, Cheatham Annex, the Naval Weapons Station and the National Park Service.

Felgate Creek branches into three prongs approximately 1-3/4 miles from its very narrow mouth. Between the mouth and in the general area where the creek divides, the marsh vegetation is largely dominated by saltmarsh cordgrass. For the most part, the marshes of the three branches are commonly made up of big cordgrass, cattails and a sedge, saltmarsh bulrush.

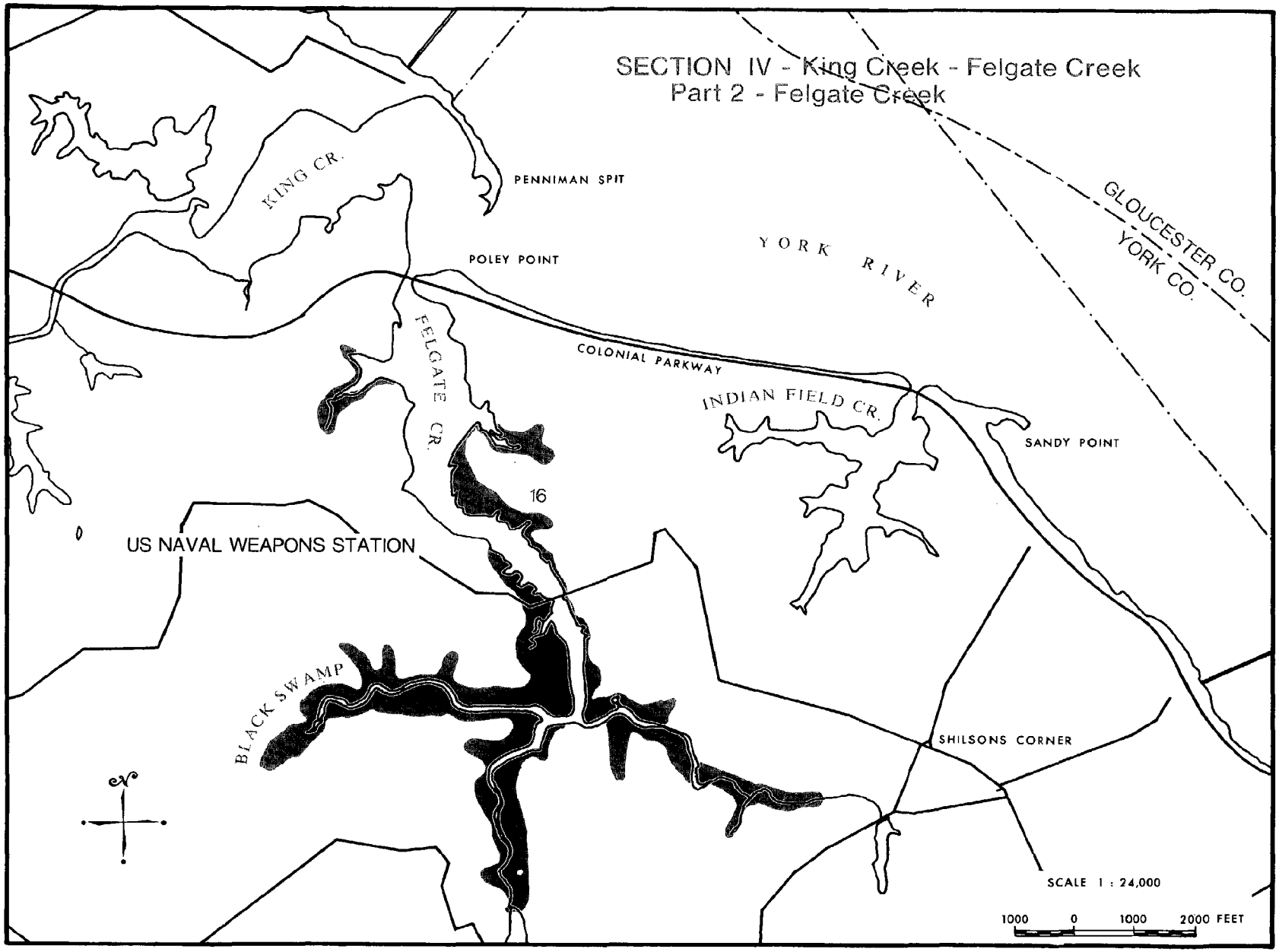
King and Felgate creeks are considered to be nursery areas for striped bass, white perch and other species.


SECTION IV - King Creek - Felgate Creek Area
Part 1 - Cheatham Annex - King Creek Area
CHEATHAM POND
12
13
US NAVAL SUPPLY CENTER
CHEATHAM ANNEX
YORK RIVER
GLOUCESTER CO.
YORK CO.
14
PENNIMAN SPIT
PENNIMAN LAKE
KING CR.
POLEY POINT
HIPPS POND
COLONIAL NATIONAL HISTORICAL PARK
15
COLONIAL PARKWAY
FELGATE CR.
POND NO. 10
US NAVAL WEAPONS STATION
POND NO. 11
POND NO. 12
SCALE 1 : 24,000
1000 0 1000 2000 FEET

Section IV. King Creek - Felgate Creek Area. Part 1. Chesham Annex - King Creek Area.

#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
12	York River	.5	95	.5					5						fringing marsh	I
13	York River	.33	80	.2							10		d 10		fringing marsh	I
14	King Creek	8	80	6.4			15	1.2	5	.4						I
15	King Creek	180	40	72			12	21.6	5	9	20	36	d, e, i 23	41.4		XII
	Subtotal Sec. IV - Part 1	188.8		79.1				22.8		9.4		36		41.4		

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleabane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mallow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort

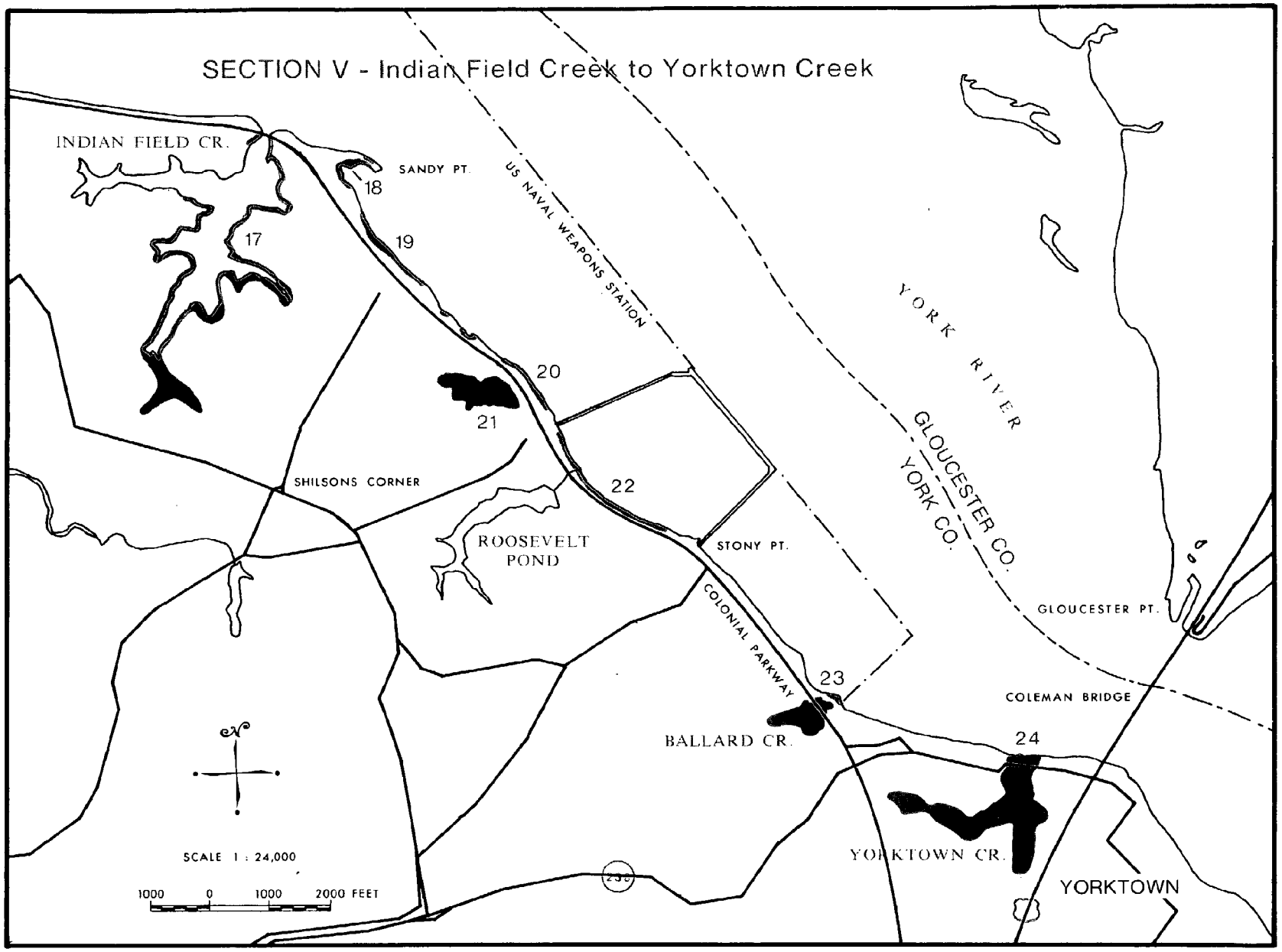

SECTION IV - King Creek - Felgate Creek
Part 2 - Felgate Creek
KING CR.
PENNIMAN SPIT
POLEY POINT
YORK RIVER
GLOUCESTER CO.
YORK CO.
FELGATE CR.
COLONIAL PARKWAY
INDIAN FIELD CR.
SANDY POINT
16
US NAVAL WEAPONS STATION
BLACK SWAMP
SHILSONS CORNER
SCALE 1 : 24,000
1000 0 1000 2000 FEET

Section IV. King Creek - Felgate Creek. Part 2. Felgate Creek.

#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
16	Felgate Cr.	150	50	75			10	15	5	7.5	15	22.5	a,d 20	30	Jr, c, s	I
	Subtotal Sec. IV - Part 2	150		75				15		7.5		22.5		30		
	TOTAL Section IV	338.8		154.1				37.8		16.9		58.5		71.4		

*Water Interface (ft.) **Interface/Area Ratio (feet/acre)

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleabane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mallow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort


SECTION V - Indian Field Creek to Yorktown Creek
INDIAN FIELD CR.
SANDY PT.
18
17
19
US NAVAL WEAPONS STATION
YORK RIVER
20
21
GLOUCESTER CO.
YORK CO.
SHILSONS CORNER
22
ROOSEVELT POND
STONY PT.
COLONIAL PARKWAY
GLOUCESTER PT.
23
COLEMAN BRIDGE
BALLARD CR.
24
YORKTOWN CR.
YORKTOWN
SCALE 1 : 24,000
1000 0 1000 2000 FEET

Section V

Indian Field Creek to Yorktown Creek

This section of the York River shoreline is characterized by a series of small creeks and fringing marshes.

The fringing marshes in Indian Field Creek are dominated by saltmarsh cordgrass. This marsh system is also regarded as a nursery area for fish.

Yorktown Creek is classified as a Type XII marsh (mixed brackish water). Nearly all of the upper part of the marsh is dominated by cattails. This type of vegetation is typical of low freshwater marshy areas in which stagnant water has accumulated from upland seepage. Other workers have reported that dense stands of cattails may indicate high loads of nutrients. Cattail marshes are often found adjacent to tilled cropland. In this case, the possibility exists that the Yorktown Sewage Disposal Plant, which is located at the upper reaches of Yorktown Creek, may influence the character of the marsh vegetation.

Section V. Indian Field Creek to Yorktown Creek.

#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
17	Indian Field Cr.	12.8	85	10.9	5	.6	5	.6					a,d 5	.6		I
18	Sandy Point	1.4	50	.7	10	.1	20	.3	20	.3					sand spit, d	I
19	Near Sandy Point	.5	80	.4			10				10				fringing marsh in front of riprap	I
20	Naval Weapons Pier	.5	40	.2							60	.3			fringing marsh	V
21	Naval Weapons Pier	.5	10				20	.1			30	.15	d 40	.2	fringing marsh	XII
22	Naval Weapons Pier	1.2	50	.6					10	.12	20	.24	d 20	.24	fringing marsh	I
23	Ballard Creek	1							5				d 95	.95	freshwater pocket, marsh	VI
24	Yorktown Cr.	34.7	25	8.7			25	8.7	5	1.7	5	1.7	d 40	13.9	creek marsh	XII
	TOTAL Section V	52.6		21.5		.7		9.7		2.1		2.4		16		

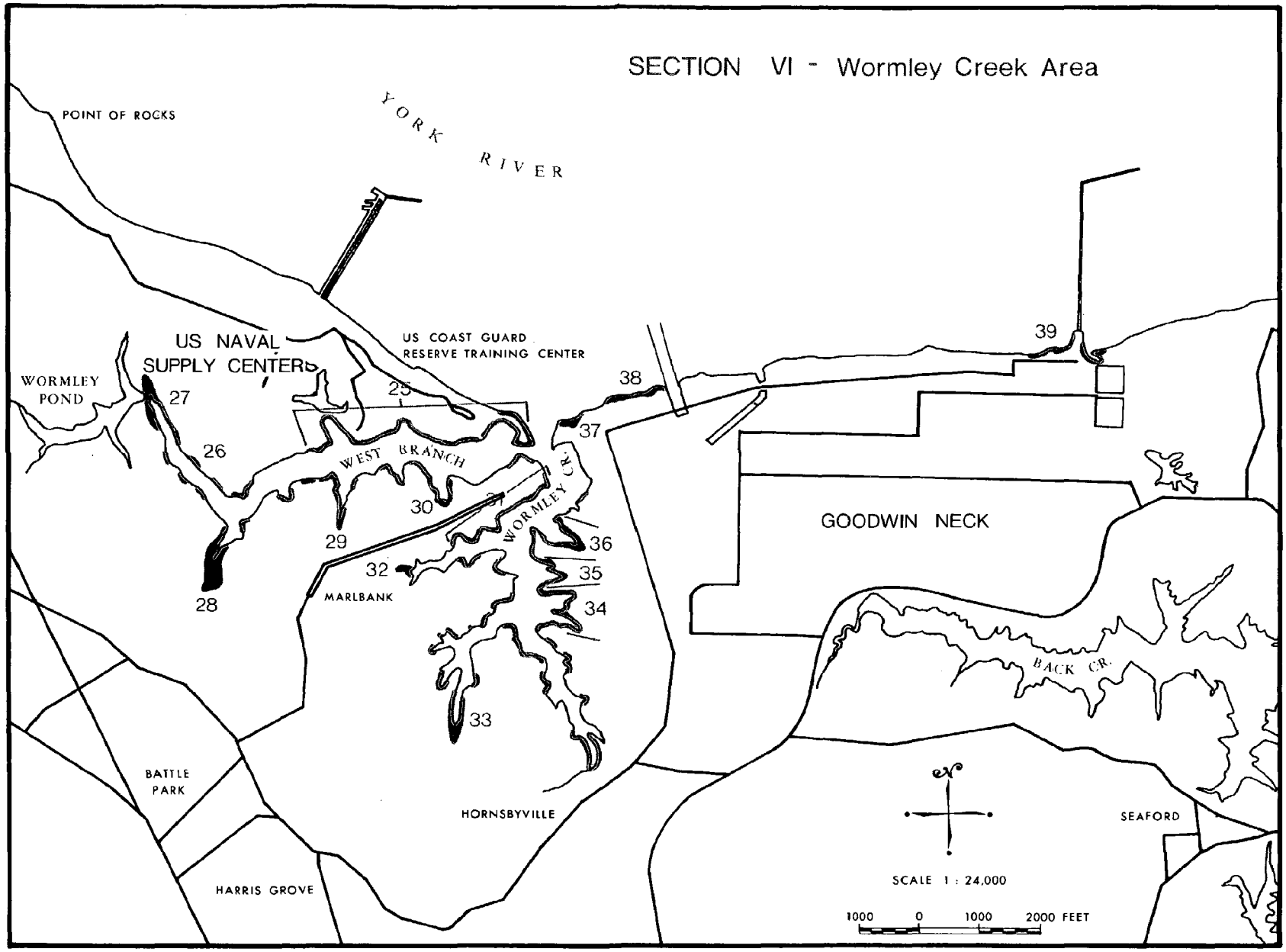
*Water Interface (ft.) **Interface/Area Ratio (feet/acre)

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleabane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mallow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort

Section VI

Wormley Creek Area

Unlike the other large creeks along the York River, Wormley Creek contains less than 14 acres of pocket and fringing marshes. The steep banks of the creek allow very few areas for marshes to develop except near the ends of branches and in small coves. Narrow fringing marshes of saltmarsh cordgrass, varying from 3 to 20 feet wide, are found throughout the creek. The largest of these is No. 25 which extends continuously for more than a mile along the northern shoreline of the west branch. All of the marshes in Wormley Creek, however small, are nevertheless Type I marshes, which are highly valued as detritus contributors to the marine food web and deterrents to shoreline erosion.


SECTION VI - Wormley Creek Area
POINT OF ROCKS
YORK RIVER
US NAVAL SUPPLY CENTER
US COAST GUARD RESERVE TRAINING CENTER
WORMLEY POND
WEST BRANCH
WORMLEY CR.
MARLBANK
HORNSBYVILLE
BATTLE PARK
HARRIS GROVE
GOODWIN NECK
BACK CR.
SEAFORD
25
26
27
28
29
30
32
33
34
35
36
37
38
39
SCALE 1 : 24,000
1000 0 1000 2000 FEET

Section VI. Wormley Creek Area

#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
25	Wormley Cr.	1.3	90	1.1	5				5						narrow fringing marsh	I
26	Wormley Cr.	.25	70	.2							30					I
27	Wormley Cr.	2	90	1.8							10	.2			pocket marsh	I
28	Wormley Cr.	3	50	1.5									a,d 50	1.5	pocket marsh	I
29	Wormley Cr.	.33	80	.26									d 20		pocket marsh	I
30	Wormley Cr.	.33	90	.3					10						fringing marsh	I
31	Wromley Cr.	.6	100	.6											fringing marsh, d	I
32	Wormley Cr.	.25	80	.2									d 20		pocket marsh	I
33	Wormley Cr.	2	90	1.8					5	.1			g 5	.1	pocket marsh	I
34	Wormley Cr.	1.5	100	1.5											cove marsh	I
35	Wormley Cr.	.75	100	.75											cove marsh	I
36	Wormley Cr.	.5	100	.5											cove marsh	I
37	Wormley Cr.	.5	100	.5											pocket marsh	I
38	Wormley Cr.	.5	100	.5												I

*Water Interface (ft.) **Interface/Area Ratio (feet/acre)

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleabane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mallow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort

Section VI. Wormley Creek Area.

#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
39	Refinery Pier	2	60	1.2			20	.4	20	.4					fringing marsh	I
39a	Refinery Pier	1	90	.9					10	.1					fringing marsh	I
	TOTAL Section VI	16.8		13.6						.6		.2		1.6		

*Water Interface (ft.) **Interface/Area Ratio (feet/acre)

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleabane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mallow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort

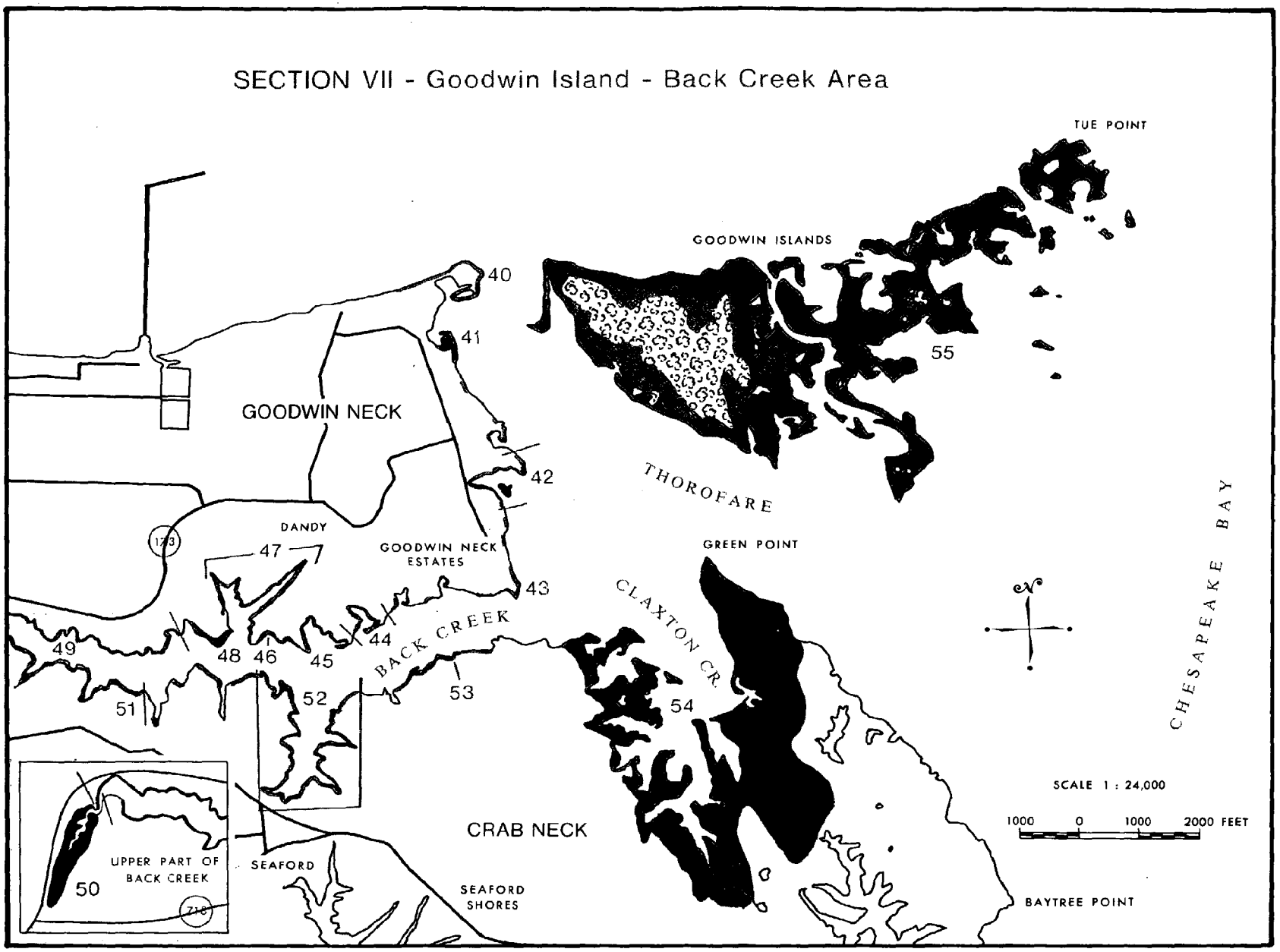
Section VII

Goodwin Island - Back Creek Area

The Goodwin Islands Marshes and the Claxton Creek Marsh are the largest marsh systems in this section. The low archipeligo of marsh islands in the Goodwin Group is also referred to as the Toe Marshes. Much of Goodwin Island proper is fastland vegetated with pine and other upland vegetation. The intertidal areas of Goodwin Island and the associated marsh islands are vegetated mainly with tall form saltmarsh cordgrass. The marshes of this system are very valuable to the estuarine environment and an effort should be made to preserve them. The waters surrounding these islands are well known clamming areas. Several different species of waterfowl and marsh birds were observed here in large numbers.

Claxton Creek is best described as a small, shallow bay with a ragged marshy shoreline. Characteristically, the shoreline margins are vegetated with saltmarsh cordgrass. The higher areas of the marsh are dominated by black needlerush with associated patches of saltgrass meadow. The marsh is in a largely untouched natural state. The numerous crab pots that were observed in the creek would indicate that the area is a productive blue crab habitat.

The marshes of Back Creek are mainly small cove and fringing marshes except for the 10 acre pocket marsh at the head of the creek. This marsh (# 50) is mostly vegetated by the highly productive saltmarsh cordgrass, a highly valued marsh type.


SECTION VII - Goodwin Island - Back Creek Area
TUE POINT
GOODWIN ISLANDS
40
41
55
GOODWIN NECK
42
THOROFARE
DANDY
47
GOODWIN NECK ESTATES
GREEN POINT
43
CLAXTON CR.
CHESAPEAKE BAY
49
48
46
45
44
BACK CREEK
53
51
52
54
SCALE 1 : 24,000
1000 0 1000 2000 FEET
CRAB NECK
UPPER PART OF BACK CREEK
50
SEAFORD
SEAFORD SHORES
BAYTREE POINT

Section VII. Goodwin Island - Beck Creek Area.

#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
40	Sand Box	1.4	60	.84			10	.14	30	.42					fringing marsh	I
41	Thorofare	1.2	90	1					10	.12						I
42	Thorofare	1.3	85	1.1			5		5				g 5		spoil on marsh fringing marsh and island	I
43	Back Creek	.5	90	.45					10						sand spit	I
44	Back Creek	1.2	60	.72	35	.42			5						fringing marsh, cove	I
45	Back Creek	1	60	.6	40	.4									fringing marsh, cove	I
46	Back Creek	1	50	.5	40	.4	10	.1							fringing marsh	I
47	Back Creek	3	50	1.5	50	1.5									fringing marsh	I
48	Back Creek	.25	80	.2			20								fringing marsh	I
49	Back Creek	1.3	100	1.3											long narrow fringing marsh	I
50	Head of Back Creek	10	80	8			15	1.5	5	.5					Jr, pocket marsh	I
51	Back Creek	1	90	.9					10	.1					long narrow fringing marsh	I
52	Back Creek	1.7	85	1.4	5	.1	5	.1	5	.1					fringing marsh, d	I
53	*Back Creek	.4	100	.4											fringing marsh	I

*Water Interface (ft.) **Interface/Area Ratio (feet/acre)

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleabane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mellow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort

Section VII. Goodwin Island - Back Creek Area.

#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
54	Claxton Creek Marsh	220	45	99	40	88	15	33							heavy crabbing activity, Sb	XII
55	Goodwin Islands Marsh	293	70	205	15	44	10	29.3	5	14.6					see text	I
	TOTAL Section VII	538		323		135		64		16						

*Water Interface (ft.) **Interface/Area Ratio (feet/acre)

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleabane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mallow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort

Section VIII

Poquoson River Area

This large section is divided into 3 parts:

Part 1: Chisman Creek
Part 2: Poquoson River Proper
Part 3: Bennett Creek Area

Part 1. Chisman Creek.

The largest marsh in this section is Bay Tree Creek Marsh (# 57) with 100 acres of mostly black needlerush. The substratum here is mainly sand which is the typical soil type associated with black needlerush communities. There is a small residential area at the upper end of the creek with dredged channels and spoil deposits on the surface of a marshy peninsula.

Adjacent to Bay Tree Creek is Cabin Creek (# 59) with 33 acres of marsh also dominated by black needlerush. As is the case in the Bay Tree system, saltmarsh cordgrass usually occupies the intertidal marsh edge habitat.

The marshes of Chisman Creek proper are mainly small cove, pocket and fringing marshes dominated by saltmarsh cordgrass. Several of the small coves at the upper end of the creek have been dredged and spoil piled on marsh. Housing developments may be a continuing activity in this area. Many bulkheads were observed.

Part 2. Poquoson River Proper.

As in Chisman Creek, most of the marshes (70%) in the Poquoson River are small marshes of one acre or less in size. However, nearly

93 percent of total wetlands in this part rank high in value, being dominated by saltmarsh cordgrass (Type I).

The largest marsh on the Poquoson River lies at the upper end of the main branch, just below the Harwood Mill Dam and U. S. Route 17. This is a mixed brackish water marsh community (Type XII).

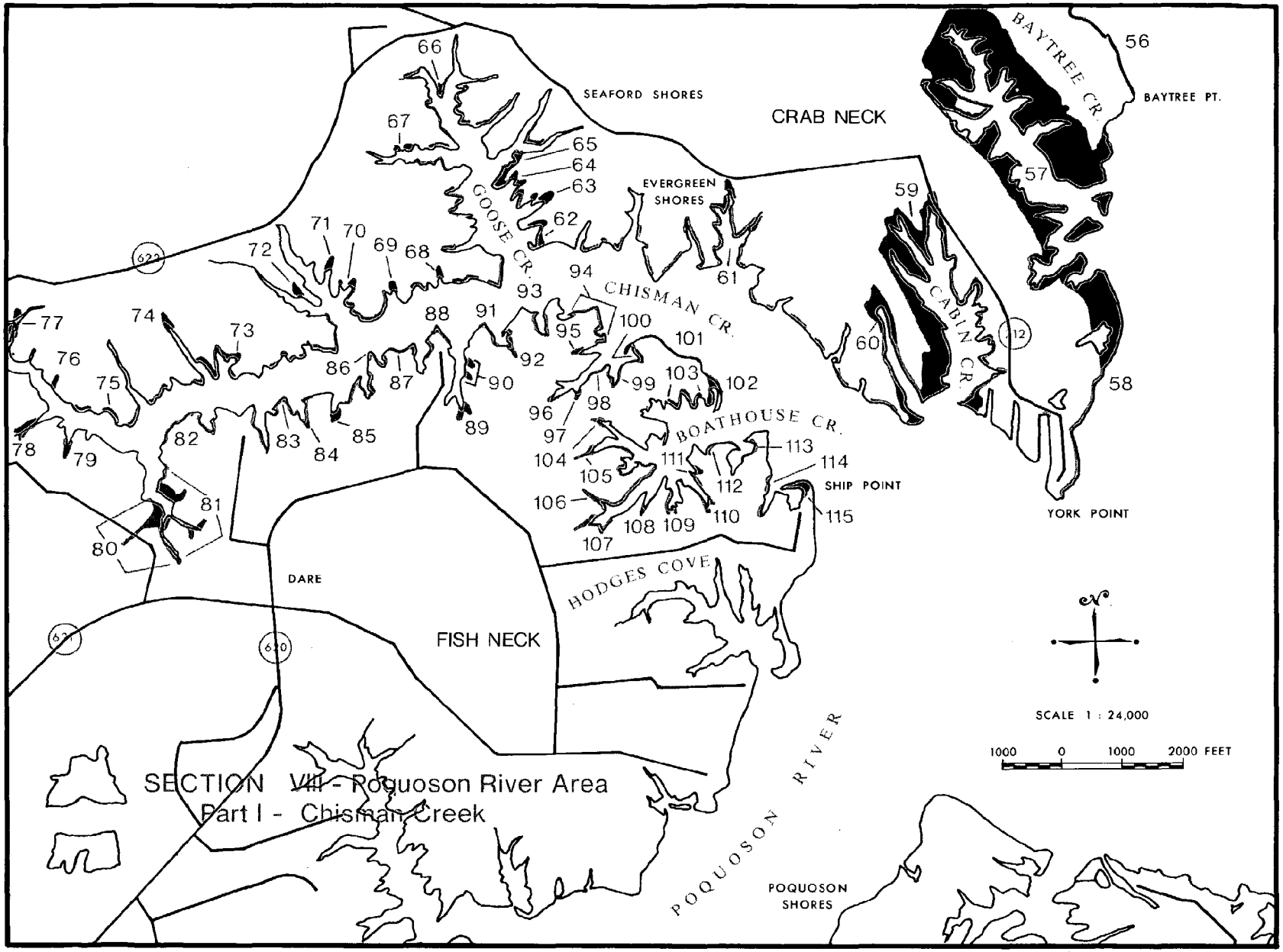
There are three creeks in this area, Hodges Cove, Moores Creek and Lambs Creek, that are stressed by development. This is evidenced by artificial canals and deposits of spoil on the marsh surface. There also appears to be numerous homesite bulkheads not only in the creeks mentioned above but throughout the Poquoson River.

Part 3. Bennett Creek Area.

Recent development has destroyed a considerable number of small marshes in this area, particularly in Roberts Creek and Whitehouse Creek. Efforts should be made to conserve the remaining marshes in these creeks.

Severe shoreline erosion is commonly seen at the upper end of Whitehouse and Bennett creeks. Heavy boat traffic is probably a chief factor for this problem. The fact that fringing marshes diminish wave action is even more reason for their preservation.

A large brackish water marsh(#252) is located at the upper reaches of Bennett Creek. A wide variety of marsh wildlife was observed here.


SEAFORD SHORES
CRAB NECK
BAYTREE CR.
BAYTREE PT.
EVERGREEN SHORES
GOOSE CR.
CHISMAN CR.
CABIN CR.
BOATHOUSE CR.
SHIP POINT
YORK POINT
HODGES COVE
DARE
FISH NECK
POQUOSON RIVER
POQUOSON SHORES
SCALE 1 : 24,000
1000 0 1000 2000 FEET
SECTION VIII - Poquoson River Area
Part I - Chisman Creek

Section VIII. Poquoson River Area. Part 1. Chisman Creek.

#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
56	Bay Tree Point	1.5	85	1.27			10	.15	5						fringing marsh	I
57	Bay Tree Cr.	100	15	15	75	75	5	5	5	5					channels, dredge spoil on marsh	III
58	York Point Area	11.5	40	4.6	50	5.7			10	1.5					fringing marsh, erosion	III
59	Cabin Creek	33	10	3.3	80	26.4	5	1.6	5	1.6					broad fringing marsh	III
60	Near Cabin Cr.	4	20	.8	30	1.2	25	1	25	1					fringing marsh	XII
61	Evergreen Shores	1.5	90	1.35	10	.15									fringing marsh and pocket marsh	I
62	Goose Creek	.35	60	.21	40	.14									cove marsh, a	I
63	Goose Creek	1	70	.7	30	.3									pocket marshes	I
64	Goose Creek	.25	60	.15	30				10						pocket marshes	I
65	Goose Creek	1	60	.6	30	.3			10	.1					fringing marsh	I
66	Goose Creek	.25	70	.17	30										spit	I
67	Goose Creek	.25	80	.2	20										pocket marshes	I
68	Chisman Creek	.25	100	.25											pocket marshes	I
69	Chisman Creek	.25	100	.25											pocket marshes	I

*Water Interface (ft.) **Interface/Area Ratio (feet/acre)

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleabane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mallow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort

Section VIII. Poquoson River Area. Part 1. Chisman Creek.

#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
70	Chisman Creek	.25	100	.25											pocket marsh	I
71	Chisman Creek	.25	100	.25											pocket marsh	I
72	Chisman Creek	.25	100	.25											pocket marsh	I
73	Chisman Creek	.25	70	.17	30										cove marsh	I
74	Chisman Creek	1.5	80	1.2	20	.3									pocket marsh	I
75	Upper part Chisman Creek	.25	20		50	.12	30								fringing marsh	III
76	Upper part Chisman Creek	.75					50	.37	35	.26			k 15		Sa	II
77	Head Chisman Cr.	12	20	2.4	80	9.6									headwater marsh, spoil	III
78	Upper part Chisman Creek	1	80	.8			10	.1	10	.1					pocket marsh	I
79	Upper Chisman Creek	.75	90	.67					10						pocket marsh	I
80	Upper Chisman Creek	7			20	1.4	70	4.9	10	.7					Sa dredged channels, spoil on marsh	II
81	Upper Chisman Creek	5	------ dredged and spoil on marsh ---------													I
82	Upper Chisman Creek	.25	70	.17	10		10		10						cove marsh	
83	Upper Chisman Creek	.33	90	.3	10										fringing marsh	I

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleabane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mallow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort

Section VIII. Poquoson River Area. Part 1. Chisman Creek.

#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
84	Chisman Creek	.25	80	.2			10		10						pocket marsh	I
85	Chisman Creek	.5	100	.5											pocket marsh	I
86	Chisman Creek	.25	80	.2	20										fringing marsh	I
87	Chisman Creek	.5	65	.32	15		10		10						fringing marsh	I
88	Chisman Creek	.5	60	.3	30	.15	10								fringing marsh	I
89	Chisman Creek	.5	100	.5											pocket marsh	I
90	Chisman Creek	.25	60	.15			20						d 20		pocket marshes	I
91	Chisman Creek	.5	80	.4	20	.1									fringing marsh	I
92	Chisman Creek	.33	50	.16	20		10		10				d 10		pocket and fringing marsh	I
93	Chisman Creek	.25	80	.2			15		5						cove marsh	I
94	Chisman Creek	.7	60	.42	30	.21	10								fringing marsh	I
95	Chisman Creek	.5	60	.3	40	.2									pocket marsh	I
96	Chisman Creek	1	90	.9	10	.1									pocket marsh	I
97	Chisman Creek	1	100	1											pocket marsh	I

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleabane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mallow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort

Section VIII. Poquoson River Area. Part 1. Chisman Creek.

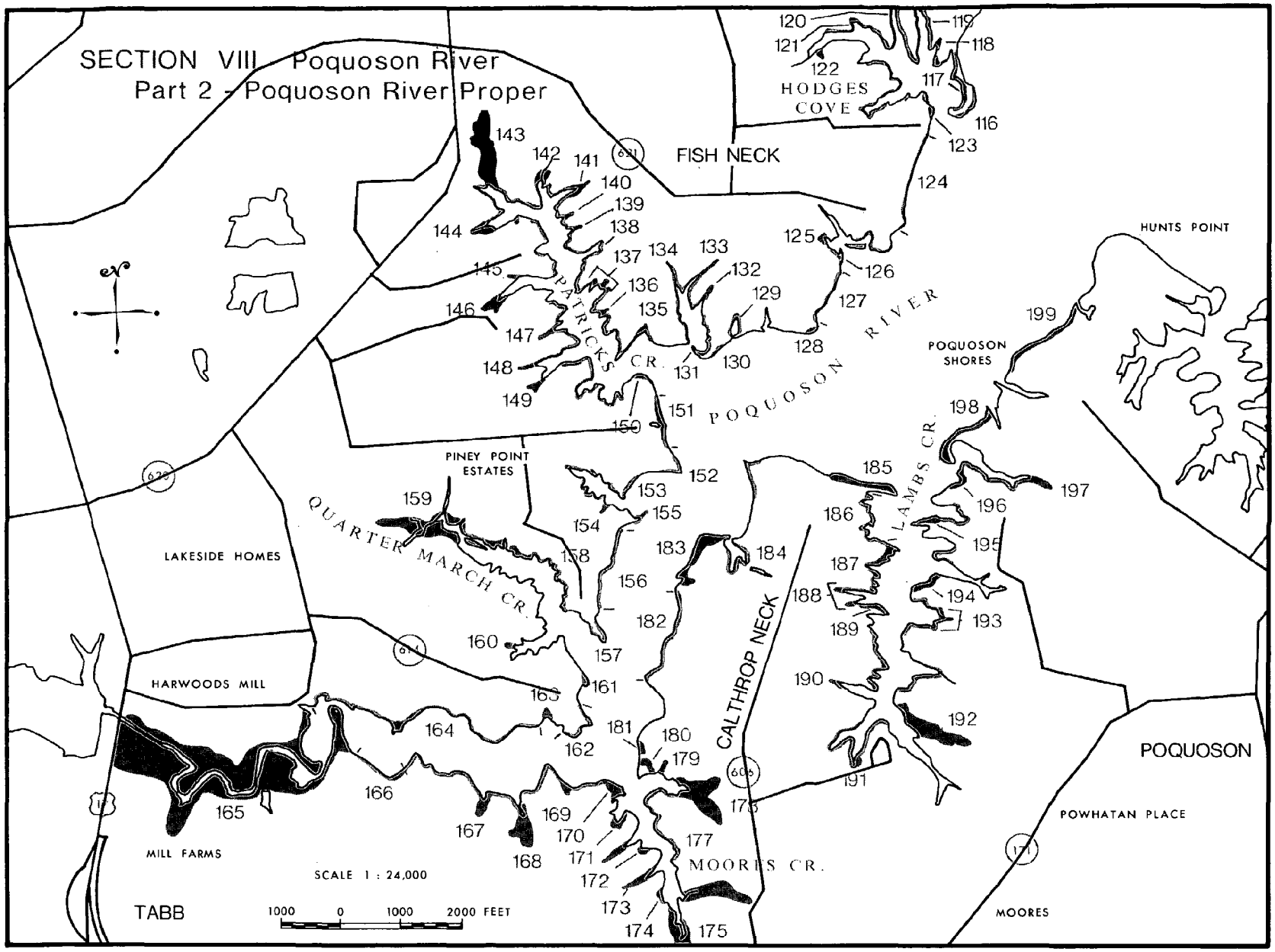
#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
98	Chisman Creek	.33	50	.16	50	.16									fringing marsh	I
99	Chisman Creek	1	60	.6	20	.2	10	.1	10	.1					Cove marsh	I
100	Chisman Creek	1	60	.6	30	.3			10	.1					cove marsh	I
101	Chisman Creek	1.4	60	.84	30	.42			10	.14					fringing marsh	I
102	Boathouse Creek	.8	20	.16	70	.56			10						fringing marsh	III
103	Boathouse Creek	.33	50	.16	50	.16									fringing marsh	I
104	Boathouse Creek	.25	100	.25											pocket marsh	I
105	Boathouse Creek	.8	90	.72			10								pocket marsh	I
106	Boathouse Creek	.8	100	.8											pocket marsh	I
107	Boathouse Creek	1.5	80	1.2	10	.15							d 10	.15	pocket marsh	I
108	Boathouse Creek	.25	100	.25											pocket marsh	I
109	Boathouse Creek	.25	60	.15	40	.1									pocket marsh	I
110	Boathouse Creek	.6	60	.36			30	.18	10						pocket marsh	I
111	Boathouse Creek	.25	30		30		40	.1							fringing marsh	XII

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleabane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mallow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort

Section VIII. Poquoson River Area. Part 1. Chisman Creek.

#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
112	Boathouse Creek	.25	60	.15	40	.1									fringing marsh	I
113	Mouth Boathouse Creek	.75	50	.37	20	.15	20	.15	10						fringing marsh	I
114	Near Ship Point	2	70	1.4	5	.1	15	.3	10	.2						I
115	Ship Point	.8	70	.56	30	.24									fringing marsh	I
	Subtotal Sec. VIII - Pt.1	200		50		125		14		10.8				.15		

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleabane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mallow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort


SECTION VIII Poquoson River
Part 2 - Poquoson River Proper
FISH NECK
HODGES COVE
HUNTS POINT
POQUOSON SHORES
POQUOSON RIVER
PATRICKS CR.
PINEY POINT ESTATES
QUARTER MARCH CR.
LAKESIDE HOMES
HARWOODS MILL
CALTHROP NECK
LAMBS CR.
POQUOSON
POWHATAN PLACE
MOORES
MOORES CR.
MILL FARMS
TABB
SCALE 1 : 24,000
1000 0 1000 2000 FEET

Section VIII. Poquoson River. Part 2. Poquoson River Proper

#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
116	Hodges Cove	.5	70	.35			15		15						fringing marsh	I
117	Hodges Cove	.8	60	.48	20	.16	15	.12	5						fringing marsh	I
118	Hodges Cove	.3	100	.3											pocket marsh	I
119	Hodges Cove	1	100	1											pocket marsh	I
120	Hodges Cove	1	85	.85	15	.15									pocket marsh	I
121	Hodges Cove	.25	100	.25											pocket marsh	I
122	Upper End Hodges Cove	.25	70	.17									d 20		much spoil and dredged channel in this area	I
123	Mouth Hodges Cove	.7	90	.63	5				5						fringing marsh	I
124	Poquoson River	1.2	80	1	5				15	.2					narrow fringing marsh	I
125	Poquoson River	1	100	1											pocket marsh	I
126	Poquoson River	.25	40	.1	20		20		20						sand spit	XII
127	Poquoson River	.6	50	.3	25	.15			25	.15					fringing marsh	I
128	Poquoson River	.5	50	.25			30	.15	20	.1					sand spit	I
129	Poquoson River	.5	50	.25	25	.12			10				d 15		pocket marsh	I

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleebane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mallow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort

Section VIII. Poquoson River. Part 2. Poquoson River Proper.

#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
130	Near Patricks Creek	.25	60	.15	40	.1									fringing marsh	I
131	Near Patricks Creek	.25	50	.12	50	.12									fringing marsh	I
132	Near Patricks Creek	.25	100	.25											pocket marsh	I
133	Near Patricks Creek	1	100	1											pocket marsh	I
134	Near Patricks Creek	2	95	1.9									d 5	.1	pocket marsh	I
135	Near Patricks Creek	.5	40	.2	60	.3									pocket marsh	XII
136	Patricks Creek	.25	100	.25											pocket marsh	I
137	Patricks Creek	1	100	1											3 pocket marshes	I
138	Patricks Creek	1.5	100	1.5											pocket marsh	I
139	Patricks Creek	.25	100	.25											pocket marsh	I
140	Patricks Creek	.25	100	.25											pocket marsh	I
141	Patricks Creek	1.5	100	1.5											pocket marsh	I
142	Patricks Creek	1.5	100	1.5											pocket marsh	I
143	Patricks Creek	5.5	95	5.2	5	.3									extensive pocket marsh	I

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleabane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mallow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort

Section VIII. Poquoson River. Part 2. Poquoson River Proper.

#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
144	Patricks Creek	2.5	95	2.4					5	.1					pocket marsh	I
145	Patricks Creek	.25	80	.2									d 20		pocket marsh	I
146	Patricks Creek	2.5	100	2.5											pocket marsh	I
147	Patricks Creek	1	90	.9									e 10	.1	pocket marsh	I
148	Patricks Creek	.25	80	.2	5				15						pocket marsh	I
149	Patricks Creek	1	90	.9					5				d 5		pocket marsh	I
150	Patricks Creek	.25	60	.15	20				20						fringing marsh	I
151	Poquoson River	1.2	40	.5	40	.5			20	.2					fringing marsh	XII
152	Poquoson River	1	70	.7	20	.2			10	.1					spit	I
153	Poquoson River	.25	60	.15	40	.1									fringing marsh	I
154	Poquoson River	.25	70	.17	20				10						pocket marsh	I
155	Poquoson River	.75	20	.15	80	.6									spit	III
156	Poquoson River	1.2	60	.7	40	.5									narrow fringing marsh	I
157	Mouth Quarter March Creek	.75	45	.34	35	.26	10		5						spit	XII

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleabane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mellow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort

Section VIII. Poquoson River. Part 2. Poquoson River Proper.

#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
158	Quarter March Creek	2.5	80	2.0	20	.5									fringing marsh	I
159	Quarter March Creek	8.2	70	5.7	5	.4	15	1.2	10	.82					large pocket marsh	I
160	Quarter March Creek	.5	90	.45			10								fringing marsh, cove marsh	I
161	Quarter March Creek	.25	60	.15	40	.1									fringing marsh	I
162	Upper Poquoson River	.5	60	.3	35	.2			5						fringing marsh	I
163	Upper Poquoson River	1.5	85	1.3	5				10	.2					pocket marsh	I
164	Upper Poquoson River	2.3	75	1.7	25	.6									extensive fringing marsh	I
165	Harwood Mill Marsh	56	10	5.6	5	2.8	40	22.4	35	19.6	10	5.6			k, extensive pocket marsh	XII
166	Upper Poquoson River	.33	100	.33											fringing marsh	I
167	Upper Poquoson River	2.6	75	2					10	.3			d,e 15	.3	pocket marsh	I
168	Upper Poquoson River	2	90	1.8									d,e 10	.2	pocket marsh	I
169	Upper Poquoson River	.75	90	.7	5				5						pocket marsh	I
170	Moores Creek	.33	70	.23	25	.1			5						spit	I
171	Moores Creek	.5	95	.5					5						pocket marsh	I

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleabane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mallow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort

Section VIII. Poquoson River. Part 2. Poquoson River Proper.

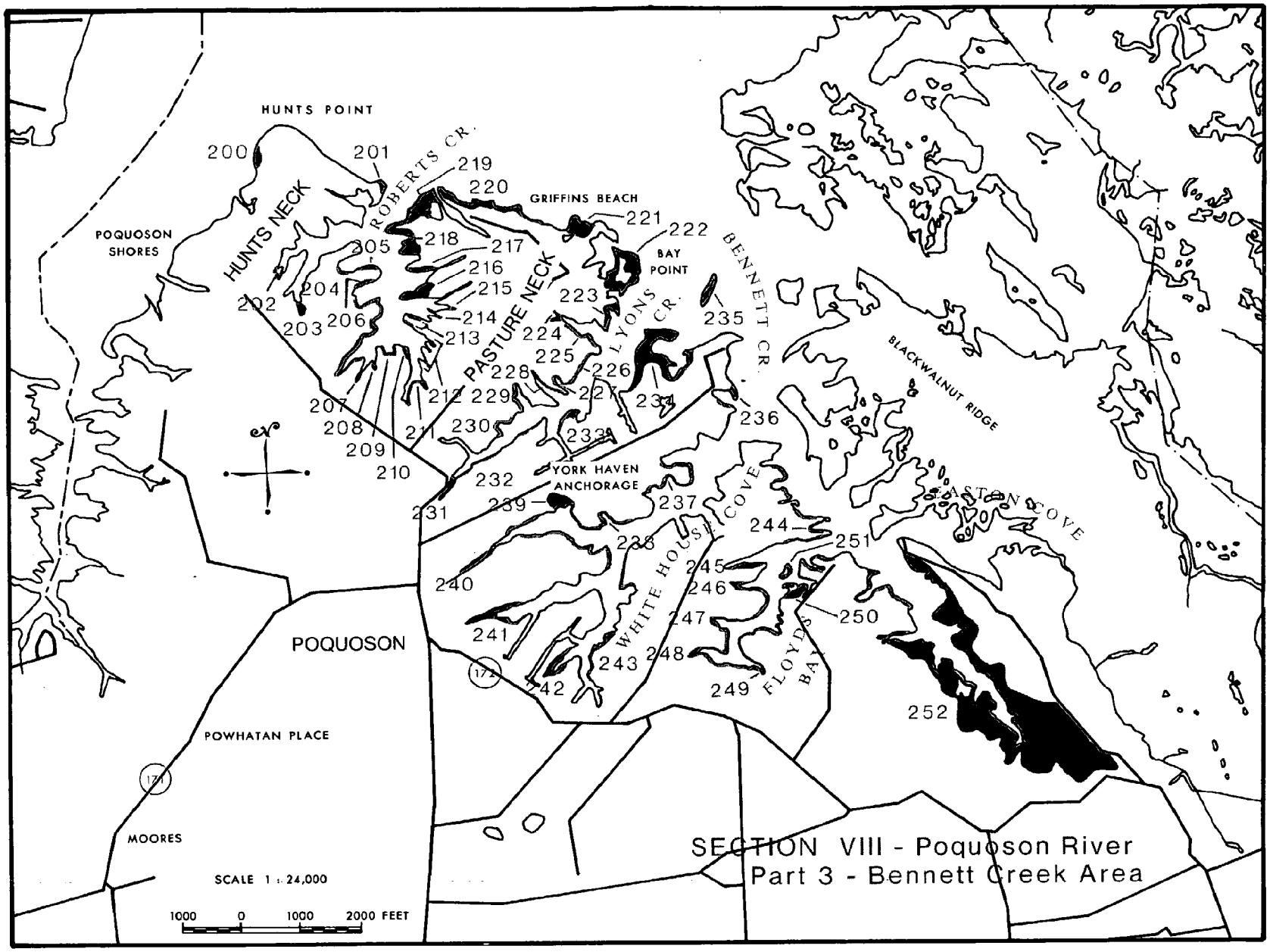
#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
172	Moores Creek	1.5	100	1.5											e, pocket marsh	I
173	Moores Creek	1.5	90	1.35									d 10	.15	pocket marsh	I
174	Moores Creek	.5	100	.5											pocket marsh	I
175	Moores Creek	4	90	3.6					10	.4					pocket marsh	I
176	Moores Creek	3	80	2.4			15	.45	5	.15						I
177	Moores Creek	.25	80	.2	10						10				fringing marsh	I
178	Moores Creek	5	90	4.5	5	.25			5	.25					pocket marsh	I
179	Moores Creek	.75	80	.6	20	.15									pocket marsh	I
180	Moores Creek	.5	10		30	.15	50	.25	10						spoil on marsh	I
181	Moores Creek	.5	95	.47					5						spoil and dredged channels	I
182	Calthrop Neck	1	95	.95					5						Jr, fill behind marsh narrow fringing marsh	I
183	Calthrop Neck	3.5	85	3	10	.3			5	.2					mainly fringing marsh erosion where Sa has been mowed	I
184	Calthrop Neck	.33	100	.33											cove marsh, fringe	I
185	Calthrop Neck	1.3	90	1.2	5				5						fringing marsh	I

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleabane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mallow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort

Section VIII. Poquoson River. Part 2. Poquoson River Proper.

#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
186	Lambs Creek	.6	75	45	20	.12			5						fringing marsh	I
187	Lambs Creek	.25	75	.2	20				5							I
188	Lambs Creek	.5	95	.47					5						2 small pocket marshes	I
189	Lambs Creek	.5	85	.42	15				5						fringing marsh	I
190	Lambs Creek	.25	85	.2					5				k 5			I
191	Lambs Creek	.25	100	.25												I
192	Lambs Creek	2.5	95	2.4					5	.1						I
193	Lambs Creek	.75	100	.75											2 small pocket marshes	I
194	Lambs Creek	.6	50	.3	15	.1	30	.2	5						fringing marsh	I
195	Lambs Creek	.25	85	.2	10				5						fringing marsh, spoil	I
196	Lambs Creek	.75	90	.67			5		5						fringing marsh	I
197	Lambs Creek	2	100	2											pocket marsh	I
198	Poquoson Shores	1	60	.6			30	.3	10	.1					fringing marsh	I
199	Poquoson Shores	1	85	.85			10	.1	5						fringing marsh	I

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleabane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mallow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort


HUNTS POINT
POQUOSON SHORES
HUNTS NECK
ROBERTS CR.
GRIFFINS BEACH
BAY POINT
PASTURE NECK
LYONS CR.
BENNETT CR.
BLACKWALNUT RIDGE
YORK HAVEN ANCHORAGE
WHITE HOUSE COVE
FLOYDS BAY
EASTON COVE
POQUOSON
POWHATAN PLACE
MOORES
SCALE 1 : 24,000
1000 0 1000 2000 FEET
SECTION VIII - Poquoson River
Part 3 - Bennett Creek Area

Section VIII. Poquoson River. Part 3. Bennett Creek Area

#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
200	Hunts Point	2	20	.4			40	.8	40	.8					fringing marsh	XII
201	Roberts Creek	.75	20	.15			75	.56	5						fringing marsh	II
202	Roberts Creek	1	90	.9					10	.1					Jr pocket marsh	I
203	Roberts Creek	.75	80	.6			15	.1	5						causeway pocket marsh	I
204	Roberts Creek	.25	70	.17			25		5						spoil, fringing marsh	I
205	Roberts Creek	.33	30	.1	10		60	.2							filling for development	II
206	Roberts Creek	.75	40	.3	60	.45									fringing marsh	III
207	Roberts Creek	.25	70	.17									a 30		pocket marsh	I
208	Roberts Creek	.25	85	.2	10				5						pocket marsh	I
209	Roberts Creek	.75	50	.37	40	.3			10						pocket marsh	I
210	Roberts Creek	.25		----- Mainly Sa -----											Spoil on marsh	
211	Roberts Creek	.25	90	.22	5				5						pocket marsh	I
212	Roberts Creek	.75	70	.5	25	.2			5						3 small pocket marshes	I
213	Roberts Creek	1.25	10	.12	70	.9	10	.12	10	.12					fringing marsh	III

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleabane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mallow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort

Section VIII. Poquoson River. Part 3. Bennett Creek Area.

#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
214	Roberts Creek	.25	70	.17	25				5						pocket marsh	I
215	Roberts Creek	.75	70	.5	25	.2			5						pocket marsh closed off by causeway	I
216	Roberts Creek	2.5	20	.5	50	1.25	20	.5	10	.25					point marsh	III
217	Roberts Creek	1.25	50	.62	30	.4	20	.25							point marsh	I
218	Roberts Creek	2	40	.8	50	1.	5	.1	5	.1					cove marsh	III
219	Mouth Roberts Creek	2	40	.8	25	.5	20	.4	15	.3					q, s	XII
220	Griffins Beach	2.5	80	2.0			10	.25	10	.25					fringing marsh	I
221	Griffins Beach	2.3	55	1.3			40	1.0	5							I
222	Bay Point	3	20	.6	30	.9	35	1.	15	.45					point marsh	XII
223	Lyons Creek	1.3	30	.4	30	.4	20	.26	20	.26					fringing marsh	XII
224	Lyons Creek	.25	100	.25											pocket marsh	XII
225	Lyons Creek	.5	30	.15	30	.15	20	.1	20	.1					fringing marsh	I
226	Lyons Creek	.25	50	.12	40	.1			10						fringing marsh	XII
227	Lyons Creek	.75	60	.45	30	.22			10						cove marsh	I

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleabane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mallow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort

Section VIII. Poquoson River. Part 3. Bennett Creek Area.

#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
228	Lyons Creek	.25	60	.15	40	.1									fringing marsh	I
229	Lyons Creek	.25	90	.22	10										cove marsh	I
230	Lyons Creek	.25	45	.1	40	.1	5		10						fringing marsh	XII
231	Upper Lyons Creek	1.5	80	1.2			10	.15	10	.15					pocket marsh	I
232	Upper Lyons Creek	.4	65	.26	15		10		10						fringing marsh	I
233	Lyons Creek	.5	70	.35	30	.15									point marsh	I
234	Mouth Lyons Creek	6	75	4.5	10	.6	5	.3	10	.6					point and cove marsh	I
235	Mouth Lyons Creek	.7	100	.7											island	I
236	Bennett Creek	.25	60	.15	20		10		5						point marsh	I
237	White House Creek	.6	30	.18	30	.18	25	.15	15						spoil behind fringing marsh	XII
238	White House Creek	.5	70	.35	25	.12			5						narrow fringing marsh	I
239	White House Creek	4.5	10	.45			40	1.8	50	2.2					q, s, u	IV
240	White House Creek	.5	85	.42					15						pocket marsh	I
241	White House Creek	1.3	85	1.1			5		10	.13					pocket marsh and fringe	I

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = *Saltmarsh Fleabane*
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = *Arrow Arum*
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mallow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort

Section VIII. Poquoson River. Part 3. Bennett Creek Area.

#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
242	White House Creek	2.4	50	1.2			40	1.	10	.2					pocket marsh with fringe	I
243	White House Creek	2	60	1.2	35	.7			5	.1					pocket marsh with fringe	I
244	Bennett Creek	.25	90	.22	10										fringing cove marsh	I
245	Floyds Bay	.75	30	.22	25	.2	35	.26	5						fringing marsh	XII
246	Floyds Bay	1.5	25	.37	30	.45	30	.45	5						pocket marsh	XII
247	Floyds Bay	.25	80	.2	10				10						pocket marsh	I
248	Floyds Bay	1	85	.85	5		5		5						pocket marsh	I
249	Floyds Bay	.75	80	.6			10		10						Jr, cove marsh and fringe	I
250	Floyds Bay	1	50	.5	30	.3	15	.15	5						point marsh	I
251	Floyds Bay	.5	30	.15	60	.3			10						island, fringing marsh	I
252	Upper Bennett Creek	52	40	20.8	40	20.8	15	7.8	5	2.6					Sb and k on old spoil banks	XII
	Subtotal Part 3	109		49.5		31		17.6		8.7						
	Total Section VIII	460		184.5		165.2		56.5		42.5		5.6		.15		

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleabane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mallow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort

Section VIII. Poquoson River. Part 2. Poquoson River Proper.

#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
	Subtotal Sec. VIII - Pt.2	151		85		9.2		25		23		5.6		.85		

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleabane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mallow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort

Section IX

Plum Tree Island Wildlife Refuge

Plum Tree Island Marsh is the largest saline marsh in lower Chesapeake Bay. The marsh acreage (4103 acres) was estimated from a large composite aerial photograph provided by the Department of the Interior and topographic maps. The different marsh communities are defined from the aerial photograph and substantiated by ground truth methods. The acreage determined here does not include upland vegetation, sand beaches, mud flats, sanitary landfill sites, spoil disposal areas or roads. The entire marsh system was judged to be a Mixed Brackish-water Marsh (Type XII). Saltmarsh cordgrass dominates the broad intertidal zone that surrounds the more elevated interior portions of the marsh. This part of the marsh is drained and flushed extensively by tides via small creeks and guts, thus providing the Chesapeake Bay, Poquoson and Back Rivers with large amounts of marsh detritus.

Much of the shoreline, other than the mouths of the various creeks, is dominated by sand beach. In certain areas however, eroded marsh edges are quite evident. A series of aerial photographs from 1937, 1953, 1959, 1963 and 1971 yield evidence that the marsh and beach interface is in a constant state of flux. These areas warrant further study and it is hopeful that research will be implemented by VIMS in the near future.

Much of the interior portions of the marsh are dominated by meadows (Saltmeadow Hay-Saltgrass) and by Black Needlerush.

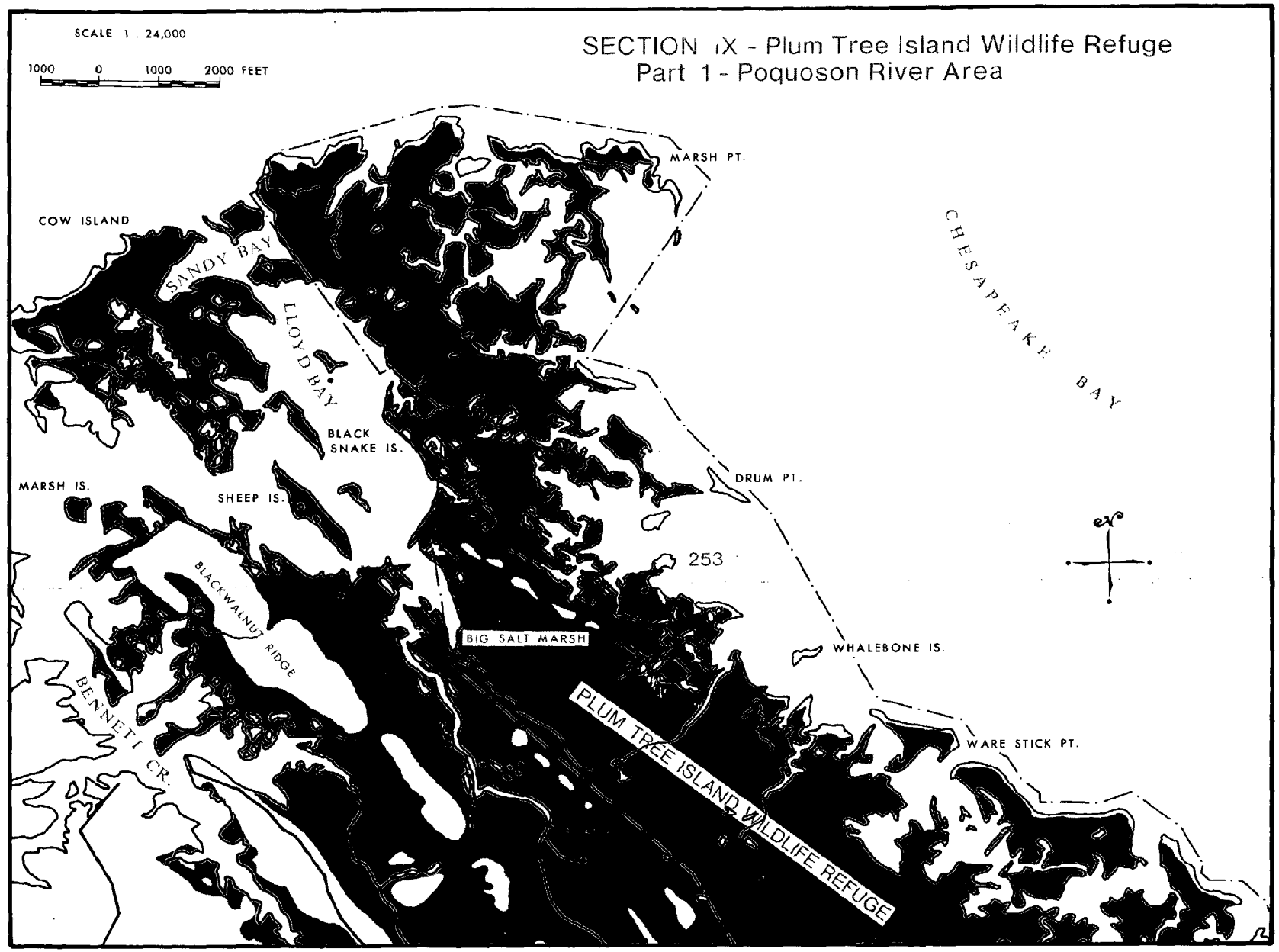
Several relic beach ridges form elongated pine hummocks, typically fringed with salt-bushes. The most extensive of these ridges is Blackwalnut Ridge which is a misnomer because the present wooded areas are dominated by Loblolly Pine. Some of the ridges and high portions of the marsh have been farmed and grazed as far back as the colonial period. Small fields and dwellings were evident in the 1937 aerial photographs. A large portion of the Plum Tree Island was used as a military practice bombing range. Many bomb craters and some unexploded ordnance were noted during field investigation.

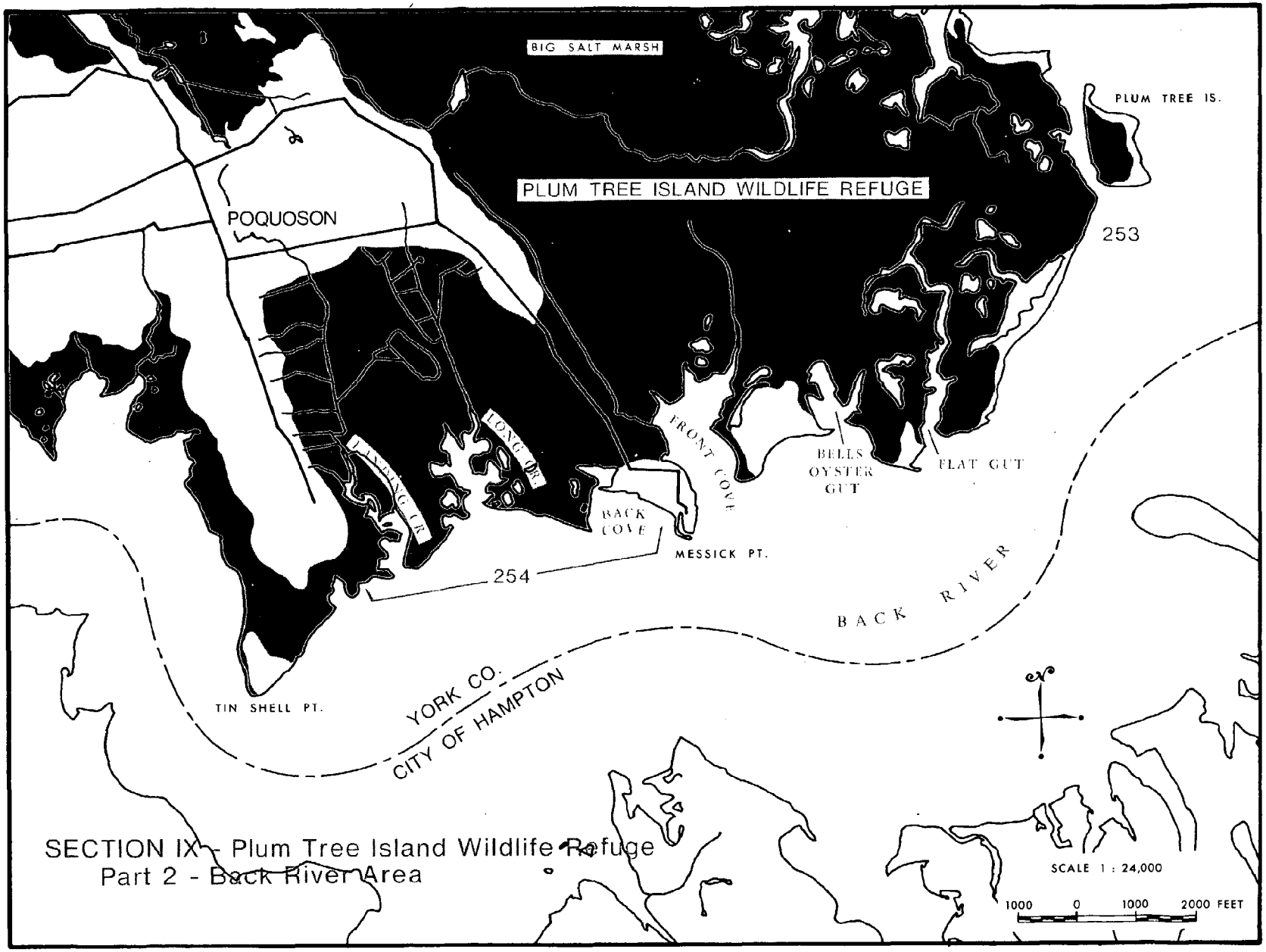
A large variety of waterfowl were observed during the six days of field investigation. Gulls, terns, herons, rails and egrets were the most abundant variety noted.

Old spoil banks along dredged canals now support extensive stands of salt bushes (Iva-Baccharis). These bushes appeared to be ideal nesting habitats for marsh birds. Raccoon scat was also noted along the banks of these canals. Some dredged spoil banks, especially those on Cow Island supported almost pure stands of Big Cordgrass. This large grass did not appear in

any of the undisturbed areas of the marsh.

Plum Tree Island is indeed a unique marsh system which should be protected from encroaching development. It has great potential as a natural history center for a growing nearby urban area. In this light, a system of open pile catwalks could accommodated visitors without the usual difficulties of marsh excursions. Here many types of habitats could be explored; sand beaches, shallow bays, marsh creeks, southern pine forests and of course the marsh itself.


SCALE 1 : 24,000
1000 0 1000 2000 FEET
SECTION IX - Plum Tree Island Wildlife Refuge
Part 1 - Poquoson River Area
MARSH PT.
COW ISLAND
SANDY BAY
LLOYD BAY
CHESAPEAKE BAY
BLACK SNAKE IS.
MARSH IS.
SHEEP IS.
DRUM PT.
253
BLACKWALNUT RIDGE
BIG SALT MARSH
WHALEBONE IS.
BENNETT CR.
PLUM TREE ISLAND WILDLIFE REFUGE
WARE STICK PT.



SECTION IX - Plum Tree Island Wildlife Refuge
Part 2 - Back River Area

Section IX. Plum Tree Island Wildlife Refuge Part 1: Poquoson River Area (Poquoson East Quadrangle)

#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
253	Plum Tree Is.	2944	31.2	920.5	16.6	489.4	39.8	1174	11.4	336	.8	24			see text	
				(253	continued in Part 2)											
						Section IX	Plum Tree Island Wildlife Refuge									
				Part 2:	Back River Area		(Hampton Quadrangle)								see text	
253	Plum Tree Is.	699	34.5	241.5	53.4	373.6	9.8	68.8	2.1	15.0						
	Total for 253	3643	31.8	1162	23.6	863	34.1	1 242.8	9.6	351	.6	24			b, c, g, h, k, q, s, sea oxeye	XII
254	Poquoson - Messick Marsh	460	40.6	187	32.4	149.5	11.5	53	12.5	57.5			2.8[g]	13.1	b, c, h, k, q, s, sea oxeye	XII
	Total - Section IX	4103		1349		1012.5		1295.8		408.5		24		13.1		

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleabane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mallow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort

Section X

Back River (Northwestern Branch) and Brick Kiln Creek

The rather extensive marshes in this section are characterized mainly as Meadow or Brackishwater Mixed Community types.

Many areas within the marshes have been subjected to fill, solid waste disposal, channelization and dredge spoil disposal areas. As the population in this area increases, further pressures of this sort can be expected.

Topping Creek for example, has undergone massive disruption because of dredging. Several marshes in the Brick Kiln Creek system have suffered from trash disposal. A large part of the marshes in the Cedar Creek system have been recently (Spring, 1974) burned.

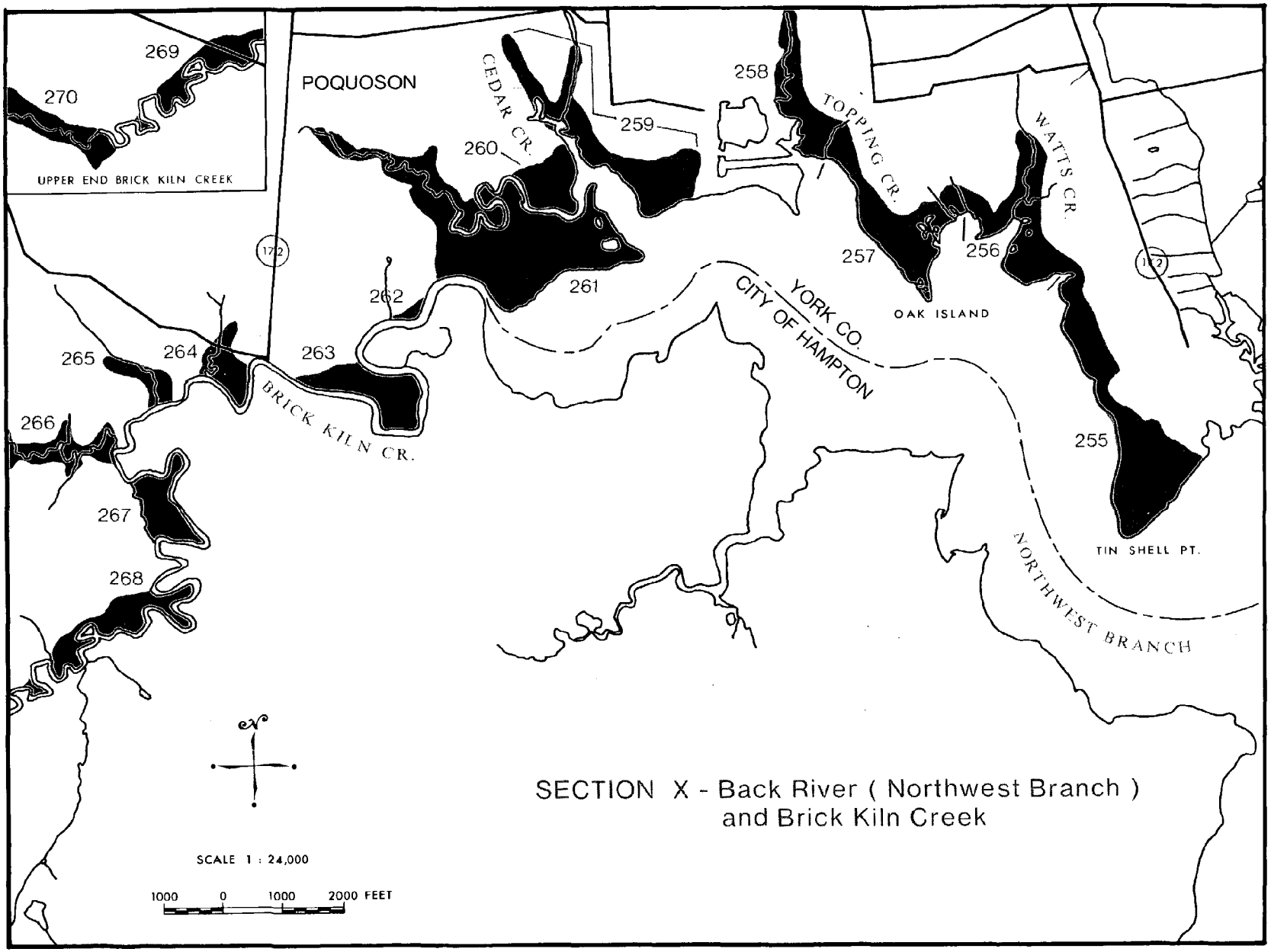
Despite these incidents of disruption the marshes remain productive as wildlife habitats, sediment traps and nursery and spawning grounds for fish. The upper end of Brick Kiln Creek was very active with carp when the site was observed.

The marsh vegetation at the very end of Brick Kiln Creek (# 270) is highly diverse, however its species composition is not typical of a tidal freshwater marsh. In the intertidal areas where one would expect to find broad-leaved species such as Arrow Arum and Pickerel Weed, instead are found spike rush (*Eleocharis obtusa*) and Mock Bishop-weed (*Ptilimnium capillaceum*). Also very prevalent are Marsh Mallow (*Kosteletskya virginica*) and Marsh Hibiscus (*Hibuscus moscheutos*) along the upland border.

An estimated percentage of vegetation for this marsh is as follows:

20%	Marsh Hibiscus/Marsh Mallow
20%	Spike rush
20%	Mock Bishop-weed
10%	Water Dock (*Rumex verticillatus*)
10%	Narrowleaved Cattail (*Typha augustifolia*)
10%	Saltbushes (*Iva* and *Baccharis*)
5%	Blackneedle rush
5%	Big Cordgrass (*Spartina cynosuroides*)

Because of the unique vegetation found in this marsh, more research is planned for this site.



SECTION X - Back River (Northwest Branch) and Brick Kiln Creek

Section X Back River (Northwestern Branch) and Brick Kiln Creek

#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
255	Tin Shell Pt. to Back Landing	79	40.2	31.8	45.5	36	9.3	7.4	4.3	3.8						XII
256	Watts Cr. Area	45	41.3	18.6	25	11.2	30.6	13.8	3.1	1.4					g	XII
257	Oak Island	50.2	51.8	26	18.3	9.2	24.7	12.4	5.2	2.6						I
258	Topping Creek	20	80	16			15	3	5	1					Jr, g	I
259	Cedar Landing Cedar Creek	37.5	40	15	26.6	10	26.6	10	6.6	2.5						XII
260	N. Side Cedar Cr.	45.5	21.5	9.8			57.1	26	21.3	9.7						II
261	S. Side Cedar Cr.	83.6	9.8	8.2	30.1	25.2	50.2	42	9.8	8.2						II
262	Brick Kiln Cr.	10			30	3	70	7							sa	II
263	Brick Kiln Cr.	32	10.3	3.3	35	11.2	35	11.2	19.6	6.3						XII
264	Brick Kiln Cr.	14			40	5.6	40	5.6	10	1.4	10	1.4			sa	XII
265	" " "	12	20	2.4			60	7.2	10	1.2	10	1.2				II
266	" " "	34	5	1.7	25	8.5	30	10.2	20	6.8	20	6.8			landfill	XII
267	" " "	18.4			40	7.36	40	7.36	10	1.84	10	1.84				XII
268	" " "	14			60	8.4			20	2.8	20	2.8				III

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleabane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mallow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort.

Section X (cont'd.) Back River (Northwestern Branch) and Brick Kiln Creek

#	Place Name	Acres	Sa %	Sa Acres	Jr %	Jr Acres	Md %	Md Acres	Sb %	Sb Acres	Sc %	Sc Acres	Other %	Other Acres	Observations	Marsh Type
269	Brick Kiln Creek	12	10	1.2	30	3.6	20	2.4	20	2.4	20	2.4			m	XII
270	" " "	10			(See	text)										
	Total Sect. X	517.2		134		139.5		165.5		52		16.4				
	Grand Total	6991.1		2656.2		1468.3		1797.3		579		217.6				

Sa = Saltmarsh Cordgrass
Jr = Black Needlerush
Md = Saltgrass Meadow
Sb = Saltbushes
Sc = Big Cordgrass
a = Saltmarsh Bulrush
b = Saltmarsh Fleabane
c = Saltmarsh Aster
d = Cattail
e = Marsh Hibiscus
f = Water Hemp
g = Switch Grass
h = Foxtail Grass
i = Arrow Arum
j = Pickerel Weed
k = Reed Grass
l = Olney Threesquare
m = Marsh Mallow
n = Saltmarsh Loosestrife
o = Smartweed
p = Wild Rice
q = Sea Lavender
r = Marsh Pink
s = Saltwort

COASTAL ZONE
INFORMATION CENTER

DATE DUE

NOAA COASTAL SERVICES CENTER LIBRARY
3 6668 14107 7059